

INTER-ASIA ROUNDTABLE 2012

Methodological and Conceptual Issues in Cyber Activism Research

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PREFACE

Asia Research Institute (ARI) is a purely academic institute, directly funded by the National University of Singapore. With its large number of researchers in Humanities and Social Sciences, and being at the crossroads of Asia, ARI is a very event-intensive institution. Annually, we organize approximately twenty-five to thirty conferences and workshops. The Inter-Asia Roundtable is one of ARI's annual events. Each Roundtable selects and focuses on an area of research that is emergent and/or that has potentially high impact in Asia. This particular Roundtable on cyber-activism is partly motivated by the events that have occurred and are occurring around the world and partly by the work of several individuals in ARI on social media, cyber-activism and other modes of Internet activism.

Cyber-activism covers a wide range of practices, from trivial to revolutionary—flash mobs to civil society organization, from hacking into government security systems to social revolution. Academic analyses of such activities, especially the ones with high social and political consequences, are episodic in character. They examine retrospectively the cyber activities, after the offline events had already taken place. However, historical-chronologically, some level of online activity would need to take place prior to the manifestation of an event offline; in the process of the event unfolding, of course, continuous online activities serve to amplify the event. This gives rise to several questions: Is it methodologically possible to analyze cyber-activism before it erupts in the offline world? What do we mean by a message going 'viral'? What density of cyber traffic must be reached before the message achieves 'viral' status? How do we conceptualize the processes from initiation of a posting in social media through its exponential circulation, amplification and accumulation of 'density' to the eventual materialization of a full blown event offline? Many of the descriptive concepts deployed in the analysis of cyber-activism are derived from medical epidemiology. What are the consequences of using epidemiological concepts/metaphors in our visualizations of cyber activity? Could any epidemiological model be formally applied to cyber-activism to achieve some level of predictability of realization of offline events? This Roundtable was an occasion to invite a selective number of active analysts of cyber-activism in its various modes to examine some of the methodological and conceptual questions embedded in their work, with comments and discussions provided by

hands-on cyber activists from different parts of Asia, in the hope of achieving some conceptual coherence and methodological rigor in this emergent field.

Chua Beng Huat

*Asia Research Institute and Department of Sociology
National University of Singapore*

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PANEL 1

EPIDEMIC BEHAVIOR IN NETWORKS

Hiroshi Sato
Masao Kubo
Takanaori Komatsu
& Akira Namatame

*Department of Computer Science,
National Defense Academy, Japan*

INTRODUCTION

Activities in cyberspace have two different points compared with the real world. First, actions can be more traceable than in the real world. When you access a server, almost all of your behavior is recorded. Many information companies like Google and Facebook are collecting tons of behavioral data from the people in cyberspace. “Big data” has been a common word for every businessperson who wants to use information technologies (IBM 2012).

Second, things can be done and disseminated much faster. The interaction through the Internet is almost free from geographical and time restraint, therefore, the things such as news, gossip, and computer viruses can be spread all over the world very quickly. Computer viruses can be spread throughout the Internet within few weeks and political movement of the people can be spread very quickly, like the Arab Spring (DSG 2011). We are living in a world where everything is connected. People are traveling around the world spreading diseases and financial transactions are made across the continent cascading the risk of crash.

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This paper advocates that an epidemic viewpoint is the key to cope with difficulties in cyberspace. Epidemic behavior has been observed everywhere since ancient times, but nowadays, right understanding of the epidemic behavior is more important than ever due to the rapid growth of the Internet. We consider the Internet activities from the viewpoint of epidemic behavior. The activities are formalized with SIR or SIS models.

Thus, the paper consists of two studies using epidemic models. First, we try to model the behaviors of participator on Bulletin Board System (BBS) in the Internet. By SIR model and some computer simulation, we show that the community size of the BBS including silent majority can be estimated just from the observations of the posting behaviors.

Second, we analyze the effect of the network structure for epidemic behavior because it strongly depends on the network structure. The structure of the Internet is very complex and it has distinctive properties. Using SIS model and evolutionary computation, we can find out the types of network structures that can be robust or fragile against cascading phenomena. We also find which properties are the key spreads of information.

THE DISEASE PROPAGATION MODEL IN EPIDEMIOLOGY

There are many disease propagation models in epidemiology because of the different propagation conditions. However, we adopt Kermack-McKendrick model and Reed-Frost model (Jacquez 1987) because they are much simpler and more general than others.

The Kermack-McKendrick SIR model gives the differential equations for a deterministic general epidemic (Krebs 2002). Let:

$$S(t) + I(t) + R(t) = N, \quad (1)$$

where $S(t)$, $I(t)$, and $R(t)$ are the number of Susceptible, Infected, and Recovered People, and “ N ” is constant. $S(t)$, $I(t)$, $R(t)$ are represented as follows:

$$\frac{dS(t)}{dt} = -\beta S(t)I(t), \quad (2)$$

$$\frac{dI(t)}{dt} = \beta S(t)I(t) - \gamma I, \quad (3)$$

$$\frac{dR(t)}{dt} = \gamma I(t), \quad (4)$$

where “b” is the infection probability and “g” is the recovery probability. Clearly, there is no direct transition from “S” to “R.” From epidemiology point of view, “b” is the number of people who are infected by a patient and it is necessary for $1/g$ unit time on average until a disease is cured (Nishiura 2006). Usually, in the case of a person-to-person disease infection, these parameters are estimated statistically. When “b” and “g” are available, the important information is given as follows. All the members of “S” are not always infected contagious by infection. The condition that an epidemic ends is given by $dI/dt = 0$. The solution is

$$I=0 \text{ or } S = \gamma / \beta. \quad (5)$$

In addition, as $R(0) = 0$, the number of people who were not contagious, $S(\infty)$, is satisfied as follows:

$$S(\infty) = S(0) \exp\left(-\frac{N - S(\infty)}{\gamma / \beta}\right) \quad (6)$$

WEB COMMUNITY ANALYSIS WITH EPIDEMIC MODEL

BACKGROUND

If you are managing a web site, you may want to know the number of accesses to your site in the future. Initially, the number of accesses per-unit time is calculated by the methods shown in Fujiki (2004) and Kleinberg (2002), because real log data is noisy. Next, by using this smoothed time series data, the number of future server accesses is estimated.

The simplest estimation method is “regression analysis.” A type of distribution—such as an exponential distribution and Gumbel distribution—is assumed a priori. This is simple, but it does not consider why people are accessing the service. Hence, for further analysis, a model is required that could explain why and how people are accessing.

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Gruhl et al. (2004) listed two candidate models for such human behavior, innovation propagation dynamics and disease propagation. They adopted the innovation propagation model because of their objective of time-order reconstruction of SNS sites. Therefore, the latter model was not examined.

We also think the latter disease propagation model from epidemiology is as reasonable as the dynamics of knowledge propagation. If people are interested in an event, such as the release of a new book, they will continue to search and make notes in their web pages, SNS, BBS, etc. Therefore, this will increase the chance that someone will notice the event. This seems similar to an infection by a disease. Then, with the proliferation of such pages and other descriptive material, effective pages that offer infected people convincing arguments will emerge. People who meet such definitive pages will stop their search and discussion about the event. We think that the above process mimics the infection/recovery dynamics of disease propagation models. Therefore, it is reasonable to ask if this propagation model is appropriate for explaining human behavior in the web community.

DATA

Compared to ten-years ago, it is now easy to collect data on the behavior of human groups because of the development of web-crawling agent technology and social-networking services. There are various communities with different cultures and subjects of interest. We think that it is important to choose the largest communities possible to maximize the generality of this discussion.

Therefore, we looked at BBSs (a.k.a. Internet forums) such as Slashdot and Google Groups for data analysis. As it is widely known, BBSs on the Internet are social networking services that offer the chances for communication and discussion only. When an individual submits an article to a BBS, it is influenced by other users of the BBS.

We chose the biggest Japanese open anonymous BBS, “2 channel” (<http://www.2ch.net/>.) This BBS includes more than six-hundred categories, and each category contains from one-hundred to five-hundred threads. It processes more than one-hundred million page views per day. Anyone, without special privileges, can access the same data that we acquired. The site is frequently used by other web researchers in Japan. We would expect that this is the most widely accessed BBS under present conditions.

For time series analysis using the SIR model, the starting time is important. However, this BBS is available 365-days per year, and anyone can post an opinion at any given time. Nevertheless, it is difficult to specify when a

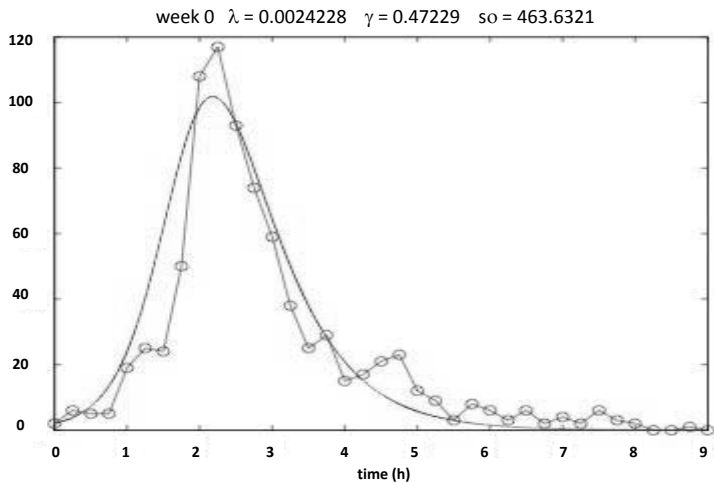
discussion actually starts. Gruhl et al (2004; 2005) identified two behavior types for SNSs by their cause: spike or chat. Spike refers to burst behavior by events outside the community. By contrast, chat is a burst based on a conversation within the community. For our purposes, we would like to pick a spike at the time when a known event happens. Therefore, we adopted a TV-program and its related BBS where participants talk to each other even outside the broadcast time. However, from newspaper information we know beforehand when the maximum external stimulus would happen, In addition, we can suppose that there will be no spike following the broadcast.

INTERPRETATION OF BBS DATA BY THE SIR MODEL

Here, we assume that “Susceptible” means a person who is interested in the TV-program. A person who has a strong opinion to post to the BBS, corresponds to get “Infected.” A “Recovered” person leaves the BBS, being no longer interested in the topic. Therefore, we aim to minimize the RMS difference between the log data of the number of posters and the “Infected” group, as calculated using *Eq. (3.)*

We counted the number of posters every fifteen-minutes from 9 P.M., 10 January 2007 – 6 A.M., 11 January 2007. The program started at 10 P.M. and finished at 11 P.M. In Japan, this program was famous and in general over eighteen per cent of households watched it. The zigzag line of *Figure 1* indicates the logged data. The x-axis indicates the time sequence and each tick is an hour. In this figure, the TV-program starts at $x = 1$ and ends at $x = 2$. Note that there is a big burst with a small drop around $x = 1.5$. We think this is reasonable because posters will also want to watch the program.

Figure 1. Posting Data from BBS (10 January – 11 January 2007) and the Fitting Result for the SIR Model



The smoother line of *Figure 1* represents the fitting result of the SIR model using Matlab. It seems that this fits well. The resulting estimate for the triple $[S(0), b, g]$ is $(463.6321, 0.0024228, 0.47229)$.

Figure 2 shows the progress of “S,” “I,” and “R.” The “I” in *Figure 2* is the same as the solid line of *Figure 1*. If our assumption of Section 34.2 is valid, this offers the following insights about the community: (1) about 464 persons came to this BBS, (2) about 400 people left, and (3) 60 people still enjoy the community. This third point suggests that the broadcast and the surrounding discussion in this BBS enlarged its community by about sixty people.

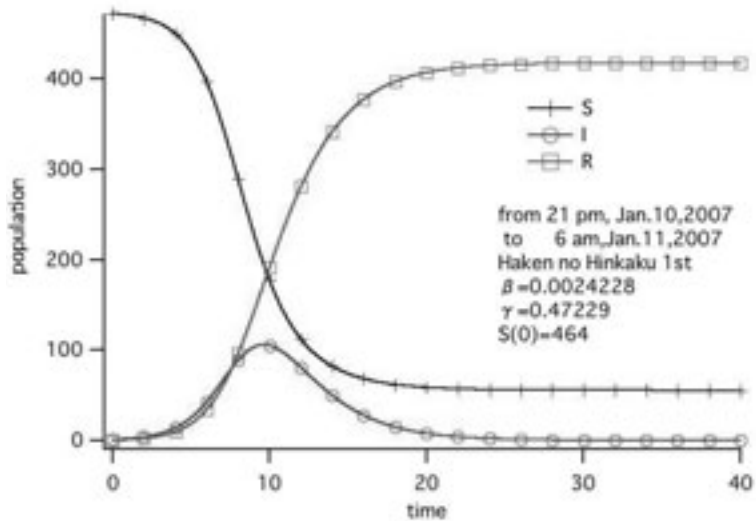
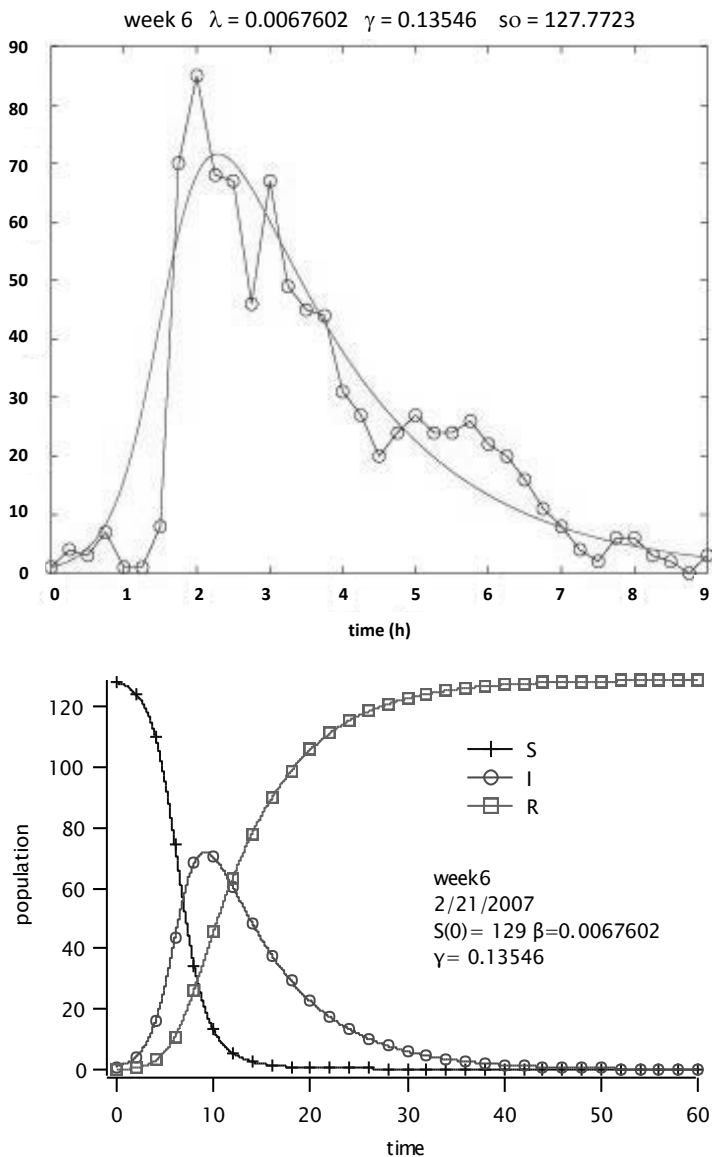
Figure 2. The Resulting Behavior of SIR (0 January - 11 January 2007)

Figure 3 shows the results for another week (9 P.M., 21 February 2007.) This curve also fits well to the week's data. The estimated is smaller than that for the earlier week, with posts continuing longer than the period of 10-11 January period.

**Figure 3. The Fitting Results for Another Broadcast
(21 February and 22 February 2007)**



DISCUSSION

In this paper, we validated the disease propagation model as a model for explaining human behavior in a community. We used curve-fitting techniques to understand how reasonable this idea is.

We adopted the Kermack–McKendrick version of the disease propagation model and applied it to the posting data of a BBS. The characterizing triple ($S(0)$, b , g) for this model was estimated by RMS minimization and hill climbing in Matlab. As shown in Figures 1, 2, and 3, the SIR model fitted well and gave new and insightful information.

This approach has the following attractive aspects. Firstly, the model can estimate the total community size, namely $(S + I + R)$, which regression analysis via a statistical distribution cannot achieve. Secondly, it is easy to understand the behavior intuitively, with the propagating speed being “ β ,” and the durability of conversation seeming to be “ γ .” We hope it will ease the management of server resources, with Eq. (5) and Eq. (6) describing the population dynamics of each community.

Note that in previous section, we proposed understanding the logged data of BBSs in terms of an epidemiological propagation analogy. In that we assumed that people join the BBS to post. In actual BBS communities, there are many “lurkers,” and Naruse (2006) estimates the total community size including lurkers. However, we think the analogy remains reasonable because the driving force of a BBS is undoubtedly the group of people who want to post.

The unique point of this analogy is that it deals with migration among communities. “ S ” and “ R ” represent the population outside the observing BBS community. We think these estimates justify evaluating the non-linear differential equations because this information is expensive even if you are able to access it.

The proof that the assumptions above are correct is very important and an urgent task for us. We think that Agent-Based Simulation (ABS) is a powerful tool for SSME (Rahmandad 2004). As it is known by many, one definition of “engineering” is that it is a methodology for obtaining desirable results. However, in a service industry, it is sometimes difficult to test a new method. In such cases, the agent simulation approach is one that is both pragmatic and meaningful. It is possible for this bottom-up simulation methodology to use a set of programs that behave like participants using the service. As tastes vary, we could use a variety of agents, with carefully chosen parameters. In our case, verification of posting article behavior of clients is required because this component is out of focus of any disease propagation model.

EPIDEMIC PROCESS AND NETWORK STRUCTURE

BACKGROUND

In recent years, motivated by applications for marketing, epidemic study in networking is not only used for predicting how well the new product or innovation will be adopted, but also used for optimizing network for spreading/extinction. For example, many corporations create special portal-sites or fun-sites to improve networking and sharing of ideas when they produce new products. Such websites create a word-of-mouth community, consisting of people who are adopters for same products regardless of their real location.

In this paper, we view the information propagation as a dynamical birth-death process with self-recovery using the SIS model, as follows:

$$\frac{dS(t)}{dt} = -\beta S(t)I(t) + \gamma I, \quad (7)$$

$$\frac{dI(t)}{dt} = \beta S(t)I(t) - \gamma I. \quad (8)$$

An informed agent propagate the information to adjacent agent “j” in a single-step with probability “b,” while at the same time an informed agent may forget or lose interest with probability “g.” The ratio of the two factors b/g is defined as the relative diffusion rate of the contact process.

Since a long time, consciously or unconsciously, people try to find optimal network topologies for diffusion of products or information. As a result, in our life, there are many types of network topologies, such as hierarchical or scale-free networks. We are motivated by this demand to get good network for diffusion. This section investigates what kind of networks is good for diffusion based on the contact process by many agents.

In many diffusion process studies, agents are represented by nodes (or vertices) and communications between nodes are represented by links (or edges.) In any graph (or network) “G” can be represented by its adjacency matrix, A(G), which is a real symmetric matrix. The element of a matrix A(G) in the “i-th” row and the “j-th” column is expressed as a_{ij} . If $a_{ij} = 1$ node “i” and node “j” are connected, and $a_{ij} = 0$, if these two nodes are not connected.

Adjacency matrix is often used as a good tool to manipulate and investigate the networks.

The spectrum of a graph is the set of eigenvalues of A (G.) Wang et al. (2003) suggest the maximum eigenvalue of the adjacency matrix is closely related to the spreading power on networks. The network with a larger maximum eigenvalue helps to improve the dissemination within a network. However, the spectrum of network does not decide network topology, thus we should know optimized network topology for diffusion.

The diffusion process by probabilistic model is we denote the probability that agent “ i ” being aware of the information at time “ t ” as $p_i(t)$. The column vector $p(t) = (p_1(t), p_2(t), \dots, p_N(t))$ represents the set of awareness probabilities of the whole agents in the population. The transition of the awareness probabilities are described as:

$$p(t+1) = (\beta A + (1-\gamma)I)p(t) \quad (9)$$

where “ I ” is a $N \times N$ identity matrix. The long-run behavior of the above system is determined by the structure of the system matrix, $S = \beta A + (1-\gamma)I$. Wang et al. (2003) proved that the spectral of the system matrix “ S ” (the distribution of eigenvalue of “ S ”) is closely related to the spectral of the adjacency matrix “ A ,” and we have Eq. (10).

$$\lambda_i(S) = \beta \lambda_i(A) + 1 - \gamma, \quad i = 1, 2, \dots, N. \quad (10)$$

where $\lambda_i(S)$ is the “ i th” maximum eigenvalue of the system matrix “ S .” The maximum eigenvalue is denoted as $\lambda_1(S)$ which is also called the principal eigenvalue of the system matrix. The eigenvalue of the system matrix “ S ” can be explained by the eigenvalue of adjacency matrix “ A .” If the $\lambda_1(S)$ satisfies of Eq. (11), $p(t)$ in Eq. (9) converges to the zero vector,

$$\lambda_1(S) < 1. \quad (11)$$

From Eq. (10) and Eq. (11), we obtain a relational expression in Eq. (12), which is if the inverse of $\lambda_1(A)$ is greater than the relative diffusion rate β/γ , then $p(t)$ converges to the zero vector,

$$\frac{\beta}{\gamma} < \frac{1}{\lambda_1(A)} \quad (12)$$

From Eq. (12), the diffusion process is characterized as the threshold phenomenon, and the diffusion process start if the relative diffusion rate β/γ is greater than the threshold $1/\lambda_1(A)$.

Therefore, there are two strategies to accelerate diffusion through a society. One way is exploiting the network topology “G” to increase maximum eigenvalue. Another way is promoting the information to have the relative high diffusion ratio β/γ .

FINDING OPTIMAL NETWORK USING EVOLUTIONARY COMPUTATION

We take two factors into consideration to design optimal networks. One is the maximum eigenvalue of the associated adjacency matrix. This factor determines a threshold for diffusion on the network. The diffusion process will start at lower relative diffusion rate (β/γ) on the network with large maximum eigenvalue. The other factor is the number of links. In many cases, the network with a lot of links has a good performance. For example, in the case of the airway network, if every airport is directly connected by an airline, travel time will be reduced drastically. In the case of the computer network, if every host is connected directly by a communication link, the congestion may not happen.

However, these situations are not realistic since the resources for network is usually finite in many situations. The number of links usually represents the link cost for designing an optimal network.

Therefore, we evaluate a given network by maximum eigenvalue $\lambda_1(A)$ with average degree $\langle k \rangle$, which is associated with the number of links L ($\langle k \rangle = 2L/N$, where “N” denotes the number of nodes.)

We define the fitness function to minimize as follows:

$$E = \omega \frac{1}{\lambda_1(A)} + (1 - \omega) \frac{\langle k \rangle}{N - 1}, \quad (13)$$

where $\omega (0 \leq \omega \leq 1)$ is a parameter controlling the linear combination of the inverse of $\lambda_1(A)$ and $\langle k \rangle / (N - 1)$. The minimization of “E” means the maximization of the largest eigenvalue as well as the average degree. Here, we are interested in only the connected graph, the average degree of the network

$\langle k \rangle$ has a value from $2(N-1)/N$ to $N-1$. To make a balance of the range of value between two-terms in Eq. (13), the average degree is normalized by $N-1$.

We obtain an optimized network by using GA MGG (Sato 1997). The object of our design is to make a network which has large maximum eigenvalue with small number of links which we regard as costs to make network. In other words, we want to discover a new network topology, which has larger maximum eigenvalue comparing to other network topologies which have the same number of links.

The “GA” is a meta-heuristic algorithm. We use the adjacency matrix of the network as chromosome. The parameter on GA MGG is shown in Table 1. In this way, we design optimized network for diffusion process by varying parameter $\omega (0 \leq \omega \leq 1)$ on Eq. (13.) Table 1 shows other parameters of genetic algorithm.

Table 1. Parameters for Genetic Algorithm

Genetic Algorithm Model	Minimal Generation Gap
Population Size	100
Offspring Size	100
Objective Function	Eq. (13)
Crossover	Uniform Crossover
Mutation	Not Used
Selection	Elete Selection Strategy
Number of Evaluation	Over 600,000

TOPOLOGICAL PROPERTIES OF EVOLUTIONARY OPTIMIZED NETWORK

Figure 4 shows the comparison of the maximum eigenvalue between optimized networks using “GA” by changing “ w ” in Eq. (13) (we plot the average value over 10 run.) Random networks and scale-free network with same and similar average degree and optimized network has much larger eigenvalue as compared to those of random networks and scale-free networks.

Let “ T ” be the ratio of maximum eigenvalue of optimized network $\lambda_{optimized}$ optimized to that of random network λ_{random} random which has same average degree, as shown in Eq. (14):

$$T = \frac{\lambda_{optimized}}{\lambda_{random}}. \quad (14)$$

At $w = 0.3$ in Eq. (13), the optimized network has 4.8 average degree and the highest ratio $T = 2.8$, as shown in *Figure 3*. It means at $w = 0.3$, our GA method provided the most meaningful result compared with other conditions, in terms of a network with larger maximum eigenvalue.

Figure 4. Maximum Eigenvalue vs. Average Degree for GA-constructed Networks, $w = (0.1, 0.2, \dots, 0.9)$, for Random Network with the Same Average Degree, and for a Scale-free Network (Average Degree 5.96)

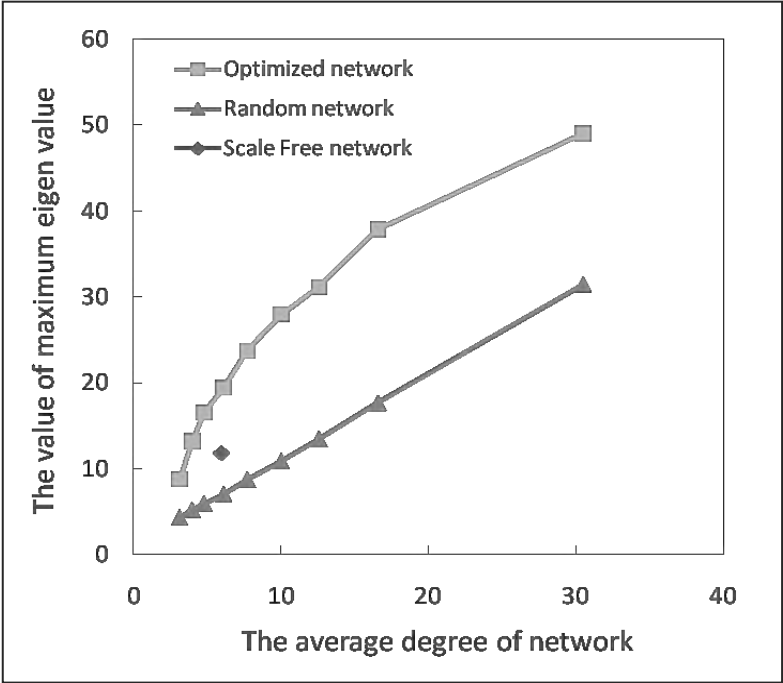
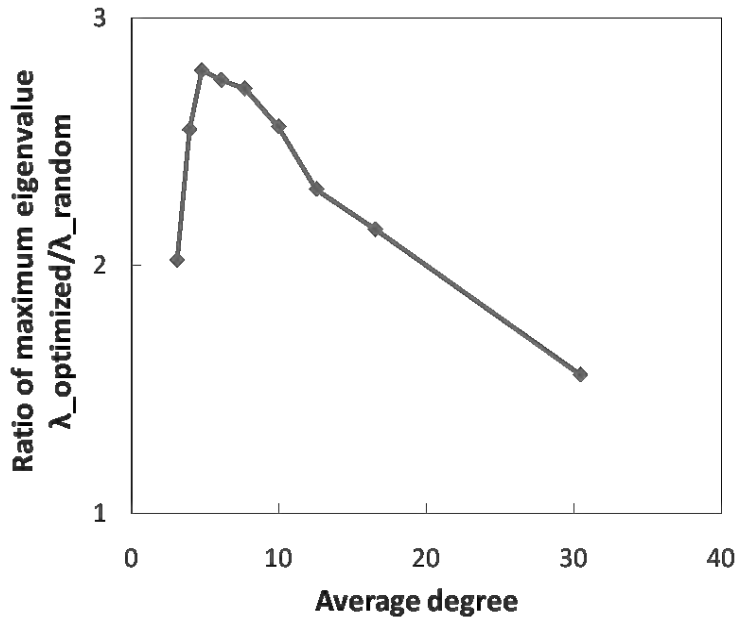


Figure 5. Ratio “T” of Maximum Eigenvalue of Optimized Network to Random Network with the Same Average Degree



Thus, we have a new question: “What kind of topology does our GA method produce as best?” In other words, the question is “How nodes in optimized network are connected by links?” We show some insights to answer this question.

Figure 6 shows a visualization of the optimized network topology at $w = 0.3$ in Eq. (13). It is a basic method to understand how nodes are connected by links. However, we cannot see the structure of the network from *Figure 6*, since there is very dense core in optimized network.

Figure 6. The Snapshot of Optimized Network (300 nodes, 716 links)

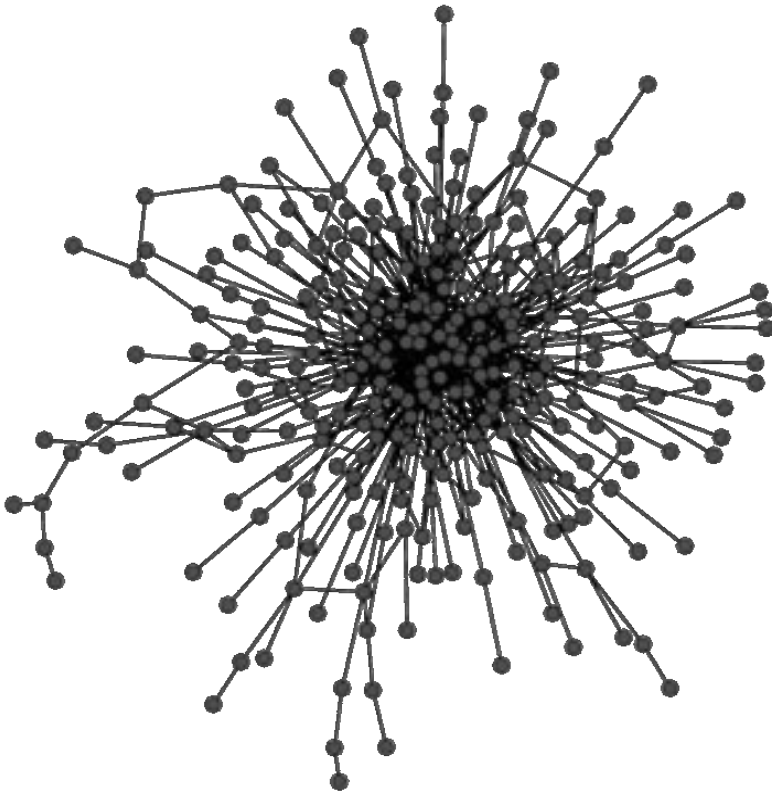
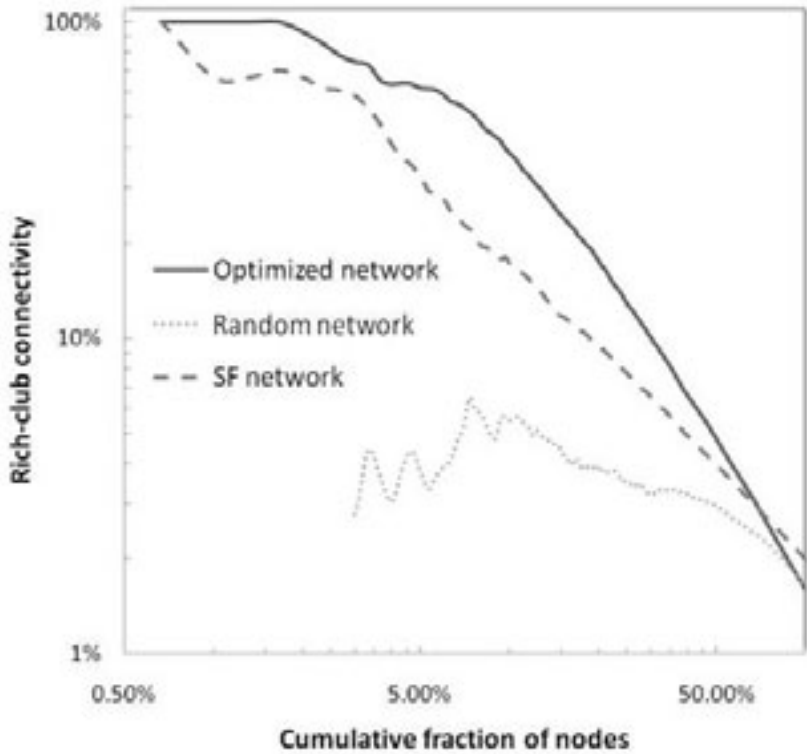


Figure 7 shows the rich-club connectivity (Zhou 2004). The rich-club connectivity is characterized by the inter-connection between hub nodes. It gives us good insights to understand network topology. In this paper, we obtained rich-club connectivity as follows:

In Zhou's (2004) paper, nodes are divided to groups by the same number of links and it looks at inter-connectivity between groups. However, in this paper, nodes in the network are sorted by decreasing number of links that each node contains and looks at inter-connectivity between nodes. The node rank " g " denotes the position of a node on this ordered list. " r " is normalized by the total number of nodes " N ."

Figure 7. Rich-club Connectivity of Networks

The rich-club connectivity $\phi(r)$ is defined as the ratio of the total actual number of links $L(r)$ to the maximum possible number of links between members of the rich-club [$n(r)$ nodes] as shown in Eq. (15):

$$\phi(r) = \frac{L(r)}{n(r)C_2}. \quad (15)$$

Figure 7 shows the rich-club connectivity $\phi(r)$ against cumulative fraction of nodes “ r ” on a log-log scale. As shown, rich nodes of the optimized network by GA are very well-connected between each other. The top 10 per cent rich nodes in optimized network have 38.6 per cent of maximum possible number of links,

compared with $(r = 10\%) = 17.2$ per cent in the scale-free network, although it has 178 more links than the other network and only $(r = 10\%) = 5.5$ per cent of random network.

CONCLUSION

In this paper, we show that the epidemic model can describe many situations in cyberspace. First, by SIR model and some computer simulation, we show that the community size of the BBS including silent majority can be estimated just from the observation of the posting behaviors. Second, by SIS model and evolutionary computation, we can find out what kind of network structure can be robust or fragile against cascading phenomena. As mentioned above, we can collect many footprints in cyberspace now. With the correct knowledge of structure of the cyberspace, we can make good simulation tools that can predict the behavior and can find the way to escape from the catastrophe.

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DISCUSSANT NOTES

EPIDEMICS AND THE INTERNET: A VIEW FROM THE OTHER SIDE

Alex Cook

*Saw Swee Hock School of Public Health,
and Department of Statistics and Applied Probability,
National University of Singapore; Program in
Health Services and Systems Research,
Duke-NUS Graduate Medical School Singapore*

OVERVIEW

My background is in biostatistics and mathematical modeling of infectious diseases, and this discussion of the paper by Sato et al. will reflect my experience in those areas. I have endeavored to make the presentation as straightforward as possible, to make it easier for non-specialists to follow. The discussion has four sections. The first two are based on case studies of the connection between epidemics and the Internet. In the third section, I will discuss Sato's work and give a critique of some of the issues with it, and in the fourth section I will outline my thoughts on the prediction of epidemics.

WORLD OF WARCRAFT

The first section of the discussion may seem somewhat bizarre. The World of Warcraft is an online computer game (which I have never played and my description is based on the literature on this game: especially Lofgren & Fefferman 2007; but see also Bainbridge 2007; Peters & Malesky 2008; Pawlikowski & Brand 2011). September 13, 2005, was to be an exciting day for the World of Warcraft.

The company that produces this game had opened up a new dungeon called *Zul’Gurub* with its new “end-boss” (i.e. a powerful monster in-charge of the dungeon) known as Hakkar. Experienced players, who had developed strong alter egos within the game, were the target audience of this dungeon. In physical appearance the monster was larger than the players’ characters in the game, and had special powers. One such power was that the players in the dungeon could be infected by an infectious disease called *corruptive blood*, which would gradually kill them. Less experienced players were killed very quickly by this disease, though it should be recalled that the dungeon was designed for more experienced players. The infection could spread from one player to another, and from one player to their attendant pets, and the infection could only be ended by leaving the dungeon through the exit to the rest of the game world.

Unfortunately, the company that developed this game (Blizzard Entertainment) did not properly field test the dungeon in general, and the corrupted blood infection in particular. If the players *teleported* out of the dungeon, as was possible in this game, they were not cured on leaving the dungeon. Instead, they took the disease with them and could spread it to other players. Unfortunately, this is exactly what transpired.

There were strong parallels with real infectious disease outbreaks. The monster was the original source of the infection. He spread it to the characters who entered the dungeon and subsequently took it out of the dungeon and infected other people. Some characters, controlled by the computer, representing shop keepers or similarly unglamorous roles, were essentially asymptomatic carriers, able to spread the disease to other people without being killed (or developing symptoms).

The outbreak provoked a series of responses by the players. Some played the role of doctors and attended to other people who were sick and nursed them back to health. Unfortunately, this did not cure the actual infection, and instead merely prolonged the epidemic. Others who were not in-game doctors would act as policeman, giving directions and cordoning off infected areas.

Eventually, the big cities in the game were abandoned, and all that was left were skeletons along the roads. The designers of the game implemented a voluntarily quarantine policy and asked the players to stay away from afflicted areas, for example. The magnitude of this event should not be underestimated. World of Warcraft is a very big game among people who do dungeons and dragon and related activities, and at that time there were two-million paying subscribers (it is now closer to six or seven-million according to Wikipedia. In other words, World of Warcraft has more citizens than Singapore). As a consequence, the outbreak made several major news outlets, alongside screenshots of the virtual skeletons of people who had died from the outbreak. Reuters described “city streets literally white with the bones of the dead,” whereas the BBC covered it in the “science and technology” section. Similarly, some articles were also published in *Science* magazine.

Now, the mayhem that was caused in this game parallels a lot of actual outbreaks. The biggest and the most deadly outbreak that has ever hit humanity was the “Spanish-flu” pandemic during 1918–20. The pandemic killed between twenty and a hundred million people, i.e. more than the number of people who died from the First World War, the end of which it precipitated, as the two armies were no longer able to fight due to the epidemic. What was especially worrying in the Spanish-flu pandemic was that unlike normal, seasonal influenza which tends to kill the elderly, the mortality rate among young adults was high. To prepare for outbreaks, such as Spanish-Flu, and to try to mitigate the damage they might cause, epidemiologists develop models of disease spread, in order to perform *in silico* experimentation to develop and assess control policies. For instance, would closing schools slow an emerging influenza pandemic long enough to develop and roll out a vaccine? One issue is that these models struggle to incorporate human behavior. Probably the world leaders of mathematical modeling in infectious diseases are the Imperial group (Ferguson et al. 2006), who have a model of three-hundred million agents, each with a home and potentially a work or school, with connections between agents who share locations. Using this, the progress of an epidemic in the U.S. under various scenarios can be simulated. The agents in that kind of simulation are, however, very simple, and so models like this struggle to account for behavior. Lofgren and Fefferman (2007) write, in their summary of the World of Warcraft outbreak:

Computer simulation experiments attempt to capture the complexity of a functional society (...) using large amounts of computing power to generate realistic virtual societies in which agents (autonomous entities governed by the rules of the simulation) perform programmed

actions based on incredibly detailed research of real-world behavior under non-outbreak conditions. However, they are programmed, by necessity, using these non-outbreak data.

How important is behavior in the spread of disease? Gaëtan Dugas was a well known Canadian air-steward, who died at a young age from AIDS. He was homosexual and because of his job, and his attitude to life, had a large number of sexual partners across North America. Reportedly, by the time of his death, he had had sex with 2,500 sexual partners, and had boy-friends in every city he flew to. As a result, he has been labeled as “patient zero” for AIDS in North America (Auerbach et al. 1984). The label of ‘patient zero’ has been noted as being unfair, given the presence of HIV in all those locations (Gilbert et al. 2007), but nevertheless, this one individual’s behavior certainly contributed markedly to the spread of the disease, perhaps hastening its spread by several years. Given that one man’s behavior can have a large overall impact on the spread of HIV in North America, we (the modeling community) would hope that if behavior can be better characterized we could develop better models and thereby better understand how to prevent or mitigate outbreaks.

Coming back to the corrupted blood incident, it should be reiterated: that it was an outbreak in a virtual world and not in real life. Hence, some players deliberately got infected so that they could have fun in spreading it to others. Since the rule of the game was that one can be reincarnated, and so the death of one’s alter ego was not comparable to one’s own death, there were no long term consequences for a character being infected. As a result, people did *not* behave the way they would in a real epidemic, risky behavior was not disincentivized, and in the end, the outbreak could only be halted by the computer company by switching-off the server. Unlike with Facebook and Twitter, where data can be archived, in this case no data on the outbreak were recorded because it required a huge amount of computer memory to record the activities of players. Hence, there is nothing quantitative we can learn from the outbreak.

GOOGLE-FLU TRENDS

The second case study I wish to mention in the context of infectious diseases and the Internet, is Google, in particular Google-flu trends. Around five-years ago, Google had the idea that they could use their (massive) database on search queries, to look for predictors of influenza outbreaks (Ginsberg et al. 2009). The rationale is that many people with influenza infections might not be picked up by traditional surveillance—sentinel general practitioners, electronic medical

records of primary care chains, virological testing of randomly selected individuals with influenza-like illness—and instead might search online for specific terms, such as “fever.” Hence, they used a database of the fifty-million most common search terms to predict influenza like illness (ILI) data gathered by the U.S. Center for Disease Control and Prevention (CDC).

ILI are counts of consultations in which you present an acute respiratory infection (for instance, a cough and a sore throat) and fever. Normally, influenza is not tested for in general practice as being able to distinguish influenza from rhinovirus or other causes of “the cold” does not improve patient care. Instead, the diagnosis of ILI, which has poor sensitivity and moderate specificity, might be made and the patient may be given anti-pyretics in addition to any other medication. The US CDC collates these ILI data and uses them to monitor overall influenza activity.

In a much cited paper, researchers at Google used machine learning techniques to predict these ILI time series given fifty-million time series of search terms (Ginsberg et al. 2009). They found that they could get optimal predictions with a combination of forty-five predictors, though they never released what those predictors were¹. They obtained very close correspondence between their predictions and the actual out-of-sample data, ostensibly suggesting that Google searches could supplement (or even replace) some forms of traditional surveillance.

This is a situation in which the Internet could be used to understand an infectious disease and try to predict the future of an outbreak. But, does it really work? A follow-up paper (Cook et al. 2011), reports an analysis of how Google-flu trends performed during the 2009 H1N1 pandemic, which happened in the middle of the year, an unusual time for the Northern hemisphere to experience influenza. They found that Google-flu trends does not predict at all. So while its performance was reasonable at routine influenza predictions it cannot predict outbreaks under novel conditions.

Another paper which came out recently (Ortiz et al. 2011), showed that Google-flu trends is not very good at predicting actual influenza (as opposed to influenza like illness). From my own research (Cook et al. 2010), here in Singapore, when we look at Google search data for influenza, H1N1 or Chinese equivalents using Google Insights for Search (now, Google Trends), we see spikes that correspond to newsworthy events. However, after the initial media interest was faded, the outbreak took off, and we see that search queries and

¹ I cannot help but wonder if they found search terms like “Britney Spears” to be predictive of ILI and were embarrassed to publicize it.

actual disease are not correlated. The number of searches is a mere reflection of the interest, and not necessarily of the underlying disease.

DISCUSSION OF SATO ET AL.

The two case studies I introduced above indicate that we should be skeptical about treating events on the Internet as a proxy for events in real life, offline. However, Sato and colleagues are trying to do the opposite; in other words, they are trying to address the question: Can we use models of real life, on the Internet? In their first example, of a popular Japanese TV program, *Haken no Hinkaku*, they question whether they could use epidemic models to predict the interest levels on discussion for high profile media events.

To discuss this, I am going to reintroduce the susceptible-infected-removed (SIR) epidemic model, as there are few things that could be clarified in the description by Sato et al. The SIR model is a model for a closed population, i.e. a population of some fixed size, and each one of whom belongs to one of the three classes: *Susceptibles (S)*, who do not have the disease but may contract it; *Infectives (I)*, who are infected and infectious; and *Removeds (R)* who have recovered (and are now immune) or are dead and will not spread it to others. In the current context, these are potential posters, active posters, and those who have given up and gone to sleep.

Individuals progress from *S* to *I* to *R*, though some never leave the *S* class. For a new disease such as pandemic influenza, everyone starts in the *S* class as no one has any immunity. The most basic model assumes that each individual's risk is proportional to the number of infected people. In Sato's paper, the rate was equivalently described at a population level, i.e. the infection rate for the whole population depends on the number of people who are susceptible and infected. It is, however, conceptually simpler to think of the per capita risk of infection.

A very important assumption that is often, but not always, justifiable is to consider that the risk is linear in the number of other infected individuals. These kinds of models are used for real life epidemics, and they often do a very good job in explaining and predicting data. In my own research (Ong et al. 2010), we fitted a slight generalization of the SIR model to include data on influenza-like illness consultations from over twenty General Practitioner (GP) clinics, who would forward the number of patients with ILIs who consulted them that day. The model was fitted using some complicated techniques, and the predictions match the eventual data very closely. Predicting the total number of infections, something these data do not directly provide information on, is also possible

with this modeling approach, and the final prediction matches very closely to large serological studies. Those studies estimated this attack rate at the end of the epidemic, by quantifying the rise in antibody levels after a baseline sample was taken. In other words, by constructing and parameterizing the model using live data provided information in real time much faster and cheaper than many traditional methods.

Now let us return to the assumptions underlying this model. We assume the population is closed, without people coming in or going out, an assumption which is reasonable for a short-lived influenza pandemic. We also assume the risk of infection is proportional to the number of people who are currently infected, and that the risk per susceptible-infected pair does not change with time, although the number of infectives would change. No other time effect is present in the model. We also assume no clustering, no spatial structure, and that individuals can only be infected once and then become immune for the rest of the outbreak.

In Sato's analogous application, the number of people currently active in posting at some time, corresponds to the number of infected in the model. Here, the number of people who have left the forum and are no longer taking part in the discussion corresponds to those removed from the SIR model. Hence, the model assumes that the proclivity to post is proportional to the number of other people posting. However, it is not clear that it is a valid assumption. The proclivity to post probably increases the more active the board is, but critically, it must also be a function of time. In the original manuscript, Sato et al. acknowledge this, noting that the number of posters is lower during the show than predicted by the model. From their depiction of the data, it appears people are more likely to post soon after the show when many people are posting, at the time the viewer is active and not too tired. However, around midnight a lot of people seem to stop posting. So even if other people are still posting you may not want to post anymore because of fatigue. Therefore, your posting proclivity should not be just proportional to the number of other active posters, but should also include time as a factor.

There are some other model issues here. Recording individual-level data would have added considerable statistical power, as it would have allowed information on when posters join and leave the board and could have tested the assumption of exponential periods on the board, as well as other assumptions underlying the model. There is currently no demonstration of sample predictive performance, nor information or justification as to why the community members are all present from the beginning of the study period. Similarly, it is well-known from the epidemiological literature that total population size cannot be estimated simply by using an SIR model and data

alone. I believe a better approach would adopt another function form with a small number of parameters for typical posting patterns, and estimate the model via a hierarchical framework to pool information from other related data instead of an epidemiological model.

Sato et al. also discuss the idea of epidemic networks. Networks are important for infectious diseases—but only for some. They are probably not really important for influenza because a lot of influenza transmission happens when you are in the MRT or in some other contact with strangers, and not routine contacts. But for some diseases, networks are very helpful in understanding how a disease would spread: for example, sexually transmitted diseases. One of the most famous real life networks (Bearman et al. 2004) comes from a school (operating under a moniker to protect the anonymity of participants), which describes the romantic network and not the actual sexual network (though many romantic bonds may also have been sexual). This network provides important intuitions about how networks may propagate disease. Sato et al. present a picture, rather difficult to visualize, of the optimal network to spread disease. Using simulation, they present an optimized network, but it has no rules to guide how to structure it, or intuition to understand it.

Because this is based on the idea that changing a network to facilitate disease spread quicker I do not think it has much relevance for epidemics outside internet where interest might be on propagating an idea rather than preventing it.

LESSONS FROM EPIDEMICS ABOUT FORECASTING ‘OUTBREAKS’

There are known knowns; there are things we know that we know.
There are known unknowns; that is to say there are things that,
we now know we don't know But there are also unknown unknowns –
there are things we do not know, we don't know.

—Donald Rumsfeld, 2002

Can you try to predict outbreaks? One of the most important characteristics of any mathematical model is a variable called R_0 , the basic reproduction number, interpreted as the average number of secondary cases caused by one primary case in a population which has never had the disease before. In Singapore, if you were to go back in time and consider Chikungunya virus, which was not epidemic or endemic until 2008, and hypothetically imagine people infected with Chikungunya arriving in Singapore, taking the

average number of secondary cases caused would tell you R_0 . The basic reproduction number is important because it has threshold properties, which are related to the final number of cases, the transmissibility and the threshold to control the outbreak. If R_0 is more than one, then each case, at the beginning of an outbreak, is going to infect more than one person on average, causing the epidemic to grow. If R_0 is less than one, then each case will infect fewer than one person on average. So if an outbreak of Chikungunya started out with ten people coming in with the virus, you might have six or seven cases in the second generation, then three or four in the third and after that, the virus is gone. It should be clear that working out R_0 is critical when trying to work out how quick a disease could establish itself.

So, what is R_0 ? It is a function of a variety of different things. Host density is one. If people live in close proximity to mosquitoes, R_0 for vector borne diseases will be high. Past exposure to similar viruses can reduce R_0 . Properties of the pathogen—how long it incubates within the host and how long it can spread from host to other people—social characteristics, and response from society or government, all play a role. In the early period of the 2009 pandemic, many governments in Asia were sealing off borders, and those who flew in to the country with symptoms of flu were isolated for about a week. At first, that reduced R_0 , until control measures were slackened.

For an outbreak to occur there needs to be a spark—for instance, an exposure to an infected animal or a mutation to a virus—and an environment suitable to sustain infection (sufficiently high R_0). Can the existence of these two factors be predicted? I don't think they can. Let us go back to 2003 and SARS (Anon 2003), which originated in mainland China. SARS was spreading for several months in mainland China unbeknown to anyone. It was first picked up by a Canadian electronic surveillance system monitoring the Internet for reports of outbreaks of flu in the news and the media (Heymann and Rodier 2004). Eventually, it led to the Chinese government investigating and confirming a new pathogen causing a new disease. Following that, a doctor from the Canton, who was infected with SARS, went to Hong Kong and stayed in the Metropole Hotel, where he infected people from many other countries who were staying in that hotel. As a result, it was spread in Singapore Canada, Ireland, Vietnam, and Hong Kong itself. SARS has been analyzed to death, and as a result we can explain each step retrospectively. But could we predict that one doctor would travel to that hotel and infect people from those countries like he did, prospectively? I don't think so.

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PANEL 1: QUESTIONS AND ANSWERS

Moderated by Professor Chua Beng Huat, Asia Research Institute, and Department of Sociology, National University of Singapore

Beng Huat: Thank you for the presentation. Okay, let us open up for questioning for about twenty-minutes. Do you have some responses right away?

Hiroshi: Yes, I must say that prediction is very difficult, especially in the complex systems. The complex thing is that prediction is deterministic, but the result is quite unpredictable. Hence, I believe a short-term prediction is possible but not a long-term one.

Alex: Yes, what is different is like predicting the weather. There have been a lot of weather changes over the last hundred years, and some new changes for which we do not have any data on at all. Similarly for those predictions, it becomes challenging because you have no way to inform the predictions.

Beng Huat: So it is kind of an interesting question. Let me ask the people who work on it. What does it really mean when someone says something went viral? Is it always the first time when someone posts something that you can actually say: "This will actually take off."

Alex: Let me give you an example from epidemiology. There is a very frightening disease called Ebola, which is in an outbreak at the moment. It has been described as the disease that could masquerade death. It has a very high mortality rate. However, it does not spread particularly well. There have been approximately twenty ineffective outbreaks of Ebola over the last twenty to thirty years. In many cases only one or two were infected. Although you can predict which of the outbreaks is going to end up with a few people being infected and which are going to end up with a majority being infected, they start off in similar ways.

Beng Huat: But is that because the pathogenic character of the disease is not particularly infectious?

Alex: I think it is just mere chance.

Beng Huat: The other important question is also an exciting issue that was raised by Dr Sato. Is it not possible for us to go back in a television program and predict how big its audience is, by just looking at the activities on the Internet? Is the reason for being unpredictable is because the community is not a closed community?

Alex: It is always easier to explain an outbreak by having a smaller population. Because then you have a few people who escape the infection. Whereas, in a bigger model, it is difficult to explain people who do not get infected because they all have the risk of getting infected. I think it is easier to explain it if you reduce the population size. The lesser the population size, the easier it is to explain the data.

Arun: Is there any correlation between connectivity and usage? I mean, just because people are connected does not necessarily mean that they are communicating. What insights can you gain from these kinds of modeling you have? For instance in Singapore and South Korea, they are highly connected, but in terms of actual inter-activity, Singapore is a classic example of high penetration and low participation. Does connectivity have anything to do with it or is it just really the activity, the actual engagement?

Hiroshi: Yes, connectivity is important. That is why we have two parts. In the first part we neglected connectivity because it is only one variable and we do not have to think about the connectivity between the participants. So it is like connecting everybody.

Jonathan: I have one comment to add. Probably, most of this goes to Beng Huat's first question about what it means for something to go viral, and I think that the concept that Alex has brought up about R_0 —those characteristics such as past density, past exposure, probably social characteristics as well—may be a useful label or kind of a mathematical figure for people to use. We can begin to ascertain what factors are useful. These things happen all the time,

and when they go viral, we should not necessarily be saying what this is in particular. We should be asking ourselves: “What’s the R_0 ?” What is the set of circumstances that actually allow them to spread it to other people? I am particularly interested in the optimal network that Dr Sato gave in his presentation. I think Alex has again usefully conceptualized this by a kind of spoke-hub form, where you have the hubs pointing outwards. It would be interesting to hear from someone about how that structure is developed or whether it actually comes about. I wonder whether the group of people we have here can tell us whether it can be brought to fruition for cultural engineering, rather than just happening through accidents or design or mere coincidence.

Alex: I think it depends on its applications. I know one guy studying engineering in NUS, who is looking at different types of centers and spaces, and then links one centre to the next and back to a central computer. Thus, he can optimize it physically. However, I am not sure about social media networks.

Beng Huat: The question is actually interesting. Let us say that you want to start a social movement, and you somehow have the means of engineering to spread the model, to maximize the way your message would be delivered (with the prediction of the optimal community). Such a model would be quite useful.

Jonathan: Well, going back to the research that I have been doing, I think there is an argument which I have not really tested yet in sociological studies. For instance, in rural China in particular, women’s or sex worker advocacy workshops can act as models. But they actually comprise of a central group of people, who are very tightly-knit, and everybody has connections with each other. Thus it provides local assistance on the ground. But the ideological side of it—the campaign for law reform, or even more broadly, things like democracy in China and the structure of the state—this cannot be done only through local networks because there is no human resource and it involves too much risk. But it has hubs that spread broadly across the world, and that collective side of the network comes in. Nevertheless, even the local network is cyber-facilitated, so it is an interesting model of cyber-activism.

Guobin: I think Jonathan's comments raise interesting questions about a model, in which you assume the Internet/cyberspace to be a natural environment with no noise. However, now, there is more noise and hence it is no longer a natural environment. Not only do we have government authorities trying to manipulate the environment, but commercial firms, individuals and activists who are actively trying to influence this cyber-environment. Thus, it is becoming increasingly difficult to try to capture the real complexities of cyberspace with this kind of a model. In other words, there are so many other contextual factors that we need to take into account in order to predict whether a particular phrase/video will become viral or not.

Jonathan: One of the things that strikes me and confuses me about modeling is that it is kind of multi-media, multi-lingual and multi-source. So it is not only taking place on one platform but in multiple platforms. Such networks as well as word-of-mouth—the ones that extend outwards—are using things like Twitter, which paradoxically is normally banned in China but some people use it via circumvention devices. Hence, modeling the network becomes very hard because the core and the hubs are not really using the same medium to communicate. I believe we should probably discuss the issue of *noise* when we talk about governments.

Peter: When we look at what Dr Sato calls the “hub people,” I think one way to reduce the complexities is by looking at what the Chinese government is doing. They are focusing on people who are in the hub and those who are influential to change their networks. They act as active agents with whom they talk to. Even in the case of Ebola, there is no way for us to know who will be infected by whom. Hence, maybe this is one way of looking at it. Nevertheless, I am not sure whether it would be successful because you would need to look at those hub people in more depth for the possibility of modeling. Any comments on that?

Hiroshi: All this shows that the hub is not enough. The important thing is the person related to the hub.

Peter: I think the people who are within a certain network would know each other well.

Alex: Yes, may I add to that? The author is looking at exactly the same kind of idea. How do messages spread and take-off? What does it take to “explode”? And the argument that he has is that for many things you have a hub connected to many different kinds of subcultures. So if you have a hub that these computer gamers can act upon, and if they are only connecting among gamers within the computer gaming, it will not spread widely. However, if they connect outside the gaming community, such as a hospital or a university, then you can get through to different kind of communities faster.

Marko: I am really glad to have started off this workshop, roundtable with science, and then, engineering, because for the rest of the time, I think we will try to connect this back to the world of activism. And you know cyber-activism belies a sort of activity on behalf of these people. I think that the analogies with the world of epidemiology or science are very seductive, and I read a lot about this. One problem I want to share is that we need to really look deeper into what it means for ideas to spread. Is it just like the virus? Or is there more to that? So, the first thing I want to say is that we have to go back a little more to some literature on persuasion, political action. So, one thing is to be exposed to an idea. Then you attend to the idea in order to gain attention, comprehend and memorize it so as to change attitudes, and finally take action. So if I am exposed to the idea of racial purity, I will probably not be infected, right now. To understand what it means we can use the analogy from epidemiology. I am immune to it and vaccinated against it. Just because you are exposed to something does not mean you are persuaded. Just because you are persuaded does not mean that you will actually take action. So there are several steps that we need to explain beyond exposure. It is unfortunate because it makes things complicated. Perhaps in the social world, just like Peter said, we may have to focus on the brokers. The people who are really influential in terms of being opinion leaders or thought leaders. We need to understand the kind of persuasion that really takes place and why certain strains of viruses or certain strains of ideas are more resistant. Therefore, I think there are a few more steps that we need to look into.

So that is the complexity and that is something I am currently dealing with. Because I am more or less trained in traditional methods, where the focus is more on persuasion after change rather than just spread. We recently did a media study and I was just curious about the means spread. I think almost a year ago, there was flooding in Orchard Road. It was an ideal situation for us to see how means spread, because those responsible used the term “ponding” instead of “flooding.” However, this word does not exist, so it was perfect and we did a national survey about this after a few weeks. The results found that forty to fifty per cent of adults were aware of this term, or at least they claimed to be. Thus we have a situation where a new term enters the public sphere and within two or three weeks, it has basically reached almost fifty per cent of the public. I may have the data on Twitter too to see how it spread on Twitter and see how it corresponds to the general population. This kind of stuff would be interesting to do, because it is difficult to get through all the noise when we are in a system.

Natalie: I just want to respond about the predictability, the possibility that we can predict certain behaviors. One thing that struck me while I was listening to the presentations was the rationality of actions. I think prediction is possible, if you know the basis for driving different actions. The fundamental question to me is: do we know what is the basis for driving those behaviors? In addition, I would like to bring up something related to these points that I have been doing in my recent research. Alex mentioned that participation can be a function of time. Like in my research, I have also found that it can be a function of what we describe as “informational cascades.” The fact that you look at someone else’s actions and ponder what causes you to ignore your own original opinion. So participation can be driven by a lot of “irrational behavior,” like that as well. So I just wonder whether it could be another factor.

Beng Huat: But does it have to be rational? The question is raised about noise and so on, right? And that the government is participating. But does it matter really? Is the problem really density? I mean, in a way phenomena get built up but all is contradictory. Nobody is looking for consensus. Something like the Arab Spring might appear to be consensual, but it certainly is not of the tens of thousands of people in the square, everyone has a different idea of what they

are doing. I understand the sort of motivations, complexities and all that. The question is does it really matter as a mob phenomenon. We are not talking about individual acts. We are talking about aggregated effects. You expect players of all sorts that you cannot even imagine.

So in that sense, I understand the reasons, the complexity, but I think we need to ask the question of whether that complexity really does it. We need to find out how it works out as an aggregate phenomenon, and not just identifying individuals. For instance, in the case of “ponding,” as you mentioned, the term becomes well spread out and well acknowledged. But in the end, the term was rejected by everyone. Or most people simply said that it was an excuse to not talk about flooding. Even the Minister had to apologize in the parliament for using “ponding” instead of addressing the real “flooding” issue. Similarly, the interesting thing about the epidemic model for me is that it is impersonalized. The question of disease infection is that it does not distinguish one individual from another. When looking at mob phenomena, a really huge crowd like the Arab Spring, “individualizing” will never get you to that phenomena. The event does not really reflect the sum of all the individuals alone. I mean, it has a different kind of dynamic; that impersonality may actually be important.

Alex: I think that ideas are much more varied than pathogens. When you implant a virus, it is slightly different in our bodies; its atomic structure starts changing but their reproductive pattern will be similar. But ideas could be, on the base, quite similar to each other, but one is able to spread much easier than the other. So even if you are de-individualizing, the whole of spreading and the characteristics of that are very important to understand how it spreads.

Beng Huat: But that is what I am questioning. Each idea will have multiple interpretations.

Guobin: I was wondering whether we should distinguish different kind of crowd behavior. Now we are talking about crowd behavior as a collective action. We can study organization. Nevertheless, in some other cases there is no clear organization. But still I think there are a lot of micro dynamics that we can study to try to understand how small things begin and eventually escalate and evolve into a vast scale collective action.

There is another strange new development. In 2009, in China, there was a very famous case of online viral communication. And the phrase was: "Jia Junpeng, your mum wants you to go home to eat." That phrase became viral within a short span of days. Among the online community, such as World of Warcraft and Baidu, there was some very nasty crowd behavior with a lot of "dirty" language being used. But it was eventually appropriated by activists as a kind of political slogan. But how that phrase became viral was a puzzle for us. Later on, it turned out to be manufactured by a couple of PR firms who had hired hundreds of unidentified individuals to post comments, responses and interaction. In this case it is very difficult to study the kind of logic behind it, without knowing the actual manipulation behind it. This does not mean that there was no other kind of spontaneous responses from the online users. But, this new kind of manipulation is embarrassing.

Beng Huat: So in that sense, if PR could do that, the civil society groups could do the same too. I think the dissemination of information in cyber-activism is not accidental. It might look accidental, but it probably is not. But even if it is not, then there is still the question of whether it is possible to figure out a model where the organized dissemination could be much more effective than not having a model to work with.

Guobin: I think we have identified some conditions and factors that will help us to understand that.

PANEL 2

SOCIALCUBE: A TEXT CUBE FRAMEWORK FOR ANALYZING SOCIAL MEDIA DATA²

Xiong Liu, Kaizhi Tang,
Roger Xu & Vikram Manikonda

Intelligent Automation, Inc., Maryland, USA

Jeff Hancock

*Department of Communication,
Cornell University, New York, USA*

Jiawei Han

*Department of Computer Science,
University of Illinois at Urbana-Champaign, Illinois, USA*

² Acknowledgment: part of this research was funded by Navy Grant # N00014-11-m-0102 awarded to IAI.

INTRODUCTION

The exponential growth of text-based communication associated with the Internet has led to a vast increase in the amount of social media and unstructured text that are not currently warehoused or mined in ways relevant to Human Social Cultural and Behavioral (HSCB) analysis. Current systems analyzing textual HSCB data typically do not take advantage of the state-of-the-art in automated language analysis. Also, human behavior is continuously changing, and as a result, HSCB data can quickly become out of date and not suitable for dynamic HSCB analysis. An imminent task is to develop a system that can dynamically collect and warehouse unfiltered textual communication data and make available the data to state-of-the-art automated linguistic analysis for HSCB modeling and applications. In building this system, we encounter the following challenges:

- The HSCB data exhibit complex features. The data are multi-dimensional, time stamped, geospatially referenced, from multiple sources, in multiple data types, and associated with semantic tags. More data with different features are being added regularly. How to develop a solid but extendible architecture to integrate data with complex features is a challenging problem.
- For information consumers to access and query the large amount of HSCB data, efficient data warehousing and mining capabilities must be developed to prepare data summation and knowledge for fast information access. How to build effective and time critical data cubing and optimized knowledge discovery methods are both challenging.

To address these challenges, we propose a dynamic data cubing and mining system, called SocialCube, for large amounts of HSCB data. SocialCube is an advanced data cube architecture that allows analysts to summarize and navigate structured data together with unstructured text for efficient query and analysis. In data warehousing, data cube is a way to organize data in multiple dimensions and multiple hierarchies for information query and visualization from multiple perspectives (Lin et al. 2008).

A data cube allows data to be aggregated and viewed in multiple dimensions. It is defined by facts (or measures) and dimensions. The facts are numeric values that are measurable and usually additive (e.g., sales of a product.) Usually analysts need to look at facts (measures) using some “by” conditions. The “by” conditions are called dimensions. For example, in order to analyze sales volume, analysts often want to see its measure by day and by

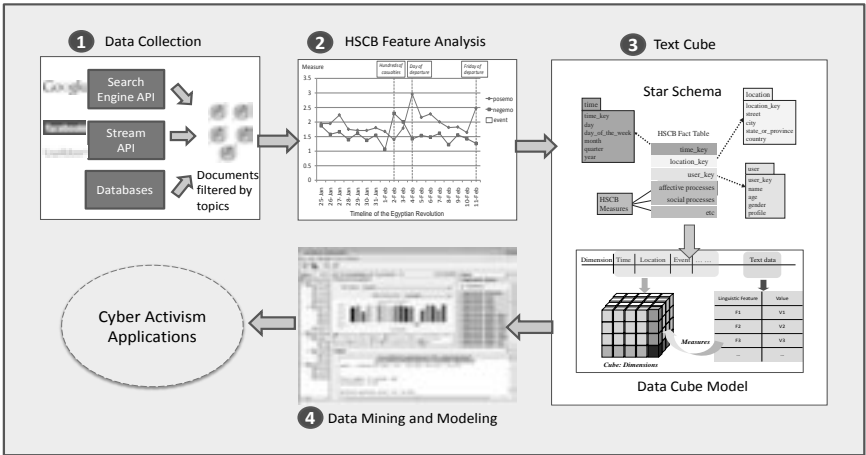
location. In this sense, dimensions are the perspectives with respect to which an analyst wants to aggregate or view measures. Unlike traditional data cube where measures are directly retrieved from the original databases, SocialCube provides an advanced text analytics capability for extracting HSCB measures from unstructured text stream. In addition, SocialCube supports the development of prediction models using a data mining approach. Therefore, SocialCube is a large-scale, dynamic approach for collecting, organizing and analyzing text-based communications to assess HSCB dimensions (e.g., affect, sense of fatalism, group identity) for a given group and predict current belief states and likely intended actions.

In this paper, we first describe the conceptual design and architecture of SocialCube. Then we introduce the HSCB feature analysis framework which provides complex linguistic features for HSCB measures. Next we discuss the details of the text cube architecture which allows analysts to summarize and navigate structured data (dimensions) together with unstructured text (measures) for efficient query and analysis. Next we introduce the data mining approach to support the development of prediction models using the data from the data cube. We also present some case studies to demonstrate the analysis capability of SocialCube. Finally we conclude the paper and discuss future research.

THE SOCIALCUBE FRAMEWORK

To solve the problem of information summarization and querying for HSCB data, we developed the SocialCube framework. Figure 1 shows the system architecture of SocialCube. The core of SocialCube includes: 1) a data collection component, 2) a HSCB feature analysis component, 3) a text cube component, and 4) a data mining and modeling component. The following is a brief description of these components.

Figure 1. SocialCube Architecture



The data collection component automatically extracts data of interest from various data sources such as search engine, social media, and databases. The procedure for data extraction is dependent on the format and accessibility of available data sources. Since many data sources related to HSCB are websites or web services that can be accessed on the Internet, we address the data collection methods that can obtain data from the Internet. These methods include Application Programming Interface (API) invocation via web services and data scraping via parsing web pages. For example, Twitter is a micro-blogging website that has been useful as a source for HSCB analysis (e.g., political sentiment analysis (Tumasjan et al. 2010), user influence (Cha et al. 2010), and spread of news (Lerman & Ghosh 2010). The Twitter streaming API allows applications to have real-time access to tweet objects in JSON (JavaScript Object Notation) format. Using this API, we can design code to automatically extract live tweets for a topic, transform and load them into the textual database for subsequent HSCB analysis.

The HSCB feature analysis component extracts linguistic features from text using text analytics tools. These linguistic features are the basic elements for HSCB dimensions such as affect, deception, and sense of fatalism, and for any future HSCB dimension. This analysis framework addresses the selection of linguistic features with reference to theories and psychological expectations. It also provides computational techniques (e.g., feature selection in machine learning) to extract additional linguistic features that are emergent from a

specific context. Using this analysis framework, we have performed case studies on affect analysis of political events such as Libya civil war and Egyptian revolution. These case studies show that there are linguistic features in the text that are predictive of HSCB dimensions.

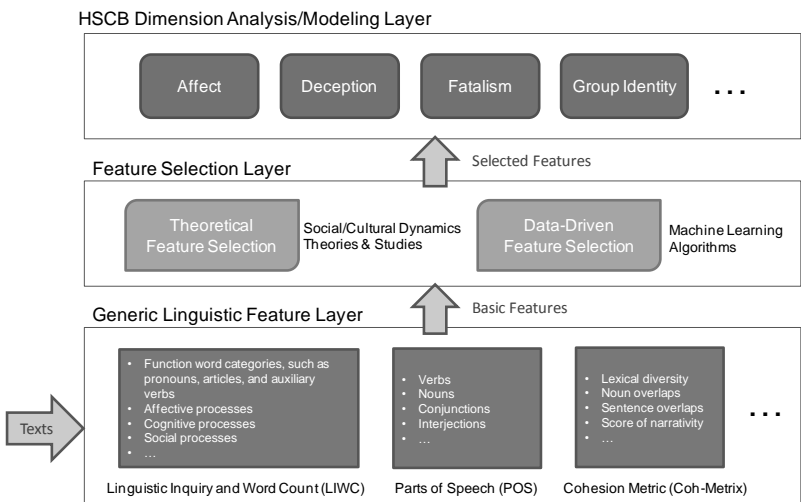
The data cube architecture allows analysts to summarize and navigate structured data (dimensions) together with HSCB measure from unstructured text data for efficient query and analysis. The data cube has an underlying star schema database to store the high dimensional HSCB data. The star schema has a fact table which contains the linguistic measures as well as keys to each of the related dimension tables such as location and time. With the schema defined, users are able to view the cube models and perform analysis. This includes slicing, dicing and drilling through cells. Along with viewing and analyzing tweets data using cubes and charts, we have also added the capability to display the contents of the cube on a heat map. The heat map allows the analyst to quickly visualize the affect status (e.g., negative emotion) for a region and focus attention on hotspots of concern in the area.

In addition, the data mining and modeling component provides the capability to build prediction models using the data taken from data cubes or the star schema database. In this way, the values summarized in the data cube provide a powerful filter for data mining models. The model built on the summarized statistics usually represents higher level of knowledge representation.

HSCB FEATURE ANALYSIS OF UNSTRUCTURED TEXT

Linguistic feature analysis is a preliminary step for developing text-based data cubes and data mining methods. We have designed a comprehensive HSCB linguistic feature analysis framework that allows for an extensible set of HSCB dimensions that can be developed on an as needed basis, see Figure 2. The framework has three layers: 1) the generic linguistic feature layer, 2) the feature selection layer, and 3) the HSCB dimension layer.

Figure 2. Comprehensive HSCB Feature Analysis



GENERIC LINGUISTIC FEATURE LAYER

The process for developing a fully automated SocialCube system begins with the identification of linguistic features that are related to HSCB dimensions. These linguistic features may be low-level features (such as individual word-counts), high-level features (such as discourse cohesion) or anywhere on a spectrum in between. In this stage, existing text analysis tools are used to automatically generate linguistic features. Extracting low-level features may require simple word counts, while extracting higher level features may require more sophisticated language process techniques, such as syntactic parsing and cohesion computation.

Some text analysis tools that can be used to generate linguistic features include Linguistic Inquiry and Word Count—LIWC—(Pennebaker, Booth & Francis 2007), Stanford Part-Of-Speech (POS) Tagger (Toutanova et al. 2003), and Coh-Metrix (Graesser et al. 2004). Together, these tools produce the basic elements for the HSCB dimensions we describe below, and for any future HSCB dimension. The key point here is that these basic elements are always being collected and tracked by the system, and higher layers can be customized to combine these basic elements into higher-level HSCB dimensions.

LINGUISTIC FEATURE SELECTION LAYER

SocialCube addresses the selection of linguistic features with reference to theories and psychological expectations. These features are called theoretical (top-down) features. SocialCube also relies on computational techniques (e.g., feature selection) to extract additional linguistic features that are emergent from a specific context. These features are called computational (bottom-up) features.

THEORETICAL FEATURES

This stage is grounded in theory and requires a deep understanding of the social dynamic under consideration, along with how the social dynamic may be manifest in discourse. Once theoretical features have been identified as potential correlates of a HSCB dimension (e.g., deception), empirical validation of these features is required. This is to establish that the theoretically predicted correlations are present and statistically significant.

For example, Newman, Pennebaker, and colleagues (2003) developed an empirical-based model of deceptive language. The Newman-Pennebaker (NP) model describes four categories of words that change in relative frequency during deception: 1) fewer first person singular ("I") as liars try to distance themselves psychologically from their lie, 2) fewer exclusive words ("except," "but") as lies tend to be less complex than truthful statements, 3) more negative emotion terms that reflect the guilt and anxiety related to being deceptive, and 4) more action verbs that help move the story along and distract the listener.

The NP model has been tested in various contexts, such as detecting lies by students told in laboratory experiments (Hancock et al. 2008a), detecting lies by inmates in prison (Bond & Lee 2005), and detecting lies by business executives in Enron emails (Keila & Skillicorn 2005). Another important real-world context for deception is political communication.

COMPUTATIONAL FEATURES

The output for each word category from the LIWC default dictionary represents a feature in our analysis. Some of the key features from our theoretical analysis include first-person singular (e.g., I, me), negative emotion terms (e.g., hurt, ugly, nasty), exclusives (e.g., except, but, without), and action verbs (e.g., arrive, go.) We pay particular attention to these in our top-down modeling, and then

add the rest of the features in our bottom-up modeling, combining them together in our final classification model.

We apply a feature selection algorithm to the LIWC outputs to extract additional linguistic features without reference to psychological expectations. This algorithm evaluates the worth of a feature by measuring the gain ratio with respect to the class (Quinlan 1993). The calculation of gain ratio is shown below, where “H” represents the entropy.

$$\text{GainR}(\text{Class}, \text{Attribute}) = (H(\text{Class}) - H(\text{Class} | \text{Attribute})) / H(\text{Attribute}),$$

The output of the algorithm is a list of descending features in terms of discriminative power. We call these features computational (bottom-up) features which can be added to the feature list for building the classification model.

As an example, we explored methods to extract and select computationally-derived linguistic features in order to improve the performance of deception detection in political speech (Liu et al. 2012). We extracted linguistic features from different language tools and used feature selection techniques to select the optimal feature set. The selected features included both theoretically expected features (e.g., negative emotion tone) and empirically-derived features (e.g., narrative and cohesion.) The results show that using computationally-derived features can significantly improve deception detection performance compared with a theoretical approach that uses a limited set of features.

HSCB DIMENSIONS LAYER

SocialCube is designed to be adaptable and applicable to extracting information about many different kinds of HSCB dimensions (e.g., affect, deception, fatalism versus mastery, group identity, etc.). In our previous research, we have shown that how linguistic features can be used to assess the deception dimension (Ibid). We provide more examples below on how linguistic features can be uniquely combined to assess a given HSCB dimension.

AFFECT

Perhaps one of the most important social and cultural dynamics for humans is their sense of emotion (Ekman 2001). Emotion reflects not only how an individual is reacting to ongoing events, but can also reflect to how an individual

generally views the world and their place in it. While emotion was long ignored by cognitive psychologists, a wide preponderance of data suggest that understanding an individual or group's emotional state can provide important insight and prediction into their decision-making, cognitive responses, and future behavior (Russell 1980).

Although emotion is often assumed to be only communicated non-verbally (Mehrabian 1972), a number of recent research studies suggest that humans convey their emotions in text-based communication, such as emails, blogs, instant messaging, and other forms of textual communication through linguistic cues. In one study (Hancock, Landrigan, & Silver 2007), for example, individuals were asked to communicate only by text, and one partner was induced to feel sad before the interaction. Under these conditions, their partner was able to detect the negative emotion in the emotionally induced participant, indicating that emotion can be detected in text-based communication. Importantly for the present research, these data suggest that emotions can be detected from text-based communication.

There are specific linguistic patterns of emotional expression in verbal content, and there are number of established tools that can extract relevant emotional content, including the Linguistic Inquiry and Word Count program and the Dictionary of Affect in Language program. Using these tools, Hancock and colleagues (2008b) have found that when people are sad they tend to use fewer words, disagree more, use more negative-affect words, and respond more slowly time.

These kinds of verbal patterns are extractable not only at the dyadic or group level, but also at the organization and even national level. Consider Kramer's work (2010) on Facebook status updates and his assessment of the Gross National Happiness index. The Gross National Happiness index assesses the emotional context of the United States by extracting positive and negative emotional indicators from hundred-million Facebook users. This analysis, based on the textual content from status updates, correlates highly with self-reported satisfaction as well as culturally and emotionally significant calendar events (e.g., Christmas, death of a politician, etc.).

Taken together, these data suggest that emotional indicators or an individual or group can be extracted from verbal content present in text-based communication, and that these features, dynamically tracked over time, can predict emotionality of an individual or even a group.

OTHER DIMENSIONS

As we note above, we are designing the system to be an extensible framework for identifying additional HSCB dimensions, even ones that cannot currently be conceptualized or predicted. Because we can combine the basic building blocks from our linguistic analysis to develop new HSCB dimensions, we believe the system is extremely powerful and adaptable.

For example, fatalism versus mastery is an important phenomenon. People vary along the degree to which they feel that they have mastery over their life conditions versus a sense that they have little control over their lives. This sense of one's ability to control events around them has been measured by a number of different psychological and cultural dimensions, including learned helplessness (Seligman 1975) or fatalism. When individuals, groups or cultures feel that they have no control over their circumstances, they are said to be in a condition of learned helplessness, to have an external locus of control and a fatalistic set of beliefs, in which their fate is pre-determined, based on luck and pessimism. Understanding an individual, group or culture's sense of fatalism can be an important indicator of that entity's overall psychological and cultural make-up, an understanding that can be important from an operational and intelligence point of view.

For another example, the group identity of a set of individuals may be important. Are they part of the same in-group, or are they enemies that make up two distinct out-groups? To analyze this question, the language of the individuals could be analyzed in terms of their pronoun use and whether first person plural (we) is used, signaling a common identity, or whether there is much more third person plural (they, them), signaling in-out group dynamics.

TEXT CUBE

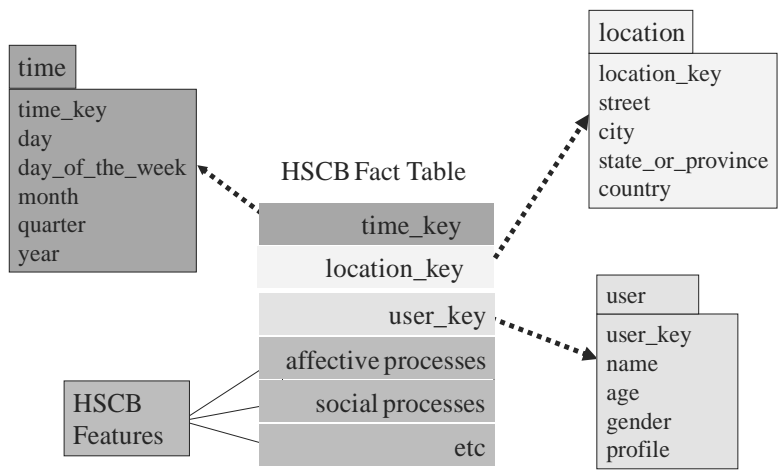
Data cube is a new way to organize data in multiple dimensions and multiple hierarchies for efficient information query and visualization from multiple perspectives (Lin et al. 2008). A data cube allows data to be aggregated and viewed in multiple dimensions. It is defined by dimensions and facts (or measures). In general terms, dimensions are the perspectives with respect to which an organization wants to keep records (e.g., by time, by location, etc.). Each dimension may have a table associated with it called a dimension table. Facts are numerical measures that are quantities by which we want to analyze relationships between dimensions.

STAR SCHEMA

The star schema is a multidimensional data model to design the data cube. In a star schema, there are one or more fact tables referencing any number of dimension tables. The fact table contains the names of the facts (measures), as well as keys to each of the related dimension tables.

We have designed a star schema to store the extracted linguistic features for different HSCB dimensions. They are stored as measures in the Fact table. Figure 3 shows a star schema design of our HSCB data warehouse. The fact table contains keys to dimensions such as time, location, and user. It also contains HSCB measures such as affective process and social processes calculated by LIWC.

Figure 3. Star Schema of the Data Warehouse

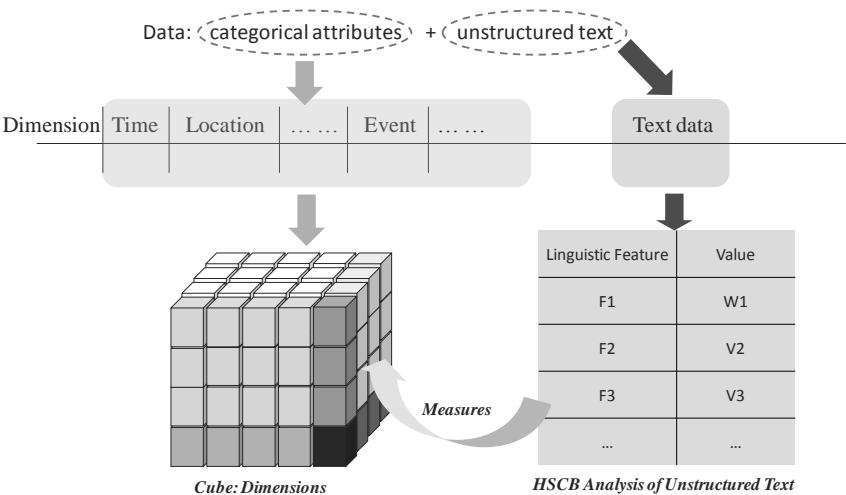


Note that some LIWC measures have hierarchical relationships. For example, “affective processes” can be divided to “positive emotion” and “negative emotion;” and “negative emotion” can be further divided into “anger,” “anxiety,” and “sadness.” It is possible to define one comprehensive measure (e.g., affect) that consists of multiple attributes (e.g., negative emotion, positive emotion).

DATA CUBE ARCHITECTURE

Based on star schema, we have designed a data cube architecture to allow users to conveniently view aggregated statistics of HSCB linguistic measures along different dimensions such as time and location, see Figure 4. This type of data cube is also called “text cube.”

Figure 4. Design of HSCB Textual Cube



We can specify the features that could be used as HSCB measures using a configuration file. For example, we can specify the features in the “affective processes” category of LIWC (e.g., positive emotion, negative emotion) and build an affect cube. Similarly, we can specify the features related to deception (e.g., first person singular, exclusive words, negative emotion) and build a deception analysis cube.

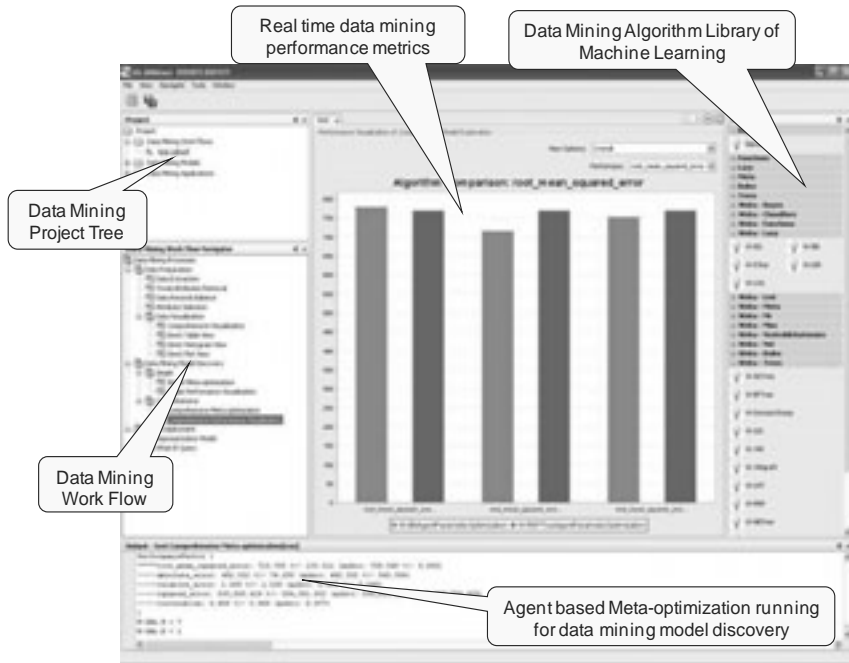
With the HSCB measures and dimensions defined we are now able to view the text cube and perform analysis. This includes slicing, dicing and drilling through cube cells. To demonstrate the text cube capability, we designed and implemented an interface to view the cubes (see Figure 7 for an example). Along with viewing and analyzing text data using cubes and charts, we have also added the capability to display the contents of the cube on a heat map. Basically, the heat map shows each geographic region with a shade of red. The degree of opacity is directly proportional to the value of the measure; the larger the measure is the more opaque the color. This kind of map allows the analyst to focus attention on hotspots of concern in the area.

DATA MINING APPROACH FOR HSCB MODELLING

The text cube architecture also supports the development of prediction models using the data from the cells in a data cube. These models built on the summarized statistics represent higher level of knowledge representation. In the following, we introduce the data mining approach for HSCB modeling.

Data mining techniques allow us to select important linguistic features and to build prediction models for each HSCB dimension using the selected features. Data mining techniques, such as classification and clustering, will provide in-depth knowledge for each HSCB dimension and will complement the multidimensional data cube analysis.

We have designed a data mining solution for HSCB analysis by leveraging IAI's Agent-Based Data Miner—ABMiner (Liu et al. 2010). ABMiner supports full data mining cycle, including data set preparation, model discovery, and model deployment. For data set preparation, ABMiner provides a query designer which helps the user to retrieve data from various relational databases. For model discovery, ABMiner provides more than four-hundred machine learning algorithms (e.g., classification and clustering algorithms) aggregated from IAI's machine learning projects and open sources libraries such as Weka (WEKA 2013). These algorithms allow users to build HSCB models (e.g., event detection models). ABMiner dynamically visualizes the model building process and the performance (e.g., accuracy) of each model. Users can compare the models and select the best model for deployment. ABMiner offers a model deployment interface to access the prediction model and predict outcomes for new inputs. Figure 5 shows the screenshot of ABMiner.

Figure 5. ABMiner Screenshot

Here we focus on classification algorithms for HSCB modeling (e.g., building classifiers for event detection.) Representative classification algorithms in ABMiner include:

- libSVM: an efficient algorithm for support vector classification (Fan, Chen & Lin 2005).
- IBK: is a K-nearest neighbors classifier. It can select appropriate value of “K” based on cross-validation. It can also do distance weighting (Aha & Kibler 1991).
- REPTree: is a fast decision tree learner. It is a mixture of decision tree and linear regression, where each leaf node corresponds to a linear regression algorithm (Witten & Frank 2005).
- J48 Tree: is an algorithm for generating a pruned or unpruned C4.5 decision tree (Quinlan 1993).

- Logistic regress: is an algorithm for building and using a multinomial logistic regression model with a ridge estimator (Ie Cessie & van Houwelingen 1992).
- SMO: Implements John Platt's sequential minimal optimization algorithm for training a support vector machine classifier. It replaces all missing values and transforms nominal attributes into binary ones (Platt 1998).
- LogitBoost: is an algorithm for performing additive logistic regression. It performs classification using a regression scheme as the base learner, and can handle multi-class problems (Friedman, Hastie, & Tibshirani 1998).
- LWL: is a locally weighted learning algorithm. It uses an instance-based algorithm to assign instance weights which are used by a specified weighted instances handler (Frank, Hall, & Pfahringer 2003).
- Multilayer Perception: is a classifier that uses back propagation to classify instances. This network can be built by hand, created by an algorithm or both. The nodes in this network are all sigmoid (Pal & Mitra 1992).

ABMiner employs the “*k*-fold cross validation” method to evaluate classification models. In *k*-fold cross validation, the data set is divided into “*k*” subsets. Each time, one of the “*k*” subsets is used as the test set and the other *k*-1 subsets are put together to form a training set. Then the average error across all “*k*” trials is computed. The advantage of this method is that it matters less how the data gets divided. Every data point gets to be in a test set exactly once, and gets to be in a training set *k*-1 times. The variance of the resulting estimate is reduced as “*k*” is increased.

CASE STUDIES

DATA

We developed a data collection system to extract live tweets and filter them by topics. Using the system, we extracted ~64,000 tweets on the Egyptian revolution during 25 January 2011 and 11 February 2011. This data gives us an example to study the linguistic features of political events and their potential predictive power of events.

HSCB LINGUISTIC ANALYSIS

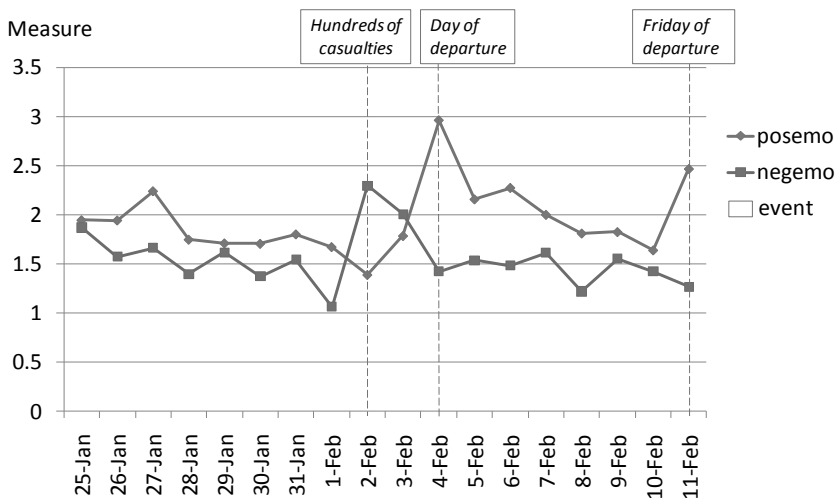
To assist theoretical and computational analysis of different HSCB dimensions, we implemented a HSCB feature extraction tool. This tool has two major components: the language translation agent and the linguistic feature extraction agent. The language translation agent is responsible for detecting and translating foreign languages into English. Then the linguistic feature extraction agent processes the translated tweets using natural language processing tools and extract HSCB linguistic features.

Using the HSCB feature extraction tool, we conducted case studies on affect analysis of political events, such as civil war in Libya (Brown et al. 2011). Here we discuss the HSCB text analysis using the tweets on the Egyptian revolution. We extracted linguistic features on affect (i.e. negative and positive emotions) using the LIWC method, and plotted the linguistic features as a function of key events during the revolution.

We found that affect is highly predictive of major events and reflective of moods in the Egyptian populace. As shown in Figure 6, negative emotion levels in the tweets were the highest on 2 February, which corresponds to hundreds of casualties that occurred that day. Also, the positive emotion was the highest on 4 February, which corresponds to the “Day of Departure.” These results provide some initial evidence for the utility of HSCB linguistic analysis for event reporting, and would allow intelligence assessment of cultural dynamics without having to put resources into the field.

These initial analyses are very promising, and they represent only a fraction of the kinds of inferences that can be gleaned from unstructured texts, such as tweets. While the emotional representations in Figure 6 reflect current emotion in the population in response to specific events, other dimensions of language could be more predictive of events that are likely to take place. One dimension of interest that we will analyze for our subsequent report is the swearing behavior, which we expect to be a measure of frustration and anger that can predict when large-scale protests will take place. This kind of information will be extremely valuable for intelligence assessment in closed societies where traditional polling or the use of other intelligence assets for assessing HSCB dimensions is severely limited.

Figure 6. Linguistic Analysis of Tweets on Egypt’s Revolution



TEXT CUBE MULTIDIMENSIONAL ANALYSIS

To support multidimensional analysis, we designed and implemented one text cube looking at tweets on the topic of the Egypt revolt. The dimensions include the location and time. The HSCB measures used are the LIWC features extracted from the tweets.

Figure 7 shows the Affective Processes cube for the Egypt revolt. The horizontal dimension is the cities from which the tweets originated from and the vertical dimension is the time period. Its measures include LIWC features such as *affective processes*, *positive processes*, *negative processes*, *anger*, *anxiety*, *sadness*, *religion*, and *social*.

Figure 7. Affective Processes Cube for the Egypt Revolt

Location	Time						
	All Periods						
	Measures						
	Affective Processes	Positive Emotion	Negative Emotion	Anger	Anxiety	Sadness	Religious
All Locations	3.491	1.99	3.521	0.775	0.202	0.308	0.047
Arlington, VA	3.534	2.024	3.491	0.825	0.188	0.311	0.047
Baltimore, MD	0.993	0	0.993	0.993	0	0	0
Boston, MA	4.28	0	4.28	0	4.28	0	0
Cairo, Egypt / Dubai	4.559	3.633	0.926	0	0	0	0.608
Cairo, Egypt	5.404	1.99	3.409	1.099	0.185	0.288	0.012
Cambridge, UK	3.108	2.799	2.309	1.999	0	0.461	2.381
Doha, Qatar	5.968	2.38	3.588	1.138	1.138	0	0.732
Edinburgh, UK	3.779	3.108	0.727	0.447	0	0.28	0.29
Edmonton, Alberta, Canada	1.41	1.41	0	0	0	1.41	0
Exeter, UK	0	0	0	0	0	0	0
Washington, New Jersey	0	0	0	0	0	0	0.694
Rockville, DC	3.88	0	3.88	1.88	0	0	1.88
Coos, The Netherlands	3.902	2.004	3.898	0.877	0	0.408	0.288
Mad's Breakfast Room, NYC	4.511	3.041	3.594	0.938	0.309	0.261	0.762
Jakarta, Indonesia	0	0	0	0	0	0	0

We can expand the time dimension to drill down to specific days. We can also change the text cube view by switching the horizontal and vertical dimensions. Figure 8 shows another view of the text cube where time is the horizontal dimension and location is the vertical dimension.

Figure 8. Text Cube Showing Measures by Location and Time

Time	Location							
	Arlington, VA		Baltimore, MD		Boston, MA			
	Measures	Measures	Measures	Measures	Measures	Measures	Measures	Measures
	Positive Emotion	Negative Emotion	Positive Emotion	Negative Emotion	Positive Emotion	Negative Emotion	Positive Emotion	Negative Em
2011-03-25	0	0						
2011-03-26	0	3.491						
2011-03-27								
2011-03-28	1.047	0.391	0	0.125			1.015	
2011-03-29	0	0			0	4.55		
2011-03-30			0	0			4.593	
2011-03-31				0				
2011-03-01	1.042	0		0				
2011-03-02	0	0						
2011-03-03	2.094	3.426	0	0				
2011-03-04	0	3.587						
2011-03-05	2.082	0						
2011-03-06	3.212	3.815						
2011-03-07	0	0.113	0	0				
2011-03-08	4.238	2.792						
2011-03-09	0	0						
2011-03-10	1.081	2.799						
2011-03-11	0.671	1.082	0	0				0

Again, we can aggregate the measures for all locations by “shrinking” the location dimension. This will generate the dataset that is suitable for time series trend analysis of measures (e.g., positive emotion, negative emotion, etc.) regardless of specific locations. Our text cube interface also provides plotting capability to plot aggregated measures for all locations on each day (e.g., a plot similar to Figure 6).

DATA MINING FOR PREDICTIVE MODELING

We studied the feasibility of data mining algorithms for predictive modeling. We used event detection in texts as an example modeling task. Event detection can be treated as a classification problem, where a model or classifier is constructed to predict the categorical labels of events (e.g., “large-scale” versus “small-scale,” or “violent” versus “non-violent”).

In a classification problem for event detection, the inputs are the language features (e.g., LIWC features) stored in the data cube and the output is the categorical label. To associate the inputs with the output, models need to be developed using classification algorithms such as support vector machines and neural networks. Then a model with the best performance (e.g., accuracy) is selected for deployment. As new texts come in, the model will apply the language features of the texts as inputs and predict the output labels.

We designed the data mining problem of predicting the scale and degree of violence in the Egyptian Revolution. Given the LIWC features measured from the tweets collected on each day (e.g., the positive and negative emotions shown in Figure 6, our goal was to predict whether there were large-scale and violent events for each day. To obtain the ground truth, we referred to the Timeline of the 2011 Egyptian Revolution (Wikipedia 2013). Based on the descriptions of protests and conflict events during 25 January 2011 and 11 February 2011, we manually coded the categorical labels of events for each day. Table 1 shows the input features together with two types of prediction labels: scale and degree of violence.

Table 1. Sample Mining Data Set

Date	Word count	1 st person singular	Social	Affect	Positive emotion	Negative emotion	Anger	Exclusive words	Motion	Religion	Label: scale	Label: violence
25-Jan	18.63	0.96	4.32	3.81	1.94	1.87	1.08	0.92	1.73	0.58	large-scale	non-violent
26-Jan	19.58	0.82	4.80	3.50	1.94	1.57	0.85	0.66	1.30	1.00	large-scale	violent
27-Jan	19.67	0.57	5.06	3.90	2.24	1.66	1.10	0.96	1.61	1.29	small-scale	non-violent
28-Jan	18.37	0.75	4.18	3.18	1.75	1.40	0.92	0.82	1.61	0.58	large-scale	non-violent
29-Jan	19.00	0.69	5.12	3.35	1.71	1.61	0.58	0.81	1.31	0.50	large-scale	non-violent
30-Jan	19.48	1.19	5.48	3.10	1.70	1.37	0.58	0.95	1.85	0.42	small-scale	non-violent
31-Jan	19.38	1.24	6.29	3.38	1.80	1.54	0.71	0.88	1.81	0.48	large-scale	non-violent
1-Feb	18.90	0.66	4.91	2.71	1.67	1.06	0.62	1.01	1.61	0.41	small-scale	violent
2-Feb	19.72	1.10	6.18	3.65	1.39	2.29	1.22	1.32	1.85	0.73	large-scale	violent
3-Feb	19.84	1.24	6.38	3.85	1.78	2.00	1.22	1.13	1.89	0.59	large-scale	violent
4-Feb	20.01	1.00	5.43	4.37	2.96	1.42	0.64	1.01	1.98	0.57	large-scale	non-violent
5-Feb	18.76	0.72	4.37	3.70	2.16	1.53	0.66	0.68	1.26	1.05	large-scale	non-violent
6-Feb	18.85	0.88	5.28	3.78	2.27	1.48	0.85	0.95	1.56	0.48	large-scale	non-violent
7-Feb	21.57	0.97	4.98	3.61	2.00	1.61	0.70	1.26	0.86	0.76	large-scale	non-violent
8-Feb	19.81	0.70	5.12	3.01	1.81	1.22	0.70	0.70	1.88	1.02	large-scale	non-violent
9-Feb	19.55	0.76	4.10	3.43	1.82	1.55	0.74	0.67	1.11	1.02	large-scale	violent
10-Feb	19.17	0.69	5.13	3.06	1.64	1.42	0.70	0.92	1.78	0.46	large-scale	non-violent
11-Feb	20.30	1.27	6.23	3.72	2.46	1.26	0.46	0.75	2.01	0.38	large-scale	non-violent

We used the data in Table 1 to train different classifiers, including libSVM, REPTree, and IBK. We tested the performance of these classifiers using ten-fold cross-validation. Table 2 shows the cross validation results measured by classification accuracy. Overall, these classifiers are able to detect the scale and degree of violence with reasonable accuracy, despite the small number of training examples. This is perhaps not surprising as the training set contains multiple linguistic and psychological features (e.g., positive and negative emotions) that are predictive of events.

Table 2. Cross-validation Results Measured by Accuracy

Categorical Label	libSVM	REPTree	IBK
Large-scale vs. small-scale	83.33%	83.33%	73.33%
Violent vs. non-violent	73.33%	73.33%	60.00%

The data mining example shown here is just the tip of the iceberg of possible studies that can be conducted for modeling cyber-activism. The rapid growth of social media and unstructured data on the Internet has created unprecedented opportunities for understanding and predicting social dynamics, and the reporting of news has made it possible to track in near real-time events taking place around the globe. Integrating social data emerging from the Internet with real-world events data has the potential to predict and mitigate future conflicts.

CONCLUSIONS

We have introduced the concept of SocialCube for analyzing cyber behaviors or human social cultural behaviors (HSCB) in unstructured text. We have demonstrated the feasibility of SocialCube for HSCB data collection and analysis. Our key contributions include:

- **HSCB feature analysis.** We have developed a comprehensive HSCB linguistic feature analysis framework that allows for an extensible set of HSCB dimensions that can be developed on an as needed basis. The framework provides generic linguistic features from LIWC, Stanford POS tagger, and Coh-Metrix. Together, these tools produce the basic elements for HSCB dimensions such as affect, deception, and sense of fatalism, and for any future HSCB dimension.

- **Data cube architecture for multidimensional analysis.** We have developed a data cube architecture to summarize and navigate structured data (dimensions) together with unstructured text data (measures) for efficient query and analysis. The data cube has an underlying star schema to store the high dimensional HSCB data. The star schema has a fact table which contains the linguistic measures as well as keys to each of the related dimension tables such as location and time. With the schema defined, users are able to view the cube models and perform analysis.
- **Data mining for HSCB modeling.** SocialCube leverages IAI's ABMiner data mining platform for HSCB modeling. ABMiner integrates hundreds of data mining algorithms (e.g., clustering, classification, anomaly detection) from IAI's machine learning projects and open sources libraries. These algorithms provide the capability to build prediction models using linguistic features. We used political event detection in texts as an example modeling task. The results show that accurate prediction models (e.g., accuracy over eighty per cent) could be built using HSCB linguistic features.

Using social language processing and data cube for HSCB analysis is an emerging area for research. Many problems in this field remain to be studied. In light of this research, some topics that need further investigation include: 1) design data collection methods for in-situ collection of large-scale social media data for cyber behaviors analysis, 2) expand the HSCB analysis framework to include emerging new HSCB dimensions, 3) develop advanced prediction methods for predicting future behaviors and events, and 4) enhance user interface and visualization methods.

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PANEL 2: QUESTIONS AND ANSWERS

Moderated by Dr Jonathan Benney, Asia Research Institute, National University of Singapore

Jonathan: I would like to offer my thanks to Liu Xiong for his talk. I think he described a very interesting model, filled with potential, in his presentation. I am going to talk for about ten minutes about three things. First, the Social Cube model itself. Secondly, how we might use the model, and thirdly, issues related to data collection in the humanities and data mining in general.

To begin with, the models that Beng Huat mentioned, such as the Social Cube model, give researchers in the humanities and the social sciences area a new advantage: to identify issues for study before we actually know what they are all about. We can work with corpuses of data directly. We are able to justify quantitative and qualitative analysis more effectively than we have been able to do so previously. We can analyze events, emotional orientations and similar things, before we actually know what conclusions we are looking for. I am not sure about the prediction of events that Dr Liu talked about in his presentation. But I think in terms of selecting issues for research purposes and understanding the key issues in a particular field, data manipulation gives us a substantial advantage. It really does bring extra rigor to the field.

One of the advantages of the process that has been described today is that it begins to deal with some of the questions about what happens when you have a data source that does not have an API (application programming interface). That is, where you may not be able to access data directly, and you might have to scrape the data from a website or a blog that does not have an automatic data retrieval feature. It begins to answer questions like what happens when we have multilingual sources of data, and it begins to answer questions about what happens when we have different sources of data which are not necessarily comparable. For example, a short micro-blog post, like Twitter or Weibo, which has 140 characters, versus a blog post of thousands of words. When we think about very complicated typesets of data, such as the types

being described in the star schema, how do we put those data into a situation where we are not comparing apples and oranges? One big challenge is having similar tags for different sets of data. If we look at the limitations of machine translation in terms of multilingual traits, that is a very big challenge. Also if we look at the difficulties of scraping data sources when data is changing all the time: again, that is another very big challenge. But I am very interested to see the ways in which these methods have been able to begin to address that challenge.

The next thing I want to talk about is ideas that are much more complicated than pathogens. Assuming that we have a model that can tell us a person's emotional symptoms, such as anger, joy, positive or negative emotions and so on, questions do arise even if we can track back those effectively. What can we do to analyze these in depth? We may be able to track the progress of an emotion, but can we, for example, track the progress of an argument? For example, on Twitter this morning, there was a series of tweets concerning an argument about Mitt Romney and his wife. According to most of these posts, she is inaccessible and cold to the public, and thus questions were raised as to whether Romney's electoral chances will be endangered after his wife's speech to the Republican National Convention. Naturally, some people disagreed with this and said "It doesn't matter" or "She's very nice" or all those different sorts of things. How can we track these different emotions? How can we juxtapose the positive and negative emotional responses attached to events, in a detailed way? I know that political strategists would be very excited if they were able to do that. In a way, it would be a more dynamic way of understanding public opinion than going into direct polls. I will talk about the potential it has for political actors later on. But these are things that the model does not necessarily cater for, but may have the potential to cater for. Yet, these are still challenges.

Next, both Dr Sato and Dr Liu discussed event-focused modeling. We are often very event-focused in the field of cyber-activism. But as Professor Yang was mentioning earlier, we are confronted with a sea of background noise all the time. Sometimes, there are little peaks that we can point at, and we become so focused on these areas that it may be detrimental. How do we identify an event? The model claims to provide a prediction of future events. That is a

substantial claim which I cannot attest. I am not convinced about the idea that we may have a model of predicting future events which is better than human intuition.

Nevertheless, let us talk about events and background noise for a while. For example, if we have to take into account things like the natural amount of swearing that a person might particularly do in their daily tweets, it could be very complicated. The reason being there are likely areas or age groups of people who are likely to swear more—younger people swear more than the elderly; Australians more than Singaporeans. Hence, we have to factor this in for particular individuals. What is going to make a particular person so angry that they begin to use such aggressive language? I am not suggesting that it cannot be factored into such models, but it would necessitate very large data sets.

Another issue we need to think about is what Dr Sato was calling the “stimulus chain.” Which comes first? Because we have three kinds of events. We have the actual thing that is supposedly happening, for instance the stepping down of Murad Muwafi in Egypt. Then we have the emotional reaction, followed by the online response. We tend to assume that is the order of events. But people may see the online response, or they may feel anger for some other reason, and thus the chain of stimulus can become very confusing. So, there are lots of issues in terms of event-focused modeling that came to mind when I read the paper. We need to use data not only to study the events, but the background noise as well. That necessitates a great deal of data, and it brings me to the issue of data mining. Can we use these models to study cyber-activism? Although the answer may be “yes,” I feel that the data needs to be democratized to be useful to activists and people who are studying activism, and not just to normal corporate groups like marketers and political strategists. There are various issues with data mining. In order to develop a discussion, I will talk about some issues relevant to data mining.

Data mining is a tremendously useful source. Many people who are studying Internet activities may have done some data mining. However, there are a lot of different issues to be addressed. Data retention is a major issue. For example, in Twitter, it transpires—and it is difficult to know for sure—the data retention of Twitter is not particularly good, for example, if you want to retrieve a user's past posts. As opposed to 100,000 tweets, which it is possible for one user to have made, Twitter will only record the last approximately 2,200 tweets that the user has made. If you want to drill back, you may not be able to retrieve all the data. So where has the other missing data gone? It may have just disappeared or it may be stored somewhere that we do not know about. It may be being stored by other data miners. This brings up issues concerning ethics, privacy, and accuracy. There is always a question of what is missed out, what private conversations are hidden. For example, after using Twitter for one hundred days, if I decide that my Twitter account is too controversial and I decide to set it to private mode, the data miners may not respect this. My hundred days of data may still be accessible to them. If these data get disseminated to the hands of the Chinese government, it could be potentially dangerous to individuals. So, all these issues are very complicated.

The last thing that I will talk about is data access. Although there are great innovations in the field, from a humanities and social science perspective there are a lot of issues with data access. If we are studying these, how do we get to the data? Do we have to collaborate with our colleagues in computer science? How can they turn a complicated star schema or a data cube into something that is usable for people in the humanities and social sciences? Do we all have to be computer scientists in our spare time? These are all issues that we need to consider.

I will conclude very briefly by giving you an example, using the Leiden Weibo Corpus website (<http://lwc.daanvanesch.nl/>). Now if I type the word *wending*, which is “stability” in Chinese—part of my research is on stability and the concept of stability—then can retrieve a substantial list of different Weibo messages in which the word is being used. Once we set up a frequency table it shows the frequency of this particular word being used (in this case 2,940 times). Then we have metadata which describes the gender

background of the users of the micro-blog. So basically we can see, for example, the date this was posted, the location which it was posted from, etc., just like Dr Liu was talking about. This is just an example of how a particular corpus is being made accessible to users in the humanities and social sciences, who could go and look at the data by just visiting a website. This is a tiny fragment of the data mining that most companies do, although it is more than five million messages within a month. However, it makes no claims that it is retrieving all the messages posted during that time. Therefore, a lot of questions arise with regards to data mining.

Now I would like to open the floor to everybody. Maybe we could start with Liu Xiong, if you would like to respond to anything that was said.

Xiong: Probably I can add something about the human intelligence analysis. Sometimes people use irrational decision-making processes. They do not rely on, fully automatic algorithms. They are more interested in information that allows them to make their own decisions. This is called human irrational decision-making versus fully computerized decision-making. My topic focuses more from the computational side, but I have accessed a lot of human factors or its issues, but in reality, when people, analysts, try to make decisions, they try to study phenomena. They like to just grab the most interesting information to them and make their own decisions. Hence, part of my research in the future is like to interact with those real domain analysts, do some interviews with them to see what is the most interesting information we could provide. So in that perspective, people with diverse background all have a role here in the whole social media analysis. It is not just computer scientists, but everybody.

Carol: Dr Liu, thank you for your presentation. These are definitely tools that will be very useful to help us navigate the cyberspace. So for policy-makers, government officials, social scientists or humanities scholars the question would be how to make sense out of all these things existing out there. A lot of it resides on the social scientists. For instance, if we look at your example, say, deception, and if I were to use this tool to study mobilization effects or cyber-activism in the cases of Libya or the Egyptian revolts, I could view this

dimension as a decision dimension. From there onwards, is there a way to match these data with the star scheme you have developed to try to ascertain who are mobilizing, who are the agents of change, who are the followers, and who are the observers in these incidents? So, is there a possibility for me to have the autonomy to use these dimensions and frame them differently to meet my own research agenda?

Xiong: Yes, definitely. I like your questions a lot. Actually if you look at my diagram there are a lot of future dimensions. The linguistic features we extracted are generic. We have shown that it can be a useful study for certain deceptions. We can explore how useful they are for studying other dimensions like the mobility or the networks like you just mentioned. Some of your questions perhaps have something to do with the social network, like how people are connected. We also have those kinds of network data, like “who is following who” and “who is replying who.” However, we have not reported them here.

These kinds of social networks can apply different social algorithms, like the influence propagation algorithms. Within this framework we can probably find out the most significant postings and the most influential topics etc. However, we have not done that yet, but in the literature review it is stated that people have done similar studies. They have looked at the content and also the network structures of the posters to study or predict the dynamics in groups or in individuals. So, I think the framework I have shown is still at an early stage and we are trying to enrich it with real and more complex data.

Weiyu: I have been interested in data mining for a long time. My background is in communication research. I have two questions to ask. One is rather methodological and the other one is theoretical. The first one is if the purpose here is to use virtual data to understand the real world. If so, we are sort of sharing the same purpose. In public opinion research, there is always a problem of the representativeness of some posts. So are we trying to use a small group of people, one thousand or two thousand people, to understand the entire population?

Xiong: Yes, representativeness.

Weiyu: So do you want to use the tweets as a representation of the real world?

Xiong: Yes.

Weiyu: The problem here lies in the representativeness of your tweets. For us, we have statistical methods to calculate the errors. What is the targeted number of population for your research? Secondly, do you have any means to calculate the errors? As long as we can make this kind of estimates, I would love to buy any conclusions we draw from your sample. For public opinion researchers, our samples may never be perfect. But we can always tell the audience how wrong we could be, right? So this is my first methodological question.

Secondly, you mentioned that one of the polls show that if you use the bottom-up approach, your model actually works better than all the theoretical approaches. Is that right?

Xiong: In certain contexts, not all.

Weiyu: Okay, so in certain contexts if you use a data-driven, bottom-up approach, your model really works best for the particular case you use to generate the model but the question is how well the model works for other cases. And if you build the model based on the case itself, it would definitely predict the case at its best, would not it? Hence, do you think your bottom-up, data-driven model can actually help us to generate new theoretical models that can be used to predict other events as well?

Xiong: The first question is about what could probably be the errors in data. How do we get the right samples from the real population? I think that is a very fundamental problem faced by all social media researchers. Social media accelerates what is happening in the real world. They are neither the causes nor the reasons. Thus, the problems are faced by every researcher. Some people that were involved in actual events could not use social media at all. So we missed their data for sure. So how do we compensate? That is a very challenging situation. Hence, I like your method, where you

used your method for this kind of control. I think we need to design better sampling methods to identify the real population, and then get their data. Some we can get and some we cannot get at all. That is quite challenging. Probably the solution for us is to collaborate with the statistical people to design and crack the methods to get the real population and, hopefully, to get representative data and reduce noise. However, we have not done that yet. But that is something we definitely need to do in order to make our findings more meaningful and more useful. As for your second question, I am also glad you pointed that out. How applicable are those statistical methods for setting the social dynamic? We do realize our limitations. So we have been discussing with our collaborators and have been using the concepts, both top-down and bottom-up approaches. The top-down approach is not perfect because most of them are derived from some controlled lab studies, and they cannot capture some new phenomena that are evolving, so if you purely rely on those theoretical models or expert opinions, you probably would miss some new patterns. In the bottom-up approach if you try to find the patterns based on the data you have you may find a lot of information about the interpretation and its real meaning. So, to fuse both approaches together we need to identify some previously-studied theoretical results, and combine them with statistical studies, and data of a better approach than having only the theoretical-driven or purely bottom-up approach. So the best is to have a hybrid model.

Stefania: You have done some complex but fascinating work in your presentation. I have been around thinking about the activists that I mostly work with, who are highly aware of being surveilled. They are people who are very much aware of the risk, for example, being on Twitter or other social networking platforms. But they are central nodes in social mobility networks. It might just be a few of them, but they are very important from a point of view of mobilizing and of organizing a social movement or an action. They rarely use Twitter but they would speak deliberately in codes to disguise what they are trying to say. Hence, how do you account for these kinds of people who do not want to be acknowledged? For instance, instead of saying “square,” they might say “doctor” or “bank.”

Xiong: Oh, so hidden there.

Stefania: Yes, so they are interacting using codes, which they have developed and share with other activists. It is not easy to be studied according to parameters. But these are important people when it comes to organizing. They possess evidence of what is happening in Egypt.

Jonathan: I am also curious about how your linguistic analyses work. Would normal grammar fly out of the window? I am wondering if that would be effective for your text parsing strategies when your text is so small. You could use longer bits of text like from a blog or a webpage but then your data would exponentially increase.

Xiong: Let me first address the question you raised. Actually there is a research called the “hidden language modeling.” Hence, when the central organizers use other terms instead of direct terms, it is related to deception-detection, because many types of deception (the ones I talked about) are saying something untrue. Untruthful statements is just one type. The one you mentioned can also be categorized as another type of complicated deception. Our collaborator, John Hancock, has been studying some of those hidden languages to build deception models that can detect such hidden languages. We also need to know the ground truth to identify the real meanings behind the hidden words. So we need to have data. And if we have this kind of benchmark data, we can learn some models to detect those hidden words.

Stefania: Yes. I was not aware of the hidden language model.

Xiong: Yes, so that is one type of deception. So to address Jonathan’s comments, I agree that there is noise in the tweets. Usually the terms are very short and the grammar is not standardized. They are not written by experts or whosoever. So for our research purposes we are trying to extract the features of the language. We just look at the thesis and the elements and use that as features. But I agree with you. What you say is more complex than linguistic features. It is more about how to capture the real meanings of the tweets and remove noise. That is another set of features that we want to study in future. We can do comparative studies (for example tweets and news articles) to see whether using the same set of language

features using different data sources, could predict the same social dynamic. Afterwards to see how accurate they are from different approaches. That is something we have not done yet, but would definitely want to look into.

Peter: I was just trying to follow up on what you said about social media.

Xiong: Yes, social media accelerates the real-world events but they are not the causes of real-world events.

Peter: Right. That is the kind of question that I want to elaborate more on. In a lot of data mining they are trying to create real-world events, through infusing some kind of ideas into a larger population. If we start assuming that social media is the result of some real event, then we will never be able to figure out the impact of social media on a specific event in the future.

Xiong: Yes. We use the available online data as indicators and try to correlate to real-world events. By doing so we want to show the predictive power of social media. It is like if you get those features in real time then you might be able to quickly predict what could happen in the real world. This is the kind of linkage we try to draw and not really to focus on the real-world events itself.

Professor Yang, I read your paper briefly and you have discussed different types of behaviors, such as Internet-based behaviors and Internet-enhanced behaviors. Probably we can learn something from you and draw a bigger picture of what is happening to define the scope of behaviors.

Kumaran: I am from the Online Citizen. It is a cyber-activist website in Singapore and we receive approximately 500,000 visitors every quarter. I come from a computer science background and I have worked twelve years in a banking environment. I developed systems that predict stock market as well, so I find your model very interesting. But the stock market is rather easy because it works in the principle of mean reversion tendency, and there are a lot of data (dating back to twenty years even) that we can actually mine and predict the markets. But when I look at this basically you are taking unstructured data and putting it into structured data. Thus,

there may be mistakes occurred here. For example, a sentence like “I saw a man eating fish” could mean two things: a man who is eating fish as part of his meal or a man-eating-fish such as a shark. So the little nuances are very context-sensitive. So, you may not have a very global system, you may only predict in specific areas or countries. Also it is interesting to see that certain words would be used to evoke a reaction. Being an activist myself I found that to be quite true. We could put certain words out and then optimize the tweet. We also have amplifiers. We collaborate with them, so, not everything happens spontaneously. A lot of it happens behind the scenes. But policy-makers and people who are studying this area finds it very interesting because they start studying about it only after the facts are presented. My interest in activism came while I was trying to do a research for a bank to see if we could use Twitter and Facebook to influence stock market prices. At the end of the study we found out that we could influence stock prices by using all these social media. According to your model it seems you are looking at some disparate data and then trying to make sense of it. But in your model, I do not see any pre-condition or a certain blueprint that activists could use with certainty and say that “this is a specific model.”

Arun: I have heard a software called “sense-making” software. Is that completely different or is it also related to the kind of work you are doing?

Xiong: Okay, there are several questions here. To address your question, there is a research called “counter-messaging” research. You can think of that as another dimension of social dynamic. In that, people tend to duplicate user accounts to amplify certain topics. There are a couple of proposals as to how to capture those kinds of artificial, manipulative messages.

Secondly, as for my model, we are trying to aggregate the different data sources. The modeling that I am talking about can be considered as atomic models. They are not huge models or agent-based models with very complex phenomena. Those models can be plugged in to much larger problems like anti-activism or terrorism. So there are models of how a group is formed and how they recruit people and so on. Hence it involves a lot of processing work, but

our model is not like that. We just have a model which could predict whether there is deception involved in a given short text. Hence, what you said is right. In real world it is more complex but we still argue that our model could be useful to define a small scale problem.

Kumaran: It seems that you are building it for the government, or the police or CIA or something.

Xiong: Perhaps at this point, yes. But we want to extend our model to examine more complex situations. Just to make a note on the last comment, you mentioned that there is “sense-making,” software. This is actually a hot topic. However, it is not just social media. They go to the fields to collect real traffic, population, and interactions. They call this kind of sense as fusion approach. They go to the field to collect real-world data. So that is more direct sampling of the data instead of, what our research has shown. What we have shown is something that we can use as a very low-cost model that could help social scientists to filter certain things and focus more on certain other things. The one you mentioned goes beyond this online social media analysis.

PANEL 3

WHAT IS SLACK ABOUT SLACKTIVISM?

Marko M. Skoric

*Wee Kim Wee School of Communication and Information,
Nanyang Technological University, Singapore*

INTRODUCTION

The potential of social media as an agent of political change has been widely debated in recent years. The media-fueled public fascination with political campaigns originating from Facebook, Twitter and YouTube has probably peaked with Kony 2012, a viral video campaign aimed at having a Ugandan warlord Joseph Kony arrested for war crimes, which was seen by more than seventy-million viewers worldwide within a week of its release in March 2012 (Rainey 2012). While social media are usually applauded for allowing easy and fast information dissemination and citizen mobilization, concerns are also raised about the true meaning and consequences of these new digital forms of engagement. Online activism, frequently manifested as mere voicing of opinions, posting of comments and links, and “liking” of certain groups and causes, has been criticized as a pointless exercise that does more to make the participant feel good about themselves than to address important political and social matters (Hindman 2009; Shulman 2005). This new flavor of citizen engagement has for these reasons frequently been referred to as “slacktivism” (Marichal 2010).

“Slacktivism” describes activities that are easily performed with minimal effort, and are considered more effective in making the participants feel good about themselves, than they are at achieving the stated political goals (Morozov 2009a). These activities could also be seen as potentially damaging to the quality of civic and political life as they distract citizens from making more meaningful and important contributions.

This review examines if these accusations are valid—if Internet-based activities are indeed futile in promoting participation, and instead play a role in eroding the quality of civic and political engagement. I start by examining some of the contemporary definitions of slacktivism, and proceed by presenting the profile of a slacktivist, the positive and negative impact of slacktivism, as well as its implications for the future of political engagement. The aim is to assess whether Internet-based activism should be dismissed as slacktivism, or if it has a genuine place in the expanding repertoire of activist methods that can help promote real social and political change.

SLACKTIVISM DEFINED

While the origin of the term slacktivism is debated, Dwight Ozard and Fred Clark take credit for using the term for the first time at a music festival in 1995. A portmanteau of the words “slacker” and “activism” it was used to denote “bottom-up activities by young people to affect society on a small personal level” (Christensen 2011). Originally, it had a positive connotation, but it has since evolved into a more pejorative term used to belittle activities that do not express a full-blown political commitment to a particular cause or movement (Christensen 2011). Today, slacktivism is defined as “feel-good online activism that has zero political or social impact,” with the feel-good factor being singled out as the main reason behind the popularity of slacktivist activities (Morozov 2009a). It has been used to denote different types of online engagement that require little effort from the participants, and are thus deemed less worthy than traditional forms of participation (Christensen 2011).

Slacktivism frequently describes new forms of youth activism, in which the satisfaction is derived from having done something good for society without actively engaging in politics, protest or civil disobedience, or spending and raising money (Neumayer & Schoßböck 2011). Therefore, because these activities do not involve financial or personal risks, they typically do not require the participants to confront socially entrenched norms and practices, but serve as a form of light commitment that brings only social acknowledgement and praise (Gladwell 2010). Some examples include changing one’s Facebook profile to that of a cartoon character to show support for efforts against child abuse, or using a green-colored Twitter avatar to show one’s appreciation for the pro-democracy movement in Iran (Golsborough 2011).

THE PRE-INTERNET ORIGINS OF SLACKTIVISM

Although the term “slacktivism” had been coined in response to the advent of online activism, it is “neither new nor an Internet phenomenon” (ibid.). Offline acts of slacktivism also come in the form of political bumper stickers, T-shirts, or rubber wristbands, which do little more than simply announce one’s support for a particular political party or a cause, with an aim to make citizens feel good without having to do anything substantive (Ibid.).

According to Landman (2008), corporate-sponsored slacktivism dates as far back as the mid-1980’s when the tobacco industry undertook a campaign to derail efforts to ban smoking in public places by promoting the segregation of smokers into smoking sections, so as to avoid backlash and possible accusations of self-serving motives had they opposed the ban outright. While this method of control over public smoking might seem like a suitable compromise on the surface, the futility of attempting to confine smoke to one section of an open space soon became apparent (Selleck 2010). Most importantly for tobacco companies, the acceptance of smoking in public was maintained through this method of campaigning.

Many other forms of slacktivist-like behaviors are also not restricted to the Internet and social media. Ethical or political consumerism, or more casually termed “boycotting,” could also be seen as slacktivist behavior. Ethical consumerism is defined as “consumer activism practiced through ‘positive buying’ or ‘moral boycott’” or “the sending of positive, not just negative signals, and making a political statement by spending on premium goods” (Giridharadas 2009). It is a typical example of “lifestyle politics,” in which the ordinary day-to-day decisions of citizens carry a political meaning (Giddens 1991). This is reinforced by corporate participation in different labeling schemes for organic food, fair trade products, or environmentally-friendly products and production methods (Levi & Linton 2003; Micheletti 2003). A related form of this phenomenon is “cause-marketing,” a type of marketing that involves a non-profit organization teaming up with for-profit businesses (Selleck 2010). When consumers choose certain products because of the labels they carry, the purchase of these products makes them feel good about having supported a particular cause, without any need for a follow-up action. For example, the Susan G.Komen Cancer Foundation has been criticized for “pink-washing,” a form of quasi-philanthropic marketing strategy in which businesses label their products with a pink ribbon in a bid to show their support for breast cancer research. When consumers purchase these products, a share of the proceeds is then shared with the foundation (Landman, 2008). While this seems to be a

meaningful way to integrate activist behavior into the everyday lifestyle, such philanthropic schemes actually undermine commitment to a substantive action—people choose to buy the products, of which only part of the proceeds is given towards the political or social cause, instead of donating to the cause directly.

PROFILE OF A SLACKTIVIST

McCafferty (2011) defines slacktivists as “people who are happy to click a ‘like’ button about a cause and may make other nominal, supportive gestures. But, they are hardly inspired with the kind of emotional fire that forces a shift in public perception.” The critique of slacktivism is frequently linked to the possibilities for participation that the Internet offers, since it enables citizens to engage cheaply and easily (Coleman & Blumler 2009).

Young people, who are highly skilled and avid users of the Internet (DelliCarpini 2000) are the likely demographics to fit the slacktivist profile. Literature shows that since the 1990’s, citizens, especially the younger generations, prefer participating in looser and less hierarchical networks, as well as various lifestyle-related sporadic mobilization efforts (Bennett 1998; Eliasoph 1998; Lichterman 1996). Morozov (2009a) labels slacktivism as the ideal type of activism for the “lazy generation.” However, Landman (2008) counters this view, arguing that while most slacktivists are “probably genuinely well-meaning people,” their weakness is that they do not take the time to think about the value, or lack thereof, of their actions, in search of an easy way to feel that they are making a difference. After all, how difficult is it to slap on a bumper sticker, or click the “like” and “share” buttons? However, due to their attraction to tasks that require minimal effort, these slacktivists are also seen as unwilling to get their hands dirty and engage in more challenging tasks that need to be completed in order to achieve real political goals (Christensen 2011). This is also shown in a recent study (Vitak et al. 2011) where, in a sample of 4,000 undergraduates, the most common forms of political participation during the 2008 Presidential Elections in the United States were those low in resource intensity, such as watching a debate, whereas political actions that required more commitment, such as volunteering, were less frequent. This suggests that though young people may be participating politically, the degree of the participation may be somewhat low, and with little or no real political impact.

SLACKTIVISTS AND THEIR MOTIVATIONS

Morozov (2009a) goes further to criticize slacktivists and their motivations by proposing that people often affiliate with causes online for “selfish and narcissistic purposes,” such as to impress online friends, or to fashion an online identity for themselves. A social network site such as Facebook represents an online world, in which one has “anchored relationships,” communicating with family members, friends, colleagues and offline acquaintances. This online world emerges as an environment where people may tend to express what has been called the “hoped-for possible selves” (Yurchisin, Watchravesringkan, & McCabe 2005). Hoped-for possible selves are a subcomponent of the possible selves that differs from the suppressed or hidden “true-self” on the one hand, and the unrealistic or fantasized “ideal-self” on the other (Higgins 1987). These hoped-for possible selves possess highly socially desirable qualities that the individual would like to establish, given the right conditions (Zhao, Grasmuck, & Martin 2008). Social media platforms such as Facebook can empower individuals to actualize the identities they hope to establish, but are not able to do so in offline, face-to-face situations. A study carried out by Zhao, Grasmuck, and Martin (2008) found that the hoped-for possible selves projected on Facebook were neither the hidden “true-selves” expressed in an anonymous online world, nor the “real-self” carried out in an offline world. By clicking “like” on a Facebook cause page, or sharing a campaign video, Facebook users hope to construct their identity as what they would like to convince others to think of them, and hence would establish their identity when other “like” their particular activity. Colding-Jorgensen (Hesse 2009) sums it up aptly: “Just like we need stuff to furnish our homes to show who we are, on Facebook we need cultural objects that put together a version of me that I would like to present to the public.” Therefore, the combination of engaging in low-effort activities, with absence of a drive and emotional vigor that is characteristic of traditional activism, paired with the narcissistic motivation to construct identities to impress online friends, makes the participants of digital activism susceptible to the criticism of being slacktivists.

SLACKTIVISM VS. ACTIVISM

With the proliferation of campaigns online, it is perhaps not difficult to get inspired by their ideals and jump on the bandwagon, hoping to play a part in promoting a social or political cause. However, slacktivist campaigns differ from traditional activism in certain ways. Morozov (2011) posited that a good way to

tell if a digital campaign is slacktivist is to look at what it aspires to achieve. According to him, slacktivist campaigns seem to be premised on the assumption that, with enough tweets (or “likes” or “shares”) all the world’s problems are solvable. This is what drives such campaigns towards a signature-collecting, member-adding, link-sharing spree. Though this might work for issues that are geographically bound, for example a petition in a local town council, problems occur when the campaign transcends geographical boundaries, such as one to end poverty in Ethiopia. For this to happen, awareness needs to transform into action, something at which social media are yet to be proved successful.

According to Vitak et al. (2011), one of the major differences between traditional political participation and political participation on Facebook relates to the reduction in resources typically needed for engaging in political activities online. In general, political activities on Facebook are not resource-intensive, whereas, on the contrary, many forms of offline political participation require a more substantive commitment of individual resources. In Vitak et al.’s study (2011), the respondents indicated that they overwhelmingly engaged in the least intrusive, least-time consuming activities, thus showing preference for the information seeking-type activities, which characterize many slacktivist campaigns. Though information-seeking is an important element of political involvement, if little else in terms of concrete political action follows, such participation is less likely to have any impact on political institutions (Ibid.).

In contrast to Facebook activism, traditional activism often involves significant time investment and risks to personal safety, and is characterized by strong bonds among activists. Highlighting the example of the Mississippi Freedom Summer Project of 1964—one of the defining campaigns of the civil-rights movement—Gladwell (2010) stated that a quarter of those in the program dropped out after a string of violent attacks against churches and volunteers, asserting that “activism that challenges the status quo—that attacks deeply rooted problems—is not for the faint of heart.” It was not the lack of ideological fervor that caused the dropouts—all of the applicants, participants and withdrawals alike—were highly committed supporters of the campaign goals; what mattered more was the “degree of personal connection to the civil-rights movement.” High-risk activism is a “strong-tie” phenomenon, in stark contrast to the platforms of social media, which are built around weak ties, and are made for networks, not hierarchies (Ibid.). These weak ties seldom lead to high-risk activism, and hence, it is questionable if slacktivist activities reflect a genuine desire to affect political outcomes.

PROS AND CONS OF SLACKTIVISM

One of the key advantages of digital campaigns is their ability to reach a large number of people with minimal effort and at low cost, hence potentially increasing public awareness of a social or political issue/movement. By creating awareness of issues, mobilization of citizens is also made possible (Christensen 2011). The act of spreading information or awareness of an issue is often the first step towards fixing a problem, doing good, or creating change (Conway 2012; Golsborough 2011). Furthermore, by creating and increasing awareness of a political or social issue, attention is generated, and any kind of attention generated intensifies the possibility for people to change their minds, or to instigate action (McCafferty 2011). For instance, while everyday activist efforts, such as wearing a pink ribbon, do not lead to finding a cure for breast cancer, the increased awareness undoubtedly leads women to be more informed and diligent about examination and mammography (Selleck 2010). Therefore, because of its capacity to lower the barriers to entry for participation (Coleman & Blumler 2009), it creates the potential for the rate of participation to increase. Vitak et al. (2011) also found that this effortlessness generates an opportunity to “practice civic skills with minimal commitment of time and effort,” which is attractive to the younger generation. They argue that this facilitates the development of civic skills, an important process for youths to add vigor to their civic lives, which in turn increases political participation. This is ripe for digital campaigns, as by lessening the level of motivation that participation requires, social networks are particularly effective in increasing political participation (Gladwell 2010). Therefore, slacktivist campaigns do play a role in invigorating civic life in terms of increasing the reach of political and social movements. Firstly, the Internet serves to activate those citizens who already have a predisposition to or an interest in politics (Bimber 1999; Bonfadelli 2002; DiMaggio, Hargittai, Celeste, & Shafer 2004). The Internet also had the potential to mobilize politically inactive citizens (Barber 2001; DelliCarpini 2000; Krueger 2002), because of the convenience, or even the novelty of Internet-based campaigns may draw in those who have become disillusioned with traditional forms of participation, or do not want to use any additional resources to engage in traditional forms of participation.

Critics of slacktivism argue that this kind of activation of citizens is pointless as the activities do not have any impact on political outcomes in the real world, and that it would lead to a deterioration in the quality of participation as citizens opt for digital rather than offline methods of participation (Christensen 2011; Shulman 2005). However, Boulianne (2009) found that the Internet has a

positive effect on engagement, although the size of this effect is relatively small. Shah, Schmierbach, Hawkins, Espino, and Donovan (2002) also concluded that time spent online leads to engagement, rather than vice-versa. Research shows that informational use of new media platforms promotes political expression online, and that political expression online is, in turn, related to traditional civic and political participation (Gil de Zúñiga, Puig-i-Abril, & Rojas 2009). The study carried out by Vitak et al. (2011) further suggests that as the number of political activities people engage in on Facebook increases, so does political participation in other domains, and vice-versa. This is also affirmed by previous research that found that any form of association, especially if built upon networks of associations which are nowadays typical of Facebook, helps promote political participation (Rosenstone & Hansen 1993). Therefore, slacktivist campaigns on social network sites can positively impact political participation by creating awareness and driving more people to become better informed about political and social issues, opening the doors for potential mobilization.

However, sheer numbers are not enough, and are not good indicators of the success of a digital campaign. For example, a popular Facebook cause, "Save the Children of Africa" looks impressive with over 1.7 million members, but the amount of funds that they have raised is only about \$12,000, adding up to less than a penny donated per member on average (Morozov 2011). Morozov argues that due to its granularity, "digital activism provides too many ways out," driving people to seek out the least painful method of participation, such as deciding to donate much less than they could. This could be seen as a consequence of the Ringelmann Effect, which describes the tendency of individual members of a group to become less productive as the group size increases. Previous research has shown that subjects taking part in either physical or cognitive tasks alone and/or in groups put out less effort in groups, resulting in a discrepancy between potential and actual productivity (Ingham, Levinger, Graves, & Peckham 1974; Latané, Williams, & Harkins 1979; Petty, Harkins, & Williams 1980). This is aggravated by some organizers of online campaigns who demand less and less of their members in order to inflate participation rates (White 2010). The result is a degradation of the quality of activism, until it consists of little more than a series of petition drives to raise money. Morozov (2011) explains that many of these groups pop-up spontaneously without any course of action and no clear goals beyond increasing awareness and raising funds. The problem with this lies in the fact that not every problem could be solved with a simple injection of funds. Because the Internet has opened many new channels for raising donations, fundraising frequently becomes the primary focus of the campaign, while the real problems are usually sidelined—this drive for funds distracts participants

from a more effective ways to organize. This is clearly different from traditional activism, which has always been about the people, specifically people “showing up in person” (McCafferty 2011).

Indeed, the quality of engagement is likely to erode if a significant portion of the activist population is converted to slacktivism, while being morally content with that choice (Morozov 2009a). The ease of access does not necessarily lead to an improvement in the overall level and efficacy of political involvement, and could actually have detrimental effects (Christensen 2011). The ease of joining Facebook groups, for example, may divert people from helping the same cause in more productive ways. When the act of joining a Facebook group is seen as the answer to a political or social issue, it turns that very act as the end, rather than the beginning of a person’s engagement with a cause, undermining the very nature of activism. In addition, fundraising activities, which seem to be the focus of many online campaigns, could undermine citizens’ efforts to engage in meaningful real-life activities with other group members. The fact that they have donated money, no matter how little, would make them feel good, i.e. that they have already done their part, and thus should be left alone.

While Facebook and other social network sites offer young citizens opportunities to share their political opinions with their peers, and stimulate their own interests when being exposed to differing views (Vitak et al. 2011), the key criticism against slacktivism focuses on the lack of connection among the members of such social/political movements. It is argued that the nature of social network sites and the movements that are spurred using them is ill suited for achieving real social and political change. Firstly, network-like movements do not have a centralized leadership and levels of authority, and thus have real difficulty setting goals and reaching consensus (Gladwell 2010). Such organizational arrangements cannot foster discipline and clear strategy, which are both needed to effectively challenge any established order. Facebook activism favors weak-tie connections, which are formed in an information/entertainment oriented social media environment. Thus, a sacrificial element, which has characterized traditional activism and which helps members persevere in the face of danger, is likely to be absent in most Facebook campaigns. Secondly, the visual nature of social media “rewards the skills of the narcissist, such as self-promotion, selecting flattering photos of oneself, and having the most friends” (Twenge & Campbell 2009). Given that, it seems unlikely that narcissistic campaigners would develop true feelings of empathy or be prepared to make sacrifices that their political aims often require.

Still, there is little doubt that digital campaigns have the potential to invigorate civic engagement by increasing the reach of the political and social movements. The danger that slacktivism presents, especially in the context of (semi) authoritarian states, is the misperception that these digital activities directly lead to actual political or social changes, and thus may lull citizens into an illusion that such activities are not only effective, but also preferable to the methods of traditional activism.

FUTURE RESEARCH ON SLACKTIVISM

The rapid rise of social media has given the research community new opportunities to analyze millions of messages on a great variety of topics, in many different languages. Computational social science leverages on the capacity to collect and analyze massive amounts of data, including the possibility of capturing and processing entire populations of messages, rather than just samples. Such “big data” approaches have yielded some interesting findings about the content and structure of human networks, and have been used to predict a range of behaviors and socio-economic phenomena, including box-office revenues, reality-TV competition results, elections outcomes, stock market, etc. As many social media messages (e.g., Facebook, Twitter) can be thought of as conversations, the ability to eavesdrop on these conversations should give us qualitatively different insights from those generated by self-reported measures used in traditional social research.

One of the key challenges for future research on online activism will be to assess whether analyzing publicly available social media messages can lead to reasonably accurate and valid estimates of public opinion, and whether messages can be used to make specific behavioral predictions, such as election results. A recent meta-analysis of studies using Twitter data to predict elections found that although the predictive power of Twitter messages is not on par with traditional opinion polls, they still may provide useful insights about citizens voting preferences (Gayo-Avello 2012).

Indeed, an important direction for future research would be to provide direct comparisons between the predictions based on social media data, and those made by traditional opinion polls, as well as between social media estimates and empirically-obtained data, such as election results, rally attendance, etc. A recent study utilizing online political discussions as a data source, found that emotional reactions could be used to predict the U.S. presidential approval rates over the period of five-years (Gonzalez-Bailon, Banchs, & Kaltenbrunner 2012).

If mining social media data can lead to accurate predictions then such analysis would hold significant advantages over traditional opinion polls, including lower cost, improved, near-real time speed, and a greater variety of topics to be examined. Furthermore, the dynamics of persuasion and influence are much easier examined in the environment in which most communicative actions and networks are captured longitudinally and preserved as digital traces.

An often-cited problem with social media data is that social media users are not representative of the general population, as they typically come from the ranks of early adopters, teens, and better-educated citizens. While these criticisms were not without merit as recently as few years ago, it is worth noting that the penetration of social media platforms such as Facebook has already reached fifty per cent of population in a number of developed countries, and is rapidly growing in many developing countries. Furthermore, given the increasing knowledge of the characteristics of users and non-users of social media, it is possible to obtain reasonably accurate population estimates by using a combination of imputation and weighting, even when the penetration rates are significantly lower.

CONCLUSION

There is no reason to be outright dismissive of all slacktivist campaigns. Even a small effort helps, whether is about creating awareness, raising funds, or stimulating interests in issues, which over time may lead to more substantive political action. For instance, in their study of an Austrian student movement Unibrennt Neumayer and Schoßböck (2011) found that new members first participated passively by simply sharing information, but gradually became more active as they became familiar with the norms of the group. Furthermore, although slacktivists do not engage directly in civil disobedience to achieve political goals, their participation increases the total number of people who support a particular cause. Even skeptics like Morozov (2009b) note that there are successful online initiatives, with realistic expectations and goals, which rather than denying the slacktivist inclinations of many users, take full advantage of them. For example, the success of FreeRice leverages on the entertainment-oriented nature of the Internet and thrives on educational games that expose players to online ads, the proceeds of which go towards purchasing and distributing rice to poor countries (Morozov, 2009b). Livingston (2010) suggests that the first step towards turning slacktivists into activists is to stop thinking of these users as slacktivists in the first place because the term

“has its own baggage.” Instead, individuals and organizations seeking to mobilize citizens for a cause should tailor their messages according to the individual levels of interest and specific preferences for engagement, and by doing so, could encourage citizens to take more substantive actions at later stages. Stolle, Hooghe, and Micheletti (2005) in their study of citizens who engage in the acts of political consumerism found that even those who practice them most rigorously do not necessarily believe that political consumerism is an effective way of bringing about political and social change, as they see voting and volunteering as more effective ways to influence society. Given that, slacktivist activities should be developed as integral parts of the activism repertoire, and not simply seen as another, easier way to achieve political and social change. Slacktivists should not be scorned, but instead cultivated to take their actions beyond the social media sphere and into the real world. Future research should not be prejudiced against slacktivism, but should instead actively focus on developing innovative, interdisciplinary methods for evaluating its role in contemporary political life.

ACKNOWLEDGEMENTS

I would like to thank the Wee Kim Wee School of Communication and Information, Nanyang Technological University for supporting this research and my research assistant Ms Nuraini Malik for providing invaluable background research on the topic of slacktivism.

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PANEL 3: QUESTIONS AND ANSWERS

Moderated by Dr Peter Marolt, Asia Research Institute, National University of Singapore

Peter: We have about half-an-hour for the discussion so I will keep my comments brief. As you said, there are a lot of papers on slacktivism but not so many actually conducting empirical studies. It almost seems that as academics we often do things not in order to explain something that is actually happening on the ground, but to get ourselves published by creating and citing a group of people with similar interests.

In that context, as Marko has mentioned, the question presents itself: To what extent is slacktivism a form of activism, a term which we should use? Perhaps that is something we need to discuss further. There are terms like clicktivism, hacktivism, other forms of activism, and then there's the "real" activist. Tomorrow, Professor Yang might talk about the activist as "performer." As long as you are an actor or a spectator you are something. Contrasting the various categories would help us understand how slacktivists fit in. Now, how much slacktivism is out there? How is slacktivism different from those other categories? From what I can see, would I ask people whether they are slacktivists, most might say "no"—because they understand the term differently from the way it was conceptualized here. Hence, the term would have to be defined and introduced appropriately to avoid misunderstandings. One other way to help assess the viability of the term would be by looking at the connection between participation and impact. In what ways does slacktivism have measurable impacts? In order to find out we'd need methodologies that cut through the "noise" in meaningful ways, and relate slacktivism to the ecology of other activisms and actions and actors that are out there. This is a big challenge.

Tarn How: I would like to make a couple of points. In Singapore, if you ask people how they voted in the last election, you will get forty-five per cent of people telling you their answer, yet quite a number of them seem to be lying, because their answers do not tally with the published results. Also, it is interesting to look at the act of “liking,” because it puts you in a box. And there are psychological studies showing that people want to be self-consistent—you brought up that point well. Once they have made a small commitment they are much more willing to make bigger commitments. A famous study included calling people along the streets randomly and inquiring “how willing are you to put a big billboard (ten by ten) in your yard stating ‘drive carefully,’” and a lot of people will say, “no.” Then another sample was questioned (a week prior to this) about “how willing are you to put a very small little sticker onto your gate, saying ‘drive safely.’” From these two cases they found out that the latter group was more likely to make bigger commitments because they wanted it to be consistent. I do not know whether the act of “liking,” even though it seems very trivial, makes you think, “Okay, I’m pro-PAP” or “I’m pro-democrat.” I think this a very good area for further study and it would not be so difficult to set up either.

Kwang-Suk: In 2008 in Korea, there was a candlelight vigil protest, which was deeply connected to online activism. It addressed something different from the negative nuance of “slacktivism,” and also showed us something against both the street barricade politics and image politics. Contemporary power has become more based on media politics and other types of image politics. So, in this case, we should consider more the counter-actions of the slacktivist type and not just the prerequisites. Then we need to relate the slacktivist activities to the “real” politics, as shown in 2008 candlelight vigil protest. Also, it would help if you could find out whether and to what extent such counter-actions are implemented in real-world circumstances, such as legal systems and policies. In other words, the inclusion of slacktivism of the real politics by the following question: are politically-oriented hackers in cyberspace also implementing change in the “real” world? We should consider those kinds of new emergent groups too. I recommend that you note the candlelight case in 2008—many of the labor activist groups and other traditional activist groups wanted to take a lead on some street demonstrations, but, against their political

leadership, the multitudes either on the street or online space wanted to show their autonomous desire relying on their interests. So this is also a new changing pattern in the offline world. Hence, my question is: as shown in Korea, should slacktivism be defined locally instead of having a general definition with a negative nuance?

Marko: Actually, I think slacktivism is used frequently as an umbrella term, although it needs not necessarily be so. I am glad that Peter mentioned hacktivism. Hacktivism is completely different. It is usually done by quite sophisticated, involved, passionate and typically well-educated males. It is a very small group of people. These people are very different from average people. This is a minority of ideologically-opinionated, technologically-savvy and persistent people. To 'hack' means to break the law. For Korea I think the memory is still very fresh. People who are above forty in Korea know how much you have to pay to get freedom. I would not say Korea is a unique case, but definitely it is one of the strongest activist states in Asia. In Europe you can find many activist groups. Once I attended a demonstration with half a million people. It was scary. I think the political history is very different. Singapore has never come across such a situation. So again, I am trying to provide a definition for slacktivism but a narrow definition—something that is very low in effort, and is convenient. For anything more substantive, I would definitely not use the term slacktivism. So from my view, I want to differentiate cyber-activism from slacktivism. Cyber-activism may be a broader term whereas slacktivism is definitely not.

Arun: Marko, just like you are not aware of "Kony 2012," I was not aware of slacktivism except that I have heard the term. Thus the presentation was very educational to me. I have a question on representativeness. I think you mentioned that we can go online and get a very good understanding of what is out there, much better than our traditional surveys. Is that the point you made?

Marko: Well the point is that Google knows more about you than probably even your close friends.

Arun: Sure. I want to lead from there to what extent are people “real” in Facebook? Is there some kind of image-building, as we have already heard and you have also mentioned? Secondly, what about peer pressure? In a survey, we usually ask the person and they respond straight away saying that there is no peer pressure. But here, what we see may be a result or a consequence of peer pressure rather than their genuine response. So I do not know whether the web would be a substitute for traditional surveys. I do not deny that it is a very rich source of information. It is, perhaps, unprecedentedly rich. But I am not sure that it actually represents the reality in terms of individual ideas or individual positions. I would like to hear more about this.

Marko: Great question. I think that what we see in social media is a different quality of data. You are right. When you are asked about your political opinion, people would not wish to express this especially in a networking environment because you have to be “liked” by your fellow Facebook friends. For instance, if they are liberal as opposed to having conservative streak, it is going to be tough. Some people I know of would not express their personal political opinions because they would be judged based on those. They are living in America and not in an authoritarian country. So, they are basically social conservatives. But most of their friends are liberal because they have PhDs. Hence, they would support certain causes “off the record” but not on social media platforms. They would not do it online because it would create some tension between them and their networking environment. If you look around and say, “Hey, most of my friends are liberals, so I cannot really express my opinions freely on an online platform, but if I’m asked for a survey, yes, I might be able to tell you a different thing.” My fear is that so far, only governments and defense organizations are willing and able to harvest this data.

Peter: Or companies.

Marko: Yes, so those are the only actors in the field right now. Probably fifty-per cent of work is defense and government. Maybe eighty-per cent and the rest are commercial. Whether it is an issue or not depends. If this is going to become a dominant way of collecting

data, and this data becomes proprietary, then we are out of business.

And the public will not know either. Hence this is my biggest concern. There was an article in *Science* last year by Gary King from Harvard, who said this is a problem. Now, we need to start forming consortia that will enable public access to this kind of data. So that even you, as a hacktivist, can download a fair bit of a dataset and analyze it yourself. Not too many people are doing it.

Sun: Thank you very much for an interesting paper. As you mentioned in your conclusion, there are some cases like the Australian students' movement which actually turned into something more positive and more active, which initially started as slacktivism. My question is related to this point: what are the driving forces or an actor behind the change from mere slacktivism to an activist movement? There are some cases like the candlelight movement in Korea. Thousands, even millions of people are just starting from slacktivism because there is a "feel good" feeling about commenting on an incident. Then it became a big social movement. So I am just wondering whether there has been any study on that or if you have thought of this aspect as well.

Kumaran: I would like to make a few comments. Firstly, you mentioned that your students do not have political opinions. That is alright, because most of our politicians in Singapore do not have any political opinions themselves. Although they call themselves "democrats," they are part of an "authoritarian" regime. So that is something for you to really consider. Lower barriers to participation is something that actually touches a nerve. Half a decade ago, when I was new to Facebook, I realized that strangers start "friend-ing" others the moment they post something. At first, I was being the sort of very "strait-jacket guy," I was afraid to "friend" someone, but after my friends "friend-ed" someone, I decided to become a slacktivist and "friend" them too. Then we start commenting on each others' posts. That is an example of a slacktivist becoming an activist. Also, the cyber environment is often hostile to PAP. In addition, if I were to post anything about Workers' Party (WP), I get slammed too. Thus we are very careful about what we post. On top of that, I am actually supposed to be representing the views of the

entire community of over fifty-thousand Facebook users, so that is an extremely scary position to be in.

Could you give an example of the “Occupy” movement? Talking about it from where I come from, I think we had an incident of Tin Pei Ling actually flouting some of the election rules. That actually continued with someone creating a Facebook page and having sixty over thousand “likes.” They started having protests all over Starbucks in Singapore. So that is one example of where slacktivism actually led to mobilization of a protest in Singapore. I would want to hear your views on that.

The other thing is, you mentioned that there is a punishment for those who actually blog and you cited an example of someone in Saudi Arabia. I am quite amused about that because here some bloggers are actually rewarded. So they might not be so critical of the government. So there is a positive effect to slacktivism as well. So this is to say, unless you know me, you will not be able to say what my political views are simply by liking and reading my posts on Facebook. Hence, just going by the *likes* alone is not sufficient. Probably, you have to read the actual live feeds to understand that.

Guobin: Thank you, Marko for the presentation. I think your presentation raised two important questions. One is the question of the outcome. How to study the outcome of activism and social movements? In the field of social movement study, this is notoriously difficult because you cannot prove causation. It is much easier to study how movements happen than to study the impact of movements because there are many intervening and mediating variables. I think this is an important question for us to think about. One way of thinking about this question is to raise how to conceptualize activism or slacktivism or online activism in the broader ecology of social movements and so on. We have discussed quite a bit about the Arab Spring and the role of social media in Arab Spring. As you mentioned, it is sort of a frustrating discourse because people simply cannot isolate the impact of the Internet or social media. However, on the other hand, it is clear that social media had a very clear presence in this series of popular protest. Therefore, how to isolate the role of the social media? My opinion is that instead of trying to isolate social media and stratify specific impact, which is very difficult to do, it could be more fruitful to put

it back into the broader ecology to look at the impact of the overall picture. I say this because I was inspired by an article published in the *Journal of Communication*, earlier this year, on a special issue about the Arab Spring. The author of this particular article was Merlyna Lim. She wrote about the Arab Spring and how to understand social media and the Arab Spring. She argued that we need to go to early 2010 to understand the role of social media, because all those years both activists and citizens have been using social media but one of the achievements of this process was building networks among people to disseminate ideas. And in that sense, we can understand the role of social media in the Arab revolution. The theme of this conference is methodological and theoretical issues in the study of cyber-activism. However, we might have to go back to basic questions about conceptual issues, such as to what extent can we isolate cyber-activism or slacktivism from other forms of activism?

Carol: My comments are somewhat linked to Professor Yang's, so I will quickly add a point. Thank you for a timely presentation Marko. The arguments that you highlighted in your paper are true reflections of criticisms and critiques and supporters of slacktivism. But essentially, I think the crux of the debate is seeing slacktivism as a competing modality to some of the existing repertoire that is out there. However, one threat is that some people see it as having a displacement effect. That is to say, if you participate in slacktivism, it would probably take your time and your interest away from more meaningful or more impactful types of political actions. In comparison with real activism that involves effort, commitment and time, slacktivism is clearly weak. Social movement scholars have studied different types of repertoire according to the kinds of effect and impact it engenders—from the logics of numbers to logics of damage. Clearly, slacktivism may not create more effect than a *like* click. Nevertheless, at times, it lends the noise or creates the logics of numbers that may be sufficient for a specific type of campaign to take place. Another issue is the displacement that I mentioned earlier. I think there are so many theories about hierarchies of political participation. However, the one that would always stick in my mind is the one by Milbrath, coined in the 1960's, on his hierarchy of political participation. No one sees wearing a button as a competition to signing a petition. So you

have political theorists who actually came up with different types of actions that would eventually lead to greater commitment and more impactful actions by people. Instead of displacement we might have to consider slacktivism as playing a complementary function, as part of a new continuum of the social movement repertoire. Lastly, I think one of the themes that you rightly pointed out was the issue of social ties of how slacktivists essentially do not have stronger ties with other people. In order to engage in real activism, you need stronger ties. Perhaps we should approach it from a slightly different angle and look at how slacktivism provides new opportunities for creating new ties and bridging like-minded people. This was actually one of the themes that resulted from the findings of my dissertation when I spoke with activist bloggers who engaged in different forms and levels of activism.

Beng Huat: I find the questions very interesting. However, I feel that you need to make clear which side you are on. Your presentation is very contradictory because the definition of slacktivism you give is a very negative one. It is all about “self” and about passivity. But then you say that there is no evidence to show that this is damaging. Then at the same time it is also possible for people to shift from putting on “likes” to much bigger things. So all these make me feel that you are negative about slacktivism, but I do not hear you saying exactly that either. To talk about slacktivism is not just about wearing buttons and so on. In general politics you cannot live in a completely mobilized society. In a world of total activism, it will be impossible to live. The way the world operates is that there are a couple of activists, while the rest are passively going along in the movement. So you are describing the masses of the people who do have opinions, one way or another, but it does not move them enough to go and throw stones. Until recently, the only society that was completely mobilized all the time was Palestine. Now it also includes Syria and permanent state of siege of Israel. I have no intention to live under those kinds of conditions. Talking about the cyber-ers, there is a whole bunch of people out there who does not participate in this very simple, passive manner. It is fine and I have no issues with that. Only political scientists have over-determination of the need to act politically. Most people do not want to act politically.

Marko: Let me try to answer this. I shall start from the reverse order, so that people's memories are refreshed. I was trying not to be too contradictory, and I apologize if I was. To answer this question I would cite someone who is more accomplished and smarter than me in this term, Professor Bruce Bimber. More than twelve years ago he wrote a book which said: "Nothing big is really going to change." Historically no technological advancement has ever increased the number of people interested in politics beyond literacy. Television sets and telephones did not increase the number of people, and the Internet probably would not either. The question here is of time limitations and interests. Considering what we are going to see over the next ten to fifteen years—economic crisis, unemployment and political upheavals—many would not have time to play the role of an activist due to job commitments etc. If I were to look at my students they would not have a lot of time to be politically active. I am sure they could find another half an hour or so a day if they really wanted to but that would not be very meaningful.

Why was I contradictory? I think a lot of people participate in these slacktivist activities, which are just low-effort activities happening online. It is like cyberspace, nothing more and nothing less. When they participate online they are not necessarily motivated by political reasons but by regional identity, camaraderie or just the mere need to look "cool." So they start participating in politics not necessarily for a valid reason. Would this eventually lead to something better? I think it will. However, I am not really interested in their motivations for participation.

Beng Huat: But is it really relevant? Analytically, it really is not because we are talking about the effect of their participation, not about the motivations.

Marko: If you are asking about effect, I think there is very minimal effect other than the speed. The speed of transitions and the speed of upheavals are going to increase, and you can see that there is much more happening in the world now. It took us forty-years to wait for 1989 revolutionists in Europe. Now we have revolutions every couple of years. That could probably be the effect. If you think about societal institutions, like governments, laws, legal

frameworks, that is one point. The other point is we form institutions by culture. Certain aspects of culture keep shifting every five to ten years. Government institutions change every fifty to hundred years at a very slow pace, while technology changes much more rapidly.

Beng Huat: It depends on what you mean. The Arab Spring led to change within a month.

Marko: Sure, but we cannot explain what is happening without social media, maybe to a lesser extent. What is interesting is that, you can compare 1989 changes in Eastern Europe and the Arab Spring. Eastern Europe actually changed. Russia did not change much, whereas Poland changed significantly. But Poland had solidarity movements since the 1980's, so they had the civic infrastructure in place when the technologies arrived. Technology at that time was television or photocopying machines. So I think there is not much change, but there are definitely more changes that are happening rapidly now. If anything is going to happen, we are going to have more changes, such as more revolutions and more rapid cycling of political agenda. It would be more or less global. I think that is the only change that I can foresee. Is slacktivism going to have a major effect? Absolutely not. More people are going to be engaged but some may eventually participate without changing much other than how rapidly things could change.

I do not know what the numbers are right now. But for Carol's question logical numbers definitely works. There are studies that only count certain things and numbers. I think it is a lot about perception, cyber cascades, and bandwagon effect. There are actually pretty decent trading economics about it. This is not necessarily a matter of cyber-activism, but economics.

Professor Yang, I think the best way to think about social media ecology right now would be, to not be concerned about impact or effects. I would not talk about it at all but just think of various kinds of change. For the first time in history, we have a chance to fully document the process of social change or political change. Hence I am talking about evidence. In case you are interested in the political change in China, for the first time, you have data from four-hundred million people. And this data is more or less available.

In history, you could have interviewed maybe 4,000 people or maybe 40,000 people but now 400 million people are talking about social issues, political issues, and civic issues. Is this going to lead to a different impact? I am not sure. Is this better for us as researchers? I think so, because four-hundred million people are providing a readily available database. I am not really concerned about the impact. I just want to know how things change. So, that is my take on this. Facebook has more or less all our correspondence unlike emails that used to be the corresponding method a decade ago or so. Google knows much more about me than anyone in this room. Whether they are able to monitor it and share these insights with us is another question.

With regard to lowering the barriers, I think one of the questions here was about why people decide to go from slacktivism to something more important. A very short answer would be, "I have no clue." I have two educated guesses: the first one is called cognitive dissonance. So if I say that I am a person who protects children from being taken into captivity and used by a warlord, then, I have to do it consistently. I have to do it more than once. Cognitive dissonance is a simple psychological method that may explain this. More importantly, I think it is social capital. It is the value of price. If I promise you now that I will send you a copy of my paper and then I do not send it to you, it will look bad upon me. Hence we have a sense of obligation with all the people that we are connected. If you are very close then you are willing to do many things for those people. Similarly, if I meet someone at a conference and they say, "Hey, I have an issue with this cause, would you be willing to contribute \$10," I would probably say, "yeah, sure." But, if I do not know you, the answer would be a default "no." So, this sense of obligation connected to cognitive dissonance could do something more substantial.

PANEL 4

MOBILE ACTIVISM AND ITS LOCAL SCENES IN KOREA

Lee Kwang-Suk

*Seoul National University of Science and Technology,
South Korea*

INTRODUCTION

The present study arose out of concerns about the little known and widely ignored dark side of the Republic of Korea's (thereafter, Korea) development of Internet culture. Through situating Korea's IT development in relation to the larger structures of society, this study focuses theoretically on critical ideas developed by the following three approaches to Internet culture in Korean academia: the political economy of new media, cyber-culture and new media studies, and cyber-activism. The first two points of view have explored Internet users' autonomous culture as relatively free from a hierarchical power structure and the communicative and cultural patterns of Internet use at the microscopic level, as well as debunking the structural aspect of digital culture conditioned by power and private business entities at the macroscopic level. The present study, however, stresses the third theoretical position of cyber-activism in order to draw out the rhizomatic and nomadic patterns of the Internet technology's use and the democratic participation of citizens in the public sphere, while enabling politically and culturally alternative voices from below at the local level of Korean society. The present author characterizes the historical development of Internet activism in Korea from the burgeoning phase of online activity to the current conditions of mobile or SNS activism in the age of the smart phone.

This study examines how, to counter the socio-economic backwardness of Korean society, many Internet and smart phone users joined together for social networking and embraced using the alternative media as a tool of cultural jamming and free expression of opinion. They used these new media tools to encourage citizens to vote for minority and opposition political parties, to change a politically conservative mood in Korean society, and also to allow political catharsis through the expression of the people's voices from below. Relying on the critical approach to digital technologies, this paper offers a case study of two local alternative media, *Naneun Ggomsuda* ("I'm a Wiesel") and *Newstapa* ("Rebuilding Investigative Journalism.") The present study sketches the phases of cyber-activism in Korea, from a "thumb culture" or online activism up to a recently emergent social networking service (SNS) activism on the basis of the popular use of smartphones—one which is able to produce new critical discourses through its major integration with social media. This study concludes that the Internet in Korea can be considered as an active public sphere which informs us of the suppressive actions of power, affects traditional media journalism, and enables the Internet users to be united emotionally.

It is not widely known internationally that, as of 2010, Korea has the highest suicide rate among the member countries of the Organization for Economic Cooperation and Development (OECD), at 31 per 100,000, as well as the lowest birth rate. The suicide rate is not only much higher than that of the U.S. (11 per 100,000), but even higher than that of Japan (24 per 100,000.) A rapid increase in the suicide rate has been noted as an ongoing trend in Korean society since the late 1990's (Korean Ministry of Health and Welfare 2010)—the period when the government promoted the arrival of "affluent society" on the material bases of consumerism and broadband Internet culture. More evidence of Korea's social ills has been emerging continually: for instance, as of 2011, the happiness index for Korean teenagers was the lowest among the twenty-three countries in the OECD. As of 2010, Korea was also ranked the second lowest in social welfare spending among OECD countries.

Far from the myth of IT growth, the conditions of workers in Korea are extremely insecure: among OECD countries, they have the longest working hours—2,256 hours a year and 45 hours per week, as of 2008 (OECD.StatExtract 2011). This number is more than 100 hours longer than the next longest-working country, Greece (2,116 hours.) If we further consider the material conditions of Korean workers—overworked, stressed, threatened, and always situated within "institutionalized precariousness" (Bourdieu 2003)—simply noting that they work the most hours in the developed world falls short of describing their insecure working conditions. According to Bourdieu (2003), such a "dual economy" is made-up of an enormous industrial reserve army—"a

sub-proletariat with no employment prospects, no future, [and] no plans" (30-31) on the one side, and a small privileged minority of secure workers with a regular wage on the other. The "zombie"-like sub-proletariat (Shaviro 2002), always vulnerable to being laid off and not renewable after their labor power is consumed and exhausted, consists mostly of the younger population in Korean society. In Korea, this zombie sub-proletariat is now dubbed the "KR 880,000 won Generation"—the younger generation earning a net pay of about US \$650 a month (Seo & Kim 12 April 2009). Young Korean workers suffer from continually precarious job positions as temporary staff or contract workers, being trapped at the bottom of the pay scale, and are thus embittered by their broken dreams, despite their elite educations and careers. While in the global market the *Chaebols*³—Korean-style family-owned multinationals such as Samsung and LG—are reaching the apex of the consumer electronics industry, their workers and young Koreans are still captives in the early-era of industrial capitalism. The mega-corporations have accumulated ever-increasing profits through more worker exploitation and the appropriation of surplus value by using semi-permanently institutionalized precarious and insecure conditions for workers. Indeed, the introduction of the casualization of employment is planned as "part of a *mode of domination* of a new kind, based on the creation of a generalized and permanent state of insecurity aimed at forcing workers into submission, into the acceptance of exploitation" (Bourdieu 1998: 85, emphasis in original).

The social conditions have been getting much worse under the Lee Myung-bak administration (from 2008 to present). For example, it has launched physical infrastructure policies such as the "Four Major Rivers Restoration Project" despite the overwhelming opposition of citizens. The Lee administration has poured an astronomical amount of money into public relations for the purpose of justifying the so-called "multi-purpose green growth project" and into renovating the four major rivers, namely, Han, Nakdong, Geum, and Yeongsan in an extremely destructive way. Despite the government's public relation (PR) initiatives and its claims that the massive project will provide such benefits as water security, flood control, and ecosystem vitality, the project is widely criticized as simply creating artificial leisure and recreation facilities while permanently spoiling the natural riparian vegetation. The market-driven model of "renewing" previously preserved

³ Korea's *Chaebols* are family-owned business groups with large subsidiaries occupying an oligopolistic position, despite a relatively low concentration of ownership and the absence of pure holding companies.

ecological areas reflects the changing mode of profitable resources in Korean-style neoliberal capitalism—degrading the common natural heritage and landscape and creating a new value productive chain from the privatization of the public commons. Conservative media are busy dismissing or concealing this. The concrete and steel covering the rivers and fields in Korea are praised as administrative achievements, but the voice revealing its truth is weak and blocked.

Over the last several years, meanwhile, digitization has been a key feature of the latter stages of Korea's "compressed modernity"—a phrase encapsulating the way in which the country has leapfrogged conventional development stages to move from traditional agrarian society through industrial society to information society in just a few decades. As international reports like the International Telecommunications Union's *Measuring the Information Economy 2011* (ITU 2011) and the OECD's *Communication Outlook 2011* (OECD 2011) testify, Korea has become one of the global leaders and an example to the world in the deployment and penetration of high-speed Internet access, as well as an important locus of innovation in mobile and consumer digital technologies and practices. Korea has the highest proportion of mobile broadband subscriptions—ninety-one per cent (ITU 2011: 12), the fastest average consumer Internet connection speed, and generates the highest amount of IP traffic (Goldsmith, Lee & Yecies 2011).

The glorious IT growth index stands in contrast to the stories that give an inside view of Korean society. While broadband and mobile Internet has become a crucial communication medium promoting freedom of socio-political expression in Korea, online space is also becoming an electronic dungeon patrolled by the neo-authoritarian government due to its anxieties about online users' freedom of expression. In 2009, when Frank La Rue, a UN special rapporteur, visited Korea, he noted the "ironic" aspects of Korea's IT development, including its advanced broadband Internet: "it is crucial to protect and promote the right to freedom of opinion and expression in cyberspace paralleling technological advancement in South Korea" [People's Solidarity for Participatory Democracy (PSPD) 2009].

With the advent of the Lee administration, Korea's success can be seen as Janus-faced: the face not publicly touted includes the government's attempts at hyper-panoptic social control, the vulnerable condition of online human rights, the chronic cronyism between the state and the IT-involved conglomerates, the suppression of online activism against the neo-authoritarian civilian government, and other ugly conditions of a neoliberal market state. The incorporation of Korean information technology into a new capitalist mode of production and into bureaucratic mechanisms designed to regulate each Korean citizen is the dark side of Korea's "broadband nirvana." The interventionist role the government has played in the process is far from the normative role of the state as a public mediator guaranteeing citizens' equal rights; such a government should defend citizens' freedom of expression and information rights against predation.

RE-APPROPRIATING DIGITAL CULTURE IN KOREA

This section attempts to overview the locally defined academic spectrum of critical approaches to exploring the Internet and mobile culture in Korea. This study divides the theoretical positions in Korean academe on digital culture roughly into three theoretical camps: the political economy of information, cyber-culture studies and new media studies, and cyber-activism. The existing critical research on Internet culture comes from a variety of different perspectives and covers a variety of different subjects: examining the political economy of digital industry and the policy implications of Internet technology and observing the use of digital technology as a normalization of social control (the political economy of information); investigating the communicative and cultural patterns of Internet use—specifically, how it is interrelated with the youth culture (cyber-culture studies and new media studies); and surveying a local history of the Internet culture's resistance to a hierarchical power system (cyber-activism). Among these critical perspectives, the present study relies theoretically on "cyber-activism," in order to search out the ways in which Korean citizens are able to escape the chronic backwardness of its political systems at the same time as Korea has reached the most advanced stage of online culture.

TECHNOLOGY: PURIFIED OR TAINTED?

The mythical belief in technology as autonomous and neutral is still pervasive today. In this worldview, technology promises the on-going progress of human society, and whether technology can be categorized as “good” or “bad” depends on the moral or ethical choices of human beings. The futuristic vision of the great, technology-driven, affluent society, dubbed the “information society,” is closely related to the assumption that all that society can do is to adapt to technical change (cf. the panegyrics on new technology by such futurists as Daniel Bell, Alvin Toffler, and Peter Drucker—the last two of whom served as consultants for the national IT policies in Korea.) The techno-centric viewpoint, however, oversimplifies the benevolent possibilities in digital technologies, while it avoids discussion of the institutional and private desires for control that can take advantage of Internet technology. The pro-market perspective adopted by much research on the Internet and mobile culture culminates in endorsing the dominant discourse of neo-liberalism and deregulation in Korea. To counter the reactionary view of technologist marketism, Left-wing Korean scholars—especially the Marxist political economists—have critically analyzed digital culture, mainly analyzing the ways in which digital technology enables individuals and institutions to be subordinated to expanding the dominant logic of contemporary capitalism, which penetrates into every corner of human life.

A group of critical scholars who have mostly sought to disclose the social structures and systems embedded within a technical artifact⁴ have focused on the idea that digital technology is by its very nature integrated into the political, economic, and cultural arenas of society: in other words, they investigate the ways in which manifold social factors such as “market” pull, IT policies vulnerable to the international telecommunications vendors, the institutional

⁴ In addition to my focus on cyber-activism, I have been also affiliated with this group of scholars studying the political economy of digital culture. My recent book, *IT Development in Korea: A Broadband Nirvana?* (Routledge 2012), offers a deliberately gloomy vision of the present and future in Korea, depicting a technologized Taylorism in which the state and corporations introduce ubiquitous electronic monitoring devices, recording and storing telephone conversations, voicemail messages, computer files, e-mail messages, Internet connections, job performance, and even mobile tracking. High-tech surveillance is in fact already being used to break worker organizing and to fight political activism. My book discusses how the Internet and mobile technology in Korea have become affiliated with the desire for a “hyper-panoptic” society.

and social desire to regulate each citizen, and the repression cultural expression are all thoroughly intertwined with the development of digital culture in Korea. This group consists of critical media scholars, political economists, Marxist economists, and the Marxist or non-Marxist state theorists in Korea.

According to these critical scholars, digital culture offers the ability to revolutionize productivity and lifestyle at the same time enabling entities such as the government and private businesses to internalize the extended control of overall society through digital technology—to foresee future patterns of consumption or socially preferred networking with other Internet users in a statistical way, and so on. For these scholars, the social formation of Korea tailored by the ICTs is depicted as “cybernetic” capitalism, one “in which information technologies will provide the filaments through which power and control will invade the social body as a whole [...]” (Robins and Webster 1988: 52). Moreover, in the years since the Asian financial crisis of 1997–98 high-tech advances in the short term, rather than being used for their potential to improve human life, are instead used to Taylorize the existence of the individual Korean.

In carrying out a macro-analysis of digital culture, these critical Korean scholars are darkly pessimistic about the prospects of an active role for Internet users in opposing the more powerful forces in the technological regime of the Lee administration. Thus they have succumbed to the “social” determinist vision of dominance and control over digital technology. For instance, influenced by the Italian Autonomist Marxists, Jeong-Hwan Joe’s book, *Cognitive Capitalism* (2011) is a recent academic work describing the post-capitalist scope of labor control beyond the wall of industrial factories and the panoptic scale of capitalist accumulation from factory production to online consumption and user created contents.

These scholars, however, ignore the different layers of power relations and dominances facilitated by technological rationalization at specific times in different places. Their whole-scale pessimism toward digital technology limits their consideration to the critical interpretation of technology-power links. They are successful in revealing how new digital technology, dominated by private interests, intersects the current structures of inequality, hierarchy, and power, but they have lost sight of the local settings of micro-politics comprised by local Internet users.

DISCOVERING THE USER-CREATIVE CULTURE OF TECHNOLOGY

Although, like critical Marxist scholars, the cyber-culture studies camp in Korea has positioned digital technology within the Marxist tradition of class relations and power, it has also gone beyond their reading of capitalist digital culture in terms of the socio-cultural approach to new media users and audiences, introducing, for example, cultural analyses of the gender relations of digital technology, revealing the close affinity between the Internet culture and the dominant power, and describing the evolving phases of digital culture autonomously constructed by the Internet and SNS users. Despite the contemporary rigid masculine structure of capitalism, these cyber-cultural theorists reject the whole-scale view of digital technology as dominated by the post-capitalist system. This user-heuristic camp focuses rather on how digital technology is socially and mutually constructed by class, gender, race, and culture. This camp locates itself somewhere between social determinism (the political economy of information) and technological optimism (futurism or techno-centrism).

One strong trend in cyber-culture studies is the interpretative approach, which is theoretically based on ethnographic research and attempts to understand the web of meanings in which Internet users interact. This camp recognizes the danger of a totalizing interpretation of digital technology that is simply overlaid on an undifferentiated concept of capital and power. Its theoretical approach focuses on how to articulate the locally defined characters of digital culture—in terms of gender, class, and generation—textured across the online space in post-capitalist society. Cyber-cultural theorists tend to integrate the socio-cultural dimension into their concrete analyses. To escape both social determinism and technological optimism towards digital technology, this camp briefly mentions human agency and cultural intervention in transforming the power relations surrounding digital culture. According to its theoretically “in-between” position, while certain socio-political influences clearly are very strong in establishing online culture in Korea, the directions of cultural development are indeterminate and include unexplored possibilities such as the re-appropriation of specular culture by its final users.

For instance, Yeran Kim et al. (2011) performed a cultural study of bloggers and SNS users’ online opinion power and the public distrust on a socially sensitive issue such as the investigation into the sinking of a Korean naval corvette. Hjorth (2008) observed that camera phone practices in the

metropolitan city of Seoul, as in the Japanese *Keitai*⁵ cultures, have created the evolution of a unique mobile media culture. Shin-Dong Kim (2003) discussed how younger generations using mobile phones could constitute a new mobile culture of election politics, especially in terms of their use in Korean presidential elections. Based on the ethnographic approach, Dong-Hoo Lee (2009) also investigated how time and space are being newly reconstructed through digital devices in everyday urban life. Within cyber-culture studies, some feminist and media scholars have added a further layer of gender divisions [e.g., *Mobile-Girls@Digital.Asia*, edited by Lee, Dong-Hoo (2006)]. Their methods of observing the role of technological artifacts in reproducing the gendered division of labor adopt a cultural historic and ethnographic approach. They articulate the gendering of digital culture in a dialectical way, through investigating substantive areas of mobile media—e.g., the gender specialization of “mothering” and short-message chatting. In fact, they successfully integrate the global (economy-driven imperatives) and local (gendered culture of technology) layers of techno-cultural development across Asian countries.

Therefore, the interpretation of mobile and digital culture performed by cyber-cultural theorists is not fixed by the rigid masculine power structure but rather fluid and unstable because of networks of heterogeneous and mutually sustaining elements that influence its technical design. This group of scholars, however, rarely provides any concrete framework of alternatives as to how the structure and the agency interact or the degree to which the agency could be free from structure, specifically, under the rigid regime of a neo-authoritarian state, such as Korea.

CYBER-ACTIVISM AND SUBVERSIVE AGENCY

Although a cyber-culture studies camp in Korea has succeeded in describing the expressive properties constructed by the digital users’ emergent culture, it has failed to disclose the capacities of individuals and institutions to alter digital culture’s trajectory toward alternative and democratic options. *Moonwha/Gwahak* (“Culture/Science,” hereafter *M/G*) renowned for twenty-years as a journal led by Korea’s neo-leftist cultural studies scholars, has recently recruited some younger editors such as Joe Dongwon (2010) and myself (Kwang-Suk Lee, 2012 forthcoming; 2011; 2012a; 2010; 2009a; 2009b), in order to extend its scope into techno-science and cyber-activism at the

⁵ *Keitai* is Japanese for “a personal device supporting communications that are a constant, lightweight, and mundane presence in everyday life” (Ito 2005: 1).

theoretical level. The new *M/G* editors have explored the possible conditions of “cyber-activism” in Korea by assembling a chronological overview of online culture and action constructed by Korea’s Internet users.

This new approach to digital culture shares theoretical commonalities with the aforementioned political economy camp (observing the cybernetic expansion of labor control into all aspects of ordinary life) and the cyber-culture studies camp (exploring the active users who are often de-linked to particular and normalized standards inscribed in digital culture). Those scholars interested in cyber-activism embrace the radical ideas of the notion of a “technical code” as embodying both the suppression and liberation latent in a technical artifact, expressing the tensions in the “ambivalence” of technology, which was coined by Feenberg (1999: 101), an American philosopher of technology. Superficially, the technical code in digital culture as suppression may appear to be a completely “closed” system constructed by the prevailing power structures. However, this is where Feenberg’s notion of “subversive rationalization” comes in. It supposes that digital culture is sometimes temporarily closed, but always open to different paths. If so, how could the malleability or ambivalence of digital technology be related to the idea of progress or politics? Feenberg (1995: 144-168) provides the French Minitel system as an example of this subversive process of change. Initially produced to give telephone subscribers access to databases, Minitel became a means for anonymous online chatting and dating. In other words, the government attempted to introduce a rationalistic information system to the general public, but the users appropriated the network and altered its function. This case demonstrates subordinate groups engaged in struggle against a fixed technical code for socio-technical change.

Critical theorists of technology such as Feenberg have influenced those who consider the “human factor” to be a major determinant of digital culture, while simultaneously embracing a structural approach to agency. Even if culture and ideology enter history as effective forces in the technical sphere, “no matter how firmly custom or instrumentality may appear to organize and contain [technology], it carries the seeds of its own subversion” (Marvin 1988). While in some respects technology accompanies or incorporates rationality, it is also open to contingent interests of agency rather than being controlled by universal principles. For the young *M/G* editors and other scholars, Feenberg’s “technical code” is a powerful conceptualization of how, although the structural constraints inscribed in digital technology should be considered as a starting point for realizing cyber-activism, the political project begins with the realization that cultural development never points definitely toward any particular path but rather opens onto many potential branches.

In sum, desire for structural reforms by online activism can be quite different from the users' activities co-opted by "hegemonic" values and beliefs of dominant stakeholders in the social design of digital culture. While a cyber-culture and media theories camp sees the subversive potential opposing the dominant paradigm of Internet culture unheeded, the cyber-activism camp further maps out how to build the alternative paths to escape the technical designs of dominant power.

ARTICULATING THE THREE CRITICAL APPROACHES TO DIGITAL CULTURE

The political economy of information, cyber-cultural and media theories, and cyber-activism have all encouraged us to examine the inter-connections among digital technology, society, and politics in contemporary Korean society. Despite theoretical variations among the three approaches, all three offer a view of digital culture as inextricably intertwined with society rather than something standing outside it. Political economists, however, regard technology as destined to extend economic relations into all areas of everyday life, whereas the last two camps (cyber-culture and cyber-activism) have more optimistic visions which perceive the flexible and heterogeneous networks of society as constructing digital technology. Cyber-cultural theorists may be seen as upgrading political economists' linear and structural interpretation of digital technology in Korea by investigating the varied dominant patterns of digital culture differentiated by class, gender, generation and ethnicity. Cyber-activism further enables us to consider alternative and subversive re-appropriations of techno-culture against the dominant hegemony of capitalism.

In sum, the strong points of the critical studies of Internet and mobile culture include both a "theoretical pessimism" that recognizes how asymmetric power structures are magnified through technology on the one side and a "practical optimism" that believes the prevailing techno-cultural choices can be influenced and that alternative paths which subvert the dominant designs are possible. The present study shares the view that the power relations mediated through digital culture are heterogeneous and multi-layered, and technological change is open to alternative paths. Based on this approach to critical technology, this study traces how the alternative practices of cyber-activism against the symbolic order of dominant power have been historically constructed in Korea.

Table 1. The Three Different Critical Approaches to Digital Culture in Korea

	Political Economists	Cyber-culture & Media Studies	Cyber-activism
Main concepts	Cybernetic/ cognitive capitalism	Active users/ audiences	Techno-culture, online activism
Theoretical approach	Political economy of information	Cultural & Media studies, audience studies	Cultural jamming, Alternative media
Method	Analysis of information/knowledge-based economy	Ethnographic and 'user heuristic' approach	Approach emphasizing the subversive use of agency
Area of analysis	Extensive power of capitalism in political, social, economic, cultural spheres	Class, generation, gender, and other micro-powers embedded in mobile culture	Subversion of the dominant power of capitalism over technology

CYBER-ACTIVISM AGAINST THE DARKNESS OF “DIGITAL KOREA”

This section discusses the recent history of Korean digital and media development and its online activism. It will invite us to think about what undemocratic and bureaucratic trends during these periods have eroded the health and the potential of advanced digital culture in Korean society, and how Korean netizens have taken a leading role in transforming the “crisis of *res publica*” (Kang, Myung-Koo, 2011) through an active and even subversive digital culture. This section outlines a genealogy of online forms of protest: they have changed from an embryonic phase (relying on PC-based online communication) through an evolving phase (thumb culture and the Internet) to a transforming phase of resistance (mobile culture and social media.) The latter depicts a typical case of “mobile hacktivism,” which attempts to translate the principles of direct action or protest into pro-social activism created by smartphone and SNS users.

AN EMBRYONIC PHASE OF CYBER-ACTIVISM

Korean scholars have barely begun to discuss the concept of online activism or cyber-activism in the early stage of online space, up until the 1980's when the System Development Network (SDN), described as Korea's first Internet system, began its operations, and the online communication service using PC communications was launched. However, in the 1980's Korea had already engendered new digital tribes such as PC-based communicators, amateur hackers, young SW program developers, private BBS system operators, and online community dwellers, most of whom were libertarian and crypto-anarchist in their advocacy of decentralized technology.

From the 1990's onward, the rapid change has been facilitated by the Korean government's policy drive to shift the national economy from traditional labor-intensive industries to cultural or knowledge-based economies. Thanks to the widespread dissemination of high-speed Internet since the mid-1990's, Koreans have discovered the freedom afforded by electronic conduits of cultural expression. Up through at least the early 1990's, the grid of military-authoritarian practices that threatened citizens' rights was pervasive: for instance, the national ID system identifying each Korean, the use of paramilitary violence to break worker unions, the use of closed-circuit television for policing, the widespread practice of government eavesdropping, and politically motivated investigations of activist citizens. During the dark days of the repressive military regimes, Korean citizens were eager to have more political rights, such as freedom of speech, expression, and assembly.

The eruption of socio-cultural exchange spurred by the mobility and interconnectivity of new communication technologies has acclimated citizens to speak out in their own voices and express their own values. The ecology of the citizens' autonomous culture has shifted from the street barricade struggle of resisting authoritarian regimes by throwing stones and Molotov cocktails to resisting the dominant discourses of society through electronic forms of cultural expression such as the "PC-Bang" (Internet café), electronic forums, blogs, online computer game rooms, and "Cyworld," a popular web-community site, and text messaging with mobile phones. In the process, Koreans have become "citizens of the Internet," or "netizens."

With the number of high-speed Internet subscribers rising to ten-million in 2000, many Koreans had already begun to spend a good deal of time on electronic networks—playing online games in the Internet cafés, decorating their blogs, communicating with each other using mobile devices, connecting with hobby or interest groups through Internet portal sites, and exchanging

audio-visual materials with others. Most significant was the sharp increase on the Korean Internet of political criticism and commentary, such as that found on amateur online journalism and parody sites that monitor, critique, and ridicule corrupt politicians or autocratic actions of governmental officials. This constant communication through electronic media and the rise of a culture of free expression via these media laid the groundwork for online activism among Korean netizens. The new digital culture of Koreans has gradually developed into a more democratic vision of online culture—the emerging phenomenon in which Koreans use the Internet as agent of progressive social change, that is to say, as a means of change propelled by online activism.

AN EVOLVING PHASE OF CYBER-ACTIVISM

In Korea the social formation of “cyber-activism” was brought about by reactions against the suppressive momentum of economic neo-liberalism and the political conservatism of monopolistic capitalists and national policymakers, as well as by the strong feelings of the citizens about socio-cultural agendas. Through technological advances such as the national installation of broadband Internet networks and the popular use of mobile handsets, Korea’s citizens began asserting public opinions and cultural styles, things that were once represented only by conservative big media. The Korean citizens’ movement enacted e-resistance by weaving together a spontaneous, indeterminate, informal, and complex network of singularities in order to act as a commonality. The new mood of online activism grew rapidly with the swift mobilization of citizens for rallies in major downtown streets during the 2002 presidential election and later culminated in the online flame wars and offline candlelight vigil protests against the U.S. troops.

In the 2002 Korean Presidential Election, an election campaign using mobile phones and the Internet was very effective in organizing citizens and uniting them on the agenda of political democratization (Lee, Yeon-Ok 2009). Using their own cell phones, which were technologically in the age of “thumb culture” at that time, Korea’s younger citizens mobilized and encouraged friends, families, and peers to vote for the progressive candidate. The younger generation, those in their twenties and thirties, with access to instant messaging and e-mail, engaged in “mobile politics” that made use of wireless devices (Kim, Shin-Dong, 2003).

Prior to the widespread distribution of electronic media that could be used for self-organized resistance, conservative big media had been the main source of influence on public opinion. The new wave of network-based politics,

however, began to allow anonymously scattered citizens to mobilize each other to protest against the politically conservative government and big media. For instance, to produce alternative discourse on the Internet, the netizens themselves launched *OhmyNews* in 2000, a Korean online news site with the editorial principle that “every citizen is a reporter,” and it enlisted 38,000 “citizen reporters” who published about 150 stories on the site each day in the early 2000s. At that time, the website drew half-a-million visitors per day, and it has become one of the alternative Internet media, framing the public agenda against the conservative big media.

With the rapid growth of online citizen journalism, electronic networks have been increasingly used for mobilizing enormous rallies of Korean citizens on socially sensitive issues. In June 2002, a citizens’ rally commemorating the tragic death of two teenage girls struck by a U.S. military vehicle was initiated for the first time by one citizen’s online posting, expressing anger at the presence of U.S. Armed Forces in Korea. The temporary rage was gradually transmitted to the online forums and cafés where citizens posted their opinions, discussed the political and military condition of Korea that caused the tragedy, and set the date for an offline rally. The staging of several rallies sparked a wave of anti-U.S. protests and later forced the government to scale down its plan to send Korean troops to Iraq.

The online-offline protest linkage first came into view in the 2002 rally, and culminated in the 2008 *chotbul* (candlelight) vigil protest against the Lee Myung-Bak administration. Anger against the Lee government’s propaganda finally brought tens of thousands of demonstrators to the streets in protest against the Lee administration, which aimed to re-open the Korean beef market (once the third-largest importer of American beef), due to Koreans’ fear of eating meat tainted with potentially fatal mad cow disease, since the demonstrators placed no faith in the Lee administration’s reiterated assurances that the beef would be thoroughly inspected and safe (e.g., Hansen 2008). During the period of its negotiations with the U.S. trade representatives, the Korean government repeatedly concealed the details of its agreements with the U.S. from the Korea people, despite the requests of civil rights groups that such information be made public. Further, the government even disseminated disinformation claiming that the bilateral trade negotiation would be wholly beneficial to Korea’s citizens and its national economy, even though the risks involved could threaten local sustainability. The undemocratic aspects of the government’s policies have provoked civil society’s resistance to the policymaking processes behind closed doors.

During the three-month long *chotbul* vigil protest, patterns of organization among Korean netizens were mobile, rapid, network-based, interconnected, and nomadic, enabling them to speak freely in their own voices in both online and offline spaces.⁶ Wired (Internet culture) and wireless (thumb culture) technology contributed to a common agenda by uniting citizens' micro-narratives that were dispersed across physical space. Korean netizens demonstrated distinctive abilities "to capture the new technologies of power" (Poster 2004:329). Their methods of cyber-activism were creating a new paradigm for the social participation of citizens. This new paradigm—spontaneous but unified action through the electronic network—has become popular to the extent of even threatening Lee Myung-bak's tenure as president at that time.

The 2008 *chotbul* protest against the government's propaganda eventually failed to change the government's desire to re-open the Korean beef market, and since then the Lee government has reacted with anti-democratic legal actions against the tens of thousands of protestors who had expressed criticism of the government both on the street and on the Internet, charging them with vandalism, libel and slander, unlawful assembly, and other irrational civil suits. While the 2008 candlelight vigils protest has become a significant national event of cyber-activism, the Korean netizens would have to continue to confront the counter-attacking forces of the neo-authoritarian state until the end of Lee's presidency in 2012.

A TRANSFORMING PHASE OF CYBER-ACTIVIS

By 2008, broadband Internet subscribers in Korea exceeded 15.4 million, and by 2011, they numbered 17.8 million out of a population of 50.51 million. As of February 2012, there were more than 52.6 million registered mobile phone users. Since the wake of the smartphone's debut in November 2009, there are now more than 25.3 million registered smartphone users and Tablet PC users

⁶ Some cyber-culture and new media studies scholars in Korea have analyzed this new mode of cyber-activism which allowed the social minorities to express their anger toward social issues and to criticize the bureaucratic and myopic view of market-driven policies. To evaluate the *chotbul* vigil protest, some theoretical and practical issues of online activism were considered in special issues of academic journals (e.g., *M/S* [vol. 55, Fall 2008]; *Changbi* [vol. 141, Fall 2008]; *Philosophy & Reality* [vol. 79, Winter 2008]) and in edited and single-authored books (e.g., Dangdae-Bipyung ["Contemporary Review"], ed., 2009; Hong, Sung-Tae ed., 2009; Joe, Jeong-Hwan 2009).

(Korea Communications Commission, 2012). Following the smartphone's rapid adoption in Korea, one can easily observe many social media users, especially, using Twitter and Facebook with their smartphones. Above all, Twitter has rapidly become a crucial social networking application service renewing Koreans' political practices, especially during the recent period of political turbulence under the Lee administration. Twitter users in Korea have increased exponentially and as of August 2012 exceeded 6.4 million (Oikolab 2012).

These new material conditions of smartphones and SNS culture have increasingly collided with the neo-authoritarian government's threats to the citizens due to its anxieties about past online-offline massive rallies. Since Lee's presidency began in 2008, his administration has dramatically intensified surveillance techniques aimed at controlling each citizen. For instance, the investigative authorities have asked for targeted citizens' location data, as well as personal calling data, without a warrant (Joint Korean NGOs 2010). The eavesdropping of these public agencies was made possible by the voluntary cooperation of the big telecom operators, which freely exposed their customers' records.

The administration has introduced technology-related censorship and surveillance techniques such as broad censorship of online messages through the Korea Communications Standards Commission, indicting or imprisoning online users and bloggers critical of government policies, extending the "Enforced Real Name System" (ERNS)⁷ to more websites and online forums, collecting and sorting DNA samples from militant workers on strike, banning young adults from playing online games at night, and other heavy-handed measures.

In response, netizens have aimed at regenerating their countering force to challenge wider social control of Korean society, by the election votes in which they sloganized as the "2040 Saedae Younhap" (the political alliance among the age cohorts from their twenties to their forties). The 2040 generation, in particular, had voted for Lee Myung-bak, who, it was said during the 2007 presidential election, would revitalize the national economy and promote the employment of the younger generations, but, as discussed above, they have instead deteriorated into a zombie-like sub-proletariat with precarious job conditions and a net take-home wage of about US \$650 a month. Due to their

⁷ The Enforced Real Name System in Korea has been used to prohibit anonymous postings on discussion groups by requiring Korean netizens to enter a thirteen-digit personal reference ID number. This prevents anonymity of expression, which can be considered as a form of pre-censorship (i.e., it exerts a "chilling effect" on free speech).

disillusionment, they decided to rouse from the political lethargy that had beset them since the *chotbul* protest, and to rectify their wrongly cast votes for President Lee by intervening in regional elections to seek political reform.

As smartphones and tablet PCs have grown in popularity in Korea, the 2040 *Saedae Younhap* has used social media as a key platform to participate in the political agenda, such as urging their friends and followers to vote for progressive politicians. Among popular social media, the political leverage of Twitter has been proven in three local elections: a regional election in June 2010, a by-election in April 2011, and the Seoul mayoral race in October 2011. During the elective process, many SNS users urged friends to go out to vote, and even posted “*Injeung shots*” (authentication shots), their self-taken photos outside ballot stations, on Twitter and Facebook so as to encourage others’ voter participation. Thanks to the rapid spread of smart devices including Apple’s iPhone, since November 2009, SNS culture has also emerged as a key factor both in Korean elections and in the formation of public opinion. Celebrity online activism has also become a new phenomenon, mainly in the form of “socialtainers”—entertainers expressing their socio-political opinions freely in both the online and the offline sphere. They have been growing as SNS stars by shifting the public’s feelings, while using social media such as Twitter and Facebook as optimal method of emotional communication with their fans and followers.

Neoliberal marketism under the Lee administration has been worsening the social and labor conditions, by violent layoffs of laborers, illegal actions such as detention, verbal abuse, demotion, and quelling any unrest by using police SWAT teams and private corporate security forces. The abuse of governmental authority has led to tragic events such as suicide, self-burning, and severe self-wounding of disadvantaged people at the Yongsan regeneration district, Ssangyong Motors, the Jae Neung Education Co., and Kiryung Electronics. For instance, labor activist Kim Jin-sook became a legendary figure who resisted Hanjin Heavy Industries’ layoff by conducting a record-breaking 309-day sit-in protest on the top of a 35-meter-high (115-foot-high) shipyard crane. She recalled a lonely protest from a crane, describing how Twitter followers and supporters had helped to sustain her will to live and keep her from committing suicide.

A police state and citizens’ political lethargy have given rise to satiric political parodies among Internet and mobile users. Under the Lee administration, TV comedy shows such “Gag Concert” and satiric podcasts such as *Naneun Ggomsuda*, commonly abbreviated to *Naggomsu* (“I’m a weasel,” i.e. “I’m a petty-minded creep,”) have gained a cult following among the 2040 generation, who have lost their aspirations for political freedom since the

chotbul protest. Since its first arrival, *Naggomsu* has heralded a new emergent parody genre on the basis of the popular use of smartphone in Korea—one which is able to massively spread critical discourses through its complete integration with mobile media. It has become one of the world's most popular political podcast on Apple's iTunes, with two-million weekly downloads and six-million hits on an average since its launch in April 2011. Most urban commuters carrying their Samsung Galaxy or iPhones in the subway and buses are used to downloading and listening to these weekly episodes.

The unscripted podcast program consists of talk shows, rant sessions, and comedy skits, and lampoons of the Lee government and the conservative party. The episodes feature host and *Daanji Ilbo* parody website owner Kim Ou-Joon, and a supporting cast—former Democratic Party lawmaker Jung Bong-joo, journalist Joo Jin-u, and political commentator Kim Yong-min. In December 2011, Jung, one of four hosts, was found guilty of spreading rumors about the President Lee's connection to an alleged stock fraud. Many believe that finding him guilty is a political verdict and is designed to stifle the podcast *Naggomsu*. Through Twitter and other social media platforms, the 2040 generations have voiced their anger against limits on freedom of speech. In doing so, *Naggomsu* has recently been a key player in advancing a cultural politics against the Lee government's wrongdoings, and has encouraged young SNS users to build alternative discourses through podcasts on the basis of mobile culture. However, there is a potential downside to *Naggomsu*—its political cult and populist elements, such as its self-bragging and sensationalizing talk show style with abusive language, its massive online and offline fan clubs, and its group responses to the podcast-related agenda. The political podcast have gradually taken on the tone of a collective emotional catharsis as a flight from the citizens' political lethargy, rather than as actual political reform.

During this period, social media have also acted as a counterweight to the conservative mainstream media, which are largely cronies to the Lee administration and the ruling party. Social media have given rise to new emergent alternative media such as *Newstapa* and *Reset KBS!*, during a general strike at KBS, MBC, YTN TV protesting Lee's meddling through a large scale of reshuffling of key executives, program producers, and journalists in 2012. Along with a large fan-base for political podcasts such as *Naggomsu*, mobile culture has fueled the rapid growth of the online news program *Newstapa*, since its launch in January 2012. Due to the government's control over public broadcasting, some of the expellees from the major TV networks—Former YTN Reporter Roh Jong-Myoun, MBC Program Producer Lee Guen-Haeng, and other small-size production team members—have come together to produce an investigative news program about social issues. For instance, their investigative

journalism in the earlier episodes exposed harmful effects of a so-called “green growth” policy, the Four-River Refurbishment Project under the Lee government, now ranked as the top environmentally destructive project. While gaining a good reputation as an influential online news channel, to air its programs to more netizens, *Newstapa* uses online multi-outlets such as its own web page views, YouTube clips, and podcast episodes. The younger generations download and watch these episodes using their smartphones. As of August 2012, *Newstapa* has finally overtaken the download hits of *Naggomsu*. For this alternative news’ growth, social media have also played a key role both in spreading the news program schedule and in introducing public fundraising among the SNS users so as to support the systematic production of the news program in more consistent conditions.

Given the average of use Twitter and the usage of world’s top political podcasts such as *Naggomsu* and *Newstapa*, we need some conceptual redefinition of cyber-activism to describe the more real-time based mobile network connections in Korea. As smartphones likely to be gradually popularized as a seamless extension of technology for social communications since the early 2010s, “mobile culture” presents something quite different from the age of “thumb culture.” Therefore, this study upgrades the concept of cyber-activism by adding the emergent pro-social activism propelled by e-mobilities—the material bases of wireless Internet and smart devices. Furthermore in 2012, Korea’s mobile culture has gradually developed into a sphere for raising citizens’ political consciousness by developing alternative “hacktivist” media, as well as linking anonymous netizens collectively. Just as “hacktivism” comes from “hacking to threaten commodification and state control of information” (Jordan & Taylor 2004: 18), we can see the subversive and constructive phase of online activism as challenging the bureaucratic and authoritarian aspects of Korean society. Given this, the contemporary phase of online activism in Korea could be called “mobile hacktivism.” We can also observe an upgraded phase of cyber-activism by way of the today’s combinative trends of protest: celebrities’ online activism (e.g., “socialtainers”), political podcasts (e.g., *Naggomsu* and *Newstapa*), and their followers’ SNS activism (e.g., cultural-political fan clubs). In comparison, both the 2002 and 2008 rallies in the evolving phase of cyber-activism were based mostly on thumb culture and the wired Internet networks. In 2002, Korean online culture of resistance had been greatly affected by the early electronic mobilizations using short message service and Internet web pages during the presidential election and the peaceful candlelight vigils protesting against the U.S. troops. In 2008, the *chotbul* protests led netizens to more effectively construct the fabric of

electronic resistance and further to promote an offline presence, by mobilizing amateur guerrilla journalism and independent media.

FROM CYBER-ACTIVISM TO MOBILE HACKTIVISM

Based on the examination of three different critical approaches to digital culture in Korea, this study has argued that Korea's digital culture is evolving toward mobile hacktivism. While wired and wireless connection is a socially significant phenomenon, in that it reflects an advanced medium allowing us to communicate and entertain on the move, the ambivalent aspects of electronic connection as an extension of the dominant structure in society and its subversive possibilities—themes stressed by the three critical approaches we have discussed—have been highlighted. The present study reaffirms that critical research could be conducted by revitalizing the political economy approach in the digital age, by developing a cyber-cultural approach to the agencies' autonomy, and, among others, by reconfiguring the subversive use of mobile and digital technologies. Digital culture should be analyzed as a technological, economic, and social phenomenon that performs a variety of functions at a variety of levels, integrating multimedia digital technologies, the desires of commercialism, institutional goals to rationalize and normalize social control, and the cultural tastes of a new high-tech generation. The latter's aspect of pro-social activism by online users also raise the key issue of how the underprivileged classes and the general citizen can actively subvert the dominant technical codes inscribed in digital technology. For example, even though their significance must never be exaggerated, the political uses of social media during the elections in Korea illustrate a few of the possibilities toward social progress and the democratic participation of the citizens in the public sphere that such technologies potentiate.

The critical studies of cyber-activism in Korea are necessary in order to realistically sketch paths to self-regulated uses of the technology. The following two main observations can be made on the evolution of electronic resistance in Korea: (1) theoretically, the scope of Korean scholars upon digital culture has been expanded from the political economy of information (1980's – 1990's) and cyber-cultural studies (2000's) to critical studies of cyber-activism or mobile hacktivism (early 2010's – to present). In doing so, they have focused more on significant social momentum generated from mobile culture, especially, by using the electronic fabric of SNS chats and tweets; and (2) from 2011 onwards, the new conditions of resistance were favorable to a horizontal coalition among SNS users, progressive celebrities (socialtainers), and political podcasters on a

specific, targeted issue. Plurality and internal differences among them form the multiple networks of resistance that characterize the “multitude,” a set of singular individuals and groups (singularity/plurality) who work and act in common and share common goals (unity/commonality) (Hardt & Negri 2004: 103, 105). This network of resistance is quite expansive and open to embracing new groups that have various political and cultural voices. The networked multitude is well skilled in using digital technologies such as podcasts and SNS as “emancipatory media” (Terranova 2004; Enzensberger 1974: 95-128).

The traditional model of street protests was employed during Koreans’ political struggles for radical democracy under the military regimes of the 1980’s and early 1990’s. The traditional tactics of resistance, such as barricade protests, political forums, colloquiums, and teach-ins have been revitalized by the electronic activism of Internet users and civil rights activists who use the Internet as a new tool for public participation. In the 2000’s, forms of resistance employed by Korean netizens in the two rallies showed us the characteristics: By using new cell phone technologies and the opportunities for networking the new electronic generation in Korea has found a path of resistance to the bureaucratic power. Moreover, from 2010 onwards, in establishing political podcasts and alternative online platforms, Korean netizens have learned how to appropriate the digital networks to serve their own values such as free speech and solidarity. This mobile hacktivism is a “nomadic” (Deleuze & Guattari 1987) and subversive response to the neo-authoritarian system of Korean society.

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PANEL 4: QUESTIONS AND ANSWERS

Moderated by Dr Sun Jung, Asia Research Institute, National University of Singapore

Sun: Thank you, Professor Lee, for your very interesting presentation. Yesterday we had papers on scientific and engineering perspectives, and today we have social science perspectives with various case studies. So since we have about half an hour to discuss, I shall open the floor for comments and questions.

Beng Huat: I think the Korean case is particularly interesting. Yesterday we were saying that in cases like China and Singapore, opposition politics is mostly conducted on the Internet. Interestingly, the collapse of alternative politics on Internet happens because it continues to be a single party or much more authoritarian. But in Korea, it is different. In effect, it is probably the most democratic country in East Asia, even more than Japan. Yet, the Internet still continues to be projected as alternative politics. So in that case, what does it mean to say that Korea is a democratic state? Electoral process itself is not a problem. Why is cyberspace politics still considered alternative politics? What do we mean by the democratization of Korea?

Arun: Is it because the mainstream media is still in the hands of the ruling elite? Private TV and newspapers are still all within a narrow spectrum.

Kwang-Suk: In the case of TV broadcasters, the President has the right to appoint the owner of the station to control the local media. They do not need to consider leveraging the privately owned broadcasters. Anyway they want to shift the public interest, and they want to have some superior position in looking at the political agendas. But the government always has a desire to control public broadcasters by appointing someone close to the government. Although any government would want to control the public broadcaster, the Lee Government has an excessive desire to control

the public broadcasting system. Therefore, if I try to answer your question it is a bit difficult to answer.

Beng Huat: Well, there are a number of questions. One is to say, what kind of legitimacy do we actually give to cyber activity of this kind, when in fact it is operating within a so-called democratized political sphere? That is one way of looking at it. The other thing is that sometimes, for example, the candlelight protest is a very difficult process to characterize. In addition, citizen protests against trade relations in America are very mainstream politics. Thus the role of cyber-activities is not the same as the kind of radical critique that goes on all the time. So in that sense, the term “activism” needs to be much more differentiated to a certain extent. Conceptually, we need to make finer distinctions about what constitutes other politics, or differentiate within it.

Tarn How: The number that you gave for the political terror is not democratic, it is not free. It is rather high. So what is the situation in Korea? I think we are assuming it is democratic, but from the numbers you gave it is not democratic. Is this systemic or situational? Also, my very shallow understanding of this is that it is partly socio-cultural. Is the whole tradition of protests a part of social cultural aspect that has led people to express things that way? So I think these are important issues to be addressed.

Beng Huat: Well, there will always be a problem. I mean, you can even say America is not democratic. I do not actually take the kind of grading very seriously. I think if you look at political development in East Asia there is no question at all that Korea is far more democratic than Singapore is. It is true that political demonstration is part of the culture in Korea.

Ingrid: My question is very much following up with Beng Huat’s question in terms of how cyber-activism seems to suggest that it is somehow anti-government or radical in some way. I do not get from your presentation what the political position is, or what sort of agreements and disagreements are? My feeling is that it would be very important to distinguish different kinds of activism.

Jonathan: First, when I heard the presentation, what I thought is even more problematic. Pure activism is more romanticized and was made to be seen as highly dramatic.

Guobin: Can you describe more about events and issues? How do they happen?

Kwang-Suk: I suppose that the discourse layer, rather than the physical layer, produces its own contents. It is about political issues. They disclose and debunk some hidden part of the political agenda by some major politicians.

Guobin: So do you have any sort of basic guesses about how these events happen or how these get viral?

Kwang-Suk: I need to consider different layers of cyber-activism. In my case I try to see various types of new media use based on generations. That would be one way to look at different ways of cyber-activism. Also I think the point made about distinguishing different kinds of layers is a good point to note.

Jonathan: Well, I am not saying that there should be different layers but actually very smooth continua. So that it will kind of fall anywhere. The approach which I wanted to suggest—that there are different kinds of activism—is probably not that fruitful. There are various types of activities and therefore it is difficult to say which type it belongs to.

Kwang-Suk: We also have our own expectations in democratization in South Korea. When we consider it as advanced technology and bureaucratic service for the people, it is very convenient and very efficient. But this is a different level of political maturity. Somewhat our level of democracy assumingly looks very high. We want to see more hidden part of democratization in our sense of democracy.

Stefania: I have a question as to whether you have also looked at the infrastructure. Much of this cyber-activism tackles that problem. Then I am also interested in social infrastructure development. My other question involves political ideological reference. Is it shared by this cyber-activism itself or is it just a theoretical reference?

Kwang-Suk: It is just a theoretical reference. But here we are much concerned about the cyber-activism. We are trying to interpret the current condition of post-capitalist system of South Korea.

Beng Huat: I think the difference will become quite clear later when we listen to others. I mean most of the stuff that you were talking about is extremely radical, and not only in politics but extremely radical individuals.

In fact, in terms of Korean political activity it has actually slowed down. That is why I think part of your presentation expresses pessimism. I have a lot of fellow radical civil society activists who join the government or become academics. However, sometimes they do not even know how to organize anymore, partly because the governments are elected now. So in a certain sense, I am going to push you really hard. Is this kind of an afterlife of a radical political situation that refuses to go away yet?

Kwang-Suk: If I were to add a comment, most of the citizens have some political authority. But, they cannot change the real politics, even though tens of thousands of people run into the streets. That kind of historical experience gives us more of a negative sense of politics, while we try to continue protesting against current issues.

Carol: My question is slightly different. In the Korean context, to what extent do you think mainstream media has a role to play in identifying certain movements with respect to cyber-activism?

Kwang-Suk: Simply put, in the physical world they do not. Maybe they have some influences to make some kind of frames, but in the cyber world that does not work well.

Carol: So in other words, did some of these movements influence how the mainstream press covers the events?

Kwang-Suk: I think they are not very intelligent and clever in using social media yet. The mainstream media cannot control the messages in the cyber world. Political parties usually provide some people or students to post fabricated messages on the Internet. But the mainstream media do not do that. There are different types of framing. They sometimes change the main topic or issues when it comes to mainstream media.

Arun: When it comes to the democratization of Taiwan and South Korea, Lee Kuan Yew has a basic theory that East Asian cultures are really interested in good governance and not in fanciful notions of Western democracy. As long as you deliver good governance, then the political debate will be about policies and not about whether it is democratic or not, etc. That seems to be the case in Singapore. Is this the case in South Korea too? Is it true that with the post-military dictatorship, there is a new stability within South Korean governance and things are going pretty well and that the corruption has come down and efficiency has increased? It is a fact that there is a conservative leadership. The mainstream media is still in the hands of the ruling elite. That is why despite the fact that South Korea has a pretty high literacy rate and most are connected with the world, that many of the things that you would expect in a democratic state are simply not taking place as people would have expected. That is also reflected in cyber-activism. I am just asking a question.

Kwang-Suk: We have no historical experience to introduce a very radical political party. That is a big problem. We are mostly heading into the U.S. style: two-party system. We do not have a choice.

Stefania: So, following all this discussion, what is happening in Korea is sort of progression to a certain form of democracy. Could it be moving towards a more authoritarian leadership?

Kwang-Suk: No. it is normalization of state power. We consider power to be beyond that barricade. Power is everywhere. So this is a new moment of the contemporary power system in South Korea. They try to extend their power system into the micro-level by using technologies such as CCTV etc.

Kumaran: I would like to follow up on what Carol said about the role of mainstream media. In the case of Singapore, the mainstream media has a pretty good online presence. The lines are kind of blurred these days. I think, as an activist, we also do read the mainstream media a lot. And we follow what is happening in the mainstream media and sometimes we bring that to the online world. So there is a relationship between what is happening in the mainstream and online media. So what I am saying is, we actually tend to look at the overall mood of the entire community or nation and say that this may be a good time to activate and mobilize resources. So, I do not think you can conclusively say that it is mutually exclusive. Also, about slacktivism and activism, I do not know where the lines are drawn, but as an activist, we know that people actually go through at least three stages. They read what is happening, then be awakened, and then get into action. As for how long it will take from one stage to another, I do not know.

Kwang-Suk: Usually mainstream media also use online platforms. Also we can see a lot of different types of interests and desires.

PANEL 5

THE DRAMATIC FORM OF ONLINE COLLECTIVE ACTION IN CHINA

Yang Guobin

*Anneberg School for Communication,
and the Department of Sociology,
University of Pennsylvania, USA*

Under what conditions does routine interaction turn into collective action online? Where does online collective action derive its force from? Current work emphasizes organization (Earl & Kimport 2011; Bimber, Flanagin, & Stohl 2012), the crossing of private and public boundaries (Bimber, Flanagin, & Stohl 2005), and the role of digital networks and “personal action frames” (Bennett & Segerberg 2012). These studies focus on ways of acting, such as online petitions, email campaigns, and the hosting of social movement web sites (Earl & Kimport 2011). Talking online, or verbal and symbolic forms of protest in online forums and blogs is neglected.⁸

Conceptualizing online collective action as discursive events, this study develops a new analytical perspective focusing on dramatic form. It argues that online collective action is the outcome of the transformation of narrative form from routine to dramatic interaction. Routine interaction begins to assume the form of online collective action with a breach. The progression from breach to crisis is made possible by the appearance of dramatic personae, dramatic performances, as well as the participation of the spectators. A case from China illustrates this narrative approach.

⁸ The same situation exists in studies of civic engagement and public deliberation. See Delli Carpini, Cook, and Jacobs (2004: 318-319).

APPROACHES TO ONLINE COLLECTIVE ACTION

Online collective action refers to contentious collective action that happens mainly on the Internet and other digital communication networks. Two types of online collective action may be differentiated (Vegh 2003; Yang 2009). In the Internet-enhanced type, the Internet serves as an additional communication channel to enhance traditional forms of activism. On the other, Internet-based activism, it is used “for activities that are only possible online, like a virtual sit-in or hacking into target Web sites” (Vegh, 2003: 72). Internet-based activism also includes verbal and symbolic protests in online forums, blogs, and microblogs. Because of its essentially discursive feature, a case of online collective action may be viewed as a narrative event with a delimited temporal duration.⁹

In explaining online collective action, Earl and Kimport (2011) emphasize organization, but argue that organizers of online action do not have to be physically co-present or in significant numbers as in conventional movements. Some cases are organized by “drastically small teams” or even a single individual (172-173). Their study leaves open the question of how large-scale online discursive participation is produced.

Bennett and Segerberg (2012) address this question by coining the term “connective action.” They argue that connective action happens when self-motivated individuals use digital networks for personal expression. For them, digital networks are new organizing agents, not social movement organizations (SMOs.) When individuals use these networks for personal expression, their voices are aggregated into collective action. The appearance of “personal action frames,” which are “political content in the form of easily personalized ideas” (ibid; 6), aid the process of aggregation. The concept of personal action frames is a useful addition to the literature on social-movement framing, but for it to be an effective analytical device, it needs to be integrated into a coherent analytic framework rather than left standing alone.

In outlining their communicative approach, Bimber, Flanagin, and Stohl (2005) argue that the logic of online collective action is that of the transformation from private to public realms. Their reconceptualization shifts the focus of analysis from problems of free-riding and organization to the conditions that shape the boundaries between the private and public domains. Yet in the age of social media, the public/private divide has become blurred (Papacharissi 2010). It may be for this reason that in their latest work, Bimber,

⁹ As Wagner-Pacifici (2010) argues, the boundaries of a historical event may be fluid and “restless,” not fixed.

Flanagin, and Stohl (2012) have re-asserted the importance of formal organizations for online collective action.

I argue when collective action happens online, there is indeed transformation, but it is the transformation of narrative form rather than of private-public boundaries. In online collective action, routine social interaction takes on dramatic features. The interaction becomes contentious, typically involving claims-making (Tilly 1998). A set of issues, symbols, discourses, events, or personalities becomes focal points of interest and are circulated with greater speed and scope, aided by personal action frames (Bennett & Segerberg 2012). As a result, individuals who normally are oblivious of one another become aware of their shared concern. As more people join in the “contentious conversation” (Tilly 1998), the rhythm of interaction quickens and a plot line appears, with dramatic personae involved in conflict. At this point, routine online interaction has turned into collective action.

THE DRAMATIC FORM OF ONLINE COLLECTIVE ACTION

My notion of dramatic form is informed by anthropologist Victor Turner, who discerns a processual form in social experience, which he views broadly as social drama. This form consists of “breach, crisis, redress, and *either* reintegration or recognition of schism” (Turner 1982:69). It begins with a breach: “Whether it is a large affair, like the Dreyfuss Case or Watergate, or a struggle for village headmanship, a social drama first manifests itself as the breach of a norm, the infraction of a rule of morality, law, custom or etiquette in some public arena” (ibid:70). Then, “a mounting crisis follows, a momentous juncture or turning point in the relations between components of a social field—at which seeming peace becomes overt conflict and covert antagonisms become visible” (ibid. 70). Redress consists of mechanisms to contain the crisis and may “range from personal advice and informal arbitration to formal judicial and legal machinery, and to resolve certain kinds of crisis, to the performance of public ritual (ibid.). The drama ends with reintegration or, in lieu of integration, the recognition or persistence of breach.

Turner’s concept of social drama has been used in empirical works (Wagner-Pacifici 1986; Eyerman 2008), but not yet in studies of social movements. MacFarland’s (2004) study of resistance behavior among school children, although not a social-movement analysis per se, nonetheless has direct implications for social-movement scholarship. He finds that even brief incidents of classroom resistance manifest the processual form of breach, crisis, redress, and integration. Among scholars of rhetoric and communication, there

has been a long tradition of studying the rhetorical forms of social movements (Griffin 1952, 1969). Underscoring the processual nature of social movements, for example, Griffin (1969) maintains that all social movements have forms; they go through the stages of inception, rhetorical crisis, and consummation.¹⁰

Building on these works, I suggest that online collective action in China manifests a dramatic form. I propose, however, a three-stage structure instead of four, combining redress and reintegration into one stage. This three-stage model corresponds to Turner's model of the ritual process (separation, liminality, and re-aggregation), as well as the widely recognized narrative structure of beginning, middle, and end.

I argue that this dramatic structure marks online collective action off from routine online interaction and that the temporal logic of its form drives participation. This temporal logic refers to the progression from the beginning and the middle to the end. On this temporal logic of the form, Burke put it most succinctly, when he wrote that a literary work has form "in so far as one part of it leads a reader to anticipate another part, to be gratified by the sequence" (1968; 124). The concept of dramatic form is especially important for understanding online collective action, because of the discursive character of online action. Adapting Burke (1968), therefore, I argue that online collective action has narrative form in so far as one part of it leads its' participants and the public (or spectators) to anticipate another part, thus compelling participation.¹¹

THE POWER OF FORM IN ONLINE COLLECTIVE ACTION

Online collective action begins with a breach. A breach happens with a breaching event, which consists of the event itself, the message, and public responses to it (Benski 2005). A breaching event may be online or offline, discursive or non-discursive. The mysterious death of a migrant worker detained by the police may trigger an online protest (Zheng 2008). A

¹⁰ Griffin's developmental model of the dramatistic structures of social movements has been criticized for being excessively rigid (Simons, Mechling, & Schreier 1984). Yet even these critics acknowledge his contributions in discerning the rhetorical logic of social movements.

¹¹ Some social-movements scholars emphasize the role of narratives in constituting collective identities and in social change more generally (Steinmetz 1992; Fine 1995; Polletta 2006). My approach differs in its emphasis on the narrative *structure* of online collective action.

photograph of a government official posted online may trigger questioning about his super-expensive cigarettes and lead to his prosecution (Herold 2011).

A breaching event may catch public attention because of its own attributes. Rhetorical features may make a breaching event more or less arousing; the message of the breaching event matters as well. Thus outrageous social injustices can move people into action. In social movements, moral shocks (Jasper & Poulsen 1995) have such effects.¹²

An online breaching event is often marked by the appearance of “personal action frames” (Bennett & Segerberg 2012). Sometimes mixed with digital photographs, these are anonymous texts containing sensational leaks or other attention-grabbing and eye-catching information. Synonymous with Internet memes, they are known in Chinese Internet parlance as “hot Internet postings” (*wangluo retie*) or “hot Internet phrases” (*wangluo reci*). The speed and scope of escalation partly depends on the appeal of these symbols.

Framing is often necessary for a breaching event to catch public attention. This may be because its message is ambiguous and is open to multiple interpretations. In this case, strategic framing may enhance the arousing power of the breaching event. If the extraordinary wealth of a twenty-year-old young woman is framed as questionable, then the leak may lead to a stage of conflict and crisis. If it is seen as acceptable, no conflict will follow and the event ends there.

The processes of framing are influenced by political opportunities, cultural context, and audience reception (Benford & Snow 2000). Frames are more effective when they are aligned with the mainstream political discourse, the extant stock of cultural meanings and practices, and the concerns of the audience. The framing perspective exaggerates the instrumental role of SMOs in creating and revising collective action frames (Benford 1997). In online collective action involving no SMOs, we would expect frames to emerge in the interaction process, but their effectiveness would still be subjected to similar contextual influences.

The escalation from breach to crisis is characterized by the dramatization of conflicts. Dramatization happens as a result of the appearance of dramatic characters in conflict and performances that propel the drama forward, and the participation of the spectators.

¹² For example, in 2006, a video clip of a young woman stomping a kitten to death provoked moral outrage and protest against animal abuse (China Daily, 16 March 2006).

Like a narrative, the drama of collective action has characters (Benford & Hunt 1995). As protagonists challenge antagonists, antagonists respond. The interaction of these dramatic personae creates conflicts, suspense, and anticipation, thus driving the “plot” forward.

Online performances, or repertoire of contention, include a limited stock (McAdam, Tarrow, & Tilly 2001). Campaign web sites, email petitions, and signature petitions are common in the U.S. Some scholars consider online collective action as a new repertoire (Earl & Kimport 2011). Yet, as in conventional street protest events, a case of online collective action is similarly a protest event with its own repertoire.

In an age of participatory citizen journalism (Jenkins 2006), there is no clear distinction between online performers and spectators. The boundary has loosened. Internet users are both performers and audience. When they read, post, and interact they become performers. When they remain inactive and offline, they are the audience in the minds of the performer (Blee & McDowell 2012). Yet even small acts of online activity, such as reading and forwarding a posting, will turn them into participants. The scaling up of participation of this kind intensifies and expands the drama.

There is another type of spectator, the mass media, whose presence or absence also affects the performative and emotional energy of the drama (Collins 2001). Some scholars suggest that mass media affect collective action by being its “distal spectators” (Snow, Zurcher, & Peters 1981). Others see more direct interactions between media institutions and social movements (Gamson & Wolsfeld 1993). These works suggest that the reactions (or lack thereof) of mainstream media will also affect online collective action.

Usually short-lived, online collective action tapers to an end after weeks, at most months, no matter whether contenders’ claims-making activities are successful or not. Efforts to redress the claims of the contenders are often made towards the end, or rather once such efforts are made online, protest tends to subside. As has been pointed out (Turner 1982), efforts to redress may come from informal or formal institutions. In China, they are almost always government authorities, who may intervene in open or secretive forms in order to contain or guide the contentious tide.

An online protest may be revived at a later time, but long-term, sustained online collective action is rare.¹³ The decline of an online collective protest may be due to external or internal factors. The resolution or partial resolution of dramatic conflicts leads to decline. If conflicts are unresolved, the protest may still come to an end due to the loss of motivation or energy to participate. Government crackdown could also be another factor to this.

ONLINE COLLECTIVE ACTION IN CHINA

Online collective action in China reflects rapid technological development and social change. China was connected to the Internet in 1994. Since then, the number of Internet users in China has grown rapidly. At the end of 1997, there were fewer than a million Internet users. By June 2012, this number has increased to 538-million.

Of the two types of online collective action identified earlier, the Internet-based type is more common and influential in China. Although some cases involve offline activities, online protest takes primarily discursive and symbolic forms and happens in online communities of blogs, bulletin boards, and microblogs. It occurs regularly and with growing frequency and impact. A recent report published in China shows that 248 influential Internet protest events happened in 2009, 274 in 2010, and 349 in 2011 (Yu 2011).

The Internet is heavily censored in China (Tsui 2003; Zheng 2008). In this political environment, citizens and activists devise creative methods of dodging censorship. Some use circumvention technologies to access blocked web sites overseas. Coded language is coined to bypass the filtering of keywords (Tang & Yang 2011). The appropriation of official rhetoric and law is a common strategy (O'Brien & Li 2006).

Research on Internet activism in China is limited. Works on online deliberation (Jiang 2010), cyber-nationalism (Wu 2007), and Internet expression (Esarey & Xiao 2011; Lei 2011; Hassid 2012) show the prevalence of online discursive participation without examining the dynamics of online collective action. Using the framing perspective to analyze two cases of Internet activism in China, Pu and Scanlan (2012) find that more precise and consistent framing is conducive to more effective mobilization. Tang and Yang (2011) argue that Internet symbols with a simple message and aesthetic appeal may have the

¹³ The reasons for this are beyond the scope of this article. But relevant factors are the episodic nature of online participation, the lack of SMOs, and even the rapidly shifting attention cycles in online and media culture in general.

power to mobilize the online participation of large numbers. Yang (2009) studies the multi-institutional dynamics of online activism, linking Internet protest to structural, institutional, and cultural conditions. Although these works illuminate the characteristics and conditions of online activism, its source of dynamism remains under-explored.

Below I illustrate my approach with a case study from China.

GUO MEIMEI AND THE RED CROSS SOCIETY OF CHINA¹⁴

Founded in 1904, the Red Cross Society of China (RCSC) is both a member of the International Federation of Red Cross and a vice-ministerial-level quasi-governmental agency. In June 2011, it became the target of an online protest as a result of the microblog postings of a twenty-year-old woman named Guo Meimei. On China's most popular microblog platform, Sina Weibo, Guo identified herself as the general manager of a Red Cross Commercial Society. On 20 June 2011, she posted photographs of her Maserati and Lamborghini automobiles, luxury handbags and jewelry. Chinese Internet users or netizens questioned the sources of such unusual wealth. Because of Guo's self-identified affiliation with a firm that seems to be related to RCSC, netizens suspected she might have financed her luxurious lifestyle with money from RCSC. Hence, they asked questions, sought information, offered comments and analysis, and expressed anger at RCSC in online platforms. Their goal was to expose RCSC by unearthing the sources of Guo Meimei's wealth. By 11 August 2011, Sina's microblog website alone had 2,102,968 messages containing Guo Meimei's name and 1,910,254 messages containing the name of RCSC. Similar contentious activities happened in other microblog web sites, online forums, and blog spaces. *China Daily* (15 July 2011) reported that although both Guo and RCSC publicly denied charges against them, "continuous disclosures of inside stories and disputes over this incident flooded the Internet" and RCSC "was plunged into an unprecedented crisis of trust." Between June and August,

¹⁴ Data for this case study consist of voluminous postings from blogs and microblogs on influential Chinese web sites such as mop.com, tianya.cn, and Sina's weibo.cn. Using the method of virtual ethnography (Hine 2000), the author maintains an active microblog account and followed the case as an online participant observer in the entire period of the protest from June to December 2011. Online data were selectively archived.

charity donations nation-wide fell by eighty-percent, due largely to the crisis caused by the “Guo Meimei” incident (Moore 8 December 2011).

The dynamism of dramatic form is evident in the Guo Meimei case. The incident began with a breaching event questioning Guo’s wealth and her connections with RCSC. This happened in the blogosphere through individual postings. The main part of the protest was the quest for answers to the puzzle. A mixture of curiosity, angry feelings, the desire to find answers to a social mystery, and a sense of spectatorship motivated participation. Numerous people took part by viewing, forwarding, and writing online posts. In their quest, netizens displayed a forensic curiosity comparable to Sherlock Holmes’ for a mysterious murder case.¹⁵

THE BREACH

In the first few days, online communication focused on questioning Guo and her relationship with RCSC, the antagonists of this drama. The proliferation of questions represents a breach, showing that routine social interaction has begun to take on the character of collective action.

The main breaching event was the appearance of a short posting on the popular online community tianya.cn on 21 June 2012. The posting was titled “New discovery on Weibo about 20-year-old general manager of ‘Red Cross Commercial Society.’ All sorts of wealth show-off! Go and see quickly!”¹⁶ Suggesting that Guo’s wealth might have something to do with her relationship with the Red Cross, the posting ended by saying “whoever will still donate money to the Red Cross must be a moron.”

The tianya posting attracted immediate attention and became “hot,” i.e. viral. In their responses, netizens uploaded screen shots of Guo’s microblog messages showing photographs of her sporty automobiles, expensive condos, and luxury hand-bags. Many declared that they would never make donations to

¹⁵ The Chinese term that comes closest to capturing the features of these mystery-filled online protests is “human flesh search” (*renrou sousuo*). Also known as the “human flesh search engine,” this term refers to netizens’ combined use of massive human power and web search technologies in their quest for targeted information, often about publicly controversial personalities (Herold 2011). That there already exists a phenomenon known as the “human flesh search” attests to the centrality of the quest in the narrative form of online collective action in China.

¹⁶ Retrieved from <http://www.tianya.cn/publicforum/content/funinfo/1/2691682.shtml>. Thanks to Wei Wang for locating this link.

the Red Cross, while others began to search for Guo's connections with the Red Cross.

As netizens agitated on *tianya.cn* the Chinese microblogsphere came alive with discussions about the same issue. On Sina Weibo, Guo's followers increased dramatically. They left many critical comments for her using Weibo's "comment" function. Heated debates and angry protestations began to spread online.

User comments showed that the Guo Meimei incident had captured their imagination. One comment reads, "I will re-tweet anything about Guo Meimei." Another user commented, "What a complicated plot in this play!" "The relationships seem very complicated. Looking forward to more information." A third: "There is the year of birth and two opaque relationships. How intriguing! I'm going to stay awake and continue to follow [the event]." This entry and many others similar to it thicken the plot, inviting netizens to continue their quest.

Several "hot postings" in major online communities functioned as "personal action frames" (Bennett and Segerberg 2012). One message on mop.com was viewed 3,011,896 times and had 1,171 comments within three-days. It questioned Guo Meimei's identity, arguing that no information was found about the Red Cross Commercial Society and that it was non-existent. The posting asks RCSC to denounce the rumors in order to protect its reputation, in effect challenging RCSC to make a public statement. With the appearance of such "hot internet postings," the incident entered to a state of crisis.

The breaching event successfully aroused Chinese netizens for several reasons. Its title was eye-catching and sensationalizing. In a very brief posting, it provided a diagnostic frame (Snow & Benford 1988) for interpreting the incident, linking Guo's wealth immediately to potential corruption in the Chinese Red Cross Society. The frame contained a puzzle, i.e. whether Guo had really financed her lifestyle with money from the RCSC. This puzzle invited netizens to participate in a mystery-hunt to find out the truth. As we will see in the next section, this was precisely what happened.

This frame worked in China's political environment, matched popular cultural practices on the Internet, and was aligned with the public concern. In contemporary China, the more public discourse engages critical social and political issues (such as social inequality and injustice), the more it resonates with the public. At the same time, due to state efforts to censor forbidden topics (MacKinnon 2012), online discourse does not enjoy equal political spaces. Breaching events are more likely to evolve into collective action when critical discourse stays within political limits.

Questioning and exposing the possible malpractices of RCSC falls within the politically permissible boundaries of public debate in China. The bottom line of public debate concerns the legitimacy of the ruling Chinese communist party. In our case, although netizens' targeted the transparency and accountability of government agencies and officials, they did not directly attack China's political system.

On the surface, the contents of the quest are the sources of a young woman's wealth and the credibility of the Chinese Red Cross. An incident involving RCSC alone would be of enough interest to a public who not long ago (in April of the same year) was also exposed to a scandal involving the lavish dining behavior of the staff of a district-level Red Cross Society office in Shanghai. With public sentiments already quite negative about the Chinese Red Cross, Chinese netizens were eager for another catch in order to fully expose the corrupt behaviors in charity organizations. In general, underlying this there is a deeper and broader concern about the government behavior. Nation-wide, there are strong sentiments of resentment about government corruption, the crisis of trust in Chinese society, common practices of collusion between government and business entities, and the gaps between the rich and poor. These issues are most likely to resonate with the public. Thus deep-rooted and prevalent social and political ills and generalized public sentiments provide the external impetus for netizens to pursue their quest.

CRISIS

The dramatization of conflicts marked the escalation from breach to a crisis. This happened with the appearance of protagonists and antagonists in conflict, dramatic performances, and the participation of large numbers of online spectators.

Following the breach, several types of actions took place. First, the antagonists publicly denied the charges netizens made against them. RCSC's first official response was a blunt denial. A statement, curtly titled as "Announcement," which was posted on its website on 22 June dismissed public questioning and accusations in a dry and a threatening tone, stating that RCSC "reserves the right to take legal action against relevant parties." The announcement backfired, triggering protests about RCSC's attitude problem and its refusal to critically reflect on its own operations. In subsequent statements, RCSC toned down its language, but continued to deny any accusations, with each denial causing more questioning.

Guo Meimei was also in denial. The day RCSC issued its “Announcement,” Guo posted several responses on her Weibo. One message reads:

The Red Cross Society and the Red Cross Commercial Society are two entirely different organizations. Why do so many people not leave the Red Cross Society alone? This is just like people with identical family or given names.¹⁷

In another message, Guo said that initially her verified identity for Weibo was “actress,” not “general manager of the Red Cross Commercial Society.” She further stated that the Red Cross Commercial Society was not a business firm or any organization at all. She ended by saying that she did not wish to go into further details for fear of rumors, pleading, “Please don’t attack my family. We are also taxpayers. We earn what we can earn and spend what we can spend. It’s none of your business.”¹⁸

Not surprisingly, netizens did not stop. On the contrary, as the responses from Guo and the Red Cross raised more doubts, more people joined the efforts to dig out information about them.

The protagonists fall into three types, i.e. well-known Internet opinion leaders, “organically emerging leaders” (Papacharissi & Oliveira 2012:10), and run-of-the-mill netizens. They are engaged in several popular online practices, or repertoire of online contention. The most common ones are digging 挖, pushing 推, scooping 爆料, and gazing 围观. “Pushing” originally refers to the act of tweeting and re-tweeting messages on Twitter, but now, it broadly means the use of social media to promote publicity. “Digging” literally means digging up information, usually via search engines. It is associated with the practice of the “human flesh search” like I mentioned earlier. “Scooping” is the online leaking of previously unknown information. “Gazing” is a form of spectatorship. It refers to acts of reading and responding to online postings. It is about paying attention instead of showing indifference. As netizens come to believe that gazing has a power of its own, gazing has become a new tactics for activists. By collectively and persistently “gazing” at an issue, netizens draw attention to it and compel government authorities to take action.

Bloggers already known in the blogosphere acted as Internet opinion leaders, because they tend to have large followings. One blogger, whom I will refer to as “L,” has built a reputation for his prolific contributions to online

¹⁷ Original quotations from Guo Meimei’s Weibo messages are retrieved from <http://vdisk.weibo.com/s/qo5X/1309155692>.

¹⁸ Ibid.

discussion on a wide range of issues. He becomes especially active when an online event like this appears. As soon as the Guo Meimei incident started, he started investigating the case. His postings were both informative and critical-analytic. At one point, he directly addressed Sina's Chief-Editor, warning him of flaws in Sina's verification procedure. In another posting, he commented on other bloggers' interest in Guo's fashion and jewelry, stating that he himself was interested in these only to the extent that they might reveal misgivings about RCSC.¹⁹

Some bloggers became well-known in the middle of the protest. They are the organically emerging leaders. Several of them are dubbed as "unofficial detectives" by mainstream newspapers. A story published on 11 July 2011 carries precisely such a title. Called "Unofficial detectives in pursuit of 'Guo Meimei,'" it tells the stories of several men and women actively engaged in digging up and publicizing information. Among them were a disabled man from a town in Sichuan, a student at Beijing University, a female government employee from Sichuan, a noodle shop owner, and a middle-aged man with a passion for charity (Zhang, Xu, & Wang 2011). Another story titled, "Civilian detective tracks Guo Meimei," features the disabled blogger Mr. Zhou, who names his Weibo account "@truth-digging machine." Being wheel-chaired, Mr. Zhou spends much of his time browsing the web at home. After he saw the "hot" posting about Guo Meimei on tianya.cn, he began to conscientiously search the web for information about Guo and quickly attracted a large following with his frequent postings (*Chongqing Morning News*, 2011).

The third type of characters comprises the run-of-the-mill netizens. When large numbers of ordinary netizens turn their attention to an issue or incident, that issue must be either highly entertaining or highly resonant. Entertaining because it attracts online audience; resonant because the issue is of common concern. It is for this reason that Turner (1982) suggests that in the crisis stage of social drama, the conflict brings latent tensions to light and reveals "some dominant cleavage in the widest set of relevant social relations" (70).

The scaling-up of participation in the Guo Meimei case shows both the entertaining element in the incident and the underlying "dominant cleavage" between netizens and governmental and quasi-governmental agencies. It was entertaining because it involved a wealthy young woman, whose many photographs, some in provocative postures, were posted and circulated online. The cleavage reflects the wide-spread distrust of government behavior among Chinese citizens (Pei 2006).

¹⁹ To protect the blogger's identity, citation information is omitted.

Netizens turned the Guo Meimei incident into online carnival by carrying out acts of gazing, digging, pushing, and scooping. An especially dramatic act of “gazing” happened offline but was covered live online. In the middle of their digging, netizens found that Guo Meimei was scheduled to fly to Beijing on 27 June. Subsequently, reporters and netizens went to the airport to “gaze at” Guo on the day of her arrival. Pictures of Guo exiting the airport were posted online and attracted much attention.²⁰

An example of “pushing” happened when someone posted a message on 4 July 2011 stating, “Concerning the Red Cross and its affiliated business firms, I’ve turned the issues raised in the past few days into nine major questions. I am posting them here for @WangRupeng and @RCSC to respond to.”²¹ Forwarded over twelve-thousand times, the message demanded RCSC to clarify whether it had used the Red Cross logo for commercial advertising (which would have been illegal).

All characters were simultaneously spectators through their acts of “gazing.” A special type of spectatorship, however, merits emphasis. They are newspapers, television, and official news website portals. In his study of the political influences of blogs in Chinese life, Hassid (2012) finds that “blogs serve as a ‘safety valve’ on issues where the mainstream media set the agenda, and a ‘pressure cooker’ on issues where bloggers get ahead of journalists” (212). In Guo Meimei’s incident, bloggers were ahead of journalists,²² but official media played a role as well. Scholars have sometimes viewed media as “distal spectators” in collective action (Snow, Zurcher, & Peters 1981), but the Chinese mainstream media are more than that, because they directly or indirectly express official positions on the issues at hand.

²⁰ In the midst of the event, there were critical voices raising concerns about the ethics of “gazing at” individuals and whether such acts might violate individual privacy. While this is beyond the scope of my study (but see Herold 2011), it is worth noting that debates about such ethical issues functioned as minor acts of a larger drama and contributed to the overall dynamics of online protest.

²¹ Author’s note: WangRupeng is RCSC’s secretary-general.

²² Whether this makes the Guo Meimei case a pressure cooker, however, does not concern me here.

The news portal of *People's Daily* carried a story from the official Xinhua News Agency on 22 June about how the Chinese Red Cross had denied accusations about its connections with Guo (Xinhua Net 2011). The web site of *Economic News* had a story on 23 June stressing the many doubts netizens had raised about Guo Meimei, which was re-printed by the popular Phoenix Net.²³ On 26 June, *Yangzhou Evening News* reports that the efforts made by RCSC against the accusations it had received are very weak.²⁴ When mass media begin to cover online incidents, they publicize the news to broader segments of the population and signal that the online incidents have at least a modicum of political legitimacy. In this way, mass media help to validate protest and broaden its scope.

REDRESS AND REINTEGRATION

In the midst of all this questioning and protestations, the credibility of RCSC took a plunge. Donations to RCSC hit an all-time low in July 2011. Several months later, on 31 December 2011, the RCSC issued an investigation report, stating that Guo Meimei was not related to RCSC or the Red Cross Society of China Commercial Industry Branch (RCSCCIB). In a separate statement, the General-Secretary of RCSC said that RCSC had rescinded the RCSCCIB because of its violation of the RCSC Constitution.²⁵

With RCSC's acknowledgement of its own malfeasance in supervising RCSCCIB and with the suspension of RCSCCIB, at least a temporary redress was achieved. Netizens had successfully challenged a quasi-governmental organization and initiated a nation-wide questioning of the malpractices in government-sponsored charity organizations.

²³ Retrieved from http://news.ifeng.com/society/2/detail_2011_06/23/7206078_0.shtml. The coverage of the incident in the Chinese press is based on a key word search using Baidu's index function (index.baidu.com). This function shows a timeline of media coverage of social issues.

²⁴ Retrieved from <http://www.northnews.cn/2011/0626/387852.shtml>.

²⁵ <http://news.163.com/11/1231/13/7MJTG8D700014JB5.html>

CONCLUSION

This article developed a new approach to online collective action focusing on dramatic form. I argued that online collective action is the outcome of the transformation of narrative form from routine interaction to dramatic online contention. Routine online interaction begins to take a dramatic form with a breaching event. The dynamism of online collective action comes from its temporal sequence of breach, crisis, redress and reintegration. The progression from breach to crisis is made possible by the appearance of dramatic characters in conflict, dramatic performances, and the participation of the spectators. The dramatic form is most effective when its content resonates with the wider public and when there is a modicum of political space for the issues.

Tracing online collective action to the transformation of narrative form shifts the analytic lens away from public and private boundaries and classical concerns with organization. This shift is warranted, because public-private boundaries are blurred on social media. The divide between the public and the private, however, has not disappeared or become less important. The commercially driven erosion of the private is partly reflected in the spectatorship of online collective action and the scooping of private information. Whether this will significantly undermine the credibility and power of online collective action is a topic for future research.

Although, my analysis focuses on a Chinese social phenomenon, the approach outlined here should be applicable to online collective action elsewhere. Whenever such action occurs in digital spaces through discursive participation, we should expect a transformation from everyday social interaction into a contentious form. When a breach happens, a narrative mechanism is set in motion, which may generate the appeal for collective participation, thus leading to conflicts and crisis. Furthermore, to the extent that all social movements have dramaturgical features, a narrative approach may also be used to study conventional forms of social movements and collective action, not just the online type.

Many questions remain for future research. Comparative studies of online collective action with routine online social interaction should further highlight the formal features of online collective action. Studying conventional types of collective protests using this approach is essential for finding out whether the logic of dramatic form may not be a more general principle of collective action.

A final set of questions concerns the outcomes of online protest. The analysis of social-movement outcomes has always presented methodological challenges because of the difficulty of making causal arguments (Giugni 1998;

Amenta et al. 2010). Online activism will only present more challenges because it complicates the picture further. There are also empirical questions about the impact of online activism. Critical views that question the efficacy of online activism (Tarrow 2005) need to be taken seriously and addressed through empirical studies. Although my case study does not explicitly address this issue, it is clear that an important outcome of online collective action in China is precisely the rise of online activism as a new and widely-adopted repertoire of contention.

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PANEL 5: QUESTIONS AND ANSWERS

Moderated by Dr Carol Soon, Institute of Policy Studies, National University of Singapore, and Asia Research Centre, Murdoch University, Australia

Carol: Thank you, Professor Yang, for your presentation. What I am going to do is respond to your paper and in the course of doing so, I will pose three questions and then we will open the floor.

Professor Yang examines online collective action, and he specifically focuses on generic forms and the use of symbolic frames which resonates with the political, social, and cultural frames that netizens could identify with. I would like to borrow the term from the philosopher Gally, that collective action is becoming an essentially contested concept. Some of the themes and issues that were raised in this paper and in the roundtable discussions in the past two days clearly push the boundaries of existing descriptive dimensions of cyber-activism.

In spite of various approaches to studying collective action, research in this field traditionally focuses on the nature of collective grievances, as well as the processes behind recruitment and mobilization. Most of the research is done under the assumption that there is an “identified collective” and we can somehow distinguish participants from non-participants. But as this paper has shown, online collective action sometimes displays the characteristics of one that is short-lived and probably exists everywhere and anywhere. So my first question to you is, in your analysis of this particular case study, is there a presence of a “collective we?” If so, how would you describe the collective? Or would you argue that the concept of the collective has become irrelevant in today’s cyber-activism? Next, I thought your methodology was very innovative. Perhaps you can address how your method is linked to one of our roundtable themes: specifically, how do we overcome the limitations of a post-hoc analysis when we study online collective action? Lastly, scholars who look at social movement have typically also focused on processes of mobilization

and recruitment. Those studies have many differing and inconsistent findings. In your first two slides, we are beginning to see the emergence of digital networks. Do the interactions which you observed in online communities mimic the organization-less organization? And what do you think are the implications for cyber-activism?

Guobin: Thank you, Carol. I think these are excellent questions and very important. Let me try to address the first question about collective activism. I am not sure I have a good answer to it, but yes, certainly, a sense of collective is there even though collective identity is more or less diffused. It is never as clearly defined though. Sometimes scholars would assume that collective identity exists prior to all social movements happening, but there are other scholars who believe it is a process that constitutes action and interaction. I think if that is the case, it is certainly much more likely to have an online collective action, where people become aware of other people acting and sharing their thoughts and emotions in the process of interacting with others. So, in other words, there is a “collective we.” It is constituted in a process of interacting with others. In this case, we have a clear idea of several others. There are various collectives, but almost in all online cases there is explicit reference to government authorities: that this is a government corruption issue, and so on. Hence, I think it has not become irrelevant even in online collective action. I think it is also worth reflecting on the meaning of collective identity in social movements.

The second question is about the methodology of my research, and how it is linked to the theme of our workshop. I did try to clearly link it to our theme. Methodologically, I think, I never tried to produce any kind of model that can predict future cases. But as long as you can provide a very good explanation why it happened and how it happened, many social theorists would be very happy with that. That is my aspiration here—to provide more coherent explanations of these new phenomena. I tried to come up with more or less a coherent model to expand this phenomenon.

I tried to think outside the box, partly because online collective activism has new features. There are many studies applying social movement theories to the analysis of online collective actions and a lot of them basically end up saying that the Internet helps to

expand political activities and it provides new space for the construction of identities. So in the end the Internet plays a supplementary role. And I am not very happy about that kind of an approach. In online collective actions, for instance, we have to put the Internet at the centre. How to give enough weight to that, without falling into saying that the Internet has caused this and that. I think we need to go back to some other theories.

If I am right, in your last question what you are trying to say is that social network theory is now a very important factor in the analysis of digital networking. But you are actually saying that it is neglecting power. I completely agree with you, which is why I refrain from using this concept—the kind of analysis of social action using the concept of social networks.

In the two cases I looked at, I did not go into a lot of detail, but I did mention that I differentiate Internet opinion leaders and emerging leaders etc. because they have different kind of influences.

Prasenjit: I have a few comments to make. Your first slides were about cyber-enabled and cyber-based/Internet-based and I wonder whether it should be Internet-constituted rather than Internet-based? I think that is the meaning of organization-less organization, which sounds very fitting for this kind of activity.

In your next slide, one of these authors talked about connective action. I wonder if in fact connective action could replace collective action. So then to come to the third point, you used Victor Turner, I think it is a good use, but what is very interesting is how it is interrupted by Bret. He always wanted the audience and the stage to be much more interactive. But in an interesting way it is happening on the Internet. It produces an entirely different kind of logic of this connective action. So it gives a kind of illusive form, or maybe not. I think this really allows a kind of moral politics, particularly in China, that is not strictly politics but moral outrage. This makes it a very interesting form of intervention.

Tarn How: What is the difference between collective action and collective activism? Because when there is no purpose in terms of activism or activity the dramatic qualities are necessary for it to come up. But if

its activism, it is the actors, who in a way, try to change rather than coming out spontaneously.

Guobin: “Collective action” is the original term, and it includes collective activism. But it is more of a generic term. The original theory of collective action was developed by a communist. You mentioned the idea of collective activism, which brings us back to moral politics. One question that I often get about the kind of online protest that I study in China is: what kind of politics is there? Here there is quite an element of entertainment. It is not challenging the state or state institutions. So is it political at all? I think this is a question I did not get to measure in my paper, but it is important to think about. What kind of changes are we seeing here? It is a new form of politics. It certainly goes far beyond the collection of politics. We have a case where a young woman was shown on video basically stamping on a cat to death and there are many other cases, involving sex, single-motherhood cases etc. So there are always new kinds of politics that are no less important than conventional forms. So I think this is a very important point. I did try to differentiate online activism by issue. So there are activism about social, political and cultural issues and cyber nationalism. The more political the less likely it become an online collective action.

On the question about Turner, I think you are suggesting that the dramatic form of online collective action may be a little more disorderly. There is disruption and discontinuity. Well, thank you very much for that. I will look more into that. But the point is Turner himself was sort of criticized for presenting that model.

Kwang-Suk: It is very interesting to see this native dramatic analysis. I think already a pre-given structure of social drama is much embraced with very conservative ideas.

Ingrid: In relation to the methodology of this study, it is very interesting and very innovative. Taking the methodology a bit further, the argument goes to, say, the dramatic form. So in your particular case, how does the aesthetics or the architecture of the Internet influence the kinds of personal action frames? It seems to me that one of the concerns that I read with certain media theorists is the emergence of simplistic stereotypes within the online spheres. So

my question is also connected to the collective identity issue. Because I am wondering to what extent the perception of collective is imaginary or illusive in any way?

Guobin: The idea of collective identity is imaginary, it has always been so. That imagination has real effects and that is important. However, the idea about the architecture of the Internet and how that affects online collective action is important, but my analysis does not really go into this. Digital videos could be more or less aesthetically appealing. I think this matters a lot. We can incorporate these kinds of elements into my framework. These also go into your question about structure and sort of conservative hints there. But when we talk about performance, there is always an element of improvisation. There are structural elements which are important. But the actors are skilled actors. And they improvise according to circumstances.

Arun: In a way it is related to the term “architecture.” You started off by saying you do not want to get into the type of technological determinism. But in reality the second aspect that you talked about, the Internet-based, should probably be “Internet-enabled”. To me, the word architecture and technological structure is a very important factor. But many scholars shy away, thinking that it is a bad concept. So I am wondering whether we should really think about the technological element in this whole thing, rather than dismissing this as a technological determinism that is not a viable concept.

Guobin: Well, thank you. Yes, I was a little bit lazy and I borrowed these two terms from other scholars. But I am perfectly happy to adopt new terms. But the main idea is, if we think of these two, we can think of online activism as relying more or less on the Internet. The kind of cases I presented relies very heavily on the Internet. The structure of the technology is very important. When we think of technology, we often think of technology without people. But technology with people changes the idea of technology. I think that is not technological determinism anymore.

Beng Huat: I want to comment on the case. I mean the case is in some sense well-selected, but there is a problem of course. The same kind of cyber-activity could lead to very serious negative consequences. I mean this version of moral outrage could become very tricky. For example, in a particularly noisy case, a woman married her brother-in-law after the divorce, but she committed suicide at the end. So, you have on the flip side of what you just said, cyber-bullying that goes on all the time. The form may actually be exactly the same. The content actually changes: the notion of moral outrage changes. So in that sense the outcome needs to be taken into consideration if you are going to further differentiate cyber-activities.

All the social scientists seem to always say we have given up hope on any prediction. The problem there still backs the question. So I am still very uncomfortable with this sort of post hoc construction all the time. I think it is important to recognize that there is a problem. And it has been true in the history of sociology. Methodologically I think using conventional civil society as a model to understand cyber-activism is bad. For a very simple reason: because civil society organization has very long-term sustained interests, and it does need all the conventional leadership, resources etc. A cyber-event does not have this kind of long-term interest. The civil society is insufficient to represent everybody that needs to be represented because they are based on issues. So there are those who are not represented. It is also a gathering which has no long-term desire. Get this work done and it disappears again. I think in your revisions, we are not talking about sustained civil society organizations. The collective is there and it is constituted during the event and it disappears when the event is over. The players are constantly shifting.

Guobin: I agree with the idea of civil society. Initially when I started writing the book, I conceived of this as Internet and civil society and I gave up the idea of civil society. I realized it is a heavily loaded concept. But I did not give up on the concept of social movements. But there is another interesting point about the relationship between organizations and the particular event of online collective action. This is an interesting topic for research. In many cases, it just happens and then it disappears. But in some other cases there are some legacies. Sometimes smaller groups of individuals tend to

form some sort of a moral group of collectivism or an organization. Then in other cases, they are more likely to be connected and act together unlike before. But it can also disrupt structures.

The methodological question is also fascinating. When we analyze the case it is always something that has happened already. In the past, we basically have to reconstruct the event. But nowadays, online, activists are becoming more and more self reflexive. In the process of collective action, they are already self-consciously aware of their own actions. They are becoming analysts. So I am not sure whether it overcomes the problem, but I think there is a degree of self-reflexivity in online activism that was not present in the past.

The other question is about the outcome. The reason why I chose this case is firstly, it is a recent case, but also a simple enough case. What I wanted to do was to capture that structure and analyze that simple case. But the question about outcome is important because in some cases it has negative outcomes. For instance, there are a number of cases about invasions of privacy. But does that mean the outcome is not important? There are also negative outcomes in online collective actions concerning individuals.

Joanne: Professor, you identified different kinds of netizens, but we looked at cyber-controlling, etc. So where would they fit in? If you take the case of Malaysia, where governments actually pay good money for young adults to sit around 24-hours and respond to tweets and Facebook messages, then how can you comment on their role and the implications on online collective action? Secondly, can your method reveal online hijacking conversations?

Weiyl: My question is also much related to Joanne's. I find this "dramatic form" terminology you were referring to as very refreshing. Who are in the show? Who are the actors? Heroes? Villains? How about governments, commercial parties etc.? And also, is technology an actor too? Or is it just a tool of instrument all these actors are using?

Guobin: Thank you for the questions. I will be hesitant to think of technology as actors. Other than that, we have a variety of actors just like in any social drama. I try to differentiate between the spectators, antagonist and protagonist and the relations among these three. There is a very good article written by Jeffry Watson about the student movement in 1998. You see a variety of actors and they have different roles to play. That also goes back to Joanne's question, about online trolling or flaming, abusing use of language, which we can think in general as part of all drama. Any revolution is full of actions. But in this, it is particularly interesting. We have political authorities behind this that is very manipulative. So far, in Chinese cyberspace, they are paid; the government hired either volunteers or full time employees to intervene in online interaction deliberately. That kind of practice has not significantly undermined the kind of online interactions. I also interviewed Internet website managers to get their views, because they are also concerned about these. They said, it is a concern to some extent but not serious enough to undermine the credibility of information on the Internet.

My concern is that in the long term this might really damage online credibility. According to one of the managers, this has not caused damage because members of the online community are experienced in telling who has written a specific post and there are various tricks to teach them how to do that. It becomes a self-defeating practice and the Chinese government is quite explicit about practicing this. Therefore they have model internet commentators. It has not been very effective but I am not sure how it would be in the long run.

PANEL 6

THE GUARDIANS OF THE INTERNET? POLITICS AND ETHICS OF CYBERACTIVISTS (AND OF THEIR OBSERVERS)

Stefania Milan

The Citizen Lab, University of Toronto, Canada

“EXPECT US”: AN INTRODUCTION TO CYBER-ACTIVISM

In September 1995, when President Jacques Chirac announced that France would run a series of nuclear tests in the Polynesian atoll of Mururoa, a group of Italian activists protested organizing an attack against the websites of the French government. The Mururoa netstrike, “a networked version of a peaceful sit-in” according to its promoters, showed how activists could exploit the technical properties of digital technology to make a political statement. Fifteen-years later, a decentralized network going under the mass noun of Anonymous creatively re-purposed the peaceful sit-in of its precursors to launch a web disruption campaign in defense of online free expression. These “digital Robin Hoods” (Carter 2012) used different variations of a technique, known as distributed denial of service (DDoS), to make a wide array of business and institutional websites temporarily unavailable, in a sort of digital age equivalent to blocking the gates of a company headquarters as a sign of protest. Anonymous mobilized also in support of WikiLeaks: an organization devoted to the online publication of classified documents leaked by unidentified sources. The Mururoa netstrike, Anonymous’ online actions and WikiLeaks are manifestations of cyber-activism.

By cyber-activism, I mean collective action in cyberspace that addresses network infrastructure or exploits the infrastructure’s technical and ontological features for political or social change. Examples of cyber-activism include

electronic disturbance tactics and online civil disobedience, self-organization and autonomous creation of infrastructure, software and hardware hacking, and hacktivism. Leaking is another example as it takes advantage of the distribution capacity of the Internet. In general, we can boil down these practices into two categories: subversion and disruption of the existing order in cyberspace, and self-organization for the creation of autonomous spaces or alternative tools. These two approaches have in common an emphasis on direct action, decentralization, and the rule of users and technical experts. At its core, there is a widely shared perception of cyberspace, as a digital commons that should be freely and equally enjoyed by all netizens. Currently, the most popular form of cyber-activism is hacktivism, exemplified by amorphous groups like Anonymous and LulzSec. Hacktivists seek to fix the world through software and online action: in other words, it is (disruptive) “activism gone electronic” (Jordan and Taylor 2004:1; Meikle 2002). Cyber-activists are part of the organized civil society.²⁶ However, they dispute some of our fundamental interpretations of said civil society, and confront our conception of collective action. For example, they challenge the increasing professionalization of transnational activist networks by involving non-professional activists, and point to the disembodiment of activism by decoupling resistance and physical presence (Wong and Brown 2012).

Cyberspace is both an arena for civic engagement and an object of contention in its own right. As an arena for civic engagement, cyberspace is two things: first, it is a “gym” to practice political participation and digital citizenry, where alternative and often contradictory views about society are articulated and shared; second, it is a platform for collective action to articulate, organize, and bring forward social struggles, and where cyber-specific forms of collective action can take place. But, far from being considered only a set of tools or a space to practice dissent, cyberspace has become a site of struggle in its own right, as it has become increasingly threatened by commercialization, tightened state control, and restrictive legislation.

“Expect us,” reads the motto of Anonymous. In fact, over the last few years, hackers, radical techies, and hacktivists have become a disruptive social force that can no longer be ignored. What were, back in the 1990’s, sporadic cell-based cyber performances, like the Mururoa netstrike, are now tactics practiced on a regular basis, by decentralized networks of individuals seeking to

²⁶ By organized civil society, I mean the realm of non-state and non-business actors, organized in formal (non-governmental organizations) or informal (social movements, loose networks) groupings.

intervene in real-world struggles. The extraordinary visibility of cyber-activism and hacktivism in particular, has encouraged more young people who do not care about the consequences to join the struggle. The popularity of cyber-activism is also linked to the dramatic increase in the number of people with access to technology and technical expertise. But it is also due to the impact of cyber-activism: compared to other tactics such as campaigning or street demonstrations, cyber disruption and electronic disturbance can have an intense and real-time impact with only a limited deployment of resources.

Although some of their critics consider these activists to be some sort of “anarchic cyber-guerillas” (Stone and Riley 2011), cyber-activists reclaim for themselves a role of “guardians” of the Internet. They embody a set of moral norms and develop a discourse on the ethics of technology and cyberspace that are grounded on values such as openness, transparency and self-expression, and react when these norms are threatened. In this paper, I explore these norms and ethical discourses. I also reflect on the politics and ethics of approaching cyber-activism as an object of study, taking into account epistemological considerations and methodological challenges.

In the next section, I offer an historical overview of cyber-activism, in order to help situating different forms of contemporary activism in relation to other progressive communities and subcultures. I then turn my attention, to one form of contemporary cyber-activism, namely “radical tech activism,” as a case study to closely look at the ethics of activists. Furthermore, I discuss the methodological and epistemological challenges of approaching cyber-activism as a researcher, drawing on my own experience with investigating radical tech activism.

THE RISE OF CYBER-ACTIVISM AS A POLITICAL SUBJECT

Contemporary activism targeting or exploiting Internet infrastructure has roots in many realms of human activity, from computing to environmental and indigenous activism. Most of these sources of inspiration are visible in the cultural and ideological references of present-day groups. This section traces the relatively recent history of cyber-activism, focusing on the forerunner groups and subcultures that have most inspired contemporary activists. However, the category of cyber-activism is very diverse, and different groups associate different objectives and tactics under its umbrella, not all of which are compatible. For example, hacktivists’ sabotage tactics crash with the freedom of information and no damage philosophy of earlier generations of hackers, for whom closing down a website is equivalent to censorship, regardless of the

content or the owner of that website. What follows should be interpreted with this contention in mind, remembering that the different souls of cyber-activism embody slightly different ethical codes, which, nonetheless, share a set of core values and a similar history.

The hacker and open source culture that emerged in the 1970's around the Massachusetts Institute of Technology is one of the fundamental sources of inspiration of contemporary cyber-activists. Most notably, the idea of an e-commons developed in the realm of computer science. The first "computer hackers," highly skilled software writers, who enjoyed experimenting the components of a system with the aim of modifying and ameliorating it, operated under a set of tacit values that later became known as "hacker ethics." These principles include freedom of speech, access to information, world improvement, and non-interference with the system's functionality, and are encapsulated in the injunctions to "leave no damage" and "leave things as you found them (or better)" (Levy 1984). However, hackers were intrinsically apolitical.²⁷

During the same time, software developers and user communities started advocating and practicing freedom in managing and using technologies (for example, redistributing and modifying software according to individual needs.) They were the seeds of the emerging open-source software movement. Hackers and open-source advocates shared a hands-on attitude to computing; however, while hackers emphasized a "do not harm" approach, open-source advocates championed collective improvement and selfless collaboration.

The first social experiments using digital communication technologies for civic engagement emerged in the 1980's, long before the World Wide Web as we know it even existed. The Bulletin Board System (BBS), a precursor of the modern Internet that allowed users to exchange messages and files by means of a common landline, was one of the first widely used applications. North American and European non-governmental organizations (NGOs) started providing civil society groups with cheap access and connections. In 1984, a group of NGOs, from four continents signed the Velletri Agreement committing to use telephone lines to network their computers, thereby recognizing the

²⁷ With some exceptions: in 1985, for example, the Berlin-based hacker organization Chaos Computing Club (CCC), exploited a flaw in the German Bildschirmtext home terminal system to raise awareness of its security risks. CCC activists hacked the Bildschirmtext, operated by the telecommunications agency Deutsche Bundespost and used by the general public for daily payments, to organize a massive transfer of money in their favor. However, they called a press conference the next day to return the cash. The CCC is still active today, and regularly engages in similar operations.

potential of cyberspace as an arena for collective action. As a result, the Canadian International Development Research Centre, funded Interdoc, a series of connection experiments geared toward civil society organizations. Between 1985 and 1990 several networks were created to provide progressive activists with cheap systems for sharing text-based information: Fidonet, which relied on the BBS system; the London-based GreenNet oriented towards the “progressive community working for peace, the environment, gender equality and social justice”; PeaceNet and EcoNet in the U.S., which later merged into the Institute for Global Communications; and the European Counter Network, based in Italy and connected to the most radical fringes of European social movements. Some of these still operate today. In 1988, PeaceNet and GreenNet teamed up to create the first NGO-owned transatlantic digital communications network. They shared “the Internet vision of global communications unfettered by commercial barriers” (Murphy 2000). In 1990, a number of non-profit Internet providers joined forces in the Association for Progressive Communications (APC) to ensure that “all people have easy and affordable access to a free and open internet to improve their lives and create a more just world.”²⁸

Following the diffusion of the Internet in the 1990’s, a new type of grassroots activism emerged, which had direct action in cyberspace at its core. As one activist put it, “finally technology and politics were talking the same language, and the links between the physical and electronic spaces were becoming real” (Milan 2010a:89). The 1994 Zapatista uprising inspired Western activists: exploiting the ontological qualities of the Internet, such as its ability to reach out to remote nodes, insurgents managed to transform a local indigenous struggle in the remote Mexican state of Chiapas into the first “information guerrilla movement” (Martinez-Torres 2001). The Internet allowed the nascent indigenous rights movement to speak for itself and control information that were vital to its survival. It also served as the backbone for the creation of supportive transnational networks that were able to amplify its message. In 1996, the Zapatistas called for “mak[ing] a network of communication among all our struggles and resistances” (Hamm 2005). Partially inspired by the Zapatista cyber-struggle, activists protesting against the World Trade Organization summit in Seattle, in 1999, created the first Independent Media Centre (IMC) or Indymedia. For the first time in the brief history of the Internet, users were able to publish texts and pictures online, without editorial filter or registration, thanks to an open source software called “Active” developed by activists in Sydney, Australia,. In this respect, activists rightly consider Indymedia “the

²⁸ “The APC Vision,” APC website.

mother of all blogs” (Milan 2010a:89). In 2002, three years after its foundation, there were already eighty-nine IMCs across six continents. For over a decade, Indymedia served the communication needs of social movements across the world. Similar do-it-yourself projects appeared that put self-organization, free speech, and the cooperation of countless individuals at the center of social change.

In 1996, U.S. cyber-libertarian activist, John Perry Barlow, launched the “declaration of independence of cyberspace.” It read:

Governments of the Industrial World, you weary giants of flesh and steel, I come from Cyberspace, the new home of Mind. On behalf of the future, I ask you of the past to leave us alone. You are not welcome among us. You have no sovereignty where we gather ... I declare the global social space we are building to be naturally independent of the tyrannies you seek to impose on us. You have no moral right to rule us (Barlow 1996).

Based on Dave Clark’s famous creed from 1992—“We reject kings, presidents and voting. We believe in rough consensus and running code”—cyber-libertarians oppose state interventions into the innovations and the creativity of developers. They preserve freedoms in online interaction, and reject state interference in cyberspace, including surveillance. In their view, cyberspace has to remain free of proprietary layers because it belongs primarily to those who create and use it. Cyber-libertarians believe in openness, transparency, and the power of users and technical experts, in other words, the self-regulation of those who create and use the infrastructure is the only legitimate form of governance of cyberspace, and should be based on the prerogative “first, do no harm” (Cerf 2004:13).

As protest extended to cyberspace, the 1990’s also saw the emergence of hacktivism, which took advantage of the low cost, high-speed, and flexibility of network-mediated communication for protest purposes. In the mid-1990’s, the U.S. tactical media collective Critical Art Ensemble (CAE) theorized electronic disturbance and electronic civil disobedience as the most meaningful forms of political resistance in times of nomadic and decentralized power (Critical Art Ensemble 1993; 1996). According to CAE, electronic disturbance was not a mass movement, but a cell-based hit-and-run media intervention taking advantage of the decentralization typical of the information society. In 1996, the Texas-based computer underground group known as Cult of the Dead Cow coined the term hacktivism, a portmanteau of “hacking” and “activism,” to indicate the politically motivated use of technical expertise like coding (Delio 2004).

Around the same time it became clear to activists that “grass-roots “social movements” needed new networks of communication (...) but also that the way these networks were created, run and developed, mirrored, as much as possible, the direct, participatory, collective and autonomous nature of the emerging social movement(s) themselves” (Milan 2010a: 88-89). Networking infrastructure became an object of contention in its own right. “Radical tech” activists aimed at creating autonomous cyber-infrastructure, independent from the state and the market, in order to provide like-minded citizens, with public access to the Internet as a tool for individual and collective empowerment in the information society. When the Internet connections in households were still rare, activists offered public access points, often in occupied buildings. Later, they started operating as non-commercial Internet Service Providers (ISPs), offering “secure” email accounts, mailing lists and web hosting at no cost. Self-organized servers like Autistici/Inventati in Italy and Riseup in the United States are still very popular. Riseup, for example, hosts some 50,000 email accounts and over one-million people subscribe to the mailing lists hosted on its servers.

Over the last couple of years, hacktivism has become more popular as Anonymous’ nuisance campaign started making the news. The community originated in online chat rooms focused on politically incorrect pranks, but later mutated into a politically engaged group, maintaining an orientation to the “lulz”—a neologism indicating the fun associated with pranks (Gorenstein 2010). Membership is informal and fluctuating, and includes techno-savvy activists but also digital natives who believe in the potential of the Internet for collective action. They take action against companies, governments, and individuals in retaliation for behaviors that threaten activist values and the uncensored Internet (Coleman 2010).

Cyber-activists continue to seek and defend spaces of autonomy in cyberspace, for example by creating encryption tools and alternatives to corporate social-networking services. Among the newest projects are Crabgrass, a Riseup “spin-off,” an open-source software and social networking platform for activists, and Diaspora, a distributed social networking service based on the federation-of-servers model. Their developers aim at putting users back in control of their data, implementing privacy protection and collective user-based ownership. To respond to security and surveillance threats, hackers have created hands-on fixes such as Tor, an “onion routing” encryption system designed to protect users’ anonymity in online interactions. Meanwhile, following a call for the Hacker Space Program in summer 2011, a group of hackers proposed to build a satellite ground station and a distributed network that would provide a self-managed, cheap and secure Internet.

“RUNNING SERVERS FOR REVOLUTION”: THE ETHICS OF RADICAL TECH ACTIVISTS

“Socializing knowledge, without creating powers,” reads the manifesto of a collective of technology experts that offers “secure” email accounts and web hosting at no cost to progressive activists. Since the early 2000’s, this tech collective has operated as a non-profit ISP, offering the digital tools and platforms that enabled the creation and coordination of many European activist networks. The manifesto goes on: “We want to open up the web in order to be able to act on two levels: on the one hand, to defend the right of each individual to free communication, anonymity, privacy, and access to the resources of cyberspace; on the other, we want to contribute to offline activism projects linked to our social reality.”²⁹ Alternative ISPs are an example of cyber-activism focusing on self-organization for the creation of autonomous spaces. Their servers, whose location is carefully selected to avoid restrictive legislation and is sometimes kept secret, host websites, blogs, emails and listservs. Platforms for self-production of information and knowledge sharing, such as etherpad services and wikis, may also be on offer.

This section illustrates the features and ethical values of the subcategory of cyber-activists operating non-profit ISPs. As we will see, these activists are particularly concerned with the ethics of technology. They call themselves different names, as this call for action shows: “radical techies, anar(cho)geeks, hacklab members, keyboard squatters, tech-aware activists, autonomous administrators... we’ve often directly participated in that [i.e., the internet] evolution, advocating subversive uses of new technologies, hacking free software and sharing knowledge with passion, running servers for revolution.”³⁰ For the sake of clarity, I refer to them as radical techies. I have spent some four-years in the field, observing closely the workings of several radical tech groups, interviewing over forty activists from sixteen countries in the five continents (Milan 2009; 2013).

Radical techies usually organize in small action-oriented cells of volunteers known as grassroots tech collectives. A typical tech collective would consist of

²⁹ The manifesto has been slightly modified to prevent the identification of the group.

³⁰ “[IMC-Tech] meeting to defend our autonomous servers – an invitation,” personal communication, 18 June 2006. A People’s Global Action meeting on communication infrastructure identified alternative ISPs as “organizations running a server to support movements for political change to get direct access and participatory access to the web and media” (People’s Global Action 2006).

half-a-dozen activists who are often, but not necessarily, based in the same town. Some groups have weekly meetings, some even operate a computer lab, but most of their work and communications takes place online. Daily tasks include managing web servers, while larger projects may involve the development of open source software. They perform a crucial role for the contemporary social movement scene, as they provide the digital backbone for activists to network, communicate, and protest. In Europe, in particular, they emerged in the milieu of the squatted social centers, with strong linkages to the more radical and antagonist scene. One of the biggest European alternative ISPs hosts about four-thousand email accounts, and over thirty-thousand people subscribe to the mailing lists hosted in the server. Annual revenues from donations do not exceed €5-6,000, which are largely insufficient to cover the operational costs.

Radical tech collectives become more visible when they step out of cyberspace. Tech groups have established media centers at major protest events such as G8 meetings and the United Nations summits. Over the last decade, Indymedia activists have set up tents with computer equipment in the middle of actions to allow other activists to upload their reports directly from the streets. A collective, once transformed a countryside barn, in a remote North German village, into a media hub that provided thousands of environmental activists with a sophisticated communication infrastructure to report on a protest against nuclear waste shipments.

Radical tech groups are mostly located in the Western world, due to the availability of cheap technology, fast connections, expertise, but also a certain degree of Internet freedom. There are two or three such groups in each Western country, and a few others in Latin America, South-East Asia, and Australia. Over the last decade, their activities have been increasingly targeted by state repression because of their role as backbones of activist organizing. Server seizures have affected, among others, the Indymedia network (2004 and 2008), Autistici/Inventati (2004), Riseup, May First/People Link, and European Counter Network (2012).

Radical tech groups generally take very seriously the ethical principles regulating their internal organizational dynamics. But, most importantly, these principles are mirrored in the very same services they run and in the ways they are designed. Although their services might look similar to what corporate servers offer (for example, free email accounts), they are inspired to the values of openness (e.g., open standards, open process and open architecture), horizontal collaboration, and decentralization. Rather than profit, they put at the center the user and his/her right to anonymity, autonomy, free expression and knowledge sharing. For example, groups commit to protect user anonymity

and individual privacy, and promise not to release user data to third parties, including security forces. In doing so, they may act in open violation of data retention and user traceability legislation such as the European Union Data Retention Directive (no. 2006/24/EC), which forces all providers of electronic communication to retain users' connection meta-data and release them upon request. Further, they design and supply privacy-protection tools such as anonymous remailers and encryption systems, in order to, as a mission statement reads, "form and inform on the need to protect one's own privacy and avoid the plunder of personal data by governments and businesses alike."

Radical techies reject top-down power in the form of institutions and state control. They tend to share an anti-establishment ethos and a political radicalism that translates into a principled skepticism towards power-holders and power structures. The challenge to authority is present in both their organizing principles and the services they offer. They practice grassroots autonomy, which refers both to the autonomy of the group from the socio-political context in which it is embedded and the autonomy of the individual within the group. Hierarchical forms of organization and representation (e.g., spokespersons) are typically rejected. Instead, radical techies lean towards what has been called a "community without structure" (Leach 2008: 1059), with decentralization and horizontality as primary organizing principles. Informal hierarchies are kept in check by a continuous collective reflexive exercise. Decision-making is typically based on consensus, i.e. reaching an agreement that is acceptable to all members. This preference for consensus versus the majority rule mirrors the network metaphor of the Internet, where all bits are created equal. From decentralized social production (e.g., an approach to collaboration, which is typical of the open source subculture) follows a tendency towards decentralized and distributed forms of organization. In this, tech activism embraces self-organization and the 'do-it-yourself' (DIY) and "maker" cultures as its constituent features. Autonomy is often inspired to the organizational principles of anarchism and anarcho-syndicalism (c.f. Day 2005).

Radical techies emphasize communitarianism and participation. Communitarianism can be seen as a social conception of freedom: it gives weight to the differences created, for example, by languages and gender, and tries to incorporate them in the group's internal dynamics. However, this communitarian dimension coexists with libertarian and individualized traits, which are particularly prominent in tech activism, because activities like coding and hacking are experienced individually, and expertise is owned at the

individual level.³¹ Participation means that groups are potentially open to anyone willing to get involved. However, members tend to share, often prior to action, a certain degree of social and political proximity (frequently friendship precedes the involvement with activism) that may alienate newcomers. To encourage participation, activists organize knowledge sharing workshops.

Similar to the organizations working on media democratization or Internet freedoms, independent servers have a progressive agenda that includes the right to access communication platforms and share knowledge, freedom of information, privacy protection, and the defense of the right to dissent. They are an integral part of the current global mobilizations on media justice (Hackett & Carroll 2006; Padovani & Calabrese 2012), which include the recent protests against the U.S. Stop Online Piracy Act, in support of net neutrality (Stein, Kidd & Rodriguez 2009), or against data retention (Löblich & Wendelin 2012). However, rather than engaging in advocacy, they tend to privilege a hands-on approach, creating and socializing spaces of autonomy in cyberspace and fuelling alternative practices.

THE GUARDIANS OF THE INTERNET? ETHICAL CODES FOR CYBER-ACTIVISM

Like the hackers described by cyberpunk novelist, Bruce Sterling, cyber-activists are:

Very serious about forbidden knowledge. They are possessed not merely by curiosity, but by a positive lust to know (...) The intensity of this desire (...) may represent some basic shift in social values—a harbinger of what the world may come to, as society lays more and more value on the possession, assimilation and retailing of information as a basic commodity of daily life (Sterling 1993).

As active citizens of cyberspace and self-appointed guardians of the Internet, cyber-activists claim to embody a “shift in social values” away from the predominant commercialization and enclosure of cyberspace. What is this “shift in social values” about? We have seen how the services offered by radical techies represent an alternative to profit-oriented digital communication

³¹ In this respect, radical tech groups embody what might seem to be a contradiction between individualism and collectivism: they retain the aspects of collectivism, but combine it with the informality and individualism of computer-grounded activism. This aspect is explored in Milan 2012.

infrastructure: similar to its' commercial counterpart, services are generally available free-of-charge, but are modeled on values such as openness, knowledge sharing, and protection of personal communications. In this section, I move from the case of radical techies to offer a synthesis of the ethical codes of cyber-activists. I distinguish between an internal code, regulating interpersonal relations and group dynamics, and the ethics of technology, describing how technology should look like according to activists. The two are strictly linked to each other; they overlap in the design of technology and infrastructure ("how" technology is designed, and the outcome of the process).

The internal code of cyber-activists revolves around three notions: equality, participation, and autonomy. Equality indicates the (alleged) lack of internal hierarchies, and the fact that groups tend to recognize to the individual a total independence of judgment³², which results in the typical refusal of formal delegation and representation mechanisms. In this respect, internal decision-making is normally characterized by horizontality and the pursuit of consensus. However, the weight activists attribute to action may result in the potential distortion of collective decision-making processes—what a tech activist once called the "dictatorship of action," by which the urgency of taking action may result in decision-making cliques (Milan 2013). Participation has both an individual and a collective interpretation: on the one hand, it subsumes an emphasis on first-person engagement and individual responsibility towards the community, while on the other it emphasizes communitarianism, collective improvement, and shared ownership. Finally, autonomy is a multifaceted behavioral norm: on the one hand, it indicates the hands-on approach to technology summarized by the DIY imperative and visible in the activists' faith on the power of users and technical experts. On the other hand, it stands for the values of self-organization and self-determination, both of the group towards society as a whole, and the state in particular, and of the individual within the group.

The ethics of technology encompasses the three notions included in what I have called the internal code of cyber-activists, but adds a few more, namely the principle of openness and the notion of freedom as they apply to online interactions and to technology design. Equality, participation and autonomy merge into the hacker idea of cyberspace as an e-commons belonging to humanity, and to be more precise to the people daily engaging with it, i.e. users

³² The autonomy of judgment of individuals is however made possible by the pre-existing affinity of political and ethical values. In other words, group members have internalized the ethical code to the extent in which they can make autonomous choices if required by the situation.

and developers. Further, equality refers also to code and bits, as seen for example in principles like net neutrality, which indicates the non-discrimination of traffic on the basis of content. Autonomy as self-determination translates into technology design that “builds-in” the right to privacy and to the secrecy of personal communication. Autonomy as self-organization is visible in the rejection of state and business interference in the governance of cyberspace—the hands-off attitude enshrined in Barlow’s famous injunction to states to stay out of cyberspace. The notion of autonomy justifies also the adoption of nuisance and trickery as Anonymous-style cyber-activism tactics, which can be interpreted as the reaffirmation of self-determination and independence of the activists from state authorities and the business rule (in other words, the fact that they disregard social norms). Openness refers to the accessibility, malleability and transparency of standards and software, but also of hardware and infrastructure architecture, along the lines first theorized by open source developers. It includes an emphasis on knowledge sharing, collaboration and collective improvement in dealing with technology, as well as to the notion of transparency and access to information similar to what WikiLeaks claims to defend. Finally, activists believe in preserving a number of freedoms in online interactions, including the fundamental freedoms already protected by the 1948 Universal Declaration of Human Rights (freedom of opinion and expression, freedom of association, etc.), but also freedom of access and the highly contentious freedom (and ability) to embark in (politically-minded) collective action and dissent in cyberspace. Freedom of expression, in particular, entails that access to information is not enough, but individuals and groups must be able to freely produce and disseminate information, relying on, and repurposing if needed, existing knowledge and resources available online. Further, the Internet and its applications should be kept free from surveillance by both state authorities and business actors, be it for repression, profiling or marketing purposes.³³ Finally, the notion of freedom speaks to the value of openness: cyber-activists reclaim the right to access, modify, and shape (i.e. “hack”) software and hardware according to their needs and preferences. *Table 1* summarizes the ethical values of cyber-activists.

³³ Joyce (2012) described the right to “freedom from fear” as it applies to the Internet: in other words, “Citizens need to be able to use the internet for political purposes without fear of reprisal.”

Table 1. Overview of the Ethical Values of Cyber-activists

Equality	Participation	Autonomy	Openness	Freedom
<ul style="list-style-type: none"> • Rejection of hierarchies • Refusal of formal representation or delegation mechanisms • Pursuit of consensus • Independence of judgment of individuals (based on affinity) • “All bits are equal” 	<ul style="list-style-type: none"> • <i>At the individual level:</i> first-person engagement and individual responsibility • <i>At the group level:</i> shared ownership, collaboration, communitarianism • Participatory design 	<ul style="list-style-type: none"> • Hands-on approach / DIY • Rule of users and developers • Self-organization • Self-determination • Hands-off approach (no state or business interference) • Privacy by design • Non-interference with a system’s functionality³⁴ 	<ul style="list-style-type: none"> • E-commons • Openness of (and ability to modify) standards, architecture, software and hardware • Access to information • Knowledge sharing • Collective improvement 	<ul style="list-style-type: none"> • Freedom of opinion and expression • Freedom of information • Ability to embark in collective action and dissent in cyberspace (“freedom from fear”) • Freedom to hack software and hardware

ETHICS AND POLITICS OF STUDYING CYBER-ACTIVISM

When I first approached a group of radical techies for an interview, they explained: “in the past, we did not participate in any surveys/interviews etc. It was a decision based on the assumption that social science[s] are too often a police science plus that it is never clear who is going to use this research” (Milan 2009:68). This quote raises many suggestive points: the skepticism toward the exposure provided by academic research, the issue of relevance of the research not only for theory development but also for the research subjects, and the question of access and its negotiation.

Approaching cyberspace as an object of study is not as straightforward as it might be at a first glance. To start with, cyber-activists often act underground, and are difficult to reach and reluctant to shed light on their practices, many of which remain surrounded by a great deal of mystery. Secondly, academic practices, grounded on individualism, intellectual ownership and restricted access to knowledge, conflict with the ways activists and activism projects work and with the values they stand for. This clash of organizational cultures and routines can seriously hinder collaboration. Thirdly, studying activism practices in cyberspace implies drawing public attention to projects and tactics that are often secretive, if not crossing the boundaries of illegality. This might invite repression and encourage surveillance, and can harm or jeopardize activist projects. Fourthly, cyberspace practices are often associated with anonymity, which may result in bias and misrepresentations in data collection as well as data analysis. At the same time, the availability of abundant data “out there” and the unfiltered observation of online behavior (for example, in open listservs, chat rooms, and forums), might tempt the researcher to go to the field under cover, which might have some serious ethical implications. For these reasons, approaching cyber-activism as an object of study reveals the need to rethink the practices of social research, both methods and epistemological considerations, and to approach critically the ethical standards of our research. This section is divided into two parts. The first focuses on the epistemological and ethical dimensions of research on cyber-activism, asking, “How do we get to know what we know?” Epistemology is concerned with the study of knowledge, and, in my view, it has an essential ethical dimension built to it. The second part discusses the methodological challenges of gaining access to the field and working with cyber-activists.

To begin with, a cyber-activism researcher should adopt the hacker principles of “do not harm” and “leave no damage” as fundamental points of reference. This entails questioning the implications of studying a certain group or practice, and one’s personal motivations for doing so. It means reflecting on how the research might impact on activists, and how might the activist community receive it. “Do not harm” commits researchers to a careful selection of objects of study and research questions. It requires care, not to expose activist projects to repression by, for example, revealing confidential information, and a commitment to protect the informants’ anonymity. If this is valid for any inquiry into social reality, it is particularly relevant in approaching controversial practices like, for example hacktivism, because it may hinder any future attempt at going to the field.

Studying cyber-activists means, trying to bridge, or at least reduce, the gulf created by two profoundly different organizational cultures and routines: academic individualism on the one hand, and activist collectivism on the other. Further, activists often feel exploited by academics.³⁵ Researchers should acknowledge the material differences existing between themselves and the activists (e.g., the latter are typically volunteers), and negotiate with activists a way to correct this imbalance in power and resources (for example, selecting research questions that are relevant to activists, or even allocating a portion of research funding to support an activist project). This also includes finding ways to share the research results in a way that is acceptable to activists, for instance by publishing the research findings in open access journals. In my experience, the large majority of activists I have worked with posited knowledge sharing as a precondition to participate in the research.

³⁵ According to my experience, the suspicion toward academics derives from three main problems. First, activists are under the impression that academics take advantage of activists merely to further their careers. Many activists I interviewed lamented that collaboration often ends abruptly once the researcher has collected enough data. Secondly, researchers seem to fail to recognize that activism is “work”: activists are not necessarily waiting for an opportunity to talk with researchers, and they may have better things to do. This is particularly true in the case of those activists who do not depend on, and may not even be interested in, public recognition. Thirdly, the researcher may eventually assume a position from which she *speaks for* the activists, and might end up being identified as the authority in the field—often at the expenses (and to the disappointment) of the activists on the ground.

Throughout the process, the researcher has to exercise recurrent reflexivity, critically questioning her identity and the role as an observer, immersed in a complex social world, torn between the scientific observation of social change and social change as it happens. In other words, studying activism, and cyber-activism in particular, implies a process of continuous redefinition of the self by the researcher, as activists regularly challenge identity, motivations, and standpoints of their interlocutors. The researcher has to learn to accept this very personal exposure as a legitimate part of the conversation. Reflexivity could take the shape of “iterative cycles of dialog, action and reflection” (Ryan & Jeffreys 2008: 4), involving both activists and researchers, and oriented towards mutual learning.

An ethical question one might ask is “what knowledge should be produced and for whom (Croteau, Hoynes, & Ryan 2005). Observers claimed that there is a growing “artificial divide between the practice of social change and the study of such efforts” (ibid: xiii). In this respect, the approach that I call “engaged research” represents a good compromise between a research exclusively oriented towards theory development and the practice of action research (which in turn seeks to enact solutions to the problems brought forward by social actors).³⁶ I take “engaged research” to mean an inquiry into the social world which, without departing from systematic, evidence-based, social science research, is designed to make a difference for disempowered communities and people beyond the academic community.³⁷

Faced with these challenges, how can a researcher create a respectful research relationship with her informants, one that is able to originate “thick” reliable data? What follows illustrates some methodological “tricks” that I have extensively tested in the field. They include allowing time for building a trusted relationship and a sustained dialogue, designing research questions that matter *also* to activists, learning new sociability skills to adapt to the activists’ social environment, and respecting group dynamics.

A researcher can bridge the gulf between researchers and activists in two ways: by becoming a trustworthy interlocutor, and by designing a research that is acceptable to (and respectful of) the research subjects. Building a research relationship based on clarity, mutual respect and trust takes time, and requires

³⁶ For an overview see Greenwood and Levin (2005). The process of collaborative research is also called “co-generative inquiry”.

³⁷ To know more, see the special feature of the *International Journal of Communication* on the epistemology of engaged research that I edited in 2010 (Milan 2010b). The five articles offer useful case studies on the practice of engaged research.

frequent exchanges and lengthy negotiations. However, this phase of mutual learning has the benefit of considerably improving data collection. Including research questions that relate closely to the problems experienced by activists encourages them to accept the research as legitimate and engage with it. Further, the researcher should adjust her way of relating to respondents to the ways “in which social practices are defined and experienced” (Hine 2005: 1). In the case of cyber-activists, this might mean to privilege online interactions over face-to-face exchanges, and might force the researcher to familiarize herself with the conventions and behaviors typical of cyber-activists. Using an email account from a non-profit provider and encrypting emails might signal familiarity with, and respect for, the activists’ values.

The individualism versus collectivism divide has some methodological implications. In the absence of spokespersons, the researcher might have to address the group (and not the individual) as the unity of analysis. As one of my earlier interview partners noted, grassroots tech groups “are collective enterprises,” and addressing individuals within the group means “breaking down the collective dimension” of the project (Hintz & Milan 2010: 840). This, however, comes at the cost of extending considerably the time frame for data collection.

Finally, it is essential to question the amount and quality of data that is gathered and released to the public, in order to reduce the potential harm for the activists and their projects. This means, for instance, to look critically at what connections are exposed, what tactics are revealed, and to carefully weigh the costs and benefits of going public with certain findings.

Whereas, most current social science research is *about* social groups, processes, and events and researchers engaged aim to make research *with* (i.e. in collaboration with) these subjects. Research *with* requires a commitment from both sides to collaborate and come to terms with the mutual differences. It involves a long-term time frame, recurrent cycles of reflection and negotiation, and constant adjustments along the way. In short, research *with*, in my view the most rewarding way of researching cyber-activism, is about developing fair relationships and understanding the research process as a possibly equitable collaboration. This also means—as banal as it may sound—to recognize that activism is “work.”

CONCLUSION

In this paper, I set off with the task to illuminate the complex relationship between ethics and cyber-activism, looking at both the articulated ethical codes of cyber-activists, and the ethical challenges facing any researcher approaching cyber-activism as a field of study.

Cyber-activists might often seem contradictory (and behave accordingly). However, cyber-activism politics embodies a strong ethical dimension that cannot be dismissed, precisely because it points to a “shift in social values” that has the potential to speak truth to power. Their contribution in envisioning a freer and more equal cyberspace is crucial to our society, in an age in which the World Wide Web, and the knowledge it hosts, bends more towards commercialization, privatization, and exclusion. The activist values of self-determination, equality, openness, communitarianism, and unfiltered freedom of expression may sound unrealistic. I argue that they should be considered in their guise of “guiding stars;” that is to say principles that should inspire and orient human action, without us trying to achieve them.³⁸

Further, cyber-activism may lack accountability, but it expresses agency. In contemporary societies characterized by disaffection towards representative democracy and declining civic engagement, some expressions of cyber-activism may be interpreted as a quest for participation and an exercise of direct democracy. As such, cyber-activism has the potential of fostering individual and collective empowerment and participation. Some of its forms, such as self-organization and hit-and-run cyber disturbance actions, should be tolerated, if not enabled. They can be seen as manifestations of an emerging grassroots social force pushing the boundaries of liberal democracies and questioning the relationship between individuals and the state as well as the role of the state as the guardian of individual freedoms. Rather than enemies of liberal democracy, cyber-activists are the carriers of grassroots demands concerning the present and future of our society—a society that, to quote Sterling, “*lays more and more value on the possession, assimilation and retailing of information as a basic commodity of daily life.*”

I advocate for a critical approach in addressing cyberspace as a field of study, one that takes the hacker imperatives to “leave no damage” and “do not harm” as essential benchmarks. There is an ethical dimension of research into cyberspace activism that is also crucial for the advancement of social theory.

³⁸ This metaphor was mentioned by an Indymedia activist in an interview with Arne Hintz (2009).

While acknowledging cyber-activists as carriers of alternative narratives of cyberspace, we should engage with the ethics of studying cyberspace activism, respecting as much as possible the cyber-activists' values and the boundaries they might impose on us, even when they are difficult to understand. Researchers should adopt the activists' preferences in matter of researching their own activities, not only in view of obtaining unrestricted access and avoiding bias and deliberate distortions of data, but also in view of making research that matters to the groups being researched and, possibly, to society as a whole.

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DIRECTORY OF THE GROUPS CITED IN THIS PAPER

- Anonymous:** Online community whose self-identified members engaged in disturbance action in cyberspace and beyond (most notably, DDoS attacks).
- Association for Progressive Communications (APC):** Founded in 1990, it is an international NGO committed to empower and support the civil society through ICTs. It is also a network of over fifty civil society organizations, most of which in developing countries. Many members work also as non-profit ISPs.
- Autistici/Inventati (A/I):** Italian non-profit Internet Service Provider linked to the radical social movement scene.
- Chaos Computer Club (CCC):** Based in Germany, it is probably the biggest hacker organization. Promoter of the hacker ethic, and concerned with transparency in government and freedom of information. It organizes annually the Chaos Communication Congress, in Berlin.
- Crabgrass:** Web application designed for social networking, group collaboration and network organizing. It is a Riseup production.
- Critical Art Ensemble (CAE):** Tactical media collective operating at the intersection of art, critical theory, technology, and political activism. Active since 1987.
- Cult of the Dead Cow (now Hacktivism):** Texas-based underground computer group. Credited with having invented the term “hacktivism”.
- Diaspora:** Distributed social networking service. It aims at putting the user back in control of his or her data.
- European Counter Network (ECN, also known as Isole nella Rete):** The oldest provider of the European radical social movement scene. Inspired to antifascist values, it started in the 1990's as a BBS service. It launched NGVision, the first video sharing platform for the publication of video footage from street demonstrations.
- FidoNet:** Worldwide independent computer network used in the 1990's for communication between BBSs.
- GreenNet (GN):** Founded in 1986, London-based GreenNet is an ethical ISP dedicated to the environmental activism community. Member of the APC. <http://www.gn.apc.org>
- Independent Media Centre (IMC, or Indymedia):** The first IMC was established in 1999 in Seattle in occasion of the summit of the World Trade Organization, in order to provide activists with a platform to report directly from the streets. It is now a global network of independent information.
- Lulz Security (or LulzSec):** Group of hackers responsible of some renowned cyber-security attacks against Sony and the website of the CIA. Its members were arrested in 2012.

May First/People Link: New York-based member-run progressive ISP. The motto reads “Growing networks to build a just world.” It provided the communication infrastructure to the Social Forum of the Americas.

PeaceNet and EcoNet (now The Institute for Global Communications): Emerged from some of the first experiments of connectivity for civil society groups, it now **provides** web hosting services to non-profit groups, individuals, and small companies.

Riseup: Based in the United States, it is one of the biggest alternative ISPs. It provides online communication tools such as webhosting, email accounts but also VPN, chat, and etherpad services to social change activists.

Resist!ca: Set up in 2000, it is a Vancouver-based anarchist server offering email accounts and mailing lists to anti-capitalist activists.

Tor: Free software designed to protect users from network surveillance (and traffic analysis in particular). Based on the onion routing system.

PANEL 6: QUESTIONS AND ANSWERS

Moderated by Dr Joanne Lim, School of Modern Languages and Cultures, University of Nottingham, Malaysia

Joanne: It was a very relevant paper indeed and very exciting. I would respond for a few minutes and then as usual we will open it up to everyone. When I was reading what defines this paper, immediately, it brought to mind a recent cyber protest in Malaysia, if you have heard of it, the Internet Blackout Day (a protest against the gazetting of Section 114A) which in fact, does everything to ensure that it is in contrast to those values you were talking about, those ethics in cyberspace. Section 114A presumes publication and ownership of offending items posted on the Internet as the owners', unless proven otherwise. So it contradicts everything that is to do with rights and ethics and everything that these cyber activists are for. It is interesting to see how cyber-activists may consider themselves not only as guardians of the Internet, but also of offline society. I am also primarily talking about these cyber-activists, who are from highly censored societies, where they are kind of subjected to strict, draconian laws and Internet restrictions. They believe values such as openness, transparency, and self-expression should not be threatened in both the online and offline worlds. So that is like a "merge" between offline and online worlds. However, especially in Malaysia, this kind of denial of freedom on the Internet reflects what is taking place in the actual world, as well as suggesting that it is an extension of the censorship of films and books and the high surveillance and monitoring of public activity. Self-regulation itself is primarily borne out of fear and threat rather than moral values. So, for many, posting on cyberspace is more a risk than a right. You literally risk your mortal and virtual life. I have worked with several social media activists and activist groups that advocate the right to access and share knowledge and freedom of information and trying to seek protection online. Instead of offering alternative infrastructure and services like what you have mentioned, these cyber or social media activists become the tools themselves of such freedom, allowing information to flow through their Twitter and Facebook accounts. If I am to quote a social media

activist named Fazil, he said he do what he does because “the scope is social justice.” So how can information change public perception about their current condition? That is what they are trying to get out.

You did not quite talk about participation at the individual level. Perhaps you may want to elaborate on that and the kind of signal boost phenomenon of how critical information would continue to perpetuate and be shared and *liked* in Facebook. In fact, I see relevance of this session in challenging us to consider the actual possibility of guarding the Internet, to ensure that various ethical values are advocated and sustained. I mean, you talk about equality, participation, autonomy, openness and freedom, especially freedom from fear. It is very exciting to talk about these, taking into consideration the different cultural, social, political and practical politics that are at play within each society. So cyberspace is obviously not cut-off from the government or from money-making organizations. If I were to refer to yesterday’s session, no matter how many times you get infected, all recover from an epidemic, because cyberspace has the biggest pool of data for every single field in the universe. It will inevitably continue to be manipulated, to be subjected to surveillance, deception, violation and censorship by the state and by the individual. So, my apologies for the lack of optimism, but this really stems from my own study of cyber-activism. The majority of cyber activists will not even admit that they are activists. As what you mentioned, even an attempt to understand them and provide a platform to “voice-out” offline may actually cause more harm than help to their projects. Hence, we need to continue asking ourselves why we embark on research on cyber-activism in the first place. What do we want to do with the data? Who are our funders? What bits of information do we disclose or report to our funders, especially state funders? And with that, I am just going to open this up to everyone to ask questions.

Jonathan: I think obviously these values are very individualistic. I would like to know how a sense of altruism fits into that particular mindset. Are they just doing it for themselves, as a kind of ritual or identity formation? How does the general public fit into their view?

Stefania: The individualism that they mentioned is very important in this type of activism. The other important regulating value in these circles is individual reputation. What you know, your own knowledge. At the same time these groups have been set up for the benefit of other groups. Their idea is to use a metaphor *to steal the fire* (this is a metaphor the activists use). What they say is, whatever is in the hands of corporations, they steal it from them in order to give it to people. In other words, they make it accessible for people. If you look in particular at radical tech groups, they just do it in order to let others speak. For them, they are a part of the contemporary progressive social movement scene (the most radical part perhaps) but they say, “we are interested in social change.” So they are very much open.

Ingrid: I want to follow up on Jonathan’s question because I think it is very interesting the way you presented these groups. I used to work in the media for many years. I have two questions for you.

To a large extent, there seems to be a lot of contradictions in terms of the actual politics going on. It has a very male cowboy America kind of background. You were saying that you want to communicate with these groups and bring your ethics in line to understand what they are trying to do. I am not sure about that. I would like to know why you felt uncomfortable dealing with these groups. What sort of exclusive practices do they have?

Stefania: In terms of male cowboy background, it is a good picture. It is a bit more diversified. They have a few groups with completely different approaches, such as Italian, Latin American groups, etc. In particular, there are some groups that are self-reflexive about being predominantly male, and openness versus closeness. The fact is not everyone has the knowledge that you require from them in order to participate effectively. So they are very much concerned about that. So there are some contradictions. At the same time there is also a lot of self-awareness and attempts to deal with these

contradictions (at least the openness, to reflect about it, especially because they are much smaller groups, so it is much easier to do that). They spend quite some time doing that. I was reading an article, a couple of weeks ago, about AFCOM—which is one of the biggest conferences happening in Las Vegas in the USA. It was an article by a woman, basically describing conference harassments. That is another story. There are several other groups as well. In the Netherlands, women say, they need protective space to express themselves and that they should not be looked down merely because they are women and do not understand technology. Women are also interviewed in a more opportunistic approach than men. In terms of bringing my ethics in line with theirs, I am trying to emphasize that, in order to explain to people who might have not been exposed to that sort of ethics as an activist. There is not much of a difference to me given the similar background that I come from. I was forced to reflect even more when I thought that certain things were taken for granted by the groups but they were really not. But then it was justified over the process. A lot of them are actually friends. So I can tell you, they are not explicitly trying to be exclusive. They have very good reasons to be very careful to protect their users.

Beng Huat: I think we need something more concrete about this. I think that some of these questions about people, such as, what is their interest in the public, what you have written and what you said is within their ethical code that promises to make the world a better place. Since they are not working in the material world as such, there must be a certain definition of what a “better world” means. There are two or three possibilities. One is radical freedom, which is a utopian way. There is also an intrinsic belief that all forms of discipline and government are bad. Thus it opens to disruption if not destruction. Hence, all of these activities make it difficult to imagine a better world. They are individualistic in very funny ways and they do work as a community. But at the same time, their political and ideological position is extremely individualistic. I think in their position any concept of social will be oppressive.

Jonathan: Given your comments about the demographics of the organizations, it is normally not very surprising when most people reply to the libertarians by asserting “You want freedom from everything.” In a way this is true. But my question is, if you go to the activists in Tanzania or to the women’s activist groups in the Netherlands, do you still find them highly libertarian or do you see changes in what these people do in terms of community development or identity formation? Is it purely symbolic politics?

Stefania: What they have in mind is some sort of a vision of labor modernization. So they say that they have skills to put them in social movements. They are usually different types of activists. So they are usually involved in society anyway. This is one of the things they do. In terms of radical freedom, the idea of society and the idea of a better place, they engage in what they call as procedure demarcation. There is definitely a very important component of community development of individualistic practices and personal empowerment, but it is not necessarily bad. What I said reflects about being collective. It is better to be responsive to each other in terms of radicalism and democracy, rather than to be responsive to a CEO or a head of the group, etc. However, collective culture can be very individualistic and it is a far cry from being responsive to an entire social movement. They are fully aware of that. I mean that is the kind of micro form of self-organization that they have decided to adopt. They are interested in either public and serve crucial social movements. I was mostly focusing on the Western world, and I looked at transnational activists.

CONCLUDING REMARKS AND DISCUSSION

Beng Huat: We generate various kinds of questions when dealing with model behavior. And it opens up different perspectives and concerns when we relate them to social science or humanities. But the problem is very often a question of scale. That means, people who work on model behaviors do not tend to think in terms of individuals. If they do so, they are unable to do their work. They actually have to build a very impersonal kind of criteria, with terms that unavoidably have to be simplified. You cannot talk about a fact in all of its hues. Thus, you have to talk about a fact as simply as an emotion, which could be identified as good, bad, or even neutral. Hence, the problem has always been this. I am very sensitive to this because I am the Head of Sociology Department. There are two sets of people: one set who are absolutely not interested; another set who are anthropologists, where every informant counts. Both groups raise the same question as to whether model-builders are being overly simplistic. The world is more complex, hence it is difficult to create a specific model. Everyone knows it. But the real question is whether the relaxation of all the details would provide some variables that are sufficiently sophisticated to generate an understanding at a different scale, perhaps not at the scale of the event or the scale of the individual. That is the interesting question. Because, one may spread their personal motivations, but no activist would probably know that whatever they do—planning and sending out hundreds of Twitter postings—would create a significant event. Hence, conceptually, we really need to think quite differently because we are dealing with two sets of scale that are completely different. They are: the instance where the focus is on the event and the outcome is the phenomena we are interested in and the instance in which the focus is more on the implementation or the mere reasons to act in a particular way (for instance, why do people participate? In what mode do they participate? Do they participate as activists?) Therefore, I think it is conceptually and methodologically a very difficult problem to solve, and to find a solution to bridge the gap by research would be difficult too. However, from the discussion for the past two days it is quite clear that we need to recognize that the object of investigation is quite

different in terms of people creating models and those who are actually studying cyber practices.

Looking at cyber practices, it is quite interesting to observe several intriguing points. Social media is really a multiplier effect, and not a cause. It always acts as the mediating machine, and not the machine that generates events. In other words, there is always an “actor,” either a singular or a collective “actor,” that somehow, is/are able to use the media to make it happen. Even from a perspective of a cyber-activist, the social media is still very much a mediation tool. It is a mediation tool that quickly disseminates messages. So conceptually it is quite interesting. Although an event may take place spontaneously it still requires a lot of organizing work. Even in the case of Egypt we know that there were a lot of organizing work before the actual events took place. And the organizational work requires the social media in order to disseminate information efficiently and quickly. So speed is an important issue here, because without it, things might change, but it might take another ten-years, by which the human cost will be too high as well.

When we think of slacktivism, in effect, the sort of slacker pretty well comes close to most people’s attitude towards politics. Usually, only the political scientists think that everybody has politics in their mind all the time, which is not true. I think one of the interesting examples is Singapore. Singapore is a very frustrating place for politically-minded people. Nevertheless, as a country, Singapore is well-behaved. In a society where the economic issues are largely not a problem, people really do not care too much about mundane politics. In Singapore, if one writes to The Straits Times about some issue, for instance about the lack of bus stops within 150 km, s/he will get a response to say, “We’re looking into it,” and in a couple of months it will be fixed. I think it is a great newspaper, because it does not report news, it reports the future. The Straits Times always writes about Singapore politics in future tense. Always when there is a complaint, a government agency will be addressed and it will be sorted out within approximately six months’ time. Thus, this question about if the slacker attitude is from the majority becomes an interesting question. I mean, is politics in cyberspace different from politics offline? Or do we expect it to be different in offline-mode? And if

we think about all the instances where we always talk about cyber-activism, are we not always choosing countries in which politics is the major issue? For example, in Asia, we talk about China and Korea a lot. However, we do not actually talk a lot about cyber-politics in Japan.

I think there is some conceptual issue about the character of politics in cyber-space. And whether that reflects the offline-politics of a particular country? And is it because the offline-politics is so constrained that in fact politics on cyber-space becomes the preoccupation? And if that is the case, we really should limit ourselves to say, "We're only talking about the following nations, and the reason why we're talking about the following nations is because the domestic conditions of those countries are such that really, cyber has become the alternative space, for politics, but by another name." So I think those are conceptually quite important issues because it actually affects how one would do an analysis. The question is whether it is structurally analogous to offline-politics? Or whether cyber-politics is actually alternative politics? Is it only a reflection of a certain aspect of the politics offline in that particular location? It does take different forms, for example, I think the cyber-politics in China is clearly different from Singapore and Malaysia. In Korea, cyber-politics is unavoidably constrained by local political conditions. Despite local political constraints, it might really be worthwhile to think about it as an alternative space. And as an alternative space, what kind of consequences should we expect?

Peter: I would like to add another disciplinary perspective here. I am trained as a human geographer, so we look at space and aspects of those three major comments you made about everything happening in a specific place. So those events are happening at a specific place, most probably, among people who grew up there with a certain socio-cultural education and proclivities etc. And then the cyber practices are also location-based. Thus you have to look at specific places, in a way, before you see what kind of practices "travel" into other places. And regarding cyber-politics vis-à-vis offline-politics, I think, one argument is, for example, public space in China and elsewhere is disappearing, so people "shift" to online platforms. I think the trend is happening in other

places as well, so it is not really an issue of authoritarianism versus democracy. It is more a global issue.

Arun: Your comment about the type of politics in certain countries in cyber-space and offline-space, in China and in Singapore, coincide. Whereas in most countries—United States, UK, Germany, India and the Philippines—the alternative media has existed for centuries. So that is why the politics in cyber-space in Singapore and China are fundamentally different. We completely agreed and discussed this before as well. But the cyber-politics in the United States that you mentioned is not alternative politics. They are using cyber media unlike any other country in the world. And it is one of the most extensive platforms of political activities. The extent of Obama administration's use of social media is proven with the fact that they write new chapters about how to use cyber media. So they are using it from a tactical sense rather than what we are doing. For us, the only politics that happens in Singapore is what is happening in the cyber-space.

Tarn How: Can I just say that the nature of participation in a democratic versus an authoritarian society is significantly different? I mean, the act of "liking," for example in the context of Singapore, if you "like" the opposition or a member of the opposition—for instance, Chee Soon Juan—it is not an act of slacktivism, because it involves costs. And I think it is different from the Obama administration and elsewhere, because participation in party politics in authoritarian societies such as, Singapore and China, involves clear costs, unlike elsewhere.

Peter: Let me quickly clarify by saying that I did not mean it is the same thing. What I intended was that those issues are not just happening in authoritarian places, but in the so-called democratic places. I mean, in every democratic country, the definition of democracy may slightly vary.

Beng Huat: I think it is quite right to think about the different categories of activities that we have been talking about, as a continuum. People could get more involved or dropped out somewhere along the line. In an earlier discussion, the question of what is the “collective” in talking about cyber activities is an important question. I think as we are much more familiar with the analysis of the materialistic world, there is a temptation to keep using terms that are borrowed from the material world and to compare it with the cyber world and say, “Well, it doesn’t quite work.” I think that is a methodological obstacle that we need to take care of in our own work. Very often when a student wants to work with me on cyber activities, I say, “OK, fine, we’ll do this, but you have to absolutely preserve anonymity, because the moment you don’t keep anonymity, the moment you start talking to people, then you basically ‘de-nature’ that world in a certain way.” If you are aware of it, it is one thing, but the whole idea of this anonymity in the cyber world changes how we need to think about activities there. Thus, methodologically, using civil society organizations as a framework to think about collective cyber-activities is very problematic, because the structures of civil societies are far more organized, whereas a lot of cyber activities are in fact episodic. One may say, “Yes, some people break out, they become small groups, and they continue to do activities and so on,” but then again, those activists might change and pick up the next thing that comes along. So those are important issues.

What we set out to talk about, things that we raise, may not necessarily have answers. So the question of whether we can ever get to a point where we can identify and predict that something big would happen, needs to be raised methodologically because we are always working backwards, from events to origin. In that sense, we are writing history in an ironical way. We could think of ourselves as writing history with online material rather than with the conventional archive or conventional newspapers, in terms of current affairs. If that is the case, in terms of Guobin’s suggestion of the dramatic form, it has been explored by historians. Historiography also evokes the same way of framing the issue; history has been written as a comedy or as a tragedy. Hence, it is kind of interesting to know that probably, we are writing history with cyber material. That is something that is worth thinking about.

I think Stefania's presentation and Guobin's suggestion elaborates more on this. Sometimes things may remain online. If they do remain online there is still value in studying them. We should not always wonder how it translates to offline. If you keep insisting that it must be translated to offline, then you tend to shift to a conventional, political analysis. I mean, is there a different way of thinking cyber-politics? Conceptually, I think it should be different.

I also think context is very interesting. Looking at what Stefania was saying and the three papers presented—from Korea by Kwang-Suk and Guobin—is that the conceptualization of cyber-politics is extremely historical; one needs to think of it as a historical phenomenon in every location. The character of what goes on as politics online is highly determined by offline politics. The political culture of China and Korea determine what it means to be an activist. It is almost the same with European and American cultures too. In America, cyber-politics turn into serious hacking issues and disruption of huge computer software in FBI or military complexes. It is really determined by the fact that the U.S. is a global hegemony, where the engagement is much more abstract, as opposed to the kind of political context that we live in East-Asia, where the engagement is still much more about the state and politics. I think the term, activism, should be thought of historically and determined contextually. Otherwise, it becomes excessively abstract.

Arun: You made a comment about how some things cannot be sustained only in the cyberspace. I do not quite agree with you because it is quite possible to create a cyber community, and not ever meet face-to-face, and continue to do some things collectively, and there are in fact a number of examples. At least, I have been involved in one project for five years. Afterwards, it just disintegrated, but it had nothing to do with a structural problem. Hence, I think, cyber communities are increasingly becoming viable.

Beng Huat: It is possible. That is why I was saying we should withhold the desire to talk about the real world for as long as we can stand it. We can then look at what is going on there, in cyber world, and see what processes are right.

Peter: An alternative would be to develop different vocabulary in recognizing that cyber is a “reality” for a lot of people.

Stefania: I find it interesting that you are calling for a new vocabulary and a new approach, because it is not really a common thing to do. Comparison is of course very useful, but being creative, inventive and open to new concepts, is very important, but not very much practiced.

Jonathan: Another approach that I can particularly pick up from Guobin’s presentation is not just the use of collective language of social sciences to describe online phenomena, but to kind of “throw out” the language of social groups and civil society. We can use language from aesthetics, drama, performance, and I think that is why there is so much potential in the analysis of dramatic tool that Guobin was talking about. The discussion on the aesthetics of the Internet is extremely marginalized as a source of discussion. However, in terms of its effects on what this might have on what people’s perceptions of how people treat information, we still are in the position where online sources are far too often just regarded as being conduits for information. Information gained from Twitter is significantly different from information gained from a blog or Facebook. If you compare cyber activities in Korea with China, the aesthetic differences are really quite substantial. I think that is something really marginalized. Hence, it is not so much about whether we need to develop new mathematical symbols or new forms of language to describe a conversation that takes place online rather than offline. A possible thing to do is to broaden the language to describe things in the virtual world. I think aesthetic language and the language of performance is very important in that regard.

Beng Huat: The other interesting thing is collecting information. In Dr. Liu’s presentation, he listed all these agencies that collect information, and the moment you list those out, you could be living in a very paranoid world. You immediately think that everything you do is being collected. It is quite fascinating. At first, there is no capacity to actually collect everything, but the cost of analyzing everyone is so prohibitive that you are not able to do it.

Jonathan: Well, we have not talked about Wikileaks at all. The whole roundtable could have been about Wikileaks. Like in Dr Liu's presentation, if you have a database, the agencies that put it to use can be used in various ways. So again, you have a converse situation, whereby you might have a huge government agency that collect a huge database of Internet behavior, but the only way that you can actually make use of that with the human resources will be to go online.

Beng Huat: In fact, all government agencies collect data and it is part of their job. The question is how well they interpret the collected data. For example, one could think of Singapore as a well-organized, systematic, and a rational place that plans ahead and so on. However, most of the time, they are just going from knowledge to practice and not from knowledge to systematic analysis. That is why the proposed solutions are always what is practical rather than what is optimum. Most of the time radical decisions are not made by the state, because the people who are functionaries either do not have the skill or too lazy to run through all the data they have. Thus it is very interesting when we imagine, particularly in the Asian context where it is still sort of "the" government and the cyber activists are seen as a kind of antagonist. Sometimes, it is sort of an excessively paranoid imagination of the government. Some countries are more serious than others. I wonder whether over a longer period of time, the particular role of cyber as oppositional would actually wear itself thin, but I do not think it would wear itself out completely. It might cool down a little bit over time. For example in Singapore, if tomorrow the government lifts the Internal Security Act (ISA) half of the cyber activities will stop. Furthermore, the government is now proposing to remove Section 377A (which criminalized homosexuality), which is now under constitutional debate.

Carol: The past two days' sessions made me look at this topic on a slightly different angle. I was just thinking, should we approach certain questions theoretically and methodologically based on the assumption that maybe we should look at behaviors online, as a consequence of them not happening offline? For example, Marko's paper on slacktivism mentioned that people may engage in slacktivism because it is easy to do. So perhaps we should question

why are people doing these things online? And starting offline perhaps to assess their perceptions of what is it that they want to do but are unable to do without the Internet or what is it that they want to do better on the Internet. However, I am not sure with that approach whether we could address the predictability issue, in studying online activism, or online behaviors?

Peter: Well, global insurgencies are rising up all over the world and some of them go back to increasing corporate control of public space. Hence the withdrawal of public space is smaller, so there may be a rather clear link as to why people go online. On the other hand, it is probably tricky to actually create that link. The point I wanted to make was about those different agents (especially new agents) that we see online and the issues of authority and trust that are incorporated. They do not have much money, but they have an opinion for which they intentionally want to create alternative visions. So, one way to gather this is to look at the people they communicate, trust and imbue with authority. Nevertheless, I tend to go back to that individual level always, which is wrong.

Beng Huat: At a certain point, we need to look at it as a collective activity, and not as an individual motivation. Reason being, not all individual motivations become a mass activity in cyberspace. Hence sometimes, individualism is okay, but once you are looking at the phenomena in cyberspace, I do not think it is beneficial to keep asking the intention, because there could be a vast variety of reasons as to why people engage in cyber activity. For example, according to Marko's idea, a person may go online simply because he/she was bored. Thus, the range of motivations is wide. Hence, it is difficult to always aggregate the intentions to translate it into a collective.

Jonathan: To some extent, the data parsing machinery might actually help us with this. For example, it would have helped to understand the motivations behind the dissemination of Guo Meimei's pictures on the Internet; whether it was political or had other reasons.

Guobin: I felt that the discussions in the past two days suggest that we need to have some sort of a methodological pluralism that we need to take when analyzing a variety of perspectives and approaches. A phenomenon like cyber-activism is actually wide. I read a book by a media theorist named Nick Couldry, and he calls for a socially-oriented media theory, which gives more emphasis on society and less media-centric sort of approach. Some in this room also suggested on looking at a more technologically-oriented media theory as well. Furthermore, to approach the sort of aesthetic, stylistic aspects of text, we may have to refer to literary theory and theory of rhetoric. In other words, diverse perspectives, theories and methodologies are required because the phenomena itself is broader than we thought. Hence, it raises the question about conceptual issues of the Internet or cyber-activism, which needs to be more rigorous in conceptualizing. Thus, we need to ask more specific questions. Then again there will be a whole variety of approaches depending on the kind of questions we ask.

Beng Huat: When we (Sun, Jonathan, Peter and I) were discussing the workshop, we began by asking, how epidemiological metaphor really plays out, if we think of it statistically. The metaphors about worms, viruses and infections are like talking about a spread of an epidemic. And at times, metaphorically, you think of something going viral and contagious. Hence, we thought it would be useful to use the term beyond being metaphorical. That is how we found Professor Sato's paper on the epidemiological model.

My view is that a lot of work that we have been reading about cyber-activism is conceptually built around the convenience of what is at hand rather than thought out conceptually and methodologically rigorously. Almost always, it is only after an offline event has broken out, for example the Arab Spring, that analyses follow, working backwards to trace its cyber beginnings, its 'infections' and 'dissemination,' cumulating in the offline event. Conceptually and methodologically, it is a retrospective search. From a social science academic research perspective, it would be useful to see if it were possible to think about how to predict an event, rather than analyzing it after it has occurred.

In terms of how events unfold, usually, it would be something that is posted on the Net, gets picked up and re-circulated with or without additional information, commentaries and other addendums, in exponential repetitions and dissemination in high speed. Beyond certain intensity, the original posting and it is by now accumulated commentaries get amplified through other media and communication systems, both traditional and electronic, which are critical to the materialization of the offline events. For instance, during the Arab Spring, a lot of other media played critical roles in bringing the reality of the event to the world. From a social science perspective, firstly, would it be possible to develop some methodological tools that would allow certain predictive analysis to take place? Secondly, what are some of the concepts one has to think with on cyber activities? Currently, there are words and concepts that are being used which needs to be examined, elaborated and further developed. These issues are the motivation behind this Roundtable, namely, to look more closely at both the conceptual level and the methodological level. Having considered everything, I am quite happy with the two days that we have spent. Thank you very much for coming, especially for those of you who travelled long distance.

PROGRAMME

PANEL 1

EPIDEMIC BEHAVIOR IN NETWORKS

HIROSHI SATO

Department of Computer Science, National Defense Academy, Japan

Discussant:

ALEX COOK

Saw Swee Hock School of Public Health and Department of Statistics and Applied Probability, National University of Singapore; Program in Health Services and Systems Research, Duke-NUS Graduate Medical School Singapore

Moderator and Discussion Leader:

CHUA BENG HUAT

Research Leader of the Cultural Studies Cluster, Asia Research Institute, and Head of Department of Sociology, National University of Singapore

PANEL 2

SOCIALCUBE: A TEXT CUBE FRAMEWORK FOR ANALYZING SOCIAL MEDIA DATA

LIU XIONG

Intelligent Automation, Inc., Maryland, USA

Moderator and Discussion Leader:

JONATHAN BENNEY

Asia Research Institute, National University of Singapore

PANEL 3

WHAT IS SLACK ABOUT SLACKTIVISM?

MARKO M. SKORIC

*Wee Kim Wee School of Communication and Information,
Nanyang Technological University, Singapore*

Moderator and Discussion Leader:

PETER MAROLT

Asia Research Institute, National University of Singapore

PANEL 4

MOBILE ACTIVISM AND ITS LOCAL SCENCES IN KOREA

LEE KWANG-SUK

Seoul National University of Science and Technology, South Korea

Moderator and Discussion Leader:

SUN JUNG

Asia Research Institute, National University of Singapore

PANEL 5

THE DRAMATIC FORM OF ONLINE COLLECTIVE ACTION IN CHINA

YANG GUOBIN

*Annenberg School for Communication and the Department of Sociology,
University of Pennsylvania, USA*

Moderator and Discussion Leader:

CAROL SOON

Institute of Policy Studies, National University of Singapore, and Asia Research Centre, Murdoch University, Australia

PANEL 6

THE GUARDIANS OF THE INTERNET? POLITICS AND ETHICS OF CYBERACTIVISTS (AND OF THEIR OBSERVERS)

STEFANIA MILAN

The Citizen Lab, University of Toronto, Canada

Moderator and Discussion Leader:

JOANNE LIM

School of Modern Languages and Cultures, University of Nottingham, Malaysia

CONCLUDING REMARKS AND DISCUSSION

CHUA BENG HUAT

Research Leader of the Cultural Studies Cluster, Asia Research Institute, and Head of Department of Sociology, National University of Singapore

SUN JUNG

Asia Research Institute, National University of Singapore

PETER MAROLT

Asia Research Institute, National University of Singapore

JONATHAN BENNEY

Asia Research Institute, National University of Singapore

CONTRIBUTORS

ALEX R. COOK is Assistant Professor in the Saw Swee Hock School of Public Health, and the Department of Statistics and Applied Probability of the National University of Singapore, as well as in the Program in Health Services and Systems Research at the Duke-NUS Graduate Medical School Singapore. Before that he worked as a Research Associate and Visiting Scholar at Heriot-Watt University, Scotland, and the University of Cambridge, England, respectively. He works in the interface between modelling and public health, was heavily involved in Singapore's response to the H1N1 influenza pandemic of 2009 and is currently working on dengue, hand, foot and mouth disease and other infectious diseases.

HIROSHI SATO is Associate Professor of Department of Computer Science at National Defense Academy in Japan. He was previously Research Associate at Department of Mathematics and Information Sciences at Osaka Prefecture University in Japan. He holds the degrees of Physics from Keio University in Japan, and Master and Doctor of Engineering from Tokyo Institute of Technology in Japan. His research interests include agent-based simulation, evolutionary computation, and artificial intelligence. He edited several books of agent-based simulation and evolutionary computation. He is a member of Japanese Society for Artificial Intelligence, and Society for Economic Science with Heterogeneous Interacting Agents. He is an editor of IEICE transactions on Fundamentals of Electronics, Communications and Computer Sciences. His Web address is <<http://www.nda.ac.jp/~hsato>>.

LEE KWANG-SUK is an Assistant Professor in the Graduate School of Public Policy and Information Technology at Seoul National University of Science and Technology, Seoul. Lee earned his PhD in Radio-TV-Film at the University of Texas at Austin. He worked as an Australian Research Council (ARC) Postdoctoral Research Fellow and now as an Honorary Visiting Fellow at the University of Wollongong, conducting a four-year research project on *Internet History in Australia and the Asia-Pacific*. He is the author of four books: *IT Development: A Broadband Nirvana* (London/New York: Routledge, 2012), *The Art and Cultural Politics of Cyber Avant-gardes* (Seoul, 2010), *Digital Paradoxes:*

The Political Economy of Cyberspace (Seoul, 2000), and *Cultural Politics in Cyberspace* (Seoul, 1998). As a columnist, Lee has contributed numerous columns and essays on digital culture to Korean newspapers, magazines, and other publications.

LIU XIONG is a Senior Research Scientist at Intelligent Automation, Inc. (IAI) in Rockville, Maryland, USA. His major research areas include databases, data/text mining, human systems, and social computing. He has been a Principal Investigator for R&D projects on human social cultural behavior modelling, distributed high-dimensional data mining, agent-based computing, and optimization. Dr Liu received his PhD degree in Information Science from the University of Pittsburgh and was a Research Fellow at Johns Hopkins University School of Medicine.

MARKO M. SKORIC is Assistant Professor at the Wee Kim Wee School of Communication and Information, Nanyang Technological University. He holds a PhD in Communication from the University of Michigan and a BSc in Psychology from the University College London, UK. Dr Skoric's teaching and research interests focus on new media and social change, with particular emphasis on civic and political implications of new communication technologies. Marko has published several studies examining the relationship between the use of new media and citizen engagement in Singapore, and his work has been frequently featured in the local news media. He is co-chairing of a five-year series (2012-2016) of preconference events titled "New Media and Citizenship in Asia: Social Media, Politics and Community-Building" held in conjunction with the annual International Communication Association (ICA) conference.

STEFANIA MILAN (<http://stefaniamilan.net>) is a Postdoctoral Fellow at the Citizen Lab, Munk School of Global Affairs, University of Toronto. She holds a PhD in Political and Social Sciences from the European University Institute, Italy. Her research interests include radical internet activism and hacktivism, networked collective action, culture and politics of digital media, and digital research methods. Stefania has worked extensively in international media outlets and has been involved in media activism projects. She taught at the University of Lucerne, Switzerland, and the Central European University, Budapest (where she is affiliated to the Centre for Media and Communication Studies). She is one of the authors of the book *Media/Society* (Sage, 2011) and

her first monograph, *Social Movements and Technology*, will come out with Palgrave in 2012. Recently, she has been appointed advisor in new media to the Italian Ministry of Education, University and Research, where she is working in the implementation of the EU Digital Agenda in Italy, focusing on infrastructure development, public consultations and e-participation, and digital policy literacy programs. Currently, Dr Milan is engaged in two research projects at the interplay between technology and society: the first looks at how social media and mobile devices are changing protest practices (what she calls “cloud protesting”), whereas the second explores how political and cultural values of developers affect technology development, with a focus on virtual tech communities engaged in disaster relief and on tech communities working on development alternatives to commercial social networking services.

YANG GUOBIN is an Associate Professor of Communication and Sociology in the Annenberg School for Communication and Department of Sociology of the University of Pennsylvania. He is the author of *The Power of the Internet in China: Citizen Activism Online*. Previously, he taught at the University of Hawaii at Manoa and Barnard College of Columbia University.

LIST OF PARTICIPANTS

ALEX R. COOK

Saw Swee Hock School of Public Health and Department of Statistics and Applied Probability, National University of Singapore; Program in Health Services and Systems Research, Duke-NUS Graduate Medical School Singapore
alex.richard.cook@gmail.com

ARUN MAHIZHNNAN

Lee Kuan Yew School of Public Policy, National University of Singapore
sppam@nus.edu.sg

CAROL SOON

Institute of Policy Studies, National University of Singapore, and Asia Research Centre, Murdoch University, Australia
sppswt@nus.edu.sg

CHUA BENG HUAT

Asia Research Institute and Department of Sociology, National University of Singapore
aricbh@nus.edu.sg

DINAH SIANTURI

Department of Literature, De La Salle University, Philippines
dinah.sianturi@dlsu.edu.ph

HIROSHI SATO

Department of Computer Science, National Defense Academy, Japan
hsato@nda.ac.jp

INGRID HOOFD

Communications and New Media Programme, National University of Singapore
cnmhim@nus.edu.sg

JOANNE LIM

School of Modern Languages and Cultures, University of Nottingham, Malaysia
joanne.lim@nottingham.edu.my

JONATHAN BENNEY

Asia Research Institute, National University of Singapore
arijdb@nus.edu.sg

KUMARAN PILLAI

The Online Citizen
cumeran@gmail.com

LEE KWANG-SUK

Seoul National University of Science and Technology, South Korea
kslee@seoultech.ac.kr

LIU XIONG

Intelligent Automation, Inc., Maryland, USA
xliu09@gmail.com

MARKO M. SKORIC

*Wee Kim Wee School of Communication and Information,
Nanyang Technological University, Singapore*
marko@ntu.edu.sg

NATALIE PANG

*Wee Kim Wee School of Communication and Information,
Nanyang Technological University*
nlspang@ntu.edu.sg

PATRICK SHARBAUGH

RMIT University Vietnam
partick.sharbaugh@rmit.edu.vn

PETER MAROLT

Asia Research Institute, National University of Singapore
marolt@nus.edu.sg

PRASENJIT DUARA

Asia Research Institute, National University of Singapore
aridir@nus.edu.sg

STEFANIA MILAN

Citizen Lab, Munk School of Global Affairs, University of Toronto, Canada
stefania.milan@eui.eu

SUN JUNG

Asia Research Institute, National University of Singapore
arijs@nus.edu.sg

TAN TARN HOW

Lee Kuan Yew School of Public Policy, National University of Singapore
spptth@nus.edu.sg

YANG GUOBIN

*Annenberg School for Communication and the Department of Sociology,
University of Pennsylvania, USA*
gyang@asc.upenn.edu

ZHANG WEIYU

Communications and New Media Programme, National University of Singapore
cnmzw@nus.edu.sg

EDITORIAL & PRODUCTION TEAM

Chua Beng Huat, Sun Jung, Peter Marolt, Jonathan Benney
Tharuka Prematillake, Cynthia Lai, Deborah Chua
Sharon Ong, Valerie Yeo

ASIA RESEARCH INSTITUTE

NUS Bukit Timah Campus

469A Tower Block, #10-01, Bukit Timah Road, Singapore 259770

Tel: (65) 6516 3810 Fax: (65) 6779 1428

www.ari.nus.edu.sg