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FORUM
2021
Aug 23-25 / 2021
The Fruition
and Challenges of
Computational Social Science
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GLOBAL RESEARCH FORUM 2021:
THE FRUITION AND CHALLENGES OF COMPUTATIONAL SOCIAL SCIENCE

23 August 2021 | 24 August 2021 | 25 August 2021

Computational social science is the integrated, inter-disciplinary pursuit of social science inquiry with emphasis on data or information processing and through the methods of advanced computation. The field of computational social science has indeed gained much traction of late with the widespread availability of big data and profound leaps in computational power and methods, leading to ground-breaking impacts on social science research by academics and its policy implications for societies and nations. With its focus on the intersection of computing and societal/behavioral phenomena and implications, the field has been having profound impacts on both academics, industries, and everyday activities.

The Faculty of Arts and Social Science (FASS) and the Department of Information Systems and Analytics (DISA) within the School of Computing in the National University of Singapore (NUS) are jointly organizing the Global Forum of Computational Social Science in August 23-25, 2021. Through this forum, NUS FASS and DISA aim to promote the advancement of this exciting inter-disciplinary field in Singapore and Asia.

This forum has invited world leading scholars to present and discuss the potentials, current challenges and future perspectives of computational social science from inter-disciplinary perspectives. The forum has also invited scholars and researchers from FASS and DISA who are committed to or are conducting research related to this field. The organizers of this forum expect to see meaningful interactions between the traditional social sciences and the computational social sciences, as well as to promote collaborations between the researchers, industry partners as well as policymakers, in and beyond Singapore.

GLOBAL RESEARCH FORUM 2021:
THE FRUITION AND CHALLENGES OF COMPUTATIONAL SOCIAL SCIENCE

23 August 2021 | 24 August 2021 | 25 August 2021

23 AUGUST 2021 (Monday) – Singapore Time	
09:00 – 09:30	**WELCOME AND INTRODUCTORY REMARKS**
	Robbie Goh | Dean, Faculty of Arts and Social Sciences, NUS
09:30 – 11:00	**KEYNOTE - 1**
Moderator: Jack Qiu	**A Science Whose Time Has Come** **Alex (Sandy) Pentland** | Massachusetts Institute of Technology
12:00 – 13:30	**KEYNOTE - 2**
Moderator: Elmie Nekmat	**Combating Multimodal Misinformation in Online Networks** **Cuihua (Cindy) Shen** | University of California, Davis
14:00 – 15:30	**THEME 1 | SOCIAL MEDIA: HUMAN BEHAVIOR AND RESPONSE**
Moderator: Feng Qiushi	**Methodological Collaborations to Achieve Meaningful and Practical Insights on User-Group Discussion and Behaviours in Social Media** **Elmie Nekmat** | Department of Communications and New Media, NUS
	Trivium: A Custom-built Experimental Platform to Inform Social Media Design for Better Conversation Health **Kokil Jaidka**| Department of Communications and New Media, NUS
	Understanding Data-driven Campaigns in an Underdeveloped Region: Evidence from the 2020 Bihar Election campaigns, India **Taberez Neyazi**| Department of Communications and New Media, NUS
	Social Media Communication about HPV Vaccine in China: A Study Using Topic Modeling and Survey **Jiang Shaohai** | Department of Communications and New Media, NUS
16:00 – 17:30	**THEME 2 | EDUCATION AND TRADE**
Moderator: Lim Shi Ying	**The Language of Institutional Design: Text Similarity in Preferential Trade Agreements** **Kim Sooyeon**| Head, Department of Political Science, NUS **Thiyaghessan S/O Poongundranar** | University of Chicago
	Faking Orders on E-commerce Platforms **Jin Chen** | Department of Information Systems and Analytics, NUS
	Exploring the Regional Spillover Effects of University AI Research on the Creation and Performance of AI Start-ups **Huang Ke-Wei** | Department of Information Systems and Analytics, NUS

GLOBAL RESEARCH FORUM 2021:
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24 AUGUST 2021 (Tuesday) – Singapore Time	
09:30 – 11:00	**KEYNOTE - 3**
Moderator: Jack Qiu	**Reimagining Theories and Methods to Understand and Enable the Algorithmically Infused Changing Nature of Work** **Noshir Contractor** | Northwestern University
14:00 – 15:30	**THEME 3 | DEVELOPMENT AND SUSTAINABILITY**
Moderator: Elmie Nekmat	**The Role of Attention in Resource Conservation: Evidence from Field Experiments** **Lorenz Goette** | Department of Economics, NUS
	Household Responses to Environmental Degradation **Alberto Salvo** | Department of Economics and the Global Asia Institute, NUS
	Projecting the Future Household and Living Arrangement **Feng Qiushi** | Department of Sociology and the Centre for Family and Population Research, NUS
16:00 – 17:30	**THEME 4 | HEALTH AND SOCIAL SUPPORT**
Moderator: Feng Qiushi	**Linguistic Markers of Dementia** **Bao Zhiming** | Department of English Language and Literature, NUS
	Finding vs. Being Found: Unequal Network Pathways to Jobs among Young Adults **Vincent Chua**| Department of Sociology and the Centre for Family and Population Research, NUS **Irene Y.H. Ng** | Department of Social Work and the Social Service Research Center, NUS
	Family Roles in Caring for Older Persons with Long-term Care Needs in China and Thailand **Bussarawan Teerawichitchainan** | Department of Sociology and the Centre for Family and Population Research, NUS
	Geospatial Analysis of Liver Fluke Infection Risks in Thailand **Wang Yi-Chen** | Department of Geography, NUS
19:00 – 20:30	**KEYNOTE - 4**
Moderator: Feng Chen-Chieh	**The Epistemology, Praxes and Politics of Urban Science and City Dashboards** **Rob Kitchin** | Maynooth University

GLOBAL RESEARCH FORUM 2021:
THE FRUITION AND CHALLENGES OF COMPUTATIONAL SOCIAL SCIENCE

23 August 2021 | 24 August 2021 | 25 August 2021

25 AUGUST 2021 (Wednesday) – Singapore Time	
09:30 – 10:30	**KEYNOTE - 5**
Moderator: Hahn Jungpil	**Monetizing Smart Phone Data for Improving Business and Society** **Anindya Ghose** | New York University
12:00 – 13:30	**KEYNOTE - 6**
Moderator: Feng Qiushi	**Computational Social Science Innovative Methods/Software of Household and Living Arrangement Projections for Informed Decision-Making** **Zeng Yi** | Peking University and Duke University
14:00 – 15:30	**THEME 5 | HUMAN DYNAMICS UPON CRISIS**
Moderator: Tabarez Neyazi	**What the Public Feels and Thinks during an Epidemic Crisis** **Feng Chen-Chieh** | Department of Geography, NUS
	Attitude Polarization toward Immigrants: The Role of COVID-19 Misinformation Salience **Michelle See** | Department of Psychology, NUS
	Modeling Tourist Distribution based on Geotagged Social Media Data for Facilitating Disaster and Crisis Management **Yan Yingwei** | Department of Geography, NUS
16:00 – 17:30	**THEME 6 | METHODS, APPLICATIONS, AND EMPIRICAL STUDIES**
Moderator: Feng Chen-Chieh	**Leveraging on Network Analysis to Uncover Mental Lexicon Structure: Applications for Language Research** **Cynthia Siew**| Department of Psychology, NUS
	Singapore Studies and the Digital Humanities (DH) **Kenneth Dean**| Head, Department of Chinese Studies and the Asia Research Institute, NUS
	Shared Spaces and "Thrownogetherness" in Later Life: A Qualitative GIS Study of Non-migrant and Migrant Older Adults in Singapore **Elaine Ho** | Department of Geography and the Asia Research Institute, NUS
	Individualism-collectivism and Risk Perception around the World **Zhong Songfa** | Department of Economics, NUS
19:00 – 20:30	**KEYNOTE - 7**
Moderator: Tabarez Neyazi	**Employing Social Media to Improve Mental Health: Pitfalls, Lessons Learned, and the Next Frontier** **Munmun De Choudhury** | Georgia Institute of Technology
20:30 – 21:00	**CLOSING REMARKS**
	Robbie Goh | Dean, Faculty of Arts and Social Sciences, NUS **Goh Khim Yong** | Head, Department of Information Systems and Analytics, NUS

23 AUGUST 2021 (Monday) | KEYNOTE - 1

A Science Whose Time Has Come

Alex (Sandy) Pentland
(Massachusetts Institute of Technology)

pentland@mit.edu

09:30 – 11:00

ABSTRACT

With the advent of ubiquitous digital data and advances in statistical methods, we can begin to understand human behavior with a precision and completeness that was unexpected even 20 years ago. This new Computational Social Science (Lazer, Pentland, et al 2010) begins with traditional insights about human behavior and not only quantifies and contextualizes the characteristics of individual humans, but illuminates and quantifies the tremendously important influence of networks. I will outline the evolution of this new science over the last decade and how it has deeply altered and extended our understanding of economics, health, governance, development, and innovation.

ABOUT THE SPEAKER

MIT Prof. **Alex Pentland** is Board member for the UN Global Partnership on Sustainable Development Data, and previously companies such as Google, AT&T, and a variety of startups, and has co-led the World Economic Forum and World Leaders Alliance discussions around data, AI, law, and digital systems. He was co-creator of the MIT Media Lab and founder of the MIT Connection Science initiative. He has an h-index of 144 and is member of the US National Academies.

23 AUGUST 2021 (Monday) | KEYNOTE - 2

Combating Multimodal Misinformation in Online Networks

Cuihua (Cindy) Shen
(University of California, Davis)

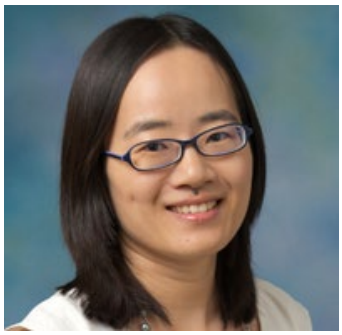
cuishen@ucdavis.edu

12:00 – 13:30

ABSTRACT

The proliferation of misinformation in today's media environment threatens national security, social cohesion, and public health. Yet, most research to date has been focused on textual misinformation, while ignoring the multimodal nature of information production and consumption in online networks, especially in the form of digital images, memes, and videos. In this talk, I will outline the unique characteristics of multimodal misinformation as well as corrections, and propose potential solutions to address these challenges.

ABOUT THE SPEAKER



Cuihua (Cindy) Shen is a professor of communication at UC Davis, the co-director of the Computational Communication Research lab. She is the chair of the Computational Methods Division of ICA and an ICA board member, and the founding associate editor of the journal Computational Communication Research.

THEME 1 | SOCIAL MEDIA: HUMAN BEHAVIOR AND RESPONSE

Methodological Collaborations to Achieve Meaningful and Practical Insights on User-Group Discussion and Behaviours in Social Media

Elmie Nekmat
(Department of Communications and New Media, NUS)

elmie@nus.edu.sg

14:00 – 15:30

ABSTRACT

Scientists, industry practitioners, and policymakers are now faced with the unprecedented ability to collect large amounts of information and data on social media uses, users, and their digital communication/interaction patterns. Following which, they are more often than not faced with the problem to produce meaningful knowledge and practical outcomes from such large datasets – which signals the need for greater cross-methodological and cross-disciplinary collaborations. In this talk, I will share the promises and challenges associated with such cross-methodological collaborations. I will do so by drawing from an international collaboration project that had combined big data mining with other more traditional methodological approaches and analyses in the field of communication and media. A qualitative, semantic analysis was applied on 30,796 unique user postings on Weibo to determine how Chinese users create collective memories surrounding three national crises that affected the country.

THEME 1 | SOCIAL MEDIA: HUMAN BEHAVIOR AND RESPONSE

Trivium: A Custom-built Experimental Platform to Inform Social Media Design for Better Conversation Health

Kokil Jaidka
(Department of Communications and New Media, NUS)

jaidka@nus.edu.sg

14:00 – 15:30

ABSTRACT

Social media platforms are engineered to maximize user engagement on their websites. However, greater user engagement has had unanticipated trade-offs, because social media platforms are increasingly turning toxic. Incivility on social media threatens the viability of online social networks, the inclusivity of online deliberative public spheres, and the rights of social media users – but beyond that, its effects can shake even the stability of modern democracies.This project focuses on informing the design of social media platforms with the objective to improve the health and quality of ensuing online discussion. Experiments on a custom-built platform manipulate the technological affordances that enable or constrain certain kinds of communication. For instance, anonymity is multi-faceted and afforded through different personal and social cues on social media. Personal anonymity in social media encourages minority perspectives but is seen to also increase online toxicity and bullying. On the other hand, social anonymity can reduce the perception of social media as a divisive space, and perhaps reduce affective polarization. I present Trivium, a new custom-built platform designed to test these ideas and hypotheses centered on the relationship of technological design with elicited user behavior, through opt-in online experiments with social media users. I discuss the larger implications of this tool towards building a richer understanding of the role of social media platforms in digital democracies. This work is in collaboration with the University of Pennsylvania and is funded by a Nanyang Presidential Postdoctoral fellowship.

THEME 1 | SOCIAL MEDIA: HUMAN BEHAVIOR AND RESPONSE

Understanding Data-driven Campaigns in an Underdeveloped Region: Evidence from the 2020 Bihar Election campaigns, India

Taberez Neyazi
(Department of Communications and New Media, NUS)

taberez@nus.edu.sg

14:00 – 15:30

ABSTRACT

Political campaigns are increasingly deploying user data to micro-target, mobilize and persuade voters, but the data does not come from a single source. In India, as elsewhere, a large amount of data continues to be collected offline, using surveys and through community interactions, in addition to using data from the census and past voting behavior. By deploying computational power, political actors have been able to process data, gather feedback and rework campaigns at a speed previously not possible. This presentation draws upon the study of a subnational election in an underdeveloped state of Bihar 2020 to examine the prevalence and effectiveness of data-driven campaigns in mobilizing and persuading voters. Specifically, we study the Facebook campaign ads of political parties and supplement it with Twitter conversation data around campaigns and a two-wave panel survey data to show how data-driven campaigns are deployed by different political actors to target, mobilize and persuade voters. While there has been a growing belief in the power of data in the campaign, we show the need to study network effects that is generated on account of interactions between offline and online world, and help in mobilizing voters.

THEME 1 | SOCIAL MEDIA: HUMAN BEHAVIOR AND RESPONSE

Social Media Communication about HPV Vaccine in China: A Study Using Topic Modeling and Survey

Jiang Shaohai
(Department of Communications and New Media, NUS)

cnmjs@nus.edu.sg

14:00 – 15:30

ABSTRACT

The human papillomavirus (HPV) vaccine is relatively novel to people in China. Social media is becoming an important channel for learning new health information. However, limited is known about what HPV vaccine information has been disseminated on social media, and how such online information is associated with health-related behaviors in China. Following the mixed-methods approach, we first crawled 67,773 postings about HPV vaccine on Weibo, the largest microblogging website in China, and performed topic modeling to identify HPV vaccine-related topics that are prevalent on Weibo. The results showed six major topics about HPV vaccine, namely policy, guidance information, advertising, scandals, personal experience sharing, and HPV risks. Second, we conducted an online survey (n = 1,982) to investigate how scanning, seeking, and discussing the six HPV vaccine topics identified from big data analytics can affect HPV vaccine knowledge, safety concern, and vaccination intention. We documented significant impacts of social media health communication on users' health knowledge, attitude and behavioral intention.

THEME 2 | EDUCATION AND TRADE

The Language of Institutional Design: Text Similarity in Preferential Trade Agreements

Kim Sooyeon
(Department of Political Science, NUS)
sooyeon.kim@nus.edu.sg

Thiyaghessan S/O Poongundranar
(University of Chicago)
thiyaghessan@uchicago.edu

16:00 – 17:30

ABSTRACT

This paper analyzes the degree of text similarity across 325 preferential trade agreements (PTAs). It investigates the extent to which countries rely on templates of trade liberalization as they are reflected in the texts of trade agreements. Countries employ templates to advance particular trade liberalization agendas through PTAs, and perhaps as a consequence templates are likely to exhibit high degrees of path dependence. This paper advances the argument that the variation in PTA texts differs across main documents and annexes. Main documents are expected to exhibit higher degrees of similarity as they are likely to contain the broad templates in trade rules, while annexes are more tailor-made for trade partners because they specify exemptions and particular sectors of liberalization. The results of the analysis show that the extent of text similarity is higher in main documents than in annexes, and overall levels of text similarity are lower than expected. The paper also finds that main documents contain the language of templates, while annexes appear to contain provisions for specific goods and sectors.

THEME 2 | EDUCATION AND TRADE

Faking Orders on E-commerce Platforms

Jin Chen
(Department of Information Systems and Analytics, NUS)

jinc@comp.nus.edu.sg

16:00 – 17:30

ABSTRACT

"Brushing"---online merchants placing fake orders of their own products---has been a widespread phenomenon on major e-commerce platforms. One key reason why merchants brush is that it boosts their rankings in search results. On the one hand, products with higher sales volume are more likely to rank higher. On the other hand, rankings matter because consumers face search frictions and narrow their attention to only the few products that show up at the top. Thus, fake orders can affect real consumer choice. We focus on this search-ranking aspect of brushing and build a stylized model to understand merchants' strategic brushing behavior as well as how it affects consumers. We consider a high-type merchant (who sells a more popular product) and a low-type merchant (who sells a less popular product) competing on an e-commerce platform where product rankings evolve over time. We find that if brushing gets more costly for merchants (e.g., due to tougher regulations), it may sometimes surprisingly harm consumers as it may only blunt brushing by the high-type merchant but intensify brushing by the low-type merchant. If search is less costly for consumers (e.g., due to improved search technologies), it may not always benefit consumers, either. Moreover, the design of the ranking algorithm is critical: placing more weight on sales volume-related factors may trigger a non-monotone change in consumer welfare; tracking recent sales only as opposed to cumulative sales does not always dial down brushing and, in fact, may sometimes cause the low-type merchant to brush more.

THEME 2 | EDUCATION AND TRADE

Exploring the Regional Spillover Effects of University AI Research on the Creation and Performance of AI Start-ups

Huang Ke-Wei
(Department of Information Systems and Analytics, NUS)

huangkw@comp.nus.edu.sg

16:00 – 17:30

ABSTRACT

This paper investigates whether AI academic research in universities can create regional knowledge spillover effects that improve the quantity and quality of AI start-ups. Using data of AI start-ups from Crunchbase.com and AI conference publications from CSRankings.com, we find that knowledge spillovers from university AI research indeed contribute to the creation and VC financing performance of local AI start-ups at the MSA level in the United States. Moreover, we find significant heterogeneous effects of knowledge spillovers in different AI subfields. In this study, we count 13 premium conferences publications in all AI subfields including computer vision, natural language processing, and data mining. The knowledge spillovers from research published in machine learning conferences, including only ICML and NIPS, have the strongest effects on the creation and performance of AI start-ups. In general, we find evidence that impactful conferences exhibit stronger spillover effect. At the same time, surprisingly, our results suggest that knowledge spillovers from theoretical-oriented conferences have stronger effects whereas broad-based applied conferences, such as KDD, AAAI, and IJCAI, produce only marginally significant effect.

24 AUGUST 2021 (Tuesday) | KEYNOTE - 3

Reimagining Theories and Methods to Understand and Enable the Algorithmically Infused Changing Nature of Work

Noshir Contractor
(Northwestern University)

nosh@northwestern.edu

09:30 – 11:00

ABSTRACT

Computational social science offers the potential to reimagine communication theories and methods to understand and enable the algorithmically infused changing nature of work. Researchers have heralded for decades the potential of social network analysis to focus not only on who people are, but also who they know. Social network analysis has been used to identify "high potentials," who has good ideas, who is influential, what teams will get work done efficiently and effectively is well established based on decades of research. The challenge has been the collection of network data via surveys that are time consuming, elicit low response rates and have a high obsolescence. This talk presents empirical examples ranging from corporate enterprises to simulated long duration space exploration to demonstrate how we can mine "digital exhaust"— data created by individuals every day in their algorithmically infused digital transactions, such as recommendations, newsfeeds, chats, "likes," "follows," @mentions, and file collaboration — to address challenges they face with issues such as team conflict, team assembly, diversity and inclusion, succession planning, and post-merger integration.

ABOUT THE SPEAKER

Noshir Contractor is the Jane S. & William J. White Professor of Behavioral Sciences in the McCormick School of Engineering & Applied Science, the School of Communication and the Kellogg School of Management and Director of the Science of Networks in Communities (SONIC) Research Group at Northwestern University. He is the President-Elect of the International Communication Association (ICA). He is a Fellow of the American Association for the Advancement of Science (AAAS), the Association for Computing Machinery (ACM), and the International Communication Association (ICA). He received the Distinguished Scholar Award from the National Communication Association and the Lifetime Service Award from the Organizational Communication & Information Systems Division of the Academy of Management. He was selected as the recipient of the 2022 Simmel Award from the International Network for Social Network Analysis. In 2018 he received the Distinguished Alumnus Award from the Indian Institute of Technology, Madras where he received a Bachelor's in Electrical Engineering. He received his Ph.D. from the Annenberg School of Communication at the University of Southern California.

THEME 3 | DEVELOPMENT AND SUSTAINABILITY

The Role of Attention in Resource Conservation: Evidence from Field Experiments

Lorenz Goette
(Department of Economics, NUS)

ecslfg@nus.edu.sg

14:00 – 15:30

ABSTRACT

Resource conservation is a key policy lever to achieve Singapore's sustainability objectives under the Paris Climate Accord. In this talk, I highlight the role of limited attention by individuals in resource conservation. In several large-scale field experiments, I show how real-time feedback on resource use can lead to significant conservation effects. Providing feedback on water use on showering, using a smart shower meter reduces water use by 15 to 20 percent - far more than what traditional interventions can achieve. This highlights the key role of attention, as the individuals in our experiments receive feedback in real time, as they engage in the behavior. I also show how goals can help increase conservation effects, and test whether providing feedback on one particular resource use has positive spillover effects on other behaviors as well. In addition to the field experiments, I also report evidence from an evaluation of a recent policy pilot, the Singapore Smart Shower Programme, in which 10,000 households were equipped with feedback technology.

THEME 3 | DEVELOPMENT AND SUSTAINABILITY

Household Responses to Environmental Degradation

Alberto Salvo
(Department of Economics and the Global Asia Institute, NUS)

albertosalvo@nus.edu.sg

14:00 – 15:30

ABSTRACT

The presentation will cover work from different empirical projects under the unifying theme of household responses to environmental degradation, e.g., how households use resources (electricity, water, food delivery and plastic waste, air conditioned workplaces and shopping malls, urban parks in the early evening) to protect or relieve themselves from heat, air pollution, or other environmental harms. Given the forum's focus computational social science, it will highlight work based on data collected in Singapore and their broad applicability.

THEME 3 | DEVELOPMENT AND SUSTAINABILITY

Projecting the Future Household and Living Arrangement

Feng Qiushi
(Department of Sociology and the Centre for Family and Population Research, NUS)

fengqiushi@nus.edu.sg

14:00 – 15:30

ABSTRACT

Our world is witnessing substantial transformations in household and living arrangment. Household size is steadily declining as sheds huge influence on energy con-sumption, environment, and sustainable development, as water, electricity, gas, vehicles, appliances, furniture, banking/financing, and many other resources, commodities, and ser-vices are often purchased and consumed by households rather than individuals. This presentation introduces ProFamy, a projection methods with innovative computational strategies and highlight its recent applications in the sub-national levels. It is concluded that now has never been a better time to apply this method to Asian societies.

THEME 4 | HEALTH AND SOCIAL SUPPORT

Linguistic Markers of Dementia

Bao Zhiming
(Department of English Language and Literature, NUS)

bao@nus.edu.sg

16:00 – 17:30

ABSTRACT

Cognition and language are intimately connected. How dementia is manifested in language is a matter of intense research around the world by neuropsychologists, linguists and more recently, by specialists in artificial intelligence who comb through language data for telltale signs of cognitive impairment. Formulaic expressions, word recall, propositional density are among the linguistic features that have been investigated in relation to dementia, with conflicting results.

We assume that changes in language are early signs of cognitive decline, and take a structural approach to study the language of early cognitive impairment, as manifested in language use. We know that in the normal population structurally complex sentences require more cognitive resources to process. The onset of cognitive decline may cause a parallel decline in the use of sentences with complex structures, resulting in language deficits that solidify as the disease progresses. Using natural speech data collected from volunteers who participate in the Community Health Intergenerational (CHI) study, we search for linguistic markers of dementia. Early results from a small-scale pilot study are promising. We analyzed the speech data from 36 subjects, 28 healthy and 8 showing signs of mild cognitive impairment (MCI). Some broad grammatical features, such as type-token ratio, do not show a difference between the two groups of subjects. Other features, such as the use of complex noun phrases, exhibit a significant decline in usage rate among people with MCI.

This talk presents a usage profile of select grammatical features in the language of MCI sufferers.

THEME 4 | HEALTH AND SOCIAL SUPPORT

Finding vs. Being Found: Unequal Network Pathways to Jobs among Young Adults

Vincent Chua
(Department of Sociology and the Centre for Family and Population Research, NUS)
socckhv@nus.edu.sg

Irene Y.H. Ng
(Department of Social Work and the Social Service Research Center, NUS)
swknyhi@nus.edu.sg

16:00 – 17:30

ABSTRACT

Our study of 1,600 working adults in Singapore between ages 21 and 38 uncovers two distinctive network pathways by which low and high SES respondents find work respectively. In the first group, respondents have actively to "find" job opportunities through hardcopy advertisements, online platforms, and strong ties to family and friends, who lead them to mediocre jobs. In the second group, respondents are "found" by their weak ties to colleagues and acquaintances, who tell them about job openings without them having to ask, and which channels them into better paying jobs. The stark contrast in network pathways signifies the utility of situating inequality as a study of relational processes, with unequal consequences impacting young adults of different socioeconomic statuses.

THEME 4 | HEALTH AND SOCIAL SUPPORT

Family Roles in Caring for Older Persons with Long-term Care Needs in China and Thailand

Bussarawan Teerawichitchainan
(Department of Sociology and the Centre for Family and Population Research, NUS)

puk@nus.edu.sg

16:00 – 17:30

ABSTRACT

This study compares the situation of long-term care (LTC) needs and receipt among older Chinese and Thais based on the China Health and Retirement Longitudinal Study and the Survey of Older Persons in Thailand. The two countries provide compelling case studies in the context of changing family structures, diminished kin availability, rising economic inequalities, and shifting norms regarding old-age support. Results show that while only a small proportion of older Chinese and Thais requires LTC, such demands rise sharply with age and peak among the oldest old. Older persons with heightened LTC needs are likely to be female, widowed, and uneducated. Close to two thirds of older Chinese and Thais with LTC needs received care assistance. Intergenerational coresidence is one of the most important determinants of LTC receipt in both countries. There are stark disparities in LTC receipt between older Thais in the top two wealth quintiles and those in the bottommost quintile; however, no significant wealth inequality in care receipt is evident in China. For both settings, the number and gender composition of children do not matter for the likelihood of care receipt; yet, the number of daughters significantly determines types of primary caregiver. Evidence suggests shifting importance of son, daughters, and daughters-in-law in LTC support in China and possible convergence in certain LTC practices between societies traditionally dominated by patrilineal and bilateral kinship systems.

THEME 4 | HEALTH AND SOCIAL SUPPORT

Geospatial Analysis of Liver Fluke Infection Risks in Thailand

Wang Yi-Chen
(Department of Geography, NUS)

geowyc@nus.edu.sg

16:00 – 17:30

ABSTRACT

Liver fluke infection, caused by ingesting raw freshwater fish, is an important public health issue in the Lower Mekong Region. Chronic infection with the liver fluke can lead to the development of cholangiocarcinoma, a bile duct cancer, associated with very poor prognosis upon diagnosis. Decades of efforts have been devoted to the control of liver fluke infection – while valuable in many regards and responsible for many achievements – there remains a marked spatial variation in liver fluke infection across the region. This necessitates the incorporation of geospatial approaches to scrutinize the intricate human–environment system that favors liver fluke transmission. In this presentation, I will share our work in Thailand on examining the spatial patterns and risk factors of liver fluke infection. Broad-scale landscape influences on human liver fluke prevalence are investigated through geospatial analyses of village locations and their surrounding land use patterns. Local-scale landscape connectivity between the human host and the first intermediate snail host habitats are assessed using graph measures to underscored the potential effect of landscape connectivity on disease transmission. The roles of a reservoir dam environment, inter-provincial healthcare focus variation, and socio-economic and behavioral factors are scrutinized to highlight the varying roles of such factors contributing to the disease landscape.

24 AUGUST 2021 (Tuesday) | KEYNOTE - 4

The Epistemology, Praxes and Politics of Urban Science and City Dashboards

Rob Kitchin
(Maynooth University)

Rob.Kitchin@mu.ie

19:00 – 20:30

ABSTRACT

The paper will critically examine the conceptual underpinnings and practices of urban science – a specific form of computational social science – and its application to the creation of city dashboards. It will first detail the approach adopted by urban science drawing comparison with urban studies more generally. It will then consider city dashboards, focusing on six key issues: epistemology, scope and access, veracity and validity, usability and literacy, use and utility, and ethics. The analysis will be informed by the building of the Dublin and Cork Dashboards. The final part of the paper will make the case for a more critical framing and application of urban science that aligns with approaches adopted in critical GIS, radical statistics and feminist data science.

ABOUT THE SPEAKER

Rob Kitchin is a professor in Maynooth University Social Sciences Institute and Department of Geography. He was a European Research Council Advanced Investigator on the Programmable City project (2013–2018) and a principal investigator for the Building City Dashboards project (2016–2020) and the Digital Repository of Ireland (2009–2017). He is the (co-)author or (co-)editor of 31 academic books, and (co-) author of over 200 articles and book chapters. He has been an editor of Dialogues in Human Geography, Progress in Human Geography and Social and Cultural Geography, and was the co-Editor-in-Chief of the International Encyclopedia of Human Geography. He was the 2013 recipient of the Royal Irish Academy's Gold Medal for the Social Sciences.

25 AUGUST 2021 (Wednesday) | KEYNOTE - 5

Monetizing Smart Phone Data for Improving Business and Society

Anindya Ghose
(New York University)

ag122@stern.nyu.edu

09:30 – 10:30

ABSTRACT

Consumers create a data trail by tapping their phones; businesses and organizations can tap into this trail to harness the power of the more than three trillion dollar mobile economy. This two-way exchange can benefit both customers and businesses. This talk will welcome us to the mobile economy of smartphones, smarter companies, and value-seeking consumers. This talk will highlight the forces that shape consumer behavior, including location, context, crowdedness, trajectory, and examine how these forces operate, separately and in combination to create a win-win in various marketing, advertising and healthcare contexts. It will highlight the true influence mobile wields over consumers, the behavioral and economic motivations behind that influence, and the lucrative opportunities it represents in business, healthcare and society.

ABOUT THE SPEAKER

Anindya Ghose is the Heinz Riehl Chair Professor of Business at NYU's Stern School of Business and the author of the award winning and best-selling book TAP: Unlocking the Mobile Economy which is a double winner in the 2018 Axiom Business Book Awards and has been translated into five languages (Korean, Mandarin, Vietnamese, Japanese and Taiwanese). He is the Director of the Masters of Business Analytics Program at NYU Stern. In 2014, he was named by Poets & Quants as one of the Top 40 Professors Under 40 Worldwide and by Analytics Week as one the "Top 200 Thought Leaders in Big Data and Business Analytics". He is the youngest recipient of the prestigious INFORMS ISS Distinguished Fellow Award, given to recognize individuals who have made outstanding intellectual contributions to the discipline with publications that have made a significant impact on theory, research, and practice. In 2017 he was recognized by Thinkers50 as one of the Top 30 Management Thinkers globally most likely to shape the future of how organizations are

managed and led in the next generation. In 2020, he was recognized by the INFORMS Information Systems Society (ISS) with the inaugural Practical Impacts Award. He has provided expert deposition and trial testimony in several high profile litigation matters in the US and Canada and is affiliated with Compass Lexecon. He has consulted in several closely watched legal matters for Alibaba, Apple, Facebook, Google, Microsoft, Snapchat, TD Bank, Verizon, Yahoo and 1-800-Contacts.

25 AUGUST 2021 (Wednesday) | KEYNOTE - 6

Computational Social Science Innovative Methods/Software of Household and Living Arrangement Projections for Informed Decision-Making

Zeng Yi
(Peking University and Duke University)

zengyi@nsd.pku.edu.cn

12:00 – 13:30

ABSTRACT

Household and living arrangement projections are useful in socioeconomic planning at national and regional levels. ProFamy methods and user-friendly software are multi-dimensional cohort-component approach that projects simultaneously households of various types/sizes, and sex, age and living arrangements distributions of all individual of the population under study, using the conventional and commonly available demographic data as input. ProFamy methods/software have been used by various scholars and analysts in different fields, such as household, living arrangement projections and socioeconomic planning at national and regional levels in China, Singapore, U.S.A., Brazil, Mexico, India, Germany, Iran; implications of changes in households and living arrangements for housing industry, residential energy demands and policy-making in China, U.S.A and Pakistan; household automobile demands in U.S.A and Austria; fertility policy analyses, retirement ages and pension forecasting in China; elderly care needs/costs projections in China and U.S.A; family financing in Sri Lanka and China; Up to Nov. 2020, scholars from 27 countries, UNFPA and World Bank downloaded and use ProFamy free software to do household and living arrangement projections for informed decision-making. We are currently extending ProFamy methods/software to innovative probabilistic household projection methods/software, firstly applying in eight countries and then in eight other countries and likely worldwide.

ABOUT THE SPEAKER

Zeng Yi is a tenured Professor of National School of Development (NSD) at Peking University (PKU), Honorary Director of Center for Healthy Aging and Development Studies at Peking University. He is also a tenured Professor at the Center for Study of Aging and Human Development and Geriatric Division of School of Medicine, and Director of Center for Chinese Population and Socioeconomic Studies, Duke University. He is a member of The World Academy of Sciences (TWAS) for the advancement of science in developing countries, and a foreign member of the Royal Netherlands Academy of Arts and Sciences. He is Distinguished Research Scholar of the Max Planck Institute for Demographic Research (MPIDR) in Germany.

THEME 5 | HUMAN DYNAMICS UPON CRISIS

What the Public Feels and Thinks during an Epidemic Crisis

Feng Chen-Chieh
(Department of Geography, NUS)

chenchieh.feng@nus.edu.sg

14:00 – 15:30

ABSTRACT

During COVID-19, all affected countries have taken a series of contingent measures to prevent the virus from fast-spreading. Singapore is one of the countries in the first wave of the international COVID-19 spreading in January 2020, and as of May 24, one of the countries with the highest prevalence of COVID-19. It entered “Circuit Breaker” (CB) period on April 7 during which most workplaces were closed and all schools moved to full home-based learning. While this mobility restriction evidently changed the daily routine of the residents, how people are impacted psychologically by CB is less known. The presentation will look at the social-psychological impacts of COVID-19 to Singapore during different phases of CB and the reopening, with specific attention to the dynamic patterns of residents' sentiment and explores the contexts of such sentiment with topic modelling.

THEME 5 | HUMAN DYNAMICS UPON CRISIS

Attitude Polarization toward Immigrants: The Role of COVID-19 Misinformation Salience

Michelle See
(Department of Psychology, NUS)

psysyhm@nus.edu.sg

14:00 – 15:30

ABSTRACT

With the increase in globalization, immigration has become a controversy in many parts of the world. Moreover, as COVID-19 has led governments to tighten border control, and caused individuals to look for someone to blame, discrimination against members of groups that are disliked in their host culture can occur. The current experiment examines whether the extent to which global orientation predicts acceptance of immigrants from mainland China in Singapore becomes intensified when COVID-19 misinformation is salient. Singaporeans were asked to read a description of the Protection from Online Falsehoods and Manipulation Act (POFMA). They were randomly assigned to a COVID-19 misinformation salience condition or a control condition. They were then asked to report their willingness to interact with mainland Chinese immigrants (e.g., accept one as a colleague, boss, or marriage partner). Given the salience of COVID-19 misinformation, the positive relationship between global orientation and acceptance toward mainland Chinese immigrants was even stronger, thus suggesting that COVID-19 causes the polarization of pre-existing tendencies toward mainland Chinese immigrants in Singapore. Moreover, support for an assimilation ideology increased when COVID-19 was salient. Additional findings suggest that other outcomes such as high concern about fake news, high trust in government, moderate trust in news websites and television news, and low trust in social media were not impacted by the salience of COVID-19.

THEME 5 | HUMAN DYNAMICS UPON CRISIS

Modeling Tourist Distribution based on Geotagged Social Media Data for Facilitating Disaster and Crisis Management

Yan Yingwei
(Department of Geography, NUS)

yingwei.yan@nus.edu.sg

14:00 – 15:30

ABSTRACT

More than 10 years after the term volunteered geographic information (VGI) was coined to refer to a collage of concepts, actions, and technologies revolving around collectively volunteering geo-referenced data and using these data, VGI has become one of the most important research topics in GIScience. Aided by the rapid advancements in information technologies, collecting geo-referenced data in various forms, be it quantitative or qualitative, and sharing them among communities have been made easy. These in turns have fueled the interests in using VGI for a wide range of purposes, including disaster and crisis management. This research proposes to couple maximum entropy modeling with Flickr social media data (a type of VGI) to determine the geographic distribution of tourists for facilitating disaster and crisis management at tourist destinations. As one of the most popular tourist destinations in the United States, San Diego was chosen as the study area to demonstrate the proposed approach. The tourist geographic distribution in the study area was modeled by quantifying the relationship between the distribution and five environmental factors, including land use, land parcel, elevation, distance to the nearest major road and distance to the nearest transit stop. The model was subsequently applied to estimate the potential impacts of one simulated tsunami disaster and one simulated traffic breakdown due to crisis events.

THEME 6 | METHODS, APPLICATIONS, AND EMPIRICAL STUDIES

Leveraging on Network Analysis to Uncover Mental Lexicon Structure: Applications for Language Research

Cynthia Siew
(Department of Psychology, NUS)

cynthia@nus.edu.sg

16:00 – 17:30

ABSTRACT

The thousands of words and concepts that are stored in our memory can be represented as a web-like collection of interconnected words, akin to a social network of friends. In this talk I will demonstrate how the tools of network science can be used to quantify and represent cognitive representations as networks of phonological, orthographic, and semantic relationships. A brief preview of recent and ongoing work will be showcased to show how language and cognitive networks inform language-related research on a diverse range of topics such as early language development, language processing, learning of a second language, and language disorders such as aphasia.

THEME 6 | METHODS, APPLICATIONS, AND EMPIRICAL STUDIES

Singapore Studies and the Digital Humanities (DH)

Kenneth Dean
(Head, Department of Chinese Studies and the Asia Research Institute, NUS)

chsdek@nus.edu.sg

16:00 – 17:30

ABSTRACT

This paper argues that humanities computing was more or less *interdisciplinary* in its earlier stage, applying new methods and epistemological approaches drawn from mathematics and computing to areas of concern in the humanities such as textual analysis. However, this did not generate a new academic field – instead DH developed into a potentially *transdisciplinary* methodological commons – a sub-tier of methodological competencies that moves between epistemologies. In a second stage, DH began investigating the limits and possibilities of computing and algorithmic approaches from the perspective of the critical humanities. This led to questioning the powers and limits of academic institutions, and a push for the open sharing of data and the democratization of scholarship. DH developments have been characterized by a progression from problem to problem in real world contexts, producing highly distributed and transient forms of knowledge production pushing past boundaries of academic institutions. The paper goes on to show how Singapore Studies has been incorporating digital humanities across a wide range of fields. I introduce recent projects and collaborative platforms and discuss the use of digital humanities technologies by museums and local artists. Featured platforms include the Singapore Historical GIS (shgis.nus.edu.sg) and the Singapore Biographical Database (sbdb.nus.edu.sg). New fields of exploration include the environmental history of Singapore, the history of disease and contagion, and intersections with the creative arts.

THEME 6 | METHODS, APPLICATIONS, AND EMPIRICAL STUDIES

Shared Spaces and "Thrownogetherness" in Later Life: A Qualitative GIS Study of Non-migrant and Migrant Older Adults in Singapore

Elaine Ho
(Department of Geography and the Asia Research Institute, NUS)

elaine.ho@nus.edu.sg

16:00 – 17:30

ABSTRACT

While there has been considerable academic interest in the topics of encounters and conviviality, including within the migration literature, little is known about how non-migrant and migrant older adults interact with one another in shared spaces, forming micro-publics that inflect the experiences of ageing for both groups. Using Qualitative Geographic Information Science (qualitative GIS), this paper identifies three types of spaces shared by non-migrant and migrant older adults from Singapore and the People's Republic of China respectively. Through juxtaposing these three types of shared spaces, we argue for the importance of drawing out how spatial attributes can deter or foster varying degrees of negotiations with difference, while acknowledging that the fluidity of such processes depends on the users and social contexts too.

THEME 6 | METHODS, APPLICATIONS, AND EMPIRICAL STUDIES

Individualism-collectivism and Risk Perception around the World

Zhong Songfa
(Department of Economics, NUS)

ecszs@nus.edu.sg

16:00 – 17:30

ABSTRACT

Understanding cultural differences in risk perception is of great importance in the increasingly uncertain world. Here we examine the relationship between individualism-collectivism continuum and risk perception around the world using a recently available dataset from the Lloyd's Register Foundation World Risk Poll. With a representative sample of 150,000 participants from 142 countries, the dataset contains rich information including two aspects of risk perception—the perceived likelihood and worry, along with personal experience for a range of risks in daily life. We observe that participants from countries with higher contemporary individualism perceive lower likelihoods and worry less about these risks, and that historical kinship tightness is weakly correlated with the perceived likelihood. Moreover, among sets of biogeographic, demographic, economic, institutional, and religious variables, we find that the share protestants in the population plays an important role in the observed linked between individualism-collectivism and risk perception. As the first on cultural determinants of risk perception around the world, our study adds to the recent literature on global differences in behavioral traits.

25 AUGUST 2021 (Wednesday) | KEYNOTE - 7

Employing Social Media to Improve Mental Health: Pitfalls, Lessons Learned, and the Next Frontier

Munmun De Choudhury
(Georgia Institute of Technology)

Munmun.Choudhury@cc.gatech.edu

19:00 – 20:30

ABSTRACT

Social media data is being increasingly used to computationally learn about and infer the mental health states of individuals and populations. Despite being touted as a powerful means to shape interventions and impact mental health recovery, little do we understand about the theoretical, domain, and psychometric validity of this novel information source, or its underlying biases, when appropriated to augment conventionally gathered data, such as surveys and verbal self-reports. This talk presents a critical analytic perspective on the pitfalls of social media signals of mental health, especially when they are derived from "proxy" diagnostic indicators, often removed from the real-world context in which they are likely to be used. Then, to overcome these pitfalls, this talk presents results from two case studies, where computational algorithms to glean mental health insights from social media were developed in a context-sensitive and human-centered way, in collaboration with domain experts and stakeholders. The first of these case studies, a collaboration with a health provider, focuses on the individual-perspective, and reveals the ability and implications of using social media data of consented schizophrenia patients to forecast relapse and support clinical decision-making. Scaling up to populations, in collaboration with a federal organization and towards influencing public health policy, the second case study seeks to forecast nationwide rates of suicide fatalities using social media signals, in conjunction with health services data. The talk concludes with discussions of the path forward, emphasizing the need for a collaborative, multi-disciplinary research agenda while realizing the potential of social media data in health -- one that incorporates methodological rigor, ethics, and accountability, all at once.

ABOUT THE SPEAKER

Munmun De Choudhury is an Associate Professor of Interactive Computing at Georgia Tech. Dr. De Choudhury is best known for laying the foundation of a line of research that develops computational techniques to responsibly and ethically employ social media in understanding and improving our mental health. To do this work, she adopts a highly interdisciplinary approach, combining social computing, machine learning, and natural language analysis with insights and theories from the social, behavioral, and health sciences. Dr. De Choudhury has been recognized with the 2021 ACM-W Rising Star Award, 2019 Complex Systems Society – Junior Scientific Award, over a dozen best paper and honorable mention awards from the ACM and AAAI, and extensive coverage in popular press like the New York Times, the NPR, and the BBC. Earlier, Dr. De Choudhury was a faculty associate with the Berkman Klein Center for Internet and Society at Harvard, a postdoc at Microsoft Research, and obtained her PhD in Computer Science from Arizona State University.

Website: http://www.munmund.net/