DATA POWER 2017

An international conference
on (big) data & power

Richcraft Hall, Carleton University
22nd & 23rd June 2017

datapower2017@gmail.com

WIFI: DataPower PW: Carleton2017
Twitter: @DataPowerConf #DataPowerConf

Carleton UNIVERSITY
Canada's Capital University

Contents

Welcome from the Local Hosts

Tracey P. Lauriault and Merlyna Lim, School of Journalism and Communication at Carleton University welcome you to the Data Power 2017 Conference which builds on the successful Data Power 2015 Conference in Sheffield. This international conference is a collaboration with the Data Power 2015 organizing committee, Helen Kennedy, Jo Bates and Ysabel Gerrard from the University of Sheffield. The Canadian organizing committee includes the hosts Lauriault and Lim with two PhD Candidate coordinators Jessi Ring and Scott Dobson-Mitchell at Carleton University, and Ganaele Langlois at York University.

The conference received a small Connections Grant from the Social Sciences and Humanities Research Council (SSHRC), and contributions from the Faculty of Public Affairs, from Lim's Canada Resarch Chair fund, Lauriault and Jeffrey Monaghan's individual faculty starter grants, and funds and in kind support from the School of Journalism and Communication, the MacOdrum Library, the Institute for Data Science and the Institute of Criminology and Critical Justice.

The conference focuses on critical questions about data's power, reflecting on social, political, economic and cultural consequences of data becoming increasingly pervasive in our lives. From precision agriculture to smart cities, surveillance to global finance, data (and data infrastructures) shape our lives, as information is generated, collected and analysed through the apps we use, in ways that are obvious and imperceptible: where black-boxed algorithms and opaque systems are used to profile and sort us, direct our spending and monitor our actions. Amongst other issues:

- How to reclaim some form of data-based power and autonomy & advance data-based technological citizenship, while living in regimes of data power?
- The possibility of regaining agency & mobilize data for the common good? Consider which theories help to interrogate &make sense of the operations of data power?
- How can big data be mobilized to improve how we live, beyond notions of efficiency & innovation?

We are delighted to welcome this excellent range of delegates to the conference from Asia, Australia, Europe, South America, the United States and Canada. The keynote speakers are today's expert commentators on data power, and speakers in the sessions represent a brilliant mix of prominent thinkers and emerging, early career scholars breaking new ground with their varied research into the power of data. We are especially excited to see so many papers which ground the study of data power in specific contexts, from labour, surveillance and activism to journalism, agriculture and cities as well as data sovereignty. These represents contemporary research into data power.

We are very happy to welcome you to Ottawa, Canada's Capital which is celebrating 150 Years of official statedom and Carleton University which celebrates its 75th Anniversary. It is a fantastic city and the campus is situated along the Rideau River and Rideau Canal just south of the downtown area. We hope you will enjoy your stay, and the stimulating conversations about data power you will have at the Conference.

General Information

Conference Venue: Richcraft Hall Carleton University

The Data Power Conference will be held at **Richcraft Hall** (Formerly River Building), 1125 Colonel By Drive, Ottawa, N, K1S 4P4.

http://conferenceservices.carleton.ca/meeting-spaces/richcraft-hall/

Map of Carleton University Campus

- PDF - https://carleton.ca/cosc/wp-content/uploads/Carleton-Campus-Map.pdf
- Online - https://carleton.ca/campus/building/richcraft-hall/

Getting to Campus information:
https://carleton.ca/datapower/logistics/travel/

Lunches, Breaks, and Refreshments

The conference fee includes light breakfasts, lunches, and refreshments, on June 22 and 23 and will be held in the Atrium of Richcraft Hall.

Reception

The Reception, Thursday June 22, will take place at the Heart and Crown Pub in Little Italy at 6:15~8:30ish, 353 B Preston Street, 1-613-564-0000. We are happy to provide each delegate with one complimentary alcoholic drink and some snacks.

Directions to the Heart and the Crown Pub on Preston:

- ***Walking:*** It is a 30 minute stroll along a pathway through Ottawa's Arboretum (within the Experimental Farm and along Dow's Lake going north toward Preston Street in Little Italy. From Carleton, one needs to cross the Hartwell locks and then simply follow the pathway to your right along the Canal and Dow's Lake. Preston Street is the first set of lights at the edge of the lake and simply walk a few blocks north to the Heart and the Crown. (Arboretum Google Map Directions). The pathway is well used at night, keep right on the path as it is also used by cyclists.
- ***O-Train:*** The **Carling** station is one stop north on the O-Train toward Bayview Station. (Google Map from Carling Station)
- ***Taxi***: Blue Line 1-613-238-1111 or Capital Taxi 1-613-744-3333

Dinner

Conference attendees are on their own for dinner. The Reception will be held in Little Italy where there are many excellent restaurants along Preston Street. A list of restaurants is posted here (scroll down): https://carleton.ca/datapower/logistics/Ottawa-tourism

Program at a Glance

Day 1

Thursday 22nd June 2017

7:00am	**Registration and Breakfast**		Atrium
8:30am	**Opening Ceremony:** Elder Annie Smith St. George		Theatre (RH2200)
8:45am	**Welcome Local Host:** Tracey P. Lauriault		Theatre (RH2200)
8:55am	**Welcome:** Dean Andre Plourde (Faculty of Public Affairs), John ApSimon (Institute for Data Science), Associate Director Susan Harada (School of Journalism and Communication)		Theatre (RH2200)
9:10am	**Opening Statement:** Helen Kennedy		Theatre (RH2200)
9:30am	**Opening Keynote: *Indigenous Data Sovereignty and Reconciliation*** Gwen Phillips (Governance Transition Ktunaxa Nation & BC First Nations Data Governance Champion)		Theatre (RH2200)
10:15am	**Break**		
10:30am	**Session 1**		
	Panel 1.1	**Data, Business & Industry** Yanni Loukissas; Jennifer Whitson; Dwayne Winseck (chair: Guy Hoskins, Ryerson University)	RH2220
	Panel 1.2	**Data & Activism** Kirk Jalbert; Sébastien Moutte; Venetia Papa & Dimitra L. Milioni; Britt Paris & Morgan Currie (chair: Merlyna Lim, Carleton University)	RH2224
	Panel 1.3	**Data & Governance: Global Perspectives** Claire Lee; Lianrui Jia; Laura Mahrenbach & Katja Mayer; Jannick Schou & Morten Hjelholt (chair: Ysabel Gerrard, University of Sheffield)	RH2228
	Panel 1.4	**Data & The University** Penny Andrews; Jo Bates, Penny Andrews & Emily Nunn; Kevin Hawkins (chair: Anu Masso, University of Tartu)	RH3220
	Panel 1.5	**Data Practices & Agency** Lena Dencik & Arne Hintz; Dimitria Milioni & Lydia Kollyri; Dawn Walker (chair: Ganaele Langlois, The University of Sheffield)	RH3224
	Panel 1.6	**Data Infrastructure Interventions** Rena Bivens; Mary Elizabeth Luka; Tamara Shepherd & Joanna Redden; Andrea Zeffiro (chair: Maris Männiste, University of Tartu)	RH3228
12:00pm	**Lunch**		Atrium
1:00pm	**Session 2**		
	Panel 2.1	**Data & Capital** Michael Castelle; Greg Elmer; David Grondin, Stefan Larsson; Sabine Thuermel (chair: Liam Cole Young, Carleton University)	RH2220
	Panel 2.2	**Data & Algorithmic Power** David Grondin, Tarnijt Johal & Adriana Sgambetterra; Christine T. Wolf (chair: Sandra Robinson, Carleton University)	RH2224

	Panel 2.3	**Data, Citizenship & (In)Equality** Kathy Dobson; Guy Hoskins; Anne-Sophie Letellier (chair: Ganaele Langlois, York University)	RH2228
	Panel 2.4	**Revealing the Social Ecology of Agricultural Data** Kelly Bronson; Michael Carolan; Rozita Dara (chair: Chris Russill, Carleton University)	RH3220
	Panel 2.5	**Data, Truth & Power** Monika Halkort; Andrew Iliadis; Heather Morrison; Brian Schram (chair: Tracey Lauriault, Carleton University)	RH3224
	Panel 2.6	**Data Justice & Social Movements** Lina Dencik; Joanne Redden; Patrick McCurdy; Anna Feigenbaum; Alessandra Renzi (chair: Stefania Milan, Universiteit van Amsterdam)	RH3228
2:30pm	**Break**		Atrium
2:45pm	**Session 3**		
	Panel 3.1	**Representing & Visualizing Data I** Isabel Macdonald; Eef Masson & Karin van Es; Thomas Mayer Lemieux (chair: Helen Kennedy, University of Sheffield)	RH2220
	Panel 3.2	**Data, Identities & Bodies** John Cheney-Lippold; Paddy O'Reilly; Isabel Pedersen; Rongxin Zhang (chair: Rena Bivens, Carleton University)	RH2224
	Panel 3.3	**Data & Databases** Graham Harwood; Helena Machado, Rafaela Granja, Marta Matrins & Sara Matos; Fabien Richert & Patrick Deslauriers; Sandra Robinson (chair: Sébastien Moutte, University of Montpellier)	RH2228
	Panel 3.4	**Data Methodologies** Anu Masso, Maris Männiste & Andra Siibak; Katja Mayer & Jurgen Pfeffer; Emanuel Moss (chair: Isabel Macdonald, Concordia University)	RH3220
	Panel 3.5	**Data & Surveillance I** Thorsten Busch, Antoinette Weibel, Isabelle Wildhaber, Ulrich Leicht-Deobald, Christoph Schank, Simon Schafheitle & Gabriel Kasper; Ozge Girgin; Robert Hunt (chair: Jeff Monaghan, Carleton University)	RH3224
	Panel 3.6	**Data Driven Futures** Sarah T. Roberts; Jeffrey Diamanti; Mél Hogan (chair: Liam Cole Young, Carleton University)	RH3228
4:15pm	**Break**		Atrium
4:30pm	**Keynote: *Profession, Piecework, PR, or Propaganda?: Futures of Journalism in an Era of Automation*** Frank Pasquale (Introduced by Tracey P. Lauriault)		Theatre (RH2200)
6:15pm	**Cocktail & Reception, Heart & Crown,** Little Italy, 353 B Preston Street, 1-613-564-0000		Heart & Crown

Day 2

Friday 23rd June 2017

7:30am	**Registration and Light Breakfast**		Atrium
9:00am	**Welcome Local Host: Tracey P. Lauriault**		Theatre (RH2200)
9:15am	**Keynote: Knowledge Infrastructures under Siege: Environmental Data Systems as Memory, Truce, and Target** Paul Edwards (Introduced by Jo Bates)		Theatre (RH2200)
10:00am	**Break**		Atrium
10:15am	**Session 4**		
	Panel 4.1	**Data, Governance & Political Power** Arne Hintz; Marc Ménard & André Mondoux; Emily Rempel; Julian von Bargen (chair: Jenna Jacobson, Ryerson University)	RH2220
	Panel 4.2	**Data & Healthcare** Dung Ha & Peter A. Chow-White; Scott Mitchell; Sarah Wadmann & Klaus Hoeyer; Maria Wolters (chair: Michael Dorland, Carleton University)	RH2224
	Panel 4.3	**Data, Platforms & Infrastructure** Ashley Rose Mehlenbacher & Brad Mehlenbacher; David Nieborg, Anne Helmond & Fernando van der Vlist; Derek Noon & Chris Russill; Teresa Scassa (chair: Sandra Robinson, Carleton University)	RH2228
	Panel 4.4	**Data & Journalism** Eddy Borges-Rey; Maria Pilgun; Marina Shilina & Alexandra Shilina (chair: Kathryn O'Hara, Carleton University)	RH3224
	Panel 4.5	**Data Subversion & Re(Use)** Nora Draper & Joseph Turow; Jan-Hendrik Passoth & Nikolaus Pöchhacker; Sophie Toupin (chair: Dwayne Winseck, Carleton University)	RH3228
11:45pm	**Lunch**		Atrium
1:00pm	**Session 5**		
	Panel 5.1	**Representing & Visualizing Data II** Rebecca Smith; Chris Sula; Neal Thomas, Adam Thomlinson (chair: Helen Kennedy, University of Sheffield)	RH2220
	Panel 5.2	**Data, Transparency & Ethics** Tim Elrick & Christian Bittner; Ingrid Hoofd; Rónán Kennedy; Jonathan Obar & Joseph Zeller (chair: Michael Dorland, Carleton University)	RH2224
	Panel 5.3	**Data & Democracy** Jelena Dzakula; Tarnjit Johal, Mert Ozer & A. Salehi; Fabrizio Scrollini (chair: Merlyna Lim, Carleton University)	RH2228

	Panel 5.4	**Urban & Rural Data** Antoine Courmont; Helen Hambly; Matthew Tiessen (chair: Penny Andrews, University of Sheffield)	RH3224
	Panel 5.5	**Social Media Data Stewardship: the Ethics of Social Media Data Use for Research** Anatoliy Gruzd; Jenna Jacobson; Priya Kumar; Philip Mai (chair: Ysabel Gerrard, University of Sheffield)	RH3228
2:30pm	**Break**		Atrium
2:45pm	**Session 6**		
	Panel 6.1	**Data & Labour** Ope Akanbi; Sara Grossman; **Teresa Swist,** Liam Magee & Philippa Collin (chair: Ganaele Langlois, York University)	RH2220
	Panel 6.2	**Data, Justice & Security** Volodymyr Lysenko, Betsy Williams, & Catherine Brooks; Britt Paris & Jennifer Pierre; Lindsay Poirer (chair: Andrew Iliadis, Temple University)	RH2224
	Panel 6.3	**Data & Surveillance II** Midori Ogasawara; Valerie Steeves & Jeffrey Monaghan; Leslie Regan Shade (chair: Dwayne Winseck)	RH2228
	Panel 6.4	**Open & Civic Data** Carlos Barreneche; Juliane Jarke; Alison Powell (chair: Jo Bates, University of Sheffield)	RH3224
	Panel 6.5	**Data, Senses & Automation** Marcela Baiocchi & Dominic Forest; Lee McGuigan; Aaron Shapiro (chair: Derek Noon, Carleton University)	RH3228
4:15pm	**Break**		Atrium
4:30pm	**Keynote: Redefining citizenship: Toward Socio-Technical Theory of Agency in Datafied Societies** Stefania Milan (Introduced by Merlyna Lim)		Theatre (RH2200)
5:15pm	**Closing Remarks Local Host: Tracey P. Lauriault**		Theatre (RH2200)
5:30pm	**Closing Ceremony: Elder Annie Smith St. George**		Theatre (RH2200)

Opening & Closing Ceremony

The Data Power 2017 Conference Organizers acknowledges the Algonquin nation whose traditional and unceded territory we are gathered upon today.

Algonquin Traditional Elder Annie Smith St-Georges will ceremoniously open and close the conference proceedings.

Keynote Biographies and Abstracts

Opening Statements
Researching Data Power: Looking Forwards

Day 1 Thursday: 9:10AM (RB2200)

Helen Kennedy, Professor of Digital Society, University of Sheffield, UK

Abstract: Critical scholarship on data power has come a long way in a short time, providing us with detailed analysis of the costs of the data delirium (van Zoonen 2014) and the kinds of power that are enacted when data are employed by governments, security agencies and private corporations. Much of this important critical work has operated at a general and theoretical level, addressing questions related to the potential for contemporary techniques of data mining and analytics to contribute to new, unaccountable and opaque forms of population management and social control. This questioning of data power has been important in pointing to the serious issues that datafication raises in relation to rights, liberties and social justice. But what next for research on data power? In these opening reflections, I will suggest some future directions for this emergent field.

Biography

Helen Kennedy's research has focused on: social media, data in society, data visualisation, inequality, web design, and digital identity. Recent work includes a) Seeing Data (www.seeingdata.org), which explored how non-experts relate to data visualisations, and b) Post, Mine, Repeat (2016), about what happens when social media data mining becomes ordinary (both funded by the UK's Arts and Humanities Research Council). She is interested in critical approaches to big data and data visualisations, how people live with data, how to make datafication and its consequences transparent, and whether it’s possible to ‘live well’ with data.

Indigenous Data Sovereignty and Reconciliation

Day 1: Thursday 9:30 AM (RB2200)

Gwen Phillips, Governance Transition Ktunaxa Nation & BC First Nations Data Governance Champion

Abstract: Gwen Phillips, citizen of the Ktunaxa Nation and BC First Nations Data Governance Champion, describes how many BC First Nations are transitioning from government imposed systems that measure sickness and poverty, as examples, to internally developed approaches to measuring the impacts of Nation Rebuilding; measuring strong, healthy citizens... The Ktunaxa Nation has been dispossessed of their data; of their identity. Nation rebuilding and data sovereignty go hand in hand. The Ktunaxa Nation began governance transition; a shift in their thinking by questioning why the results of federal programs were not meeting expectations. The Nation began rebuilding their own institutions and addressing the root causes of the communities' issues rather than just treating the manifestations. The Nations is collecting, protecting and using data to empower the Nation and measuring progress towards what the Ktunaxa citizens defined as their vision. The Ktunaxa Nation asserts data sovereignty as a fundamental right and data governance as a fundamental responsibility.

Biography

Gwen is a citizen of the Ktunaxa Nation and has worked for the Ktunaxa Nation Council for the past thirty-four years, holding a variety of senior management functions, at times overseeing departments of Education, Health, Corporate Services, Traditional Knowledge and Language and for the past decade, functioning as the Director responsible for Governance Transition; leading the Ktunaxa Nation back to self-government.

Gwen has represented the Ktunaxa Nation on numerous Boards and Committees, locally, regionally and nationally and is currently championing the BC First Nations' Data Governance Initiative (http://www.bcfndgi.com); a tripartite government initiative (federal, provincial and First Nations governments) with a key objective being timely access to quality data to plan, manage and account for investments and outcomes associated with First Nations well-being. As a member of the First Nations Health Council, Gwen is part of the team that negotiated the transfer of Health Canada's BC Region First Nations and Inuit Health Branch to First Nations control, and she represents BC First Nations' interests nationally in Data Governance, as a member of the First Nations Information Governance Centre Board.

Profession, Piecework, PR, or Propaganda? Futures of Journalism in an Era of Automation

Day 1: Thursday 4:30 PM (RB2200)

Frank Pasquale, Professor of Law, University of Maryland Carey School of Law, USA

Abstract: Communications scholars have insightfully illuminated the material foundations of the contemporary public sphere, and its fragmentation. As digital megaplatforms consolidate users, data, revenue, and power, they will increasingly govern the future of news—or, to be more precise, its futures. They can assist outlets that maintain the professional status of journalists, or continue to apply economic pressure that will reduce much of the public sphere to a patchwork of public relations, piecework, unvetted user-generated content, and propaganda. To the extent megaplatforms choose the latter course, communications policymakers should model and regulate them as utilities, to promote a more robust and democratic public sphere.

Suggested Reading:

- http://discoversociety.org/2017/01/03/duped-by-the-automated-public-sphere/
- http://www.huffingtonpost.com/entry/holocaust-google-algorithm_us_587e8628e4b0c147f0bb9893

Biography

Frank Pasquale researches the law and policy of artificial intelligence, big data, and algorithms. He has testified before or advised groups ranging from the Department of Health and Human Services, the House Judiciary Committee, the Federal Trade Commission, and directorates-general of the European Commission. He is the author of The Black Box Society (Harvard University Press, 2015), which develops a social theory of reputation, search, and finance, and has been translated into Chinese, Korean, French, and Serbian. The book offered critical legal commentary on algorithmic approaches to profiling, and recommended law & policy to make search engines and social networks more accountable. Frank has served on the NSF-sponsored Council on Big Data, Ethics, & Society, and has advised European policymakers on media regulation. He has co-authored a casebook on administrative law and co-authored or authored over 50 scholarly articles, including several on search engines as communicative intermediaries.

Knowledge Infrastructures under Siege: Environmental Data Systems as Memory, Truce, and Target

Day 2: Friday 9:15 AM (RB2200)

Paul Edwards, Professor of Information and History, Distinguished Faculty in Sustainability, Graham Sustainability Institute, Senior Fellow, Michigan Society of Fellows University of Michigan School of Information, Ann Arbour, USA and (starting July 1, 2017) William J. Perry Fellow in International Security Center for International Security and Cooperation Stanford University

Abstract: This talk examines the history of environmental data systems in the context of the Trump administration's brutal assault on climate science. Data models — aka algorithms — are as important as "raw" data in generating knowledge of Earth's climate. Yet they are also easy political targets. From an earlier focus on critiques of climate simulation models, since about 2000 climate denialism has shifted toward attacks on data and data models. This movement recently reached a crescendo, with the ascendancy of climate change deniers to dominant positions in the United States, Australia, and elsewhere. The shift is associated with new media environments that effectively created a "glass laboratory," where even scientists' emails became metadata in the public life of climate knowledge. In this situation, where previously settled norms and standards have become targets for wholesale elimination, data studies must balance the necessity of critique with its potentially destructive consequences.

Biography

Paul N. Edwards is William J. Perry Fellow in International Security at Stanford University (from July 2017) and Professor of Information at the University of Michigan. He writes and teaches about the history, politics, and culture of information infrastructures. Edwards is the author of *A Vast Machine: Computer Models, Climate Data, and the Politics of Global Warming* (MIT Press, 2010) and *The Closed World: Computers and the Politics of Discourse in Cold War America* (MIT Press, 1996), and co-editor of *Changing the Atmosphere: Expert Knowledge and Environmental Governance* (MIT Press, 2001), as well as numerous articles.

Data-logies. The conditions of possibility for democratic agency in the datafied society

Day 2: Friday 4:30 PM (RB2200)

Stefania Milan (Associate Professor of New Media and Digital Culture, University of Amsterdam & Associate Professor of Media Innovation (II), University of Oslo)

Abstract: Datafication has brought about a fundamental paradigm shift in the contemporary socio-political order. Its informational architecture—from data centers to linked datasets and apps—has altered our conditions of existence in society. It has accelerated the crisis of liberal democracy, changing our understanding of what constitutes citizenship, participation and secrecy in the datafied society. Emerging forms of power—encoded in opaque algorithms and impenetrable trade secrets, guarded lawmaking and overreaching law enforcement—seem to leave little room for human agency. But while the threats to privacy and individuality negatively alter the trust relation between people and the ruling institutions, emerging grassroots data practices have the ability to carve out space for novel forms of being-in-the-world, forcing us to rethink the relationship between the state and its citizens. This talk reflects on what constitutes democratic agency today, exploring its spaces and conditions of possibility and identifying frictions and instances of empowerment. Taking data and datafication simultaneously as objects of contention and elements of an embryonic novel politics of the quotidian, and exploring forms of resilience and mobilization as democratic processes, the talk explores how contemporary engagement with data politics and socio-technical practices alters the way people enact their democratic agency.

Biography

Stefania Milan (stefaniamilan.net) is curious about the intersection of digital technology, activism and governance. Exploring digital and action-oriented research methods, she is constantly looking for ways to bridge research with policy and action. Stefania holds a PhD in political and social sciences of the European University Institute. Prior to joining the University of Amsterdam, she worked at the University of Lucerne, Central European University, Citizen Lab (University of Toronto) and Tilburg University. Stefania is the author of Social Movements and Their Technologies: Wiring Social Change (Palgrave Macmillan, 2013), and co-author of Media/Society (Sage, 2011). She is currently working on a new manuscript on “cloud protesting”, investigating how the algorithmically mediated environment of social media changes organized collective action. Stefania likes cycling, boxing and tangoing, and loves mountains.

Program in Detail

Day 1

Thursday 22nd June

Session 1: 10:30am-12:00pm

Panel 1.1 Data, Business & Industry

RH 2220 (chair: Guy Hoskins, Ryerson University)

- 1.1.1 **All the homes: Zillow and the operational context of big data**, Yanni Loukissas (Georgia Tech)
- 1.1.2 **Data capital in the games industry**, Jennifer Whitson (Department of Sociology and Legal Studies, University of Waterloo)
- 1.1.3 **From copper cable capitalism to the geopolitical economy of the global internet infrastructure**, Dwayne Winseck (School of Journalism & Communication, Carleton University)

Panel 1.2 Data & Activism

RH 2224 (chair: Merlyna Lim, Carleton University)

- 1.2.1 **Routes to data rights: information transparency in Pennsylvania's pipeline debates**, Kirk Jalbert (Center for Science, Technology and Society, Drexel University)
- 1.2.2 **Data power awareness. The influence of Edward Snowden on French digital activism's communication strategies**, Sébastien Moutte (University of Montpellier III (France), TTSD, Lersem)
- 1.2.3 **Resisting big data: data activists' tactics and the making of citizenship**, Venetia Papa & Dimitra L. Milioni (Cyprus University of Technology)
- 1.2.4 **Data-mirroring as archival activism - a case study of Data Refuge,** Britt Paris & Morgan Currie (University of California, Los Angeles Department of Information Studies)

Panel 1.3 Data & Governance: Global Perspectives

RH 2228 (chair: Ysabel Gerrard, University of Sheffield)

- 1.3.1 **Big data authoritarianism and social governance: The case of China**, Claire Lee (Department of China Studies, College of Humanities, Inha University)
- 1.3.2 **Localizing data in a globalizing internet economy: data policies on the Chinese internet**, Lianrui Jia (York University)
- 1.3.3 **Policy visions of big data: views from the Global South**, Laura Mahrenbach (Bavarian School of Public Policy, Technical University of Munich) & Katja Mayer (School of Governance, Technical University Munich)
- 1.3.4 **The moral economy of the digital welfare state: fostering efficiency and nurturing neoliberalism**, Jannick Schou & Morten Hjelholt (IT University of Copenhagen)

Panel 1.4 Data & The University
RH 3220 (chair: Anu Masso, University of Tartu)

- 1.4.1 **Foaming Data: end to end, power without end**, Penny Andrews (University of Sheffield)
- 1.4.2 **Learning with Data Scientists: reflections on teaching critical data studies to postgraduate Data Science students**, Jo Bates, Penny Andrews & Emily Nunn (University of Sheffield)
- 1.4.3 **A cooperative for big data in scholarly publishing**, Kevin Hawkins (Assistant Dean for Scholarly Communication, University of North Texas Libraries)

Panel 1.5 Data Practices & Agency
RH 3224 (chair: Jo Bates, The University of Sheffield)

- 1.5.1 **From Digital to Datafied Citizenship**, Lena Dencik & Arne Hintz (Cardiff University)
- 1.5.2 **The practice of (users') everyday life: revisiting De Certeau to understand user agency in web 2.0**, Dimitria Milioni & Lydia Kollyri (Cyprus University of Technology)
- 1.5.3 **Forming data communities: design for distributed agency in data collection**, Dawn Walker (University of Toronto)

Panel 1.6 Data Infrastructure Interventions
RH 3228 (chair: Maris Männiste, University of Tartu)

- 1.6.1 **Assembling our software relations**, Rena Bivens (School of Journalism & Communication, Carleton University)
- 1.6.2 **Rethinking situated knowledge: towards a feminist ethics of care for big data**, Mary Elizabeth Luka (School of the Arts, Media, Performance & Design, York University)
- 1.6.3 **Data culture clashes in the Canadian government**, Tamara Shepherd (Department of Communication, Media & Film, University of Calgary) & Joanna Redden (Media and Communications, Cardiff University)
- 1.6.4 **Who'soperating <this> system?**, Andrea Zeffiro (Communication Studies and Multimedia, McMaster University)

Session 2: 1:00pm-2:30pm

Panel 2.1 Data & Capital
RH 2220 (chair: Liam Cole Young, Carleton University)

- 2.1.1 **Brokers, queues, and flows: data techniques of financialization and consolidation**, Michael Castelle (University of Chicago)
- 2.1.2 **Bentham's panopticon-prospectus or how financialization endows data with power**, Greg Elmer (Ryerson University)
- 2.1.3 **Personal data as means of payment: a Nordic perspective on the role of consumer protection agencies in a time of aggressive data collection**, Stefan Larsson (Lund University Internet Institute)
- 2.1.4 **Data power and block chain technology**, Sabine Thuermel (Munich Center of Technology in Society, Technical University Munich)

Panel 2.2 Data & Algorithmic Power
RH 2224 (chair: Sandra Robinson, Carleton University)

- 2.2.1 **Infrastructures of "algorithmic security" as digital governance of North American border security**, David Grondin (University of Ottawa)
- 2.2.2 **Special, sacred algorithms: a critique of the "specialness" of the Black-Scholes equation and narratives of irrefutability of the behaviour of financial markets**, Tarnijt Johal & Adriana Sgambetterra (Carleton University)
- 2.2.3 **The significance of sorting: some thoughts on the emergence of smart email**, Christine T. Wolf (Laboratory for Ubiquitous Computing & Interaction, University of California, Irvine)

Panel 2.3 Data, Citizenship & (In)Equality
RH 2228 (chair: Ganaele Langlois, York University)

- 2.3.1 **Welfare fraud 2.0? Using big data to stigmatize and criminalize the poor**, Kathy Dobson (School of Journalism & Communication, Carleton University)
- 2.3.2 **The submissive citizen in the shadow of data power: between rights claims and active citizenship**, Guy Hoskins (York University)
- 2.3.3 **"Data haven": a regulatory reform challenging the "power" of big data?**, Anne-Sophie Letellier (Université du Québec à Montréal)

Panel 2.4 Affirming Human Agency in the Era of Big Data Power: Revealing the Social Ecology of Agricultural Data
RH 3220 (chair: Chris Russill, Carleton University)

Kelley Bronson, Michael Carolan and Rozita Dara

Panel 2.5 Data, Truth & Power
RH 3224 (chair: Tracey Lauriault, Carleton University)

- 2.5.1 **The Social Life of Metric Power: A look at data infrastructures at the margins of the state**, Monika Halkort (Lebanese American University)
- 2.5.2 **The Tower of Babel problem: applied computational ontologies and their social consequences**, Andrew Iliadis (Temple University)
- 2.5.3 **Lies, damn lies, statistics, and data: the urgent need for data literacy**, Heather Morrison (University of Ottawa)
- 2.5.4 **When barriers become assets: reevaluating power at the limits of Silicon**, Brian Schram (University of Waterloo)

Panel 2.6 Data Justice & Social Movements
RH 3228 (chair: Stefania Milan, Universiteit van Amsterdam)

- 2.6.1 **Data Justice: examining datafication and social justice**, Lina Dencik (Data Justice Lab, Cardiff University)
- 2.6.2 **Datafied social services and inequality**, Joanne Redden (Data Justice Lab, Cardiff University)
- 2.6.3 **Mediatoil & data justice: Reflections on visualizing the media war over Canada's bitumen sands**, Patrick McCurdy (University of Ottawa)
- 2.6.4 **Designing for citizen-generated data in the RiotID project**, Anna Feigenbaum (BU Datalabs, Bournemouth University)
- 2.6.5 **Models for resistance and data power in Jakarta**, Alessandra Renzi (Northeastern University)

Session 3: 2:45pm-4:15pm

Panel 3.1 Representing & Visualizing Data I
RH 2220 (chair: Helen Kennedy, University of Sheffield)

- 3.1.1 **Graphic journalism as a critical strategy of data visualization**, Isabel Macdonald (Concordia University)
- 3.1.2 **The power of evidentiary regimes in speculative data visualisation**, Eef Masson (University of Amsterdam) & Karin van Es (Utrecht University)
- 3.1.3 **Algorithmic visuality and the remaking of urban everyday life**, Thomas Mayer Lemieux (Institut National de Recherche Scientifique, Université du Québec)

Panel 3.2 Data, Identities & Bodies
RH 2224 (chair: Rena Bivens, Carleton University)

- 3.2.1 **Transcoding the body into the body politic**, John Cheney-Lippold (University of Michigan)
- 3.2.2 **Erasing the boundary: data and emotion**, Paddy O'Reilly (La Trobe University)
- 3.2.3 **Datafied bodies: critical approaches to Wireless Body Area Networks**, Isabel Pedersen (University of Ontario Institute of Technology)
- 3.2.4 **Alienated digital identities**, Rongxin Zhang (Pratt Institute Media Studies, New York)

Panel 3.3 Data & Databases
RH 2228 (chair: Sébastien Moutte, University of Montpellier)

- 3.3.1 **Database addiction, YoHa, 2015/17**, Graham Harwood (Goldsmiths, University of London)
- 3.3.2 **Performativity of data flows in criminal DNA databases and categories of suspicion**, Helena Machado, Rafaela Granja, Marta Matrins & Sara Matos (Centre for Social Studies, University of Coimbra)
- 3.3.3 **Ethic and epistemology of big data: a critical approach in using big data tools**, Fabien Richert & Patrick Deslauriers (Université du Québec à Montréal)
- 3.3.4 **Databases and doppelgangers: new articulations of power**, Sandra Robinson (School of Journalism & Communication, Carleton University)

Panel 3.4 Data Methodologies
RH 3220 (chair: Isabel Macdonald, Concordia University)

- 3.4.1 **"End of theory" in the area of big data: methodological practices and challenges in social media studies**, Anu Masso, Maris Männiste & Andra Siibak (University of Tartu)
- 3.4.2 **The spectre of big data: N=all. Resituating sampling in big social data**, Katja Mayer & Jurgen Pfeffer (School of Governance, Computational Social Science and Big Data, Technical University Munich)
- 3.4.3 **Massaging the data: abduction and the human dimensions of data science**, Emanuel Moss (CUNY Graduate Center)

Panel 3.5 Data & Surveillance I
RH 3224 (chair: Jeff Monaghan, Carleton University)

- 3.5.1 **Big data-driven workplace surveillance: the case of Switzerland**, Thorsten Busch, Antoinette Weibel, Isabelle Wildhaber, Ulrich Leicht-Deobald, Christoph Schank, Simon Schafheitle & Gabriel Kasper (University of St. Gallen, Switzerland)

- 3.5.2 **Mobile Apps, Data Collection and Normalization of Surveillance**, Ozge Girgin (Queen's University)
- 3.5.3 **Neuro-marketing and affective data: commodification and control**, Robert Hunt (Department of Communications, Concordia University)

Panel 3.6 Data Driven Futures
RH 3228 (chair: Liam Cole Young, Carleton University)

- 3.6.1 **Digital city, human labor: commercial content moderation, infrastructure and the humans that power them**, Sarah T. Roberts (University of California, Los Angeles)
- 3.6.2 **From forecast to foresight: market media and the fabric of energy**, Jeffrey Diamanti (McGill University)
- 3.6.3 **The data centre industrial complex**, Mél Hogan (University of Calgary)

Day 2

Friday 23rd June

Session 4: 10:15am-11:45am

Panel 4.1 Data, Governance & Political Power

RH 2220 (chair: Jenna Jacobson, Ryerson University)

- 4.1.1 **Reforming surveillance policy after Snowden: the UK Investigatory Powers Act as a site of struggle over data power**, Arne Hintz (Cardiff University)
- 4.1.2 **Big Data, governmentality and social acceleration: the industrialization of politico-institutional mediation**, Marc Ménard & André Mondoux (Université du Québec à Montréal)
- 4.1.3 **Beyond the hype: using story-telling to explore the use of new forms of data in local government**, Emily Rempel (University of Bath)
- 4.1.4 **G'IMMI shelter: privacy, transparency and political power in the digital age**, Julian von Bargen (York University)

Panel 4.2 Data & Healthcare

RH 2224 (chair: Michael Dorland, Carleton University)

- 4.2.1 **A critical examination of genomics and data-driven healthcare: the role of communication in the knowledge production of clinical genomics**, Dung Ha & Peter A. Chow-White (Simon Fraser University)
- 4.2.2 **Surveillance medicine, crowdsourced public health, and data-driven epidemiology: the privacy implications of digitally tracking and visualizing contagious disease outbreaks**, Scott Mitchell (School of Journalism & Communication, Carleton University)
- 4.2.3 **Data sourcing, resistance and seamlessness as a source of conflict**, Sarah Wadmann (KORA, The National Institute for Local and Regional Government Research, Denmark) & Klaus Hoeyer (Centre for Medical Science and Technology Studies, University of Copenhagen)
- 4.2.4 **Give me your data, and I will diagnose you**, Maria Wolters (School of Informatics, University of Edinburgh)

Panel 4.3 Data, Platforms & Infrastructure

RH 2228 (chair: Sandra Robinson, Carleton University)

- 4.3.1 **Data infrastructures for the scientific data commons**, Ashley Rose Mehlenbacher (University of Waterloo) & Brad Mehlenbacher (North Carolina State University)
- 4.3.2 **Platform power. Investigating platform/industry partnerships and the political economy of social data**, David Nieborg (University of Toronto), Anne Helmond (University of Amsterdam) & Fernando van der Vlist (University of Amsterdam)
- 4.3.3 **Quantum life: the construction of computational acts**, Derek Noon & Chris Russill (School of Journalism & Communication, Carleton University)
- 4.3.4 **The data ecosystem of the platform economy: transparency, privacy and control**, Teresa Scassa (Faculty of Law, University of Ottawa)

Panel 4.4 Data & Journalism
RH 3224 (chair: Kathryn O'Hara, Carleton University)

- 4.4.1 **The datafication of journalism: the watchdog of a datocratic society?**, Eddy Borges-Rey (University of Stirling)
- 4.4.2 **Strategies of data journalism: Russian case**, Maria Pilgun (National Research University Higher School of Economics)
- 4.4.3 **Data journalism in Russia: experts vs. citizen journalists vs. officials**, Marina Shilina (Plekhanov State University of Economics) & Alexandra Shilina (Lomonosov Moscow State University)

Panel 4.5 Data Subversion & (Re) Use
RH 3228 (chair: Dwayne Winseck, Carleton University)

- 4.5.1 **Toward a sociology of digital resignation**, Nora Draper (Department of Communication, University of New Hampshire) & Joseph Turow (Annenberg School for Communication, University of Pennsylvania)
- 4.5.2 **Data structures of power. Co-configuring sites of data production as interventions in regimes of datafication**, Jan-Hendrik Passoth & Nikolaus Pöchhacker (Technical University of Munich)
- 4.5.3 **Disrupting Wikipedia: the case study of Wikipedia Zero in Angola**, Sophie Toupin (McGill University)

Session 5: 1:00pm-2:30pm

Panel 5.1 Representing & Visualizing Data II
RH 2220 (chair: Helen Kennedy, University of Sheffield)

- 5.1.1 **Tracing the auditory object: data and emergent presence**, Rebecca Smith (Taubman College of Architecture and Urban Planning, University of Michigan)
- 5.1.2 **Towards participatory visualization**, Chris Sula (Pratt Institute)
- 5.1.3 **Environmentalist modes: data, photos and how we see our threatened planet**, Adam Thomlinson (School of Journalism & Communication, Carleton University)
- 5.1.4 **Logics of representation in structured data graphs**, Neal Thomas (Department of Communication, University of North Carolina)

Panel 5.2 Data, Transparency & Ethics
RH 2224 (chair: Michael Dorland, Carleton University)

- 5.2.1 **Ethical mapping in OpenStreetMap?**, Tim Elrick **(**McGill University) & Christian Bittner (University of Erlangen-Nuremberg)
- 5.2.2 **Big Data and the deconstruction of the academic quest for transparency**, Ingrid Hoofd (Utrecht University, Netherlands)
- 5.2.3 **De-camouflaging chameleons: requiring transparency and privacy protection in the Internet of Things**, Rónán Kennedy (National University of Ireland Galway)
- 5.2.4 **Resolving the transparency paradox through infomediation: successful principal-agent relationships and the big data deluge**, Jonathan Obar & Joseph Zeller (York University)

Panel 5.3 Data & Democracy
RH 2228 (chair: Merlyna Lim, Carleton University)

- 5.3.1 **Ofcom and the use of big data: effects on democratic citizenship**, Jelena Dzakula (University of Leicester and London School of Economics and Political Science)
- 5.3.2 **Deliberative democracy or agonism? An exploration of the role of Twitter in political discourse**, Tarnjit Johal (Carleton University), Mert Ozer (Arizona State University) & A. Salehi (Arizona State University)
- 5.3.3 **Surveilling democracy through modest means? The Uruguayan case**, Fabrizio Scrollini (DATYSOC)

Panel 5.4 Urban & Rural Data
RH 3224 (chair: Penny Andrews, University of Sheffield)

- 5.4.1 **Making the data-driven city. How does the socio-technical shaping of data analytics change the government of the city?**, Antoine Courmont (SciencesPo)
- 5.4.2 **From connectivity gaps to data ownership: precision agriculture in Ontario, Canada**, Helen Hambly (University of Guelph)
- 5.4.3 **Data-power in Toronto's Don River Valley: digitally seeking salutary flow-states amidst the urban grid**, Matthew Tiessen (Ryerson University)

Panel 5.5 Social Media Data Stewardship: The Ethics of Social Media Data Use for Research
RH 3228 (chair: Ysabel Gerrard, University of Sheffield)

- Anatoliy Gruzd (Ryerson University),
- Jenna Jacobson (University of Toronto),
- Priya Kumar (Ryerson University)
- Philip Mai (Ryerson University)

Session 6: 2:45pm-4:15pm

Panel 6.1 Data & Labour
RH 2220 (chair: Ganaele Langlois, York University)

- 6.1.1 **Data labor on Workplace by Facebook**, Ope Akanbi (University of Pennsylvania)
- 6.1.2 **Data reduction and women's labor in 1850 America**, Sara Grossman (Pennsylvania State University)
- 6.1.3 **Generating participation and public-good in the data revolution: convivial tools and the future of the university**, Teresa Swist, Liam Magee & Philippa Collin (Institute for Culture and Society, Western Sydney University)

Panel 6.2 Data, Justice & Security
RH 2224 (chair: Andrew Iliadis, Temple University)

- 6.2.1 **Data management for social justice: three case studies**, Britt Paris & Jennifer Pierre (Department of Information Studies, University of California, Los Angeles)
- 6.2.2 **Experimental Systems for data justice: an examination of semantic Web data infrastructure**, Lindsay Poirer (Rensselaer Polytechnic Institute)
- 6.2.3 **The power of data as an information weapon: Information warfare by Russia since**

2014, Volodymyr Lysenko, Betsy Williams, & Catherine Brooks (Center for Digital Society & Data Studies, School of Information, University of Arizona)

Panel 6.3 Data & Surveillance II
RH 2228 (chair: Dwayne Winseck)

- 6.3.1 **#TellVicEverything: contesting (in)visibilities in campaigns against digital surveillance**, Valerie Steeves (University of Ottawa) & Jeffrey Monaghan (Carleton University)
- 6.3.2 **Data power and violence: why are the two expanding together under neoliberalism?**, Midori Ogasawara (Queen's University)
- 6.3.3 **Dataveillance, screens, and interactive toys for tots**, Leslie Regan Shade (University of Toronto) & Karen Louise Smith (Brock University)

Panel 6.4 Open & Civic Data
RH 3224 (chair: Jo Bates, University of Sheffield)

- 6.4.1 **Making small talk about small data: A case study of civic data hacking in Colombia**, Carlos Barreneche (Universidad Javeriana)
- 6.4.2 **Co-creating public services: from participatory design to participatory open data**, Juliane Jarke (Institute for Information Management Bremen, Bremen University)
- 6.4.3 **Dilemmas of sense: ethics and action for data citizenship**, Alison Powell (London School of Economics and Political Science)

Panel 6.5 Data, Senses & Automation
RH 3228 (chair: Derek Noon, Carleton University)

- 6.5.1 **News recommendation based on opinion mining: an approach to assist the automatic classification of controversies**, Marcela Baiocchi & Dominic Forest (Université de Montréal)
- 6.5.2 **Predictive policing and the performativity of data**, Aaron Shapiro (Annenberg School for Communication, University of Pennsylvania)
- 6.5.3 **Data-driven television: automating the audience commodity**, Lee McGuigan (Annenberg School for Communication, University of Pennsylvania)

Abstracts

Day 1

Thursday June 22

Session 1: 10:30-12:00

Panel 1.1: Data, Business & Industry

(RH 2220)

1.1.1 All the homes: Zillow and the operational context of big data

Yanni Loukissas (Georgia Tech).

Zillow, an online real estate marketplace that seeks to make information available about "all the homes" in the United States, tells us that "data want to be free". However, Zillow is an example of information design used to ground big data: to put it in context. I use the word "context" to denote a setting in which data for real estate: current listings, tax assessments, and other digital property records are meant to be fully understood. This paper examines the design of contexts for big data as well as their social and political significance, using Zillow as a case. Zillow was founded in 2006, at the height of the housing bubble. Although practices with real estate have been under scrutiny ever since, the treatment of real estate data has not. I explain how context is used to operationalize data for the housing market through a combination of analytical, discursive, and algorithmic devices. These forms of context are less about establishing the truth of data than a level of tractability for buyers and sellers. Indeed, the context for data is not derived from a neutral retrospective view (i.e. where the data come from). Rather, putting data in context is a matter of connecting them to existing social norms and technological affordances that can support specific uses. Context can enable interpretation and action based on data, but it can also reify the power of a dominant culture. What culture of property does Zillow's context support?

1.1.2 Data capital in the games industry

Jennifer Whitson (Department of Sociology and Legal Studies, University of Waterloo).

As games collect, collate and correlate every more intricate data on players, developers and the other companies and service providers they depend upon are unsure of how to balance these new big data needs with data security and user privacy. As with other reporting on big data—both critical and euphoric—it is difficult to disentangle the often hyperbolic media and academic discourse from the everyday, pragmatic realities of how companies actually use data in their everyday work. Drawing from a two-year ethnographic study of game developers in Montreal, Canada, this paper illustrates the human aspect of informational practice, providing a description of what of big data practice looks like in the trenches of digital media production. To provide context, I first document the rise of data-driven design in the game industry, the resulting shifts in the forms and shape of games being made, and the impact that data-driven design has on the creative autonomy of new media workers. I then focus on independent game developers and their strategic adoption of data analytics. Intriguingly, these metrics practices are deployed in ways that place less

emphasis on using data analytics to fine-tune game mechanics or learn about player communities, and more on signalling measurable success in culture industries to the press, player communities, and funding agencies. Drawing from Bourdieu, I show how independent developers selectively leverage big data discourses to undergo a stepped series of capital conversions, from social to cultural to economic to symbolic. Developers that deploy this empirical language, however, are very aware of the gaps and failures of analytics and are critical of the role of analytics in game-making, thus illustrating the ways surveillant technologies are resisted, re-appropriated, and re-formed by front-line software developers.

1.1.3 From Copper Cable Capitalism to the Geopolitical Economy of the Global Internet

Dwayne Winseck (School of Journalism & Communication, Carleton University).

According to many observers, the project of neoliberal economic globalization from the 1980s through to the early 2000s remade the world in the image of the United States. The liberalization of global telecoms and internet policy bypassed the multilateral framework developed by the International Telecommunications Union (ITU) over nearly a century-and-a-half in favour of the World Trade Organization and country-to-country trade agreements, flanked by the multi-stakeholder model of "Internet Governance" and backstopped by the US Government's control over the Internet Domain Name System. Seen from the angle of Susan Strange's (1988) work, these developments set the framework and rules within which telecommunications and the internet have evolved since. The growing clout of US internet giants like Amazon, Apple, Facebook and Google, and the US State Department's 'internet freedom' agenda, have only reinforced such views, as have the disclosures by Edward Snowden since 2013 of the US National Security Agency-led worldwide internet surveillance program. However, this paper argues that while US-based internet giants dominate some of the middle and top-layers of the internet—operating systems (iOS, Windows, Android engines (Google), social networks (Facebook), online retailing (Amazon), TV (Netflix), browsers (Google Android, Apple iOS, Microsoft Explorer) and domain names (ICANN)—they do not rule the 'guts and the gears' of the internet: e.g. the optical fibre submarine cables, bandwidth wholesalers, content distribution networks (CDNs), autonomous network systems (ANSs), internet exchange points (IXPs), and so forth—the hardware, or material infrastructure upon which the internet and everyday life, the economy, finance, governments, business, society and war increasingly depend. In fact, ownership and control of core components of the global internet infrastructure is tilting steadily toward the rest-of-the-world, especially the BRICS countries (i.e. Brazil, Russia, India, China and South Africa). These trends reflect the fact that the United States' economic and geopolitical position in the world is declining and an evermore multi-polar world arising. As a result, rather than American internet imperialism, the idea of a "Federated Internet" seems to look more realistic all the time (Noam, 2013).

Panel 1.2: Data & activism

(RH 2224)

1.2.1 Routes to data rights: information transparency in Pennsylvania's pipeline debates

Kirk Jalbert (Center for Science, Technology and Society, Drexel University)

Communities impacted by the oil and gas industry must grapple with understanding a seemingly ubiquitous network of wellpads, pipelines, and processing facilities. For many, this process begins by obtaining and contextualizing regulatory and industry data, but a crisis of knowledge persists due to unavailable, incomplete, or incompatible sources. In Pennsylvania, the focus of this paper, 4,600 miles of new oil and gas pipelines are in proposal stages. These projects have moved to the forefront of an anti-extraction movement due to their implications for locking the region into long-term energy development. Comprehensive datasets, such as proposed pipeline routes, wetland crossings, drinking water sources, and properties likely to be impacted, are critical to this fight. Historically, such data is made available to the public only after regulatory agencies approve permits, but a wave of public pressure is changing how the state responds to data requests. This paper highlights two major pipeline projects at varying stages of development and with vastly different publicly available data. The paper illustrates how activist movements have used these projects to integrate data transparency expectations into mobilizing, resistance, and legal strategies. In doing so, the paper expands upon conceptual work in STS on the formation of "data publics" (Ruppert 2015) to suggest that a new narrative has emerged—one of "data rights" in environmental debates with significant consequence for regulatory responsibilities given Pennsylvania's rare constitutional obligation to protect the "environmental rights" of the public.

1.2.2 Data power awareness. The influence of Edward Snowden on French digital activism's communication strategies

Sébastien Moutte (University of Montpellier III, France, TTSD, Lersem).

Nowadays, data are paramount issues in many different research fields. One interesting sociological approach would be to question, thanks to the key concept of awareness, the consequences of Big Data on digital activists' daily struggles. Generally speaking, are they socially and culturally impacted by such phenomenons? How do they manage to get in touch with the mainstream and to raise people's interest? The following proposal aims at putting forward an ongoing empirical research dealing with this issue from a particular angle: the influence of Edward Snowden's message upon a corpus of French digital activist organizations acting within the subcultural fields of cyber-alternatives and popular education. The famous whistleblower revealed what many people suspected. He triggered a global indignation regarding the scale of Internet data collection, and some of its hidden purposes, that resulted in hundreds of local initiatives all around the world. Although the French organizations studied in the corpus feared mass-surveillance, they could hardly share their concern with non-activist Internet users. Then, as Snowden's whistleblowing pointed at the actual power of Big Data as a tool in favor of mass-surveillance, their former isolated suspicions suddenly became awareness. Their subcultural struggles could finally rely on facts that might ring the bell thanks to mass-media coverage and meet the mainstream. We already led several long interviews among three different French organizations, sticking to comprehensive and qualitative sociological frameworks. The

current partial results have put forward several activism processes regarding the content of their message and the way they have it spread. These processes enlighten the following hypothesis: One's awareness of Data power is redefining digital activism's communication strategies among mainstream Internet users.

1.2.3 Resisting big data: data activists' tactics and the making of citizenship

Venetia Papa & Dimitra L. Milioni (Cyprus University of Technology).

The major social challenge this article addresses is the extensive datafication of society, which invades all spheres of contemporary life, and renders imperative that citizens become aware of the critical role of ICTs in all aspects of their social and political life. While the state and the industry has acknowledged the value of big data, civil society is slowly but steadily catching up and turning big data to its own ends through various social and political activities. This form of practices can be defined as "cultures of awareness", which triggers new forms of civic engagement and political action that constitute a vast area of activism defined as "data activism" (Milan, 2015). Data activism refers to users, who perceive the use of big data both as a challenge to individual rights, and a novel set of opportunities for social change. A question that bears more study and is still unanswered through the literature is: how data activists (institutional and non-institutionnal) resist the datafication of society through "cultures of awareness" and whether their tactics and practices have some implications on the meaning of citizenship—its enactment and transformation. This article responds to this need through a mapping of the conceptual and contextual terrain of data activists' practices, available tools and campaigns. Through a comprehensive review we seek to: (a) determine data activists' practices (tools), spaces of struggle (alternative spaces, social media groups, software) and discourses (how activists position and reposition themselves and their tactics); (b) identify to what extent these data activists tactics of resistance enable to interrogate specific dimensions and make sense of the operations of data based power and autonomy. This will allow us to critically evaluate the potential of data activists' tactics of resistance to big data and to rethink about citizenship in both meaning and practice.

1.2.4 Data-mirroring as archival activism: a case study of DataRefuge

Britt Paris & Morgan Currie (Information Studies, University of California, Los Angeles).

This paper draws on archival theory to situate data- and web-mirroring as a form of community and activist archiving. To make this argument, the paper provides a case study of the recent, international DataRefuge effort as an act of activist archiving, one that acknowledges the role of decentralized data infrastructures to enable political resistance and the democratization of knowledge sharing. Archival activism can emerge from political expediency or as a form of struggle, often by individuals working independently of any supported institution. In Nazi Germany, for example, individuals smuggled scholarly documents into protected archives, enabling future access to the works of Edmund Husserl, among others. Activist archives also surface in response to silencing and marginalization within hostile political environments. The Mazer Lesbian Archive accumulated in the 1980s as dedicated volunteers documented largely invisible lesbian culture. Both of these elusive collections found their way into institutions: Husserl's at the University of Louvain and the Mazer at UCLA. Web mirroring of datasets draws from this archival trajectory but does not consolidate materials into one space. Rather, mirroring or web archiving is necessarily a decentralized activity. A recent example of such work is

DataRefuge, whose goal is to disperse once-centralized, federal scientific climate data, documents, and webpages into an international patchwork of repositories, coordinated by in-situ tactics of web scraping, mirroring, and data harvesting. As information on federal websites have already vanished from public view under the new Trump administration, this preemptive, federated "guerrilla archiving" works to outpace any further changes.

Panel 1.3: Data & Governance: Global Perspectives
(RH 2228)

1.3.1 Big data authoritarianism and social governance: The case of China
Claire Lee (Department of China Studies, College of Humanities, Inha University).

How does the Chinese government's use of social credit system influence individual's everyday life? How do Chinese citizens response to the new program? This study explores the social consequences of a recently introduced social credit system in China. In Xi Jinping's administration, managing society became an important part of the Chinese government's policy as well as increasingly gained scholarly attention. The discourse on the society was centered on the introduction of idea of social management (shehui guanli) and later social governance (shehui zhili). Against this backdrop, this paper juxtaposes the idea of "social governance" with China's use of big data by using a case study of social credit system. Since the Chinese central government has published The Planning Outline for the Construction of a Social Credit System (2014-2020), both the central and local governments have put efforts on developing the system. As a program with a plan of officially introducing it by the year 2020, more than thirty local governments have already started to collect personal information to evaluate and save credit scores based on Chinese citizens' financial, social, and civic activities. Based on the analyses of policies, microblogs (Weibo), and media, this study shows how social governance is merited with and is programmed with the use of big data and how big data turns into an apparatus of an authoritarian state. This paper also provides an implication for China to be a country with a stronger big data authoritarianism by using the power of big data.

1.3.2 Localizing data in a globalizing internet economy: data policies on the Chinese internet
Lianrui Jia (York University).

China's accession into the WTO, its informatization agenda, and the "Internet Plus" strategies have unleashed waves of globalization in information and technology industries. Chinese government not only encourages domestic companies to "go global" but also liberalized its telecommunication markets, opening doors to foreign companies. This creates tensions between forces of globalization, localization, profit maximization, and information control. One aspect these tensions crystalize is the development of data policies by internet companies operating in China and in their (creative) ways in getting around certain restrictions posed by data localization in China. This project will examine data policy on the Chinese internet, investigating how internet companies, both domestic and international ones, deal with user data under the current regime of data protection in China. Firstly, I will conduct a systematic policy review of data protection and localization on the Chinese internet to provide relevant regulatory background. Secondly, I will examine and compare how companies treat user data in their terms of service and user

agreements: e.g. what types of information is collected and for how long, where user data is stored, and under what condition information is disclosed. Thirdly, I will discuss these findings in accordance with the geopolitics of Chinese government's "internet sovereignty" and data localization efforts. By examining comparatively data policy of international internet companies (e.g. Google, LinkedIn, Uber) and domestic ones (e.g. Baidu, Weibo, Didi Dache) that operate in China, this project delves into the political and economic implications of data localization and sheds lights on problems and complications in the globalization of Chinese internet.

1.3.3 Policy visions of big data: views from the Global South

Laura Mahrenbach (Bavarian School of Public Policy, Technical University of Munich) & Katja Mayer (School of Governance, Technical University Munich).

Big data evokes controversy in the international relations literature. Much of this controversy centers on the intent of big data when used by governments. Will big data be a force for liberation, opening new avenues for individual participation in decision-making processes? Or will it be a force of repression, providing new means through which the government can restrict individual rights? This paper provides new insights into this debate by examining the policy visions related to big data in three emerging power states (Brazil, India and China). Doing so is crucial as these countries not only comprise some of the world's largest populations, but also have demonstrated their initiative in national and international promotion of big data politics. We perform a content analysis of policy documents and policymaker statements discussing the use of big data and related socio-technical and ethical issues in these states. In so doing, we identify unique challenges and opportunities offered via the use of big data outside the global North. In addition, we evaluate these governments' expectations regarding the impact of big data and related technologies within diverse decision-making contexts.

1.3.4 The moral economy of the digital welfare state: fostering efficiency and nurturing neoliberalism

Jannick Schou & Morten Hjelholt (IT University of Copenhagen).

This paper provides a historical analysis of the different moral economies that have accompanied the digitalization of the Danish welfare state, one of the leading nations worldwide in terms of ICT adoption. Adopting Fassin's (2005) use of the term moral economy, understood as "the economy of the moral values and norms of a given group in a given moment" (p. 365), we show how the digitalization of the Danish state has implied the invocation of particular normative claims as to the function, shape, and purpose of data-driven governance. Relying on archival research of policies, strategies and public statements, the paper shows how the moral economy has changed significantly from the 1970s and up until the present. In the 1970-1980s, digitalization was mainly conceived as a way of improving the internal efficiency in the public sector. From the 1990s, digitalization was awarded a much more prominent position, being seen as a way of renewing democracy by ensuring participation, transparency and inclusion of citizens. However, from 2001, economic efficiency, growth, and competitiveness have become the dominating moral claims attached to digitalization, replacing previous ideals with neoliberal beliefs. Digitalization has come to equal economic prosperity, and through the implementation of coercive laws, forcing citizens to adopt data-driven systems, new disciplinary practices have also emerged. The paper contributes with new insights into the

moral and normative dimensions of data-driven governance, showing how data-driven governance is imminently a political project. Analysing the different moral economies emerging over time, the paper opens up a room for critical reflection on the contingent decision that have shaped and continues to steer digitalization.

Panel 1.4: Data & The University

(RH 3220)

1.4.1 Foaming Data: end to end, power without end

Penny Andrews (University of Sheffield).

Critical questions about data's power and also papers that are critical and/or reflective with regards to the social and cultural consequences of the rise of data's power. The majority of workers in the Global North are subject to metricisation, targets, disciplinary quantified practices such as the Bradford Factor and technologically-enhanced surveillance. Now we witness the transformation of the professions, of academia and academic librarianship, and the quantification and loss of jurisdiction experienced by professionals is hitting hard. This is a post-fact economy, an anti-expert economy, and yet the oligopoly of academic publishers that we rely on for the accreditation of our work via the publication of articles is also substantially involved in the monitoring and evaluation of every other aspect of our work. Snowball Metrics. DataSearch. SciVal. The tracking of "responsible" and "sustainable" sharing of research between colleagues. Control of the data flows and workflows we rely on, including those parts of the pipeline fed by "open" and "personal" data. Resistance is futile...or is it? This paper critically examines the power held by a small number of academic publishing giants over the outputs, funding and careers of researchers by controlling flows of data and ideas. It will explore the concept of 'data foam', where nebulous value is added to open and private personal data to create profit for commercial companies and pressure for individuals and disciplines.

1.4.2 Learning with Data Scientists: reflections on teaching critical data studies to postgraduate Data Science students

Jo Bates, Penny Andrews & Emily Nunn (University of Sheffield).

The field of critical data studies is illuminating the complex ways in which emergent forms of data practice relate to societal power structures. New forms of data are likely here to stay, so how might we use our insights to inform more critical and reflective forms of data practice? Academics across disciplines (e.g. Lin, forthcoming) are beginning to explore pedagogies that aim to integrate critical understandings of data power in their work with new generations of data practitioners. In this paper, we critically reflect on our efforts to develop and deliver a new module 'Data and Society' for postgraduate Data Science students at the University of Sheffield's Information School. The School launched its 1-year Data Science Masters degree in 2014. The programme attracts a diverse international (c. 15 countries in 2016) cohort of 40 students from a variety of academic backgrounds. The Data and Society module was first taught in 2016, and has been incorporated into the Data Science programme as a compulsory module. The module introduces students to critical scholarship on emerging forms of data power, with the aim of influencing their development as critical and reflective data practitioners. In the paper we reflect on our pedagogical approach and delivery of the module, including exploring

how students, most of whom are from non-social science backgrounds, responded to the ideas being introduced.

1.4.3 A cooperative for big data in scholarly publishing

Kevin Hawkins (Assistant Dean for Scholarly Communication, University of North Texas Libraries).

Both for-profit and not-for-profit organizations increasingly use big data not only to study what has happened (data analytics) but also to make predict future trends (predictive analytics). With certain notable exceptions (student recruitment in US institutions and compulsive evaluations of research productivity in the UK and Australia), academia has generally lagged behind other sectors in its use of big data. One domain that has moved halfway into collecting and analyzing big data is scholarly publishing, whose stakeholders of varying size include libraries and other research institutions, learned societies, for-profit publishers, and not-for-profit publishers. These stakeholders generate and collect various types of data, especially relating content usage and sales, but often lack both resources to explore the data and ways to compare their data with that of other stakeholders. The situation is not one where a market participant tries to acquire competitive intelligence to help them compete against others; rather, because the stakeholders are so tightly related, they nearly all have some sort of data that would help all of them function more efficiently. Unfortunately, the challenges associated with gathering, integrating, interpreting, and reporting usage data limit the ability of individual publishers, libraries, and other stakeholders to identify, much less predict, important usage trends and opportunities through which these organizations might extend their impact. At the same time, there are real concerns about ownership of, access to, and analysis of data for "predictive bibliometrics". Furthermore, while all stakeholders would like to have rich data and be able to carry out predictive analytics of some sort, the high cost of providing or purchasing data-related services risks reinforcing inequalities in the landscape of scholarly publishing. This paper will present a vision for a cooperative of stakeholder institutions called the Publishing Analytics Data Alliance. Member institutions will contribute data that they gather about scholarly publishing to the cooperative, which will normalize and aggregate data for exploration by its members, who will be able to see their data in the context of their peers. The cooperative's members, through a system of shared governance, will also establish an ethical framework governing the functionality of the cooperative's data services and, more generally, the use of data by members. Beyond shared governance, the pooling of resources by the cooperative offers a way for members to achieve more than they would be able to on their own—namely, to explore and analyze data about scholarly publishing. It is hoped that the cooperative will lead to increased cooperation and efficiency in the scholarly publishing ecosystem, all the while addressing ethical concerns raised by the power of data.

Panel 1.5 Data Practices & Agency

(RH 3224)

1.5.1 From digital to datafied citizenship

Lina Dencik & Arne Hintz (Cardiff University).

With the emergence of digital technologies, early reflections on new forms of digital citizenship emphasized its empowering nature and suggested a shift towards enhanced agency by citizens and a democratizing trend in state-citizen relations. However, in the era of ‘datafication’, we can observe an opposing trend that complicates this understanding of citizenship. As advancements in digital technologies have become centred on the ability to generate, collect and analyse massive amounts of data, the exploitation of the new resource of ‘big data’ has become a key factor for both economic success and political control. The platform economy, IoT, smart homes and smart cities, all provide vast new data streams. The processing of data and data-driven decision-making are becoming a cornerstone of contemporary forms of governance and public administration. Datafication thus transforms social processes and institutions, from law enforcement to business to activism. In this presentation we will trace this shift and consider its implications. Based on a 2-year research project, we ask: How can we understand citizenship in an age defined by data collection and processing? In doing so, we conceptualise the shift from digital to datafied citizenship as one in which enactments of citizenship are carried out in environments in which they are simultaneously monitored, profiled, sorted, categorised and scored, and in which the data collectors, rather than the data producers, are empowered. In this, our data traces define our citizenship, position us in society, and grant identities on terms we may not recognise or even know about. This, we argue, undermines the empowering potentials and requires a re-conceptualisation of digital citizenship.

1.5.2 The practice of (users') everyday life: revisiting De Certeau to understand user agency in web 2.0

Dimitria Milioni & Lydia Kollyri (Cyprus University of Technology).

Recently, there has been growing interest in research attempting to unpack the decision-making power of algorithms: e.g. how algorithms engineer certain forms of sociality, steer users' behavior and eventually shape their everyday life (Bucher, 2012; Gillespie, 2014; Grosser, 2014; Pasquale, 2015). Yet, with the exception of few studies (Brunton & Nissenbaum, 2011, 2015; Miller et al., 2016; Grosser, 2014), empirical work on how users negotiate this power is rare, due to various conceptual and methodological challenges (Kitchin, 2017). To begin addressing this gap, we revisit de Certeau's (1984) and his study of everyday life, where he reveals and restores individuals' agency, deconstructing their conceptualization as weak against structural power. "Common" people devise creative, transparent and covert ways to subvert imposed practices. An essential element in his theory is that individuals resist the system without rejecting or altering it; instead, they appropriate and transgress structural imperatives. Drawing on de Certeau, important questions arise: What does a "common" user do when she encounters the decisions made by algorithms? What does he think, invisibly and silently? How does she attempt to subvert the work of algorithms without rejecting it? Most importantly, which methodological tools exist to access users' elusive everyday practices? In this paper, we first propose a conceptual framework inspired by de Certeau to study the clandestine ways in which web 2.0 users act; second, we review methods that could assist us in locating common users' tactics, such as auto-ethnography, 'soft' reverse engineering, experimental research, online ethnography and various HCI tools.

1.5.3 Forming data communities: design for distributed agency in data collection

Dawn Walker (University of Toronto).

With off-the-shelf or custom-designed technologies, activists are monitoring and collecting data in their cities. This data collection is performed to make a case for change or to hold businesses and
governments to account on issues such as evictions, air and water quality, or environmental cleanup. Participation in these grassroots data efforts constitutes a novel form of engagement by individuals ‘making sense’ of their surroundings. This participation, often described as crowd-sourcing or citizen science, is taking place alongside the increased mediation of everyday life by data-driven practices, technologies, and governance. While these civic and participatory data initiatives could be seen as corresponding to larger trends of datification (Powell, 2014), they also extend data collection practices into explicitly activist and advocacy-based action (Milan & Velden, 2016). As these communities articulate their concerns through the use of data collection and monitoring technologies, their social identities are in turn organized by the adopting these data-driven practices (Gabrys, 2016). Despite the located nature of these grassroots practices,the use of many data-based technologies can serve to reinscribe current power structures operating within ‘data’. Algorithmically-generated big data, closed platforms, and proprietary technologies all foreclose on distributed agency. By approaching both data and data-generated identities as constructed (Gitelman, 2013, Cheney-Lippold, 2011), this paper will trace how forms of grassroots
data activism provide opportunities for communities to regain agency through their interactions with data. Further, by looking at grassroots data efforts as forming publics (DiSalvo, 2009), this paper will identify opportunities for rethinking what it is to design activist citizen science technologies (Kuznetsov, 2013).

Panel 1.6: Data & Infrastructure Interventions

(RH 3228)

If we ever had control over our data, we have since lost a great deal under current regimes of data control. To reclaim power and autonomy, we must interrogate the conditions that permitted these regimes to take hold. At the same time, we must work to repair the material-discursive practices that continue to enable them. As scholars, we have critiqued communication policies, regulatory frameworks, governance practices, software design, and digital tools and techniques. Now we are asking ourselves how to think differently and do differently in the face of dominant approaches and tactics to researching data power that seldom center social justice objectives. This panel focuses on the infrastructures that generate, store, and deploy our data and the architects who shape them. Sometimes these sociotechnical infrastructures are understood as more social than technical, or vice versa, but it is the reconfiguration of how we think, talk, and build these infrastructures that our panel will collectively articulate. Our papers will achieve this in four stages: (1) rethinking the power of Arendt's 'action' through situated knowledge and a feminist ethics of care for big data; (2) repairing relationships between humans and technologies by reconfiguring the vulnerability of both; (3) suggesting how government agencies, as they

integrate commercial big data analytics, might also implement data justice frameworks; and (4) turning to queer perspectives to draw out the limits, failures, inadequacies, and dissonances of a big data paradigm.

1.6.1 Assembling Our Software Relations

Rena Bivens (School of Journalism & Communication, Carleton University).

Software is crucial to the generation, collection, and use of data about us, yet our awareness and understanding of the programming practices and processes that constitute the software we use every day is limited. This talk explores the role of software in the design and maintenance of our social infrastructure, alongside our relation to software. Drawing from my investigations of the values and norms embedded in social media platforms and mobile phone apps, I consider the specificity of software in terms of its capacity to enact culture and regulate human life, in different software locations and with varying levels of visibility. In this context, I am interested in asking questions that offer 'reparative readings' (Sedgwick 2003) of our entanglement with software. These types of questions aim to disrupt or extend how we see, think, and respond to software. The ideas presented here are inspired in part by Donna Haraway's (2016) calls for rehabilitation, response-ability, and, ultimately, "getting on well with each other" (p. 19), as well as work by communication scholars interested in infrastructures and materiality (e.g. Parks and Starosielski 2015; Gillespie, Boczkowski, and Foot 2014) who insist on the theorization of systems of power as co-constructed with material relations of technical artifacts, sociocultural processes, and people.

1.6.2 Rethinking situated knowledge: towards a feminist ethics of care for big data

Mary Elizabeth Luka (School of the Arts, Media, Performance & Design, York University).

This presentation articulates commitments to an updated "ethics of care" (Miller, Birch, Mauthner & Jessop, 2012) and "situated knowledge" (Haraway, 1988) as a methodological strategy in the era of big data. Such commitments enable the problematization of underlying assumptions made in 'big data' digital methods and research through a feminist lens, as well as the collective nature of such an endeavour. Taking up current debates within feminist materialism (Asberg, Thiele, and van der Tuin, 2015; Gibson-Graham, 2015), and digital data, including big, small, thick and "lively" data (e.g. Lupton, 2015), the presentation addresses how a set of coherent feminist digital methods and a corollary epistemology is being rethought in the field today. In particular, I mobilize recent literature on feminist materialism to suggest how the concept of "speculation" may profitably be 'turned' for use as ethical method as well as ontological construct, alongside aims to recognize intersectional situated knowledges. I also point to ways in which the "queering" (Jones, 2015; Luka & Millette, in review) of Hannah Arendt's (1958; 1961) concept of "political action" might contribute to a critically optimistic and inclusive reflection on the role of ethical political commitments to subjects/objects of study imbricated in big data, even while acknowledging the challenges presented by Arendt's own epistemological and ontological framework. Overall, I aim to clarify the evolving collegial and process-oriented rationale of a feminist, intersectional methodology for conducting ethical research in the era of big data—including our actions as researchers and our role as citizens in a public sphere.

1.6.3 Data culture clashes in the Canadian government

Tamara Shepherd (Department of Communication, Media & Film, University of Calgary) & Joanna Redden (Media and Communications, Cardiff University).

This talk centres on the culture clash between bureaucratic policymaking and commercial data management, asking what this clash means for government agencies seeking to implement big data analytics. We use Government of Canada internal documents to explore what's at stake for public policy in the way that big data–with its attendant limitations and systemic biases–gets framed as evidence. Paying specific attention to the limitations of data analytics, we look at how these limitations introduce systemic bias into evidence that reifies persistent social inequalities through Canadian policy frameworks.

1.6.4 Who's Operating <this> System?

Andrea Zeffiro (Communication Studies and Multimedia, McMaster University).

What is 'big data'? For some, it is merely a marketing term adopted by industry to describe the growth in the volume, velocity and variety of data production, sharing, and management. For others, 'big data' remains opaque and contrived. Its elusiveness in many ways gives it power. In my teaching and research I've come to work through the evasiveness of the buzzword by framing big data co-productively: as as a technical assemblage, and an ideological apparatus. Big data in the first instance is understood as a nexus of computational tools, techniques and protocols, and infrastructures and institutions. A big data paradigm persists precisely because it is underpinned by technocultural politics and practices. In the second instance, big data is framed as an ideological apparatus: a system of relations that govern the exercise of power within the social body. We see the apparatus at work through the naturalization and normalization of specific behaviours, attitudes, and values that uphold and reinforce a big data paradigm. But what is big data? My talk is an occasion to engage in a 'return to theory'; a deliberate statement at odds with Chris Anderson's 'End of Theory' thesis. However, this is by no means an occasion to retreat into theoretical discourse and make 'big data' intelligible, rather, I turn to queer perspectives to draw out the limits, failures, inadequacies, and dissonances of 'big data', and to demonstrate that indeed, there has always been something queer about the prevailing big data paradigm.

Session 2: 1pm-2:30pm

Panel 2.1: Data & Capital

(RH 2220)

2.1.1 Brokers, queues, and flows: data techniques of financialization and consolidation

Michael Castelle (University of Chicago).

Current theorizations of "big data" practices conflate observed aspects of both "volume" and "velocity" (Kitchin 2014). The practical management of these two qualities, however, have a comparably disjunct, if interwoven, computational history: on one side, the techniques of large, conceptually-centralized data systems (such as the dominant relational database), and on the other, the handling of real-time flows (the world of messages, events, and stream processing). While commercial data practices of the late

20th century were predicated on an assumption of a comparably static archive (as in the site-specific "mining" of data "warehouses"), much of the novelty and value of contemporary "big data" sociotechnics is predicated on the harnessing/processing vast and dynamic flows of messages, notifications, and events (such as those generated by the backend systems of Google, Facebook, and LinkedIn.) These latter techniques, such as those of the message queue and message broker, have their origins in teletype message switching, were adapted for Wall Street trading firms in the 1980s and 1990s by companies like Tibco, DEC and IBM, and have a contemporary manifestation in distributed open-source streaming data systems like Kafka and StormMQ, in which one differentially "publishes" and "subscribes" to brokered event streams for real-time visualization and analysis. These techniques had significant adoption at major financial services firms over the 1990s, and were subsequently deployed for the purposes of enterprise integration during a deregulatory era of mergers and acquisitions; but today, they are deployed for a social (and sociotechnical) landscape of interactional and sensor-based events and notifications, increasingly centered on the present moment. Using a combination of archival material and interviews, I will trace these communicative forms from their financial origins to a pervasive present and future.

2.1.2 Bentham's panopticon-prospectus or how financialization endows data with power

Greg Elmer (Ryerson University).

The importance of Jeremy Bentham's panopticon prison, as refashioned my Michel Foucault, for 'surveillance studies' scholars cannot be overstated. And while much analysis has tended to diverge into two perspective, one focused on the visual economy of surveillance, the other on the data economy, far less attention has been paid to the economic and financial significance of Bentham and Foucault's panopticon. Such a gap in the literature is all the more curious and glaring given that the panopticon letters were sent by Bentham to seek financial investment for the building of a reformed prison. That is to say that the panopticon letters served as a financial prospectus, describing the contours of the building and its financial imperatives. In this paper I provide an outline of a financialized panoptic surveillance and its role in understanding emergent business models in a data driven economy. The paper argues that such acts of financial prospecting are particularly germane in data-centric industries where the search for value data mining and analysis have become key sites of discriminatory power.

2.1.3 Personal data as means of payment: a Nordic perspective on the role of consumer protection agencies in a time of aggressive data collection

Stefan Larsson (Lund University Internet Institute).

This paper focuses commercial data practices where the customer "pays" with her own personal data, as opposed or in addition to money, for a service. The question here, placed in a Nordic and Swedish context, is then to what extent, in what way and for which practices is it meaningful to regard personal information as means of payment? The reason for this framing is here primarily linked to consumer law settings in the Nordic countries, guarded by authorities such as the Swedish Consumer Agency, that has a supervisory responsibility, not the least in being the consumer ombudsman with the right to take on cases against market players, for the protection of consumers. The paper therefore ties on to questions of personalized and predictive analytics as a consumer

protection issue rather than primarily a privacy issue. For example, how could a supervisory and ombudsman role be used to deal with specific issues of: dynamic and individualized pricing tailored to a consumer's profile and purchasing history in order to sell at the highest possible price to the individual consumer. For example, what supervisory tools are needed? Online user agreements and the consent dilemma. Critics argue that this kind of "privacy self-management" does not provide meaningful control and that there is a need to move beyond relying too heavily on it (Solove, 2013); e.g., media scholar and digital sociologist Anja Bechmann posits that "the consent culture of the internet has turned into a blind non-informed consent culture" (Bechmann, 2014, p. 21). But the fact remains that this is one of the most common ways to regulate the handling of personal customer data between the commercial party and the individual customers. How active should a consumer protection agency preferably be in empowering the "non-informed" but formally consenting consumers?

2.1.4 Data power and block chain technology

Sabine Thuermel (Munich Center of Technology in Society, Technical University Munich).

The blockchain technology is the basis to a new kind of data power: the data may be the digital equivalent of cash (Bitcoins), the virtual equivalent of assets guaranteeing ownership and provenance (smart property) or code representing a smart contract. A smart contract is "a piece of code which is stored on a Blockchain, triggered by Blockchain transactions, and which reads and writes in that Blockchain's database" (Gideon Greenspan, 2016). As the adherents of the Lex Cryptographia say: "code is law", i.e. data, in the form of operationalized contracts, is equivalent to law in Blockchain-based environments. In the future decentralized autonomous organizations (DAO) may be launched based on smart contracts. Their autonomy results from the fact that after the instantiation they no longer need their creators. Moreover, they are self-sufficient in so far that they can accumulate capital both digital currencies and physical assets. Their business model consists in charging for digital services provided. As long as they have sufficient funds they can operate in an independent way. In these environments individual freedom might be maximized possibly to the detriment of others. If distributed meritocratic governance models and alternative dispute resolute methods are incorporated in blockchain platforms, the data power executed in these environments may be tamed.

Panel 2.2: Data & Algorithmic Power

(RH 2224)

2.2.1 Infrastructures of "algorithmic security" as digital governance of North American border security

David Grondin (University of Ottawa).

Through John Durham Peters's understanding of the infrastructural role of logistical media (*The Marvelous Clouds*) and Ned Rossiter's logistical media theory (*Software, Infrastructure, Labor: A Media Theory of Logistical Nightmares*), this paper will reflect on the infrastructural role of algorithms in digitally governing North American border security, where algorithmic infrastructures are part and parcel of governance as logistical media. Mobilizing science and technology studies, critical media infrastructures and the mobilities literature, this paper will contend that it is through eliciting the force of algorithms as infrastructures of security, where logistics governs, in "the practice", that we may witness

the infrastructural context of emergence and possibility of algorithms, pointing to the infrastructures involved in the governing of these mobilities. It is through a security/mobility nexus, through a sociopolitical analysis of their calculated publics (their “users”), that algorithms must be assessed, and this is where the politics of the algorithms itself must be weighed in, where their design can be questioned and their use, possibly contested. Enlightened as much by a sociology of knowledge as by a sociology of technology, this paper will highlight how these sociotechnical devices are called upon, enlisted, solicited, and made part of infrastructures of security in smart border technologies: it is how they may be known and reflected upon, and how the “human and institutional choices[, as well as the science, rationalities, and technologies] that lie behind these cold mechanisms” (Gillespie 2014: 169) can be brought to light.

2.2.2 Special, sacred algorithms: a critique of the “specialness” of the Black-Scholes equation and narratives of irrefutability of the behaviour of financial markets

Tarnijt Johal & Adriana Sgambetterra (Carleton University).

‘Special things', as articulated by religionist Anne Taves, comprise aspects that are typically registered as beyond a person's comprehension (ie. the sacred) such that these aspects set (a) religion apart from everything else, therefore protecting it from critical analysis and rendering it unexplainable. According to Taves, rather than simply acknowledging so-called sacred elements as such, assigning the broader term 'special things' can serve to create more generic categories (ritual, symbol, myth) that would be useful to the scholar of religion. Furthermore, Taves' concept can be used as a heuristic to explore why societies singularize certain 'things' as 'special', impenetrable, or unexplainable. One such example, which we will use for this paper, is the Black-Scholes equation which is used to predict option pricing and is the basis for the multi-trillion dollar derivatives market. Directly carried over from thermal physics, the Black-Scholes equation makes largely unfounded assumptions for the behaviour of financial markets (the unexplainable nature of ‘special things’). However, since its application in the late 1970s these narratives of financial modelling have remained unchallenged, unquestioned and continue to be held with the utmost reverence. In this work the heuristic of Taves 'special things' is used to explore the reverence for, carrying this analogy further, the 'sacred scientific' surrounding the Black-Scholes equation. The failure to challenge and critique both the narratives of financial modelling and how these veil the underlying questions of legitimacy of the derivatives market are explored.

2.2.3 The significance of sorting: some thoughts on the emergence of smart email

Christine T. Wolf (Laboratory for Ubiquitous Computing & Interaction, University of California, Irvine).

This paper contributes to critical data studies by taking up the question of algorithmic transformation. "Big Data" has fuelled a rapid and expansive reach of algorithmic systems in everyday life. But these proliferations exert cultural power not only by introducing algorithms into new arenas, but also in transforming "dumb" algorithmic processes into "smart" ones that is, sorting propelled by machine learning and other forms of artificial intelligence. This paper examines how such transformations have the power to re-configure organizational life by drawing on an ethnographic study of the adoption of a

"smart" email client. A prominent feature of this client is a dynamic filtering mechanism that creates a list of "trending" contacts based on recent email patterns, meant to replace the traditional email sorting practices that execute "dumb" rules created by end users (e.g., simple if-then rule statements that can assign colors and labels to incoming emails or sort them into folders, etc). The shift from "dumb" to "smart" is more than merely rhetorical: through inductive analysis, this paper argues that this shift re-configures social and organizational relationships by obscuring the site and nature of data engagement and asserting exogenous logics of significance. Such changes implicate not only the interaction between people and interface or people and data, but also amongst people, whose social relationships are now subject to new forms of computational, rather than practice-led registers. This paper contributes to critical data studies by expanding our knowledge of how "Big Data" asserts power through the transformation of everyday experience. By empirically examining the mechanisms of algorithmic change in the case of smart email, this paper helps to further our understanding of how social and organizational lives are entangled with data, data structures, and computational processing, and the lines along which tactics and forms of resistance are possible.

Panel 2.3: Data, Citizenship & (In)Equality

(RH 2228)

2.3.1 Welfare fraud 2.0? Using big data to stigmatize and criminalize the poor

Kathy Dobson (School of Journalism & Communication, Carleton University).

Conventional methods for tracking welfare fraud are being supplemented with new tools and technological platforms, drawing on informal data streams and large databases to detect possible instances of fraud - and take away social assistance from flagged individuals. Despite exceedingly low estimates of welfare fraud, the government of Ontario has become increasingly aggressive in its surveillance and punishment of welfare 'cheats,' such as the Consolidated Verification Process (CVP), a province-wide database that uses certain 'risk factors' to identify people living on social assistance as potential frauds. These risk factors can include anything from a change in relationship status, to pursuing educational opportunities. Similar databases and surveillance tools are being used in the United States, England, Australia, and other countries. This paper examines these digital 'fraud' tracking tools, drawing on theories such as the surveillance assemblage to chart out how these systems increasingly have the power to draw on discrete flows of information to detect, monitor, and punish a marginalized group of people—those living in poverty—as part of a larger neoliberal strategy of reducing social assistance, through the use of an ever-widening net of surveillance practices. Past research has largely focused on policy documents and legislation; I take this work further and attempt to present a more comprehensive account by analyzing several of these digital fraud tracking tools, including Ontario's CVP and the BasicsCard system in Australia, through a platform analysis of the systems, as well as a content analysis of related media coverage and policy documents.

2.3.2 The submissive citizen in the shadow of data power: between rights claims and active citizenship

Guy Hoskins (York University).

As the organizers of this conference note, we live under a regime of data power (Lauriault et al 2017). In common with any regime, the subjects that exist within it make rights claims to authority in order to enact citizenship. This converts the data subject into data citizen, and according to Isin & Ruppert (2015) makes her both a subversive and submissive figure: simultaneously performing rights claims and submitting to authority. The process of making rights claims to the holders of data power has been codified in more than thirty charters of digital rights drafted by activists and policymakers since 1999 (Gill, Redeker & Gasser 2015). The content of these charters are remarkably consistent, centring on access, privacy, freedom of expression and network neutrality—such that elsewhere I contend they are underpinned by the mantra of 'draft once; deploy everywhere' (FC Hoskins 2017). What I argue in this presentation is that as well as the content, these charters are uniform in their emphasis on submission over subversion: the way that digital rights are conceptualized ultimately reinforce rather than challenge the brokers of data power. By examining some of the most prominent bills of digital rights, such as the IGF's Charter of Human Rights and Principles for the Internet, I propose that their formulation of rights claims has the effect of securing data to meets the systemic needs of informational capitalism, as well as foreclosing the potential to substantively address its considerable inequities: monopolization, surveillance and commodification. By contrast, I explore the potential for models of active data citizenship (Powell 2016), such as 'platform cooperativism' (Scholz 2014), to more effectively subvert the regime of data power.

2.3.3 “Data Haven”: a Regulatory Reform Challenging the “Power” of Big Data?

Sophie Letellie (Université du Québec à Montréal)

This paper is interested in the relation between citizenship and Internet governance. More specifically, it addresses the concept of"Data Haven"• as a form of legal advocacy aiming to protect human rights through a holistic approach to information regulation online. Drawing on literature that problematizes the ways in which digital infrastructures (Lessig 2006; Zittrain, 2006) their governance (Hintz, 2006), and the business models structuring online services "“ increasingly relying on bulk data collection and analysis (big data) - (Andrejevic, 2012) impact the protection and exercise of human rights (Landry &; Shepherd, 2013), we approach Internet and digital technologies in their political and ideological dimensions. This paper focuses on the case of the International Modern Media Institute (IMMI). Since its foundation in 2011, the IMMI crafted a legislative framework that has the objective to provide a safe legal and technological environment to host Internet services and store data in Iceland. This"bundle of legal and regulatory proposals"• (Hintz, 2012, p. 155) is designed to protect the data of actors that engage into sensible and/or controversial activities. We will argue that the concept of"Data Haven"• , as articulated by the IMMI, is part of an effort to protect and reinforce the"rule of law"• over a"rule of fact"• facilitated by bulk data collection and regulatory loopholes. Therefore, this presentation aims to analyze how the project of a"Data Haven"• challenges popular conception about the relation between (big) data, technology and the rule of law.

Panel 2.4: Affirming Human Agency in the Era of Big Data Power: Revealing the Social Ecology of Agricultural Data
(RH 3220)

Farming has moved decidedly into the digital age. John Deere now fits all of its tractors with computers that passively collect information from farm fields, and the corporation claims that big data enhances farm productivity. The president of the big data agricultural corporation, Climate Corporation, predicts an optimized “data driven farm of the future” (Vogt, 2015). But can data *themselves* drive us toward any particular agricultural future? The papers under this panel are united in their theoretical and methodological commitment to unpacking agricultural big data in their social dimensions. In direct response to the conference call, we believe that affirming human agency in an era of “big data power” entails opening data up to reveal the ways in which they are, all along, imbued with values, assumptions, and shaped by human infrastructure (like governance regimes). The papers also spotlight an area of critical data studies that has until now received little attention: big data in its agricultural applications.

Kelly Bronson (Acting Director, STS, St. Thomas University).
Dr. Bronson will leverage the science studies social shaping of technology theoretical perspective in order ask precise questions of specific big agricultural data artifacts; for example, *What assumptions are the designers of particular agricultural apps making? Are there limitations to these assumptions for the value of this tool for particular players in the food system?* Her paper will draw on qualitative interviews with developers, engineers and farmers to reveal what can happen when big data get caught up in pre-existing arrangements of power and ways of thinking.

Michael Carolan (Dean of Research, Colorado State University).
Through extensive qualitative interviews with farmers, Dr. Carolan will use this paper to explore how socio-technical systems, which includes big data, "smart" farming equipment, and precision agriculture, shape how producers think about and organize around food.

Rozita Dara (Associate Professor Computer Science, University of Guelph).
Dr. Dara will discuss possible challenges in properly managing and utilizing the ever-increasing amount of agricultural data. She will review the technical and procedural challenges and best practices for the governing of data in its various life-cycle phases—from early stages of data collections to the final phases of data processing and reuse. In particular, issues such as data ownership and stewardship as well as the need for transparency and accountability will be examined more thoroughly.

Panel 2.5 Data, Truth & Power
(RH 3224)

2.5.1 The Social Life of Metric Power: A look at data infrastructures at the margins of the state
Monika Halkort (Lebanese American University).

Critical data studies all too often assume the framework of the state and regularized markets in their analysis of data power. The non-governmental sector has certainly not been left unattended, yet critical analyses here focused above all on questions of privacy, surveillance and the biopolitical affordances of (big) data regimes. This left the more subtle normative activities in the exchange between data subjects untouched. This paper seeks to fill this critical gap and examines the ambivalent and (self)destructive force of data in community-led data initiatives. Drawing on long term observational fieldwork in Palestinian refugee camps in Lebanon I will map the power dynamics that emerge when those in control of critical data are at the same time subjects of the research. More specifically I will show how well-intended attempts of data activism aimed at fighting corruption and strengthening democratic participation backfired, turning the promise of heightened transparency and inclusive decision-making into an utterly divisive force. Building upon Beer's concept of "metric power" my primary interest here lies in the eventfulness of data: in their ability to constitute limits and intensify measures, carving out liminal boundaries that shut down options, choices and possibilities in the social imaginary of the camp. Unlike Beer I am looking at metric power from a bottom up perspective to explore the edges and measures it places upon action potentials in environments where resistance and opposition have to be carefully traded against existential needs. With this approach I aim to shed light on the critical role of the social and political infrastructures in modulating insurgent potentials and to show how data shapes dynamics of collective life making under conditions where institutional mechanisms of claim making are largely absent or severely compromised.

2.5.2 The Tower of Babel problem: applied computational ontologies and their social consequences

Andrew Iliadis (Temple University).

Data exist in formats that are often incompatible and formalized only locally; data-labelling standards are made using general terms, are based on natural language, or are adopted using formalized but limited classification systems. Such a lack of quality vocabularies for accessing and reasoning with heterogeneous data in uniform ways makes it much harder to achieve semantic interoperability of data across systems. Developed by researchers over the past three decades, one solution has been to provide logical (computable) definitions using controlled vocabularies of preferred labels for describing data combined with tags: a practice known as ontology-making. Yet, as inherently normalizing sociotechnical phenomena, ontology engineering projects are prone to several problems stemming from assumptions and biases in Big Data reasoning. For example, ontology-builders may disagree on shared terms or propose contradictory logics in the construction phase. Is there evidence that ontologies typify logics or biases? What types of data do ontologies organize? How are ontologies practically applied in social contexts? This paper looks to a powerful and widely used upper-level ontology called the Basic Formal Ontology (BFO) and presents research from interviews with leading ontologists as well as examples of the BFO's internal logics. The BFO proposes a new way to organize and communicate data between domains and is used by hundreds of ontology-driven endeavors throughout the world. This paper specifically examines cases where the BFO has been applied to data about social relations—products of collective intentionality and constitutive rules—and suggests that because social ontologies make social claims while normalizing social roles

in data organization, social ontologies must undergo an ethics review before their application to social data domains.

2.5.3 Lies, damn lies, statistics, and data: the urgent need for data literacy

Heather Morrison (University of Ottawa).

Data and data visualization is a powerful emerging tool for telling a story; but whose story? Drawing from critical theory of technology, this paper will argue that data, like any other tool, is subject to human agency, and may be driven by unconscious ideology, deliberate manipulation, or some combination of the two, analyze the implications for "evidence-based" policy-making, argue that data literacy throughout the population is urgent, and present some ideas and open access / open source materials to kick-start the process. A case study approach will be used, focusing on different approaches to presenting taxation using data and data visualization. The idea of "tax freedom" day, how many days an average person works for the government before they begin to earn their own money, will be analyzed as a reflection of an ideology that values individual responsibility, small government and minimal taxation. New approaches to using data and data visualization to illustrate the benefits of collective spending will be analyzed as a reflection of an ideology that emphasizes the collective good, considers government services as cost-effective and views taxation as an efficient means to collect funds to purchase and develop goods, services, and infrastructure for everyone. It is argued that if people learn to manipulate and visualize data without critical analysis the results are likely to simply reflect and amplify pre-existing ideologies. It is further argued that data and data visualization are already extensive in our society and rapidly growing and for this reason new approaches to pedagogy for data literacy are urgently needed. For this reason, an open source / open access approach is recommended. A sample module will be developed and presented to teach the basics of critical data analysis and hands-on manipulation of datasets to tell different stories.

2.5.4 When barriers become assets: re-evaluating power at the limits of Silicon

Brian Schram (University of Waterloo).

The allure of Big Data is partially rooted in the unknown. We are captivated not only by the myriad ways it impacts and structures our day-to-day life, but also its seemingly nascent potential for totalizing insight and predictive power. This paper explores two aspects of Big Data's unknowability. First, I situate Big Data inside Bauman's (2000) concept of "liquid modernity", which highlights the role of positivist teleology in the physics of contemporary statecraft. Here, I extend doxic interpretations of power/knowledge to include an emerging form of power that has come to reside inside systems of knowledge and truth-making that remain speculative and may never fully cohere. In these cases, power is not contained in the discursive or data-driven production of classificatory schema (Foucault 1970; Bowker & Star 1999; Haggerty & Ericson 2000; Beer 2016), but in the purposeful obscuration of the limits of processing power, empirical insight, knowledge, and knowability. Second, I examine how this new brand of nascent power/knowledge has prompted a response consisting of novel forms of fictive resistance that rely on speculation and collective storytelling about the future of high technology. Drawing on ethnographic data gathered during 2014, I argue that these examples of "virtualized resistance" interpret technological prowess as a method of co-opting and redirecting the mechanisms of state and corporate

hegemony, and as a way of reclaiming personal agency and freedom in uncertain political times.

Panel 2.6: Data Justice & Social Movements
(RH 3228)

What does social justice mean in an age of datafication? How can we move from individualising conceptions of data rights to a more collective and politicised vision of data justice? Where might we find such forms of data justice in action? And what might we learn from those already interrogating and challenging data systems? In this panel we address these questions both conceptually and practically, exploring what a shift from data rights to data justice looks like. In doing so we travel from England to Indonesia, from policy committee meetings to Tar Sands protests. We draw from our individual work to consider together how geographic, economic and social contexts shape the ways that data power plays out in campaigns for data justice, as well as in projects that use citizen-generated data as a means to confront those with data power. In doing so, we approach the creation of data as a contested process that unfolds on unequal terrain, from practices of data collection to policy implementation. This perspective positions collective agency at the heart of its analysis of data power relations, asking: What do data literacy and data activism for data justice look like? In particular, we are interested in how social movements produce and mobilise data to create counter-valuations that challenge the financialization of data. Linked to this, we explore the roles that archiving, platforms, infrastructures and data architectures play in data activism and in the broader conceptualisation of data justice in relation to data power.

2.6.1 Data Justice: examining datafication and social justice
Lina Dencik (Data Justice Lab, Cardiff University).
In this short paper I will explore what it means to look at data, and datafication, as a social justice issue. Engaging with different conceptions of social justice, and drawing on previous frameworks relating to media justice, I will advance the meaning of data justice and will provide examples of practices that engage with data debates from this perspective across technology and political activism.

2.6.2 Datafied social services and inequality
Joanne Redden (Data Justice Lab, Cardiff University).
I argue that as governments 'datafy' access and management of social services. Advancing data justice requires: the investigative mapping of where changes are taking place, analysis of how these changes may increase inequality, an assessment of emerging modes of governance, as well as learning from and advancing ongoing data literacy efforts. I use a study of predictive analytics in child welfare services in the UK as an illustrative example.

2.6.3 Mediatoil & data justice: Reflections on visualizing the media war over Canada’s bitumen sands
Patrick McCurdy (University of Ottawa).

This presentation will offer reflections, insights and lessons learned from the Mediatoil project (www.mediatoil.ca), which created a public database of oil/tar sands promotional material. The paper will open by showcasing Mediatoil and highlighting broad themes from project data analysis. Meanwhile the paper's main focus will be on the opportunities and challenges of documenting digital campaigns in an ephemeral environment.

2.6.4 Designing for citizen-generated data in the RiotID project

Anna Feigenbaum (BU Datalabs, Bournemouth University).

My provocation asks how information visualization can be used as means of fostering citizen-generated data. It reflects on the RiotID project (http://riotid.com/), a civic media initiative designed by a small team of NGOs, researchers and graphic designers to help train people how to better record and identify the use of less lethal weapons against civilians. These identifications generate data that can help monitor human rights violations, challenge use of force abuses, and hold corporate manufacturers to account.

2.6.5 Models for resistance and data power in Jakarta

Alessandra Renzi (Northeastern University).

This short paper presents the results of fieldwork and participation in a co-design project with activists opposing unsustainable solutions to climate change, the eviction of informal settlements and land grabs in Jakarta. The paper highlights the ways in which data has become a structuring force in the megacity and how the urban poor are mobilizing their own data to retain their space and function in the urban fabric.

Session 3: 2:45pm-4:15pm

Panel 3.1: Representing & Visualizing Data I

(RH 2220)

3.1.1 Graphic journalism as a critical strategy of data visualization

Isabel Macdonald (Concordia University).

There has been much recent interest in how journalists might best visually present complex datasets to the public. Yet in the data visualization strategies most commonly used in journalism, which involve creating charts based on numeric datasets, information about the source of the data is typically relegated to a small text box below the chart. In the context of the growing power and ubiquity of data, my paper argues that there is an urgent need for journalists to embrace more critical approaches, that highlight crucial context about the sources of particular datasets, as well as about what (and who) is being counted and why. In this paper, I propose that the emergent form of graphic journalism might offer one possible strategy. This drawn visual approach differs in critical ways from journalism's standard data visualization strategies. For graphic journalism draws on interviews and observational research, as well as numeric data. In addition to visualizing a numeric dataset, a graphic journalist might therefore also try to visually represent the perspectives of her interviewees' (including the views of those whose data is being collected), as well as showing readers what she observed in the field about this data collection process. I illustrate the potential of this unusual journalistic approach to

visualizing data through examples from a work of graphic reportage I researched, wrote and illustrated as part of my SSHRC-funded doctoral research in Communication at Concordia. In this project, which draws on interviews with different humanitarian stakeholders, I interviewed during my PhD fieldwork in a displacement camp in Haiti, I show that the approach of graphic journalism allowed me to explore critical context that had often been missing in official and media discussions about the main set of official statistics on Haiti's displaced population.

3.1.2 The power of evidentiary regimes in speculative data visualisation

Eef Masson (University of Amsterdam) & Karin van Es (Utrecht University).

In our contribution, we would like to consider data power from the perspective of visualisation, and specifically, in terms of how data, even when visualised in ways that are purposely qualified as 'speculative', still operate within regimes of objectivity and truth. In so doing, we want to probe the issue of how all data visualisation, even artistic or critical, (inadvertently) seems to give expression to pre-constituted ideas about the relations between data and the realities they supposedly provide insight in. These ideas, in turn, are firmly embedded in discourses about data's evidentiary potential—another 'power' to recon with in our analyses of data practices. In our paper, we consider the specific cases of The Architecture of Radio (2015) and White Spots (2016), two apps developed as part of larger multimedia projects involving Dutch information designer Richard Vijgen. Using GPS, and processing data from a number of global open datasets, both apps generate location-based images of nearby data cables and radio signals, simulating also the movement through space of the signals they emit. Through these examples, we seek to explore how even visualisations that seek to resist the power of data—here, specifically, by inviting users to escape the ubiquity of digital networks and the information they pick up and relay, by seeking out nearby places 'off the grid'—are subject, quite paradoxically, to equally powerful assumptions about how they generate meaning. In the process, we consider among others the apps' reception, and the sort of critique they have been subject to. This critique is highly revealing of how, despite disclaimers in promotional materials and other paratexts, the apps and their makers are held to the sort of evidentiary standards they precisely seek to break away from.

3.1.3 Algorithmic visuality and the remaking of urban everyday life

Thomas Mayer Lemieux (Institut National de Recherche Scientifique, Université du Québec).

Given the transformative effect that datafication has upon the flow of information (and its attendant power dynamics), it is time to reappraise how everyday life in urban settings is shaped by a new regime of algorithmic visuality. Indeed, the rapid advance and broad adoption of computer vision algorithms across new media technologies (both locative and geocoded) has immense consequences for social life. Specifically, the processing of increasingly automated, mobile and accurate images participate in the concretisation of increasingly immersive, real-time, three-dimensional and networked computational representations of reality. This paper introduces a framework for understanding how users perceive and experience algorithmic visuality in the contemporary city with long-lasting consequence in the political, economic, normative and cultural realms. Our preliminary findings offer snapshots of how new media technology shape those realms. In particular, we focus on how artists think about these ubiquitous technologies in public space. What kind of reflexivity can they provide? To what extent are they proposing a critical discourse

that differs from lay and expert discourses on new ways of seeing? We will focus on five selected works in postphotographic practices of artists based in Canada, United States and Europe who have analyzed these issues, thus offering a iconic analysis that can circle back to the meaning of today's experience of urban everyday life.

Panel 3.2: Data, Identities & Bodies

(RH 2224)

3.2.1 Transcoding the body into the body politic

John Cheney-Lippold (University of Michigan).

My paper uses a contemporary algorithmic example to show how the "body" has become a data medium in-and-of itself. Particularly, I look at how states use digital technologies to surveil, and thus biopolitically transcode, our posthuman bodies into a new body politic. Lisa Nakamura writes that surveillance is a "signifying system that produces a social body, rather than straightforwardly reflects it". I extend this analysis to biopolitics, where surveillance also produces the body politic. This body politic is distinct from our own conceptions of self, recalling Donna Haraway's critique of "corporeal fetishism" that transforms our lives' "heterogeneous relationality" into "a fixed, seemingly objective thing". By omitting our lived realities, fetishistic interpretations transcode our bodies into an arrangement of static knowledges. I explore the political opportunities and complications that emerge when a body politic is authored by power, and with no direct participation form one's political community. I start with a case study of the microblogging service "ZunZuneo", a Cuban SMS Twitter secretly built by USAID employees who wanted to foment a "Cuban Spring". I explore how the US government collected, and made useful, individual Cuban users' data. Through ZunZuneo's neocolonial classification of users into three categories—"a-political", "anti-revolution", and "pro-revolution"—we encounter a new data-based political formation alien to individual and collective subjective experience. These classifications, which I previously termed soft biopolitics, became the population-level index that constructs the body politic, and thus regulates the future for political and biopolitical actions. In this way, Cuba's body politic is understood only according to how the USAID datafies and interprets ZunZuneo users . This move realigns biopolitics own definition in its process: biopolitics is no longer just the power over life, but the power over data, which has become the new index for life itself.

3.2.2 Erasing the boundary: data and emotion

Paddy O'Reilly (La Trobe University).

This paper focuses on how the science of data analysis on massive data sets reads, influences and inhabits human emotional response. In particular, the paper will discuss case studies of sentiment analysis and predictive analysis where data is analysed for the purpose of influencing consumer decisions through emotional manipulation, with a view to

developing a critical analysis of this merging of data and emotion. As data is mined and analysed, and results employed to refocus and refine sales messages to trigger further emotional response, does this mean that the emotional response of the consumer is not only the data but is inhabited by the data? The work approaches this question using concepts from the new materialism. Emerging from the work of theorists such as Haraway and Latour, new materialist theory, while a broad church, looks to forms of becoming that challenge binary or dualist narratives such as human/nonhuman and mind/matter (Barad, Kirby, Connolly). While new materialist thinkers diverge in their theoretical positions, their consistent position lies in not privileging human ontology and agency. The paper will work toward such a position in the consideration of contemporary data science, with reference to the materiality of data, the digital human and traces of emotional and data mobility.

3.2.3 Datafied bodies: critical approaches to Wireless Body Area Networks

Isabel Pedersen (University of Ontario Institute of Technology).

What will the next generation of datafied bodies look like? Today, the idea of wearing a Fitbit or Apple Watch for self-monitoring (quantified self) has become a popular social practice, yet data infrastructures are in development for far more invasive systems that will capture personal data. Remote monitoring of patients for disease control, for example, is under discussion, leading to dramatic claims that emerging technologies will revolutionize healthcare. While medical applications are most predominant, lifestyle and entertainment applications are also underway: brain, heart, skin, motion, and other forms of affective computing sensors stand to track data continuously in multiple domains of life. The implication is that personal computing will transform dramatically. Wireless Body Area Networks (WBANs) are emerging networks of wireless sensors that can be sewn into clothing, placed directly on the body, or implanted under the skin. The cultural demand for more secure data infrastructure has led to a new wireless standard for these networks and is a response to calls from the past decade for more sophisticated and safer kinds of personal data capture. Currently in the design stages, WBANs will enable powerful convergences among technologies by providing a single unified solution for connectivity. At this critical design juncture, we need to look ahead to consider WBANs, their data infrastructures, and the standards that are proposed for us. With a concentration on wearables and implantables, this paper takes a critical look at infrastructure-building that is increasingly imagining a networked, datafied body of the future.

3.2.4 Alienated digital identities

Rongxin Zhang (Pratt Institute Media Studies, New York).

Data collected through user inputs and machine capture have become the foundation for modern digital identities. They allow friends to like us, governments to analyze us, and media platforms to monetize us. As the internet has evolved, so has the creation, storage, and access to data, thus affecting the existence of digital identities. Currently, there is very little research undertaken to understand the impact of these changes on the relationship between the user and digital selves. This paper presents the notion that because of the changes in data creation, storage, and access, modern digital identities are no longer natural extensions of the user, but alienated entities that exist outside of their control. To justify this claim, this research analyses the externalized storage of digital identities and how this lessens the user's inherent rights and access to their digital identities. It introduces concepts such as "derivative" digital identities and how the over-valuation of

company stocks contributes to this alienation. The goal of the research is to justify the need for users to "reclaim" the ownership, storage, and access rights to their digital identities. This paper proposes a technical implementation guideline using I.P.F.S, and discusses the benefits and challenges of creating such a system.

Panel 3.3: Data & Databases

(RH 2228)

3.3.1 Database addiction, YoHa, 2015/17

Graham Harwood (Goldsmiths, University of London).

Being an addict is frustratingly hard work, finding substances, food, shelter, care, treatment are complicated formations that require knowledge situated in the actions and reactions of being addicted; yet, this knowledge never enters into the machinery of governance that purportedly cares for them. This situated knowledge has much to tell us about forms of reticulated discipline that governs addicts and workers in the care system. In 2015 YoHa took an ecological and aesthetic approach working with the UK's National Health Service, addiction clinics to investigate how databases produce an abstraction of the clinical modalities. Database Addiction explored the methods by which the materiality of the care-centres work can be managed and governed at multiple scales from within computation and how such processes transform work based cultures and the lives of addicts. The project close read the structure of the the UK's National Drug Treatment Monitoring Service which unlocked what is articulated about addiction from an idealogical, technical, political, bureaucratic or governmental viewpoint that is used, amongst other things, for monetising addiction services. This paper will explore the materiality of database algorithms, from urine and blood samples to entities and relations. This formation can be seen as pointers to a fluid formation of power that is not only a strategy in action for government but holds itself as an emergent ambiguous diagram, a sketch of relations and a technical machine for reticulate discipline. A theatre for the performance of power with a capability to insight, provoke, to compare and combine what ideology can articulate about addiction that is coextensive with creating new knowledge. A kind of abstract R&D that points to the kinds of control governance might find ideal but has not mastered yet.

3.3.2 Performativity of data flows in criminal DNA databases and categories of suspicion

Helena Machado, Rafaela Granja, Marta Matrins & Sara Matos (Centre for Social Studies, University of Coimbra).

Systems for large scale data exchanges are playing a pivotal role in the governance, surveillance and social control of criminality in different parts of the world. Social sciences approaches have evidenced how such systems reinforce the criminalisation of certain groups and populations, and have emphasised the acute challenges to citizenship, transparency and public trust. In this paper, I aim to contribute to this debate by exploring the views of experts that are professionally accompanying these systems of identification and surveillance of criminalised populations. As an empirical case, I focus on the technological system for the exchange DNA-data among several European countries, on an automated basis, for the purpose of criminal intelligence. The representations of

forensic experts about the flows of data exchange between criminal DNA databases generate what can be designated as categories of suspicion. The narratives of these "surveillance entrepreneurs" are inquired through the following questions: What makes data and information flow, and which hopes and concerns travel along with them? What data cannot travel, and what travels in undesired ways? Lastly, how do these flows of data perform politics of suspicion, it is: Which data is collected and assembled to produce a "transnational suspect" and define which territorial borders are more permeable to criminal activities? Forensic experts create performativity of data in criminal DNA databases in two interrelated ways. First, by managing controversies related to the flows of data between different jurisdictions. Second, by enrolling and translating heterogeneous elements into stable assemblages of data that determine categories of suspicion.

3.3.3 Ethic and epistemology of big data: a critical approach in using big data tools

Fabien Richert & Patrick Deslauriers (Université du Québec à Montréal).

For this presentation, we will discuss a research project that seeked to process and analyze data generated within a Facebook videogame (Big Story Little Heroes). The focus of our presentation will not be on the results themselves; rather, we will discuss the methodological, epistemological, and ethical problems met throughout the use and analysis of Big Data. We suggest that the claim of objectivity, which characterizes the collective image and discourse of Big Data, is in fact quite difficult to sustain. The relationship between the researchers and the videogame company—with each their own objectives—has an extensive effect of shaping the research angle, the research questions, the data mining process and the interpretation of results. We will also point out that data never speaks of itself. Instead, it presupposes an experience and technical knowledge of the research object. Although data often appears as being natural and free of any ideology, we will show that databases suggest a certain way of interpreting objects (player profiles for example) and that they are not neutral. Finally, we will touch on the ethical problems linked to privacy and its potential conflicts with the research objectives. Since consent forms and "End User License Agreements" proposed by Facebook are rarely read by users, how can we insure that our quantitative study will respect their privacy? We will present different considerations through which we can approach this problem. Our presentation will thus offer an opportunity to question Big Data and its underlying ideology. In other words, we will offer a critical approach of the collective image and discourse that fantasizes about the possibility of translating the world into data.

3.3.4 Databases and doppelgangers: new articulations of power

Sandra Robinson (School of Journalism & Communication, Carleton University).

In the early and mid-1990s, critical theorist Mark Poster turned his analytical focus to the role of databases in culture suggesting that the database operates as discourse because it is implicated in the construction of new subjectivities generated by profiling technologies. In view of the proliferation of processes of data capture through networked communication in the last two decades, my paper re-engages with Poster's critique of the 'mode of information', and in particular the power and efficacy of databases, as a sometimes forgotten piece of the contemporary landscape of 'big data'. The entanglement of people, processes, and things bound into the notion of 'data power' is a generative and dynamic assemblage: it produces not the 'one' profiled individual, but the many multiple proxies. In

the context of the power of the database to generate digital dossiers as profiles of an individual, I re-imagine the profiled, the proxy, and the double through the figure of the ‘doppelganger’ as an apt metaphor for our multiple selves circulating in the flows of information. I explore 'data power', then, through the doppelganger as a mercurial figure that gestures to difference and repetition and all that is ambiguously changeable within digital culture; a culture evermore constituted by information about us generated through the incessant production, collection, and analysis of data.

Panel 3.4: Data Methodologies

(RH 3220)

3.4.1 “End of theory” in the area of big data: methodological practices and challenges in social media studies

Anu Masso, Maris Männiste & Andra Siibak (University of Tartu).

Our theoretical starting point are the discussions in the new emerging field of critical data studies about the socio-technical outcomes of the data turn within the discipline of social sciences. Several issues like 'end of theory' (Anderson, 2008), or 'descriptive empirism' (Kitchin, 2014) have been ascribed to new emerging data sources and related methods in social sciences. However, there are almost no empirical studies analysing how these methodological changes are expressed in practice. In this study we aim to fill this gap, by focusing on social media data as one of the new data sources within social sciences. Based on systematic literature review method, articles using social media big data as main source in the research (n~200, 2013-2015) will be quantitatively analysed. In our analysis we aim to find answers to the next hypothesis: We assume based on previous studies (Kitchin, 2014) that traditional manual methods are combined with computational techniques in social media studies, rather than being replaced by those, facilitating traditional forms of interpretation and theory-building. However, we suppose, that the proportion of the data-driven theory building approaches are increasing in time compared to descriptive empirist research. Based on previous studies (Shah et al., 2015), we assume, that methodological reflections (e.g. questions of data quality, validity of analysis, correctness of inference, ethics) are more common in studies conducted in transdiciplinary teams compared to individually conducted studies within single discipline, and therefore supporting the methodological innovations and theory-driven research. We also assume the existence of digital divide (Boyd & Crawford, 2013) among academic institutions and regarding the methodological skills in big social media research.

3.4.2 The spectre of big data: N=all. Resituating sampling in big social data

Katja Mayer & Jurgen Pfeffer (School of Governance, Computational Social Science and Big Data, Technical University Munich).

Advocates and critics of big data alike share an empiricist expectation of completeness: with big data we now have N=all at our fingertips. Do we really? In daily research routines in data science, we only rarely work on entire populations. We reduce and sample data. Often we must even accept black-boxed sampling methods to get any data access at all. This is of particular relevance for the relationship between social media research and

data-driven modes of governance. In these realms, understandings of big data are rather nebulous. In line with "no politics, just data" rhetorics, social media data are frequently regarded as raw and neutral entities. Many critical studies devoted to looking more closely at the "cooking of data" (Kitchin and Lauriault 2014), in contrast, have revealed the unreliable and highly biased foundations of social media data, such as their preformatting by platform logics (Morstatter et al 2014). Despite this, the mainstream of social media researchers—both academic and non-academic—continue to get their social data from such platforms. Sampling interfaces act as gatekeepers between the social media company and researchers and are not only blackboxesd, but also highly vulnerable to manipulation (Pfeffer et al. forthcoming). In this paper, we offer a STS (social studies of social sciences) perspective on sampling practices, which are prevalent today and which are co-shaping how we know the world. In addition to exemplifying the limitations of big data sampling, we discuss issues of trust and credibility in big social data in reference to proprietary data sets and black-boxed methods of data handling. We highlight the transformative potential of open social data and open methods both for improving research efficiency and integrity and for reflecting the realities we are enacting with our research.

3.4.3 Massaging the data: abduction and the human dimensions of data science

Emanuel Moss (CUNY Graduate Center).

The power to produce knowledge from data has never been greater than it seems in the current moment. The knowledge produced from data, for that matter, is often seen as arising mechanically from the underlying data and therefore free from human influences such as bias, error, prejudice, or theoretical assumptions. Such practices, whether they fall under the label of machine learning, data mining, artificial intelligence, or data science, are broadly thought of as applying computer logic in place of human reasoning in ways that are somehow theory-free or insulated from the broad set of social and cultural constructs within which they were produced. While others have ably demonstrated that the conditions under which data are collected necessarily shape the knowledge produced from that data, as do the set of questions being asked of datasets, this paper will discuss how reasoning from data to produce knowledge relies upon multiple forms of logical inference that do not bracket out, but rather further implicate humans in the process of knowledge production. Following the pragmatic logical framework of C.S. Peirce, this paper will examine the ways in which data science tools excel at deductive and inductive modes of inference for processing datasets, while the application of abductive logic by human actors in unavoidable for producing knowledge from that data. This paper will use this pragmatic framework to explore data scientific practices associated with "pre-processing" such as "munging", "massaging", and "manipulating", and suggest methodologies to study the ways in which the ethnographic study of these practices can illuminate additional ways in which data science is socially and culturally embedded.

Panel 3.5 Data & Surveillance I

(RH 3224)

3.5.1 Big data-driven workplace surveillance: the case of Switzerland

Thorsten Busch, Antoinette Weibel, Isabelle Wildhaber, Ulrich Leicht-Deobald, Christoph Schank, Simon Schafheitle & Gabriel Kasper (University of St. Gallen, Switzerland).

Big data promises to change organizational decision-making from being based on educated guesses to being driven by data and rational choices (George et al., 2014). In the field of human resource management (HRM), big data techniques may improve: (a) many core HRM functions, such as recruitment, retention, and performance management, and (b) the composition of project teams in order to enhance top management teams' decision-making quality (Russel & Bennett, 2015). Google, for example, applied big data techniques to examine which of their managers' attributes would help team members improve their effectiveness (Garvin et al., 2013). Other leading technology companies, such as IBM and Oracle, use similar workforce analytics (Young & Phillips, 2015). In short, big data enables organizations to monitor all performance-related areas of employee behavior (Wells et al., 2007). Unfortunately, the advantages of big data-driven workplace analytics can be counterbalanced by its potential for "limitless worker surveillance" (Ajunwa et al., forthcoming). From software-based surveillance solutions on employee PCs, such as InterGuard, to fitness trackers used in company-wide healthcare programs, workplace analytics can be used to create highly detailed employee profiles. Against this background, our interdisciplinary research project brings together HRM, business ethics, and labor law perspectives in order to assess how workplace analytics affects employee trust in the employer. To that end, we will survey 1,200 Swiss companies over the next two years. At Data Power 2017, we would like to present our project in order to generate important feedback from the communication studies and critical data studies communities.

3.5.2 Mobile Apps, Data Collection and Normalization of Surveillance

Ozge Girgin (Queen's University).

Data derived from mobile devices and apps constitute a growing part of digital surveillance economy. The mobile devices widen the “digital enclosure” (Andrejevic 2007) due to constant data generation. While digitized information is considered indispensable for consumer surveillance in monitoring consumers (Pridmore and Zwick 2013), data generated through mobile devices and apps can also be used by policing/intelligence, and by individuals to monitor each other. Acceptance of data generation and collection—thus surveillance—become a precondition for using mobile devices and mobile apps. The mobile apps, users’ utilization of data from apps and surveillance practices over these apps are often experienced as enjoyable, becoming part of the everyday routine. Thus, interaction with mobile apps can be considered as contributing to the normalization of surveillance practices in everyday life. Messaging applications (such as WhatsApp and Facebook Messenger) due to their popularity and mobile intelligent assistants (such as Google Now) due to their novelty have become essential in the generation of data and experience of surveillance. Yet, research focusing on the experience and perceptions of the app user is still limited. In this paper, I examine the app user as the data subject under lateral, consumer, and policing/intelligence surveillance, and discuss the possible normalization of user’s perception of indicated surveillance practices through messaging apps and intelligent assistants referring to the previous research conducted with social media and internet users on data collection. I argue that normalization and everydayness of surveillance practices through these apps (especially consumer surveillance) help to further obscure the unequal power relationship indicated by Andrejevic (2014) between the “data sortees” (the data subjects) and the “data sorters”. While contributing to the literature by stressing the conceptualization of mobile apps’ data collection within the normalization

of surveillance, I also argue that the users' perceptions of data collection practices need to be understood nuanced, contextual and situated within place and time.

3.5.3 Neuro-marketing and affective data: commodification and control

Robert Hunt (Department of Communications, Concordia University).

A marketing firm gathers a focus group to test one of their new advertisements. But rather than surveying the participants' reactions after the viewing, they use "emotion recognition technology" to generate data analytics that reveal the viewers' wavering levels of joy or disgust in real time as they watch ad. These neuro-marketing technologies put machine vision-enabled cameras to work analyzing human "micro-expressions" and converting pre-cognitive affective responses to products and advertisements into commodified data. Neuro-marketing's machinic gaze views human bodies as a rich and transparent source of market research data that allows for mining of consumer sentiment without the interference of language or even cognition. This quantification of affect reorients the work of marketing away from rhetorical appeals, emotional persuasion, and brand identification and toward developing new capacities to surveil and track, to personalize and predict, and, ultimately, to control. This paper examines the discourse and practices of neuro-marketing from its roots in behaviorist psychology to its birth in the academic research community to its adoption by marketing firms and relation to what Gilles Deleuze has called the "societies of control". Situating these techniques in the context of increasingly sophisticated regimes of marketing, workplace, and state surveillance—including facial recognition systems, big data-driven sentiment analysis, and emerging methods of market micro-segmentation based on personal psychological data—I will explore neuro-marketing's potential to not just harness new forms of affective labor on behalf of the advertising industry but to actualize desired emotional outcomes.

Panel 3.6: Data Driven Futures

(RH 3228)

3.6.1 Digital city, human labour: commercial content moderation, infrastructure and the humans that power them

Sarah T. Roberts (University of California, Los Angeles).

In recent years, the Philippines has emerged as the business process outsourcing (BPO)—or call center—capital of the world (Bajaj, 2011), surpassing India at one one-tenth the latter's population. In order to facilitate its position as the world's offshoring/outsourcing employment center, great infrastructure requirements have been needed to support the seemingly effortless flow of data and information in and out of the archipelago. Such accommodations have included significant geospatial and geopolitical reconfigurations, particularly since the 1990s. Public-private partnerships (PPP) between agencies of the Filipino government, such as PEZA (the Philippine Economic Zone Authority), along with private development firms and their access to huge amounts of capital, have transformed contemporary greater Manila into a series of special economic zones (colloquially known as "ecozones") and IT parks: privatized islands of skyscrapers and fiber, luxury shopping districts and global headquarters of transnational firms, within a megalopolis in which brownouts are still a common occurrence. Building off the critical

infrastructure turn in digital media studies (Hogan, 2015; Parks & Starosielski, 2015; Starosielski, 2015), this paper ties the presenter's previous work on data laborers in North America to their counterparts in Manila, all of whom work in commercial content moderation (CCM): the adjudicating user-generated online content. CCM workers do so against increasingly hostile data metrics, inhospitable workplace climates, and potential ruptures allowing for modes of resistance. This paper makes the key connection between the Philippines as global labor center and the infrastructure—physical, technological, political, sociocultural and historical—that exists to support it. The cases of Eastwood City, the Philippines' first designated IT Park ecozone, owned and developed by Megaworld Corporation, and the Bonifacio Global City, or BGC, an erstwhile military base, will be explored, all contextualized by discussion of the Philippines' colonial past and its post-colonial contemporary realities (Padios, 2012; Tadiar, 2004).

3.6.2 From forecast to foresight: market media and the fabric of energy

Jeffrey Diamanti (McGill University).

"From Forecast to Foresight: Market Media and the Fabric of Energy" tells the story of Shell executive Pierre Wack whose perfection of scenarios planning and the science of foresight famously saved Shell billions in potential losses during the first and second energy crises in the 1970s. Wack's strict method for mapping possible market scenarios in the future would eventually influence the discipline of "foresight" at leading business and design schools in North America (Schwartz 1991). Yet in his own narrative about the invention of foresight told across two 1985 articles in the *Harvard Business Review*, he explained that what made Shell's market maneuvers a sure bet was the synchronization of energy markets with rhythms and logics of capital markets as early as the late 1960s. The market itself, in other words, had developed a somewhat contradictory and crisis prone, though nonetheless observable, structure once the microeconomic gains of energy deepening in the form of automation and electrification were united with the macroeconomic force of a market soaked in oil. What Wack intuits and develops, I argue, is the emergence of what Hal Foster called a new "scopic regime", fed and formed in the postindustrial era by what I term petroleum's "environmental plasticity" and "economic elasticity". Energy in the form of financialized fossil fuels gives exchange value in the global marketplace its systematicity, volatility and visuality. In order to specify the historical forces embedded in today's energy impasse, my aim is to map the economic regime of visuality made possible by the convergence of energy and capital markets in the immediate years leading to the OPEC crises.

3.6.3 The data centre industrial complex

Mél Hogan (University of Calgary).

"The Data Centre Industrial Complex" outlines three key moments in the scholarly study of data centers as a new site of political, social and environmental significance. As a site of inquiry in media and communication studies, I argue that the data center was first analysed for its materiality; secondly for its impacts; and thirdly, as I focus on in this paper, for its surplus. This third moment, I argue, is of particular importance as we consider that data may now in fact be overproduced to feed the many and globally connected servers labouring for capitalism, rather than simply storing big data for communication. The main

point of this presentation is to demonstrate how the huge scale of the industry that facilitates online transactions is now required to stay on, with data surplus at its service. The "Data Centre Industrial Complex" idea stems from similar byproducts of capitalist society, from mass incarceration to the overproduction of corn (in the US). Each case suggests that because the investment in the infrastructure (as means of production) is so large it must be upheld so that the investment remains profitable. Prisons are built to contain prisoners, and then prisoners are created to maintain those prisons. Corn and its byproducts are re-injected into foods because the industry forces its overproduction and then needs a way to discard of it without losing profits. Data centers store data, and then data needs to be created to match and maintain their rate of expansion. The "Data Centre Industrial Complex" concept helps us explore and unpack this disturbing logic and the regimes of data power that undergird it.

Day 2

Friday June 23

Session 4: 10:15am-11:45am

Panel 4.1: Data, Governance & Political Power

(RH 2220)

4.1.1 Reforming surveillance policy after Snowden: the UK Investigatory Powers Act as a site of struggle over data power

Arne Hintz (Cardiff University).

In the era of datafication, governance is increasingly based on data collection and analysis, and the monitoring and categorization of citizens are expanding. The revelations by NSA whistleblower Edward Snowden have illustrated the scale and extent of digital surveillance, and they have led to debates over the necessary regulatory environment of data collection. In the UK, this resulted in a policy reform process and the adoption of a comprehensive new surveillance law, the *Investigatory Powers Act*. In this paper, I will trace the forces and dynamics that have shaped this particular policy response, and I will thereby explore the emerging struggles and power relations over the policy environment of datafication. The analysis will address the intersection of multiple sites and actors. The 'sites' include laws and regulations, national and international norms, court rulings, and public opinion. The 'actors' encompass governments and parliamentarians, the business sector, security agencies and law enforcement, and civil society. I will investigate how the interplay of different interests and capabilities of influence has led to a specific form of policy change in one of the countries most affected by the Snowden leaks. As I will argue, a combination of specific government compositions, the strong role of security agendas and discourses, media justification and a muted reaction by the public led to a new legal framework that expands data collection and prevented a more fundamental review of surveillance practices. This paper is based on findings from a set of interviews with policy

experts and stakeholders, which were conducted in 2015 and 2016 as part of a 2-year research project on the infrastructures, policies and understandings of digital citizenship in a post-Snowden era.

4.1.2 Big Data, governmentality and social acceleration: the industrialization of politico-institutional mediation

Marc Ménard & André Mondoux (Université du Québec à Montréal).

This proposal builds on Rosa's work on social acceleration (Rosa, 2012). It examines the deployment of technologies that have brought about societal changes, particularly those having to do with social (re)production. We posit that the concept of social acceleration plays a major role in the Big Data phenomenon, more specifically Big Data as industrializing dynamic of politico-institutional mediation. To support this assertion, we draw on the work of Freitag (1986), which homes in on the symbolic dimension of social issues and conceives of society essentially as a (re)production dynamic that is individuated through time. From this perspective, one of the main characteristics of society is its strict reproduction arrangements, which require a comprehensive synthesis (representation) of the social realm. Once transcendental in nature (a reproduction mode based on symbolic politico-institutional mediation), this synthesis now tends to appear in decision-making/operational reproduction practices. There society abandons the "yet to be" mode to take explicit, and absolute, present-tense form as systemic technical efficiency. Big Data epitomizes this intensifying trend through its deployment of industrial-grade tools for automating symbolic politico-

institutional mediation processes and promoting their incorporation into marketing channels as productive activities in their own right (Manard, Mondoux et al., 2016). This so-called "real-time" dynamic itself, in requiring that acceleration be perpetual, indeed proves problematic given that symbolic politico-institutional mediation is no longer a political matter (Mouffe 2005). Instead, mediation is subsumed by technical devices engendering normative processes that assume apolitical and non-ideological guises.

4.1.3 Beyond the hype: using story-telling to explore the use of new forms of data in local government

Emily Rempel (University of Bath).

New forms of data like 'big data' and 'open data' are increasingly common buzz words for the future of policy development in the United Kingdom and abroad. Despite numerous theoretical papers that discuss the potential for these kinds of data, there is limited evidence on the challenges of day-to-day use of new forms of data in policy. The aim of this study is to explore the practical catalysts and limitations of using data in local policy projects. This research used story completion exercises to examine data projects in the Bath and North East Somerset area of the United Kingdom. Local policymakers, civic hackers, and 'armchair' data enthusiasts were recruited through an actor-network theory driven approach. A short story completion prompt was developed to explore how a theoretical community organiser, e.g. 'Sam', would access data in their local government. A story completion method was chosen as a way to probe opinions on the use of data that may be unpopular or in rare cases unethical. It was hoped that participants would finish the story prompt with how they thought a typical data project would run. Once this study's data collection is complete, the stories will be analysed thematically. Early results suggest

common themes around the necessity of being flexible in how local data is accessed, the key role of personal relationships to gaining access to data, as well as the role of data protection laws in limiting data sharing. Exploring the use of data in local government through story-telling offers an opportunity to better understand the current state of data use in local government. As well, this research will build on a growing body of literature around the influence of community organisations and individuals in the world of government data projects.

4.1.4 G'IMMI shelter: privacy, transparency and political power in the digital age

Julian von Bargen (York University).

Since the global financial crisis of 2007-9 and the subsequent social upheavals, freedom of information activists and IT have been key to many anti-corruption, counter-hegemonic projects. This paper examines one such project, in Iceland, which included a new constitution, an NGO, the International Modern Media Initiative (IMMI), and the Icelandic Pirate Party (IPP). Steeped in ideas from the cypherpunk and cyberlibertarian communities (indeed, many participants interviewed from the movement in Iceland have long histories in these communities), the idea was that data hosted in Iceland is subject to Icelandic laws; so, institutionalizing information freedom friendly laws through IMMI alongside Iceland's cool climate and cheap geothermal power could provide the basis for a comparative advantage in the global information economy and a sovereign legal defense shield for data privacy, whistle-blowers, and investigative journalists to hold states, corporate elites, and other powerful figures and organizations to account. This ideal, however, has proven difficult to realize. My presentation draws on hours of interviews with activists involved in building, not only IMMI, but ultimately a political movement that is now taking shape as the IPP, with the capacity to assert the values of individual data privacy, transparency in governance, and an informed public in Iceland, and explores the promise and limitations of such a project. I argue: 1) that there is something decentralized about global Internet infrastructure that allows a small group of information activists to intervene technically and, potentially, to strengthen liberal democracy and complement the rational, cognitive, liberal subject; but only to the extant that 2) the project finds a popular mandate to stand up to the starkly unequal coercive and economic power relations that exist below the equal sovereign status of Iceland and the USA.

Panel 4.2: Data & Healthcare

(RH 2224)

4.2.1 A critical examination of genomics and data-driven healthcare: the role of communication in the knowledge production of clinical genomics

Dung Ha & Peter A. Chow-White (Simon Fraser University).

The rapid advances of the Internet and information technologies give rise to many data-driven innovations, more specifically data-driven healthcare technologies such as genomic sequencing. Genomic technologies are made possible by the emerging Internet technologies including different networks of open data sources, digital databases, and

collaborative work of scientists and experts around the world (Chow-White, 2008). Therefore, we argue that genomics is an information technology, mediating our health and well-being through digital codes and information (Castells, 2010). In such a milieu, genomic technologies operate within the data power that sequence and decompose our body and mind into fragmented and socially constructed dividual identities, or identities in-flux, to exist as nodes or biological citizens in a larger network of biological control (Deleuze, 1995, Novas & Rose, 2000, Rose, 2009). This complex intersection of health, technology, and subjectivity in the increasingly mediated world of data power lies at the heart of this paper. We build our analytical frameworks from scholarly work of clinical experimental system (Keating & Cambrosio, 2011) and co-production (Jasanoff, 2004) to critically examine the social relations between knowledge and power encoded into genomic information. We also conducted a survey to examine genomic literacy among physicians in a cancer clinical trial program in Vancouver, Canada, in order to explore the technological diffusion of genomics in clinical care. We found that there is a lack of genomic literacy among physicians. Therefore, we argue that genomics is challenging the traditional paradigm of medical knowledge and health care practices. The intent of this line of research is to understand how medical practitioners in cancer clinical trials come together in these social constellations to co-produce knowledge and social order of genomic technology.

4.2.2 Surveillance medicine, crowdsourced public health, and data-driven epidemiology: the privacy implications of digitally tracking and visualizing contagious disease outbreaks

Scott Mitchell (School of Journalism & Communication, Carleton University).

The app and website SickWeather collects information from across the web, as well as self-reports from users, so that people can see who is sick in their neighbourhood. A future version of the app will even allow users to see which of their friends are talking about being sick on social media, yet surprisingly, few concerns have been raised about potential privacy infringements. Traditional public health methods for tracking contagious diseases are increasingly complemented with these kinds of digital tools, which use data mining, analytics, and crowdsourcing to predict and monitor disease outbreaks. What are the privacy and surveillance implications of digital disease tracking tools, and the dangers of constructing contagious disease outbreaks through data visualization? I draw on concepts of network power, the surveillance assemblage, and Deleuze's 'control societies', where individuals are moved from one node to another and the function of control is to accumulate and direct information.I performed a content and platform analysis of two apps, SickWeather and HealthMap, by using them over the course of three months, taking regular screenshots and keeping a detailed user journal. This analysis was guided by a cultural-historical activity theory (CHAT) framework, taking note of the data visualizations and other content, but also the functionalities of both apps, including the characteristics of membership, 'rules' and parameters of community mobilization and engagement, monetization, and moderation by designers. This allowed me to study HealthMap and SickWeather as modes of governance that allow for (and depend upon) certain actions and particular activity systems.

4.2.3 Data sourcing, resistance and seamlessness as a source of conflict

Sarah Wadmann (KORA, The National Institute for Local and Regional Government Research, Denmark) & Klaus Hoeyer (Centre for Medical Science and Technology Studies, University of Copenhagen).

Data access and information about users, their behaviors and preferences plays a still more pertinent role in European economic and governmental infrastructures. In healthcare, data are accumulated on an unprecedented scale and the increased range of data flows are assisted in rapid development in information technology (IT). Traditionally, research into IT implementation has focused on how to avoid obstacles: seamlessness has been the ideal. This paper explores a failed data sourcing initiative in Denmark that for years seamlessly gathered data from electronic patient records in general practice (GP), and argues that its dismiss can be partly ascribed to the succes of silent, seamless and easy data transfers. GPs were unaware of the range of data gathered, how far data travelled, and for which purposes they were used. When they realized, they contested the legal basis, and in 2014 the data traffic was suspended. Striving to make quality development more 'rational' by automating data transfers, the developers had succeeded in establishing an infrastructure that worked so effortless that it became possible to incorporate still more purposes without really realizing the conflict potentials. We suggest the experience of seamlessness challenge our understandings of organizational boundaries and what constitutes 'succes' in IT implementation. We propose it is important to pay attention to the potential value of friction that may spur useful resistance and public reflections about new purposes as they are entrenched into information infrastructures.

4.2.4 Give me your data, and I will diagnose you

Maria Wolters (School of Informatics, University of Edinburgh).

The literature on medical and health informatics is full of studies that attempt to contribute to, suggest, or even make a medical diagnosis based on continuous data streams that individuals generate through their interaction with technology, such as smartphones, wearable devices, or social media. The conditions that are being diagnosed are often highly stigmatised (e.g., depression) or incurable (e.g., dementia). The discourse that justifies these studies posits early diagnosis as desirable, since early intervention is thought to reduce health care costs and increase the chances of a cure (for curable conditions). It is also often assumed that rational people will submit to ongoing monitoring merely because they are at risk of developing a condition. I will critically interrogate this discourse through the lens of three concepts: biographical illness work; evidence-based medicine; and neurodiversity. Evidence-based medicine emphasises the uncertain nature of much diagnostic work, and critically questions the basis on which diagnoses are made. Biographical illness work covers how people interpret the diagnoses they receive, how diagnosis affects their identity, and how they cope with preconceptions and stigma associated with a diagnosis. Finally, neurodiversity questions what should be regarded as normal, instead focusing on the experience of people who live with a particular condition. I will conclude by showing how this critical interrogation can stimulate the design of new processes, contexts, and technologies that give people greater control over who infers what about their health from their data.

Panel 4.3: Data, Platforms & Infrastructure

(RH 2228)

4.3.1 Data infrastructures for the scientific data commons

Ashley Rose Mehlenbacher (University of Waterloo) & Brad Mehlenbacher (North Carolina State University).

Scientific data commons refers to the idea that scientific data, in their aggregate forms, are part of the cultural/scientific commons. Among those advancing the scientific data commons are citizen scientists. Citizen science describes a wide range of non-experts, amateurs, or non-professionals who are engaged in scientific research. While several citizen science projects involve sorting data or improving algorithms, our talk focuses on environmental data collection and sharing efforts. We look to grassroots citizen science efforts to chart the infrastructures required to build and maintain scientific data commons. Attending to the importance of open databases and their associated infrastructures, we begin to unfold the complex coordination required of citizen scientists to successfully establish and maintain useful scientific data commons. We investigate these infrastructures through a rhetorical analysis of coordination among citizen scientists. Looking to several exemplary cases of data-driven citizen science projects, we chart the ways in which citizen scientists mark an exigency for their work, describe the importance and role of their data and, importantly, examine their motivations for providing open, reusable data. Our analysis shows how the nuances of context and rhetorical framing of these projects shapes the way infrastructures are crafted, how the infrastructures shape notions of data commons, and the re-negotiation of power such a scientific data commons represents. Understanding how scientific data commons are evolving is crucial because access to data about our lived environment—air quality to water quality and beyond—allow a wider range of interested actors, advocates, and activists to engage in and contribute to large-scale efforts to protect environment, health, and safety of affected peoples.

4.3.2 Platform power. Investigating platform/industry partnerships and the political economy of social data

David Nieborg (University of Toronto), Anne Helmond (University of Amsterdam) & Fernando van der Vlist (University of Amsterdam).

Social media industry partnerships are essential to understand the politics and economies of social data flowing between platforms and third-parties. We investigate how platform partnerships evolve over time to understand: (i) the dynamic roles of platforms and partners as data brokers, (ii) their diversification by catering to a growing number of stakeholders, all with distinct interests, and (iii) their gradual entrenchment as dominant actors within the internet industry. We focus on Facebook and Twitter as two dominant platforms that function both as data aggregators and marketing platforms that operate multiple dedicated partner programmes and that cater to a wide array of industry partners. We employ a mixed methods approach. On the one hand, 'digital methods' for mapping partnerships over time using archived pages of Facebook and Twitter's official partner programme directories, as well as developer documentation from the Internet Archive to enquire into changing partnership types and platform features. On the other hand, we conducted semi-structured interviews with selected partners to investigate their distinct roles, positions, and data strategies within the industry as well as their volatile relationships with Facebook and Twitter. By considering how partnership alliances are forged and subsequently dissolve over time, we offer insights into 'stakeholder politics' as

well as platforms' entrenchment within the internet industry. Simultaneously, Facebook and Twitter also engage in shaping the digital advertising ecosystem thereby establishing path dependencies; the ways in which other third-parties become directly or indirectly platform dependent. Lastly, our goal is to contribute novel methods and strategies for studying internet-related industries and complex networks of data intermediaries by using digital traces. In brief, we aim to develop a critical account of the political economy of social data by addressing the infrastructural dimension of platform data power.

4.3.3 Quantum life: the construction of computational acts

Derek Noon & Chris Russill (School of Journalism & Communication, Carleton University).

In this article, we share results from a two-year ethnography of software writing to discuss some theoretical, methodological, and political limitations of contemporary approaches to networks and infrastructure. In examining how a novel technology comes into being over a reasonably broad period, one of us (Noon) observed how narrow conceptions of 'digital' computing impeded the initial development of alternative approaches to software writing for quantum computers (i.e. AQC). As a result, the subsequent production of quantum computing posed significant challenges to the methodologies that typically prevail in the study of networks and infrastructure. These undermined assumed divisions of hardware, software, and industrial practices, revealing a need to follow the course of key problems when accounting for the development of computing. By taking our cue from the insights and difficulties in this novel realm of computing, we speak back to the existing literature on networks and control by asking if the destabilization of our conception (and emblematic practices) of digital media might disclose alternative avenues for academic research, industry collaboration, and politics.

4.3.4 The data ecosystem of the platform economy: transparency, privacy and control

Teresa Scassa (Faculty of Law, University of Ottawa).

Although the word "sharing" in sharing economy refers to the sharing of pre-existing resources via technology platforms, the sharing of massive quantities of data is an integral part of these platforms. These data are used by host companies in ways that include data analytics and profiling. In contrast to other businesses which jealously guard their data resources, the nature of sharing economy platforms requires that much of their data must be accessible to users. This feature creates interesting issues of control. The data generated by participation in the "sharing" economy are important in understanding how platform companies operate, in assessing their compliance with laws and regulations, and in evaluating their social and economic impacts. Such data are sought after by civil society organizations, researchers, regulators, police and national security authorities. They are also of interest to 'opportunistic' businesses: those built upon the data gathered or services offered by sharing economy companies. Users of the platforms also have distinct interests in the data; a significant proportion of the data is their personal information. A study of the data 'ecosystem' of platform economy companies reveals a tangle of law and policy issues that relate to transparency, privacy, data control, and ownership. These issues are at the root of 'data power'. This paper examines how ownership and/or control is asserted over platform data and critically assesses how its extraction and use for other purposes—public or private—is (or is not) addressed in laws relating to the ownership, control, disclosure,

and reuse of information.

Panel 4.4: Data & Journalism
(RH 3224)

4.4.1 The datafication of journalism: the watchdog of a datocratic society?
Eddy Borges-Rey (University of Stirling).

The defining features of media nowadays are strongly negotiated by computational data. Virtually every sector of society currently deals with both digital media and computing software on a regular basis. A rising institutional dependence on database architecture and algorithmic automation ensures that society's machinery is well oiled and working smoothly. Consequently, in a move that has gone unnoticed by most of those responsible for holding the "powers that be" accountable, control appears to be shifting from traditional spheres to organisations that nourish the wealth of data. Within this landscape, traditional journalism appears to move within two conflicting scenarios. On the one hand journalism has to operate in datafied newsrooms where the growing predominance of a computerised paradigm is evident. On the other hand, journalists have to confront the hegemony of an increasingly powerful datocratic elite, which seemingly remains untouchable. Drawing on initiatives such as http://www.poderopedia.org, this paper parametrises power relations and performs a network analysis of them to: a) understand how profoundly data is embedded in the structures of public bodies, governments, corporations, and civic society overall; b) examine the role of journalists as watchdogs of datafied institutions; and c) assess the capacity of journalists to recognise how effectively data governs the quantification of the world. Results suggest that although journalists have shown a burgeoning awareness of elements of control and power within data structures, organisations and actors, additional computational enablers are required to reach a more sophisticated understanding of contemporary datocratic dynamics.

4.4.2 Strategies of data journalism: Russian case
Maria Pilgun (National Research University Higher School of Economics).

This work presents the results of the study of communication processes in the area of data and journalism in Russia, which was based on interdisciplinary analysis, which most fully reveals syncretism and diversity of on-line and off-line interaction. The article analyzes the position that modern media is undergoing dramatic changes associated with the movement of the main flow of information based on data in the virtual space. The article describes the social, psychological, linguistic and organizational conditions for an effective communication in Data Journalism, as well as features of communication in the modern media using data. It is shown that using the data can be achieved an open and productive dialogue as conscious and actively implemented by the social partnership. This means that the detailed study of norms based on open data interaction is able to give a new breath of different types of communication and help to adapt to the new conditions of functioning of traditional professional areas (advertising, PR, journalism). The article analyzes the genre features communication in Data Journalism. It is shown that a new type of media text verbal, visual, and auditory components are integrated, as well as monolog, dialog, and polylogue in the digital communications intersect, they are closely

related within the same genre. The report analyzes the current state of the data journalism in Russia in the field of media practice and education.

4.4.3 Data journalism in Russia: experts vs. citizen journalists vs. officials

Marina Shilina (Plekhanov State University of Economics) & Alexandra Shilina (Lomonosov Moscow State University).

Data journalism which appeared in Russia in 2010s is still a discussed topic. There is no theoretical framework on the Data Journalism in Russia (Shilina, 2013); existing studies are mostly related to developed media (Appelgren, 2013; Cohen, 2014; Gray, 2012; Rogers, 2013; Sirkkunen, 2011). Addressing this conceptual gap, this paper discusses the results of the survey to answer: How do journalists serve public interest by data? Could data mobilize audiences to improve social problems? Despite of declared by State the active open data policy and growing number of opening up data sets Russian data journalism projects exist only in beta versions and quasi-data forms, and on hackathons. Our survey of hackathons (n=150, on 8 selected criteria, 2010-2016) and their impact on audiences (n=5,000 news articles in Russian media and social networks, 2010-2016); and the interviews with the leading Russian experts (n=10) shows that the most number of hackathons was provided not by media, but by civil and open society activists, citizen journalists, and federal and local authorities in order to kickstart data projects and to develop creative data networks around them. By organizing such networks, citizen journalists and activists could improve the openness and public activity; officials demonstrate their openness and loyalty. Such a form is not for social problem solving. Absence of media hackathons means that the mass media demand for social serving and mobilizing of audiences using data journalism is rather low. Thus, nowadays data journalism in Russia would be described as a litmus paper not only for national media system, citizen journalists and officials, but for real governance.

Panel 4.5 Data Subversion & (Re)Use

(RH 3228)

4.5.1 Toward a sociology of digital resignation

Nora Draper (Department of Communication, University of New Hampshire) & Joseph Turow (Annenberg School for Communication, University of Pennsylvania).

The aim of this paper is to two fold: (1) to suggest the importance of constructing a sociology of digital resignation, and (2) to provide a framework for grounding such an approach. By digital resignation we mean the condition created when people desire to control the information and data digital entities such as online marketers have about them, but feel unable to exercise that control. Although resignation has not been a term researchers have routinely associated with the digital environment, recent empirical studies suggest it may be an overlooked description of the way people evaluate their social leverage in relation to an increasingly important part of twenty-first century life (see: Draper, forthcoming; Hargaitti & Marwick, 2016; Turow, Hennessey, & Draper, 2015). In the face of these findings, we turn to the small literature in anthropology and social psychology that characterizes resignation as a socio-political phenomenon (see: Benson & Kirsch, 2010; Forman, 1963). Building off these insights, we argue that the creation and reinforcement of resignation around the gathering and use of data about individuals has

become an integral part of corporate business models. In the process, the industrial cultivation of digital resignation has also become central to the dynamics of power in twenty-first century society. We conclude by addressing the major policy issues that arise from these conditions; as well as what more we need to know, and what research ought to be conducted, to build a fuller understanding of this recent but crucial social phenomenon.

4.5.2 Data structures of power. Co-configuring sites of data production as interventions in regimes of datafication

Jan-Hendrik Passoth & Nikolaus Pöchhacker (Technical University of Munich).

We live in an era of ubiquitous data production where the question of data access and data (re)interpretation for purposes of social sorting, identity building, etc., becomes increasingly important. However, data in itself is not powerful, it has also not just claimed power during the last decade, it is rather the effect or the "subject" of a specific power apparatus. Not only raw data is an oxymoron (Gitelman, 2013), but also unhinged and disconnected data. Data does not have power, but is the product of power and the related dispositif. Using the case of recommender systems and drawing from an experiment in ethnographic intervention into the design of a data driven system, we argue that the production and de/re-contextualization of data is always already an expression of existing power relations. These (data) structures of power get stabilized or transformed by turning an issue into a problem for data analytics. Data are an epiphenomenon of a difficile assemblage of heterogeneous actors and infrastructures involved in the practices of producing, distributing and processing of this data. As such, reclaiming power from data is an essentialist endeavor with only marginal to no chances of success. If we want to "reclaim power", we have to transform the assemblages of actors, i.e. data production processes, data re-contextualization in new functional relationships, infrastructures of communication—but also their connection to already established coalescences of power such as economic, legal and political institutions. This can be done—not in a bold activist move to reclaim power from data, but by co-configuring the sites of data production in an interventionist attitude.

4.5.3 Disrupting Wikipedia: the case study of Wikipedia Zero in Angola

Sophie Toupin (McGill University).

In Angola, a number of people have recently been banned from editing Wikipedia zero, an initiative to make Wikipedia accessible to individuals living in third world countries where more general Internet access is scarce or unaffordable. In 2015, Wikipedia editors found that a swath of Angolans were concealing large files (films, songs, music videos, etc.) as .jpg and .pdf files and embedding them in articles, whereupon they could be shared in a private Facebook group. Part of the Wikipedia community began to accuse Angolans of acting in bad faith, and in need of policing. In this paper, I use a post-colonial framework to analyze this case study. Taking such a perspective allows me to focus on the ways in which platforms such as Wikipedia zero are shaped by its users inasmuch as its designers; users who are trying to bypass the restricted conditions imposed on them first by a technology and a media ecology that increasingly resembles a walled-off garden and second, by Wikipedia zero's associated discourse, which reinforces its designer's intentions for the technology. Finally, the framework at hand enables me to identify the areas where the established Western order—rooted in structures of power and extreme inequality—are susceptible to disruption.

Session 5: 1:00pm-2:30pm

Panel 5.1: Representing & Visualizing Data II
(RH 2220)

5.1.1 Tracing the auditory object: data and emergent presence
Rebecca Smith (Taubman College of Architecture and Urban Planning, University of Michigan).

The proposed topic of this conference presentation is the use of audio and spatial data as a means to discover, analyze, and represent the spatial and temporal boundaries of the auditory object, and the implications of this form of data visualization for ideas of urban subjectivity, particularly as opposed to ideas of an objectively defined universal subject, positioned within a rationalized framing of space and time. This topic is part of an ongoing project dealing with the visual representation of the dynamic urban soundscape, as approached from an interdisciplinary perspective utilizing audio and spatial data in combination with architectural theory, architectural forms of semiotics and spatial representation, psychoacoustics, and audio technology. The overall concern of this research is the translation of auditory phenomena, as perceived at the scale of the individual, to an aggregated representation of larger patterns which can describe the soundscape at the scale of the collective, neighborhood, or city. Of specific relevance to the theme of this conference is the potential for data, in this context, to reveal, trace, or give agency to a form of diffuse, particular, co-existing multiplicitous urban subjectivity, as focused around representation of the auditory object. The "auditory object" is a term used by psychoacousticians (and others dealing with auditory perception) to describe a discrete unit within the auditory environment, as defined perceptually, from the position of the subject. The auditory object is constructed through an evolving form of presence, one defined more in terms of patterns, tendencies, and emergences than hard binaries. This presents significant semiotic challenges, particularly for the forms of visual, spatial representation typically employed within the fields of architecture and urban design. This presentation will discuss the ways in which techniques of data analysis and visualization is uniquely suited to address these challenges.

5.1.2 Towards participatory visualization
Chris Sula (Pratt Institute).

Visualization is often praised for making data more accessible to wider audiences. Critics have noted that data can also be used to deceive or influence, that critical visual literacies are needed for approaching visualizations, and that even with them, its methods, skills, and technologies are accessible to very few. This paper examines three approaches toward more participatory work with data visualization. The first is grounded in the field of human-computer interaction (or human-information interaction) and involves user experience research at various stages of the design process, affording users some agency in the production of those visualizations. The second approach partners data workers with activists, organizations, and others to produce visualizations about those groups or the issues that matter to them. It does not aspire to neutrality or detachment, but rather advocacy surrounding those issues (while still retaining accuracy as a virtue). The third

approach draws on minimalism in computing: using the fewest resources necessary to achieve a computing task. It has usually been applied aesthetically to visualization (e.g., data-ink ratios), but may also be used to select formats and technologies. Drawing on these three approaches, I consider how we can engage others in the process of data visualization in ways that transform the questions being asked, methods being used, and techniques for implementing them. I suggest that the focus of our research may need to shift to new areas and that we may need to give more critical attention to the procedures and tools we use in making visualizations.

5.1.3 Logics of representation in structured data graphs

Neal Thomas (Department of Communication, University of North Carolina).

Whether used to represent census facts about a country, the social hierarchies of a community, or the tonal contours of a photograph, structured data graphs have become a powerfully generic means for calculating and optimizing collective significance in the world. In the proposed paper, my interest is in critically reading structured data graphs as forms of mediation; to understand how their formal and calculative dimensions organize and configure our collective semiotic relationship to things, and to one another. I elaborate three types of data graph in the paper, briefly laying out their philosophical and social-theoretical precursors. In the case of knowledge graphs like Wolfram Alpha or DBPedia, I show how representation is based on modeling existing things or objects in a domain of discourse as entities formatted to suit the algebraic logic of Charles Sanders Peirce, generating what I call a logistically formatted subject. In the case of social graphs like Facebook and Twitter, emphasis falls more on interpersonal affinity, conversational turn-taking, and what the philosophers JL Austin and John Searle called illocutionary force, setting the terms of social individuation and production as performatively formatted. Finally, in the case of predictive-analytic graphs that underpin current thinking in AI research, conceptual focus has shifted to empirical experimentation around asignifying pattern-matching techniques, often styled as neuronal signaling, resulting in what I call a signaletically formatted subject. Overlapping and reinforcing one another in practice, I separate the three styles as an analytic exercise to show that at the heart of each lies some articulation between the diagrammatic, formal-semiotic possibilities of graph theory (and importantly, information theory) at the level of computation, and some appealing, collectively rational account of interaction through signs, which establishes sociality at the level of user affordance.

Panel 5.2: Data, Transparency & Ethics

(RH 2224)

5.2.1 Ethical mapping in OpenStreetMap?

Tim Elrick (McGill University) & Christian Bittner (University of Erlangen-Nuremberg).

OpenStreetMap (OSM) is not only one of the biggest and best-known volunteered geographic information (VGI) projects; it also follows a quite transparent and open path in its participation rules and mapping procedures. OSM's epistemological stance can be

described as a 'ground-truth' logic: all physical entities you can see on site are suitable to be added to the geo-database of OSM. This has led to a very detailed representation of the tangible world in those regions where many mappers contribute to the map. They enter everything into the database from zip-lines to baby hatches and even single trees. OSM recently started with indoor mapping as well. However, what about non-public or semipublic indoor places? Even outside, the question arises what to do with abortion clinics in the US in a Trump-era? Sheds that are visible but on private property? Data centres that should be secure from attacks? The further the OSM community pushes their longing to completely map 'what's on the ground', the more they touch on ethical questions. It requires even deeper ethical considerations when database entries are amended by assessments, e.g. whether a street is suitable for something or even whether a neighbourhood is considered to be dangerous (and therefore should be avoided in navigation apps). Some of these are already discussed in the community's fora, mailing lists or at meetings. This paper, therefore, looks into different ethical aspects of mapping by analysing the discussions in the OSM communities and linking them back to more general theories on morals and ethics.

5.2.2 Big Data and the deconstruction of the academic quest for transparency

Ingrid Hoofd (Utrecht University, Netherlands).

Proponents of the implementation of big data research in the humanities—often carried out under the auspices of the 'digital humanities'—have so far argued their case by suggesting that the gathering and visualization of big data has the potential for unexpected insights into social relations and human activity. These advocates therefore claim that, even if any data visualization is necessarily bound by a set of subjective and technical choices, big data research may enrich the humanities with previously hidden perspectives on cognition, emotion, and society. Instead, opponents of this implementation in turn lament the increasing encroachment of techniques of calculation and quantification onto the humanities, and argue that such techniques signal the demise of the rich practices of close reading and the necessarily boundedness of interpretation to an embodied social and cultural context. These critics therefore also take issue with the problematic claim to objectivity and depth that the dominant discourse around big data presents, and dismiss the digital humanities in general as a largely misguided means to help humanities departments survive the onslaught of the quantification of academic practices by neoliberalism. This paper acknowledges the merit of both arguments, and subsequently proposes that the turn to big data in the humanities signals a profounder conundrum in academic research since its idealistic beginnings in Enlightenment thought. This deeper problem pivots precisely around the contradictory claims that big data equally renders its object of analysis—whether social phenomenon or cultural text—more superficial (and unknowable) as well as more penetrable (and knowable). This contradiction parallels the immanent aporia of the Enlightenment enterprise, which institutional mission of 'exposing the world and humanity to the light of truth and emancipation' (and its negative historical baggage of oppressive universalism, social scrutiny, and colonialism), has today deconstructed itself by also exposing the limits of its own idealism. This means that the quest for total knowledge has started to become a near-pervasive 'exposing-itself' of academia by way of the implementation of various forms of surveillance and sousveillance, carried out via extensive datafications of staff and student behavior and output. The problem of the university today consists therefore of the acceleration of the university's

unfinishable idealistic mission by way of an enmeshment with and displacement of its aporia into technologies of calculation and prediction like big data tools.

5.2.3 De-camouflaging chameleons: requiring transparency and privacy protection in the Internet of Things

Rónán Kennedy (National University of Ireland Galway).

Information and communications technology (ICT) and the development of the so-called 'Internet of Things' (IoT) provide new and valuable affordances affordances to businesses and consumers. Digital devices now have very useful adaptive capabilities, but rapid development of so-called 'smart devices' means that many everyday items are now impenetrable 'black boxes' and their behaviours can be subverted. This paper contributes to the literature by bringing together examples of digital devices being surreptitiously diverted, placing these in a theoretical context, and providing proposals for law reform. It explores three case studies which highlight different aspects of this developing phenomenon: the scandal surrounding Volkswagen's low-emissions diesel cars; opportunities for intimate and multi-faceted surveillance, either by government or underground; and the risk of identity theft or unwittingly providing infrastructure for botnets. The paper places these troubling developments in the theoretical context of Foucauldian governmentality, demonstrating that each is an example of 'resistance' to the development of new means of power through ICT. A new challenge posed by the IoT is how to respond to 'chameleon devices', which change their behaviour in response to external conditions, camouflaging their real nature in order to evade detection. This paper outlines proposals for reform which seek to ensure that IoT innovation is ethical, moral, and in line with public policy goals, but are mindful of the constraints of intellectual property: global labelling standards that clearly indicate transparency and privacy protections to consumers; mandatory open source in some instances or code escrow in others; and licensing requirements for software engineers.

5.2.4 Resolving the transparency paradox through infomediation: successful principal-agent relationships and the big data deluge

Jonathan Obar & Joseph Zeller (York University).

Effective strategies for delivering privacy and reputation protections in the Big Data context remain elusive. The notice and choice model continues to fail in part due to what Nissenbaum (2011) calls the 'transparency paradox'—too much information about an organization's data practices overloads users, too little hinders informed consent. Indeed, "a plan for data privacy self-management should express the true possibilities of its subject" (Obar, 2015). This project attempts to resolve the transparency paradox through an historical analysis of successful principal-agent infomediation examples from other contexts that have historically delivered results when confronted with challenges comparable to those posed by the Big Data deluge. A principal-agent relationship involves an entity (principal) delegating responsibility to a representative (agent) to achieve an advantageous division of labour (Jensen & Meckling, 1976). This relationship is pursued because delegated tasks would otherwise be too complex and time-consuming for principals. Drawing historical lessons from infomediation in the tax preparation and other fields, this project will present examples of successful principal-agent relationships capable of addressing, for example, the lack of understanding of tax law, the lack of time for tax document preparation, and the desire for accurate representations of financial data

(Stephenson, 2010), three concerns with parallels to the Big Data challenge. A set of policy recommendations for delivering cross-platform, distributive data justice via infomediation will complement the analysis.

Panel 5.3: Data & Democracy
(RH 2228)

5.3.1 Ofcom and the use of big data: effects on democratic citizenship
Jelena Dzakula (University of Leicester and London School of Economics and Political Science).

The proposed conference paper would present research that has been conducted on the use of big data by the UK's independent regulator in the media sector: Ofcom. The main research aim has been to establish to what extent the use of big data affects democratic citizenship. This has been seen to have two different perspectives. The first one is if and in what ways the way Ofcom uses big data can be said to enhance the way citizens and their perspective can influence the decision-making processes in an equal manner. The second perspective is to what extent the use of big data overshadows other democratic processes already in place. A number of case studies have been looked at from two different types: the one is the use of big data spontaneously generated by the citizens, such as their activity on the social media, and the other is the big data generated through applications designed by Ofcom to specifically collect big data with the knowledge of the users, such as their mobile phones app. On the positive side, the uses of big data are empowering to a certain extent since citizens can have new opportunities to have a voice. In addition, the use of big data chimes well with some of the trends influencing the work of regulators such as focus on evidence-based regulation. However, this voice created by the use of big data creates inequalities and is not deliberative. In addition, the problems with the use of big data Ofcom faces are no different that the most common ones found in the literature such as quality of data, the limitations of machine learning, the lack of ethical framework, and lack of resources (Malomo and Sena, 2016; Aggarwal, 2016; Mayer-Schonberger and Cukier, 2013; Margetts et al, 2015; Floridi, 2013).

5.3.2 Deliberative democracy or agonism? An exploration of the role of Twitter in political discourse
Tarnjit Johal (Carleton University), Mert Ozer (Arizona State University) & A. Salehi (Arizona State University).

On the 16th November 2016, over a week after the US elections, Twitter, the online social network site, banned leading "right-wing figureheads" from membership and activity on their social network site. In the run up to the 2016 election, numerous cases of harassment, abuse towards journalists, expressions of hate and threats of violence targeting people of colour, women and racialized, visible religious minorities, had been reported which finally led to the banning. Curiously, it was a left-wing website that stated its opposition to the ban, invoking arguments of censorship. The assumptions that underlay the ensuing tension are manifold but rest on the supposition that Twitter is representative of a digital public sphere; and therefore denial of access to the digital public sphere is seen as comparable to the denial of a democratic right. Such notions of a Habermassian digital public sphere imply that Twitter is a forum for deliberative exchange

and democratic engagement where access is open to all; this contrasts with the appearance of echo-chamber silos where followers appear to merely reproduce sentiments expressed by those they follow. The purpose of this study is to develop a critical analysis of Twitter as a discursive arena where it both propagates and molds political discourse. A recently developed algorithm is employed to gauge and characterize the nature of political communities formed together with their interactions within the Canadian political context of the 2015 Canadian general election. From opinions expressed in the online textual conversations, the reply and mention functionalities of Twitter, together with the built-in interactions, retweet and like, the panorama of the polarization patterns in the interactions of Twitter users is revealed. From the nature of these interactions, the role Twitter plays in rising political populism rather than permitting deliberative democracy will be analyzed quantitatively.

5.3.3 Surveilling democracy through modest means? The Uruguayan case

Fabrizio Scrollini (DATYSOC).

Surveillance technologies are reshaping the way government engage in intelligence and policing activities across the globe. Snowden's revelations showed how developed nations such as the US and the UK, performed large scale surveillance. Yet, little is known about how developing countries perform surveillance and policing activities in the digital era. Further, little is discussed in developing countries about adequate principles to set up human rights based governing frameworks for these technologies. In this paper, I explore the case of Uruguay, the only full democracy (EIU, 2016) in Latin America. I analyze the state of the art in terms of surveillance technologies acquired by the Uruguayan government considering recent international development. I identify the potential threats to Uruguayan democracy by these technologies, and I propose a framework to understand its uses and its effects based on the Uruguayan case. Further, I develop a set of criteria to ensure an adequate transparency and governance of this set of technologies that could undermine the very basic principles of democracy. Finally, I argue for more research to develop clear use cases and safeguards when governments engage in these activities.

Panel 5.4: Urban & Rural Data

(RH 3224)

5.4.1 Making the data-driven city. How does the socio-technical shaping of data analytics change the government of the city?

Antoine Courmont (SciencesPo).

The notion of smart city has created a huge enthusiasm shared by media, private sector, and local government. The proliferation of data is perceived as a means to improve urban governance and the efficiency of urban utilities and services. However, despite the enthusiasm they create, the "data assemblages" remain largely overlooked. Data, which are the cornerstone of all smart cities initiatives, are rarely interrogated. They are perceived as natural, neutral and objective. In this communication, I explore the implementation of two data-driven policies to analyze how the socio-technical shaping of data analytics changes the government of the city. To do so, two (big) data projects are analyzed: the Mayor's office of data analytics (MODA) in the city of New York and the implementation of an intelligent transportation system (ITS) in the French city of Lyon. These two cases are an illustration of re-use of massive administrative datasets to better

govern the city. The study of these two projects reveals the complexity of the socio-technical process that is necessary to implement data-driven policies. It implies not only technical skills, but also organizational ones, and it shapes the entities that can be governed. Following a perspective of sociology of quantification, I emphasize three key points: First, accessing data may pose complex social, technology and policy issues. The release of data is the result of successive trials of diffusibility that align the interests of these various actors. Second, before making analysis, data must be articulated to produce a new representation of the city. The challenge is to find a common grip between datasets without changing the way they are produced. Third, this way of articulate data through a common attribute transforms the object of government. The target of data-driven policies is compelled by the information used to interconnect the heterogeneous data.

5.4.2 From connectivity gaps to data ownership: precision agriculture in Ontario, Canada

Helen Hambly (University of Guelph).

Adoption of Precision Agriculture (PA) technologies by farmers in Canada grew rapidly in recent years. There is an expectation that the Internet of Things (IoT) in food and agricultural systems is tremendously important, with substantial benefits for the economy, society, and specifically, for rural communities, agri-businesses and family farms. Nevertheless, generally low internet access within rural areas negatively affects the uptake and expansion of PA technologies. As this paper will explain, the use of wireless-enabled data transfer from PA applications is currently low due to two main factors: a) bandwidth and b) data security. Our 2016 study found that crop farmers in Southwestern Ontario are willing to adopt PA but adoption is negatively affected by low broadband internet access. Other relevant influences on PA adoption were farmer age and farm size. Proprietary rights to their own data and trust relations that implicate data sharing were questions included in the study based on previous studies that point to farmers' concerns about big data access. The paper concludes with a look at the plans for the expansion of rural broadband, announced in late 2016 by the Government of Canada and the relevance of connectivity to future PA adoption and big data in agriculture and agri-food systems. Without integrated policy approaches to broadband internet connectivity in the rural and agricultural sectors, PA functionality is essentially "turned-off", which potentially reduces return-on-investment. A list of key social science research questions on big data, PA and broadband use by Canadian farmers is presented with the final conclusions.

5.4.3 Data-power in Toronto's Don River Valley: digitally seeking salutary flow-states amidst the urban grid

Matthew Tiessen (Ryerson University).

This paper is about how nature-loving Torontonians are increasingly using data-power to bridge the urban/nature divide as they pursue immersive flow-states and deterritorialized forms of ecological escapism amidst the urban grid. I focus specifically on how data and digital platforms are being put to work by Toronto's grassroots and diverse mountainbiking community which, for 30 years, has been accessing Toronto's oft-neglected Don River Valley by creating "ephemeral infrastructure" amidst the city's "bounded territories" in the form of 60kms of semi-clandestine singletrack trails that twist and turn along the edges of

ravines walls, and that pass beside sewage treatment plants, hydro-corridors, and decommissioned waste dumps. Creating these trail networks finds mountainbikers using data-power disruptively to see beyond the distinctions often made between urban/nature, organic/ inorganic, human/nonhuman. These ribbons of singletrack—and the flow-states they enable—become nonhuman "lines of desire" that integrate mountainbikers, underpasses, bridges, forests, ravines, and rivers in pursuit of post-anthropocentric urban immersion. They are what Deleuze and Guattari would describe as "holey spaces" capable of connecting "smooth space and striated space" and of communicating with "sedentaries", "nomads", and "transhumant forest dwellers" (1987, p. 415). Moreover, this ephemeral infrastructure can serve as a salutary model for ways data-power can be used to mobilize new forms of data for the common good—not to mention in support of health and wellbeing. This paper, then, ventures into the increasingly overcoded wilds that exist alongside metropolitan environments to explore the shifting landscapes of our experiences, encounters, and entanglements with "urban nature", emerging digital technologies, and new ways of bridging—both conceptually and materially—the human/nature divide in the contemporary metropolis.

Panel 5.5: Social Media Data Stewardship: The Ethics of Social Media Data Use for Research

(RM 3228)

Anatoliy Gruzd (Ryerson University), Jenna Jacobson (University of Toronto), Priya Kumar (Ryerson University), & Philip Mai (Ryerson University)

Social media data is a rich source of behavioural data that can reveal how we connect and interact with each other online in real time. The availability of social media data is bringing large and dynamic datasets to the social sciences and other fields. This raises questions for our society as we continue to speed towards an increasingly digitally-mediated future. As more people join and contribute their information to various social media platforms, much of this user-generated and system-generated data are becoming readily available to third parties to mine for both commercial and academic purposes. To balance people's individual rights to exercise autonomy over "their" data and the societal benefits of using and analyzing the data for insights, there is an urgent need for a social media data usage framework. Such a framework can help navigate complex and competing interests associated with using social media for research, such privacy, security, and intellectual property rights. The panelists will present and discuss different aspects of a new framework called "Social Media Data Stewardship" that encompasses the complete life cycle of social media data including collection, storage, analysis, publication, reuse, sharing, and preservation. The presentation will include the findings from some of our recent empirical studies on users' social media privacy expectations.

Session 6: 2:45pm-4:15pm

Panel 6.1: Data & Labour

(RH 2220)

6.1.1 Data labour on Workplace by Facebook

Ope Akanbi (University of Pennsylvania).

The proposed paper examines the collapse between the role of user and worker in the extraction of data labor on Workplace by Facebook. Workplace, a social media platform for companies, adopts the popular Facebook interface with a few variations. While scholarship on audience labor has explored the idea that user generated content and consumption of advertising can be regarded as labor, this paper examines a modified phenomenon where the creation of content on enterprise social media is incidental to, and required as, part of paid employment. Workers are thus users encouraged and required to perform both the production of work and emotional labor in form of communicative practices like networking and social media engagement. In examining the production of content on Workplace, this paper draws and extends an analogy with work in the twentieth century when, according to some historical accounts, the need to transcend the individual inspired the creation of repositories of knowledge through record keeping and written communication. As such, companies were less sensitive to worker departures because written records made it easy for new workers to gain the knowledge held by the old. I argue that the adoption of enterprise social media like Workplace further blurs the line between work and non-work, leading to the production of social content under surveillance of the company, and extending collection and archival of knowledge to include affective data. The data derives from: (1) Facebook's websites and user interfaces, and (2) Media discourse of Workplace. It analyzes these data with the aim of highlighting how Facebook and Workplace-adopting companies exert their power by extracting affective data from workers; how that data in turn perpetuates the power disparities between capital and labor; and the possibilities for challenging this asymmetry in the capture and usage of workers' affective data.

6.1.2 Data reduction and women's labour in 1850 America

Sara Grossman (Pennsylvania State University).

In 1850, a group of Pennsylvania women were tasked with collating weather data for the Smithsonian Institution. Though dominant histories of data collection and collation have written women out of the 19th-century computing scene, this paper uncovers their historic data practices. In particular, I pay attention to how women resisted dominant, male modes of data practice, often participating in historic moments of data intimacy. In order to do this, I bring histories of computing into the fold of the environmental humanities. Rather than begin directly before or after the 1950s cybernetic turn, as historians of technology working in the history of computing often do, I draw out a history of computing the environment that begins in the 1850s and is populated by mostly women. I argue that an attention to nineteenth-century gendered data production offers a great deal to mid-twentieth and early twenty-first century notions of the anonymity of data as well as to notions of disembodied data. When we place women back into the history they've always belonged to, we begin to narrate a more complicated story about the subjective value of data, a story about how data trucked with women's bodies in ways it did not with male bodies.

6.1.3 Generating participation and public-good in the data revolution: convivial tools and the future of the university

Teresa Swist, Liam Magee & Philippa Collin (Institute for Culture and Society, Western Sydney University).

Ubiquitous computing has exploded open a revolution of data generation by communities, companies, governments and universities—but how, and to whose benefit? We examine the new territories and tensions which accumulations of data are raising for the future of the university. For Kitchin (2014), the sources for this "data revolution" span three types of production: directed data, mainly human-operated governance and surveillance; automated data, often autonomously generated via digital technologies; and volunteered data, information and labour contributed to a commercial network (e.g. Facebook) or a collective project (e.g. Wikipedia). This provides the context for our analysis: how data is being produced and secured; which types of data become accessible and usable with implications for privacy and ethics; and the flows of participation and benefit which both unfold and become inhibited. Ivan Illich's (1973) notion of "convivial tools" presents a means for considering how "data revolutions" open up opportunities for people to access political processes and participate in civic life. As an ethical imperative, convivial tooling can guide the labour of participation that shapes and is shaped by cooperative rather than commercial infrastructures. We propose two forms of "convivial tools" are especially relevant to open institutions and universities: open data platforms such as Open Street Map, and open source civic events such as hackathons, meet-ups and community mapping. Rather than the ease often alluded to, we argue these platforms and events reveal conflictual yet productive entanglements of data access and participation.

Panel 6.2: Data, Justice & Security

(RH 2224)

6.2.1 Data management for social justice: three case studies

Britt Paris & Jennifer Pierre (Department of Information Studies, University of California, Los Angeles).

This paper develops the conceptual bounds for a form of antagonistic data management that addresses reports our research team has encountered detailing police harassment of students and faculty at the University of California, Los Angeles. Building on the authors' previous work investigating the state of collected data on police officer-involved homicides in Los Angeles County, frameworks from the fields of critical legal storytelling and information and archival studies are utilized to develop a mode of data management for social justice, applied through three case studies to illustrate the issues at stake and suggest ways forward. We draw from this literature and cases to generate data management concepts that are easily accessed and applied to the development of tools for collecting and disseminating important narratives of police harassment incidents in ways that appropriately address issues of privacy, ultimately to shape discourse that mobilizes meaningful positive change around criminal justice reform.

6.2.2 Experimental Systems for data justice: an examination of semantic Web data infrastructure

Lindsay Poirer (Rensselaer Polytechnic Institute).

Hans-Jorg Rheinberger describes an experimental system as a device with the potential to produce knowledge beyond what is presently known. An experimental system opens space for knowledge to iterate and evolve in the face of new insights, perspectives, and contexts. An experimental system contrasts with a system designed to strictly codify how

knowledge is organized or a system that aims solely to consistently reproduce data. The argument that I develop in this paper is based on two years of ethnographic research with the semantic Web community. The semantic Web is a framework for adding structured metadata to Web data in order to enable computers and humans to interpret the data and its relationship to other Web content. While critiques of the semantic web focus on the privileged role of knowledge representation experts in formalizing data ontologies, I argue that practitioners in the semantic web community have brought different design logics to their work. For instance, one of my informants describes how the semantic web was designed to "delay semantic commitment". Recognizing how standardizing definitions for Web data can over-determine how the data should be interpreted, semantic web practitioners have instead aimed to design frameworks that acknowledge the multiplicity of meanings that individuals bring to their data. Semantic web practitioners have aimed to design a system that can tolerate their inability to anticipate how knowledge will evolve and iterate in new contexts. Drawing on the work of critical feminist semioticians such as Gayatri Spivak and Teresa de Lauretis, I argue that an experimental design framework for data infrastructure is a step towards enabling data justice.

6.2.3 The power of data as an information weapon: Information warfare by Russia since 2014

Volodymyr Lysenko, Betsy Williams, & Catherine Brooks (Center for Digital Society & Data Studies, School of Information, University of Arizona).

Recently we see a repeating story: hacked data, leaked data, and disinformation are all powerful tools used alongside cyber sabotage and military force in different parts of the Western world. Many of these attacks are covert, raising the question of how scholars and citizens can detect these incursions in real time. In February 2014, Ukraine ousted its President Yanukovych, who was Russian President Putin's protégé; Russia retaliated with physical and cyber aggression. An occupation of Crimea and Eastern Ukraine by clandestine Russian forces was accompanied by a massive disinformation campaign. Russia also infiltrated Ukrainian governmental networks with spying software, broke into the servers of the Ukrainian Central Election Commission to influence the outcome of the presidential election, and hacked and disabled important components of the Ukrainian critical infrastructure. After the United States (U.S.) and European Union (E.U.) imposed sanctions against Russia, Putin's regime intensified its information warfare against Western institutions as well. As weaponized data has been used in elections in Ukraine and the U.S., it may well continue during future election campaigns in France, the Netherlands, Germany, and beyond. In this paper we consider the nature of 'data' in an information-warfare environment. We also discuss and analyze Russian global information warfare since 2014, discuss how to detect its influence, and offer recommendations to mitigate its effects. While it is difficult to forensically prove who carried out recent attacks we describe, researchers agree that Russian government structures are behind these cyber and informational assaults. We use data from open sources, as well as data drawn from communications with other experts, to enhance clarity on info-warfare and gain insight into the everyday challenges presented by current-day Russian cyberactivity. As researchers, we aim to simply present a set of data and offer analyses relevant for citizens, scholars, and practitioners.

Panel 6.3: Data & Surveillance II
(RH 2228)

6.3.1 #TellVicEverything: contesting (in)visibilities in campaigns against digital surveillance

Valerie Steeves (University of Ottawa) & Jeffrey Monaghan (Carleton University).

Based on interviews with 15 activists and privacy advocates associated with the Bill C-51 campaign, we explore how various social movement participants negotiate issues of privacy, state secrecy, and organizing strategies against the prospects of intensified big data surveillance. Focusing on experiences of organizers, the paper details how public campaigning on issues of surveillance relies on a creative and playful politics of (in)visibility in confronting the antagonisms of state secrecy. After providing an overview of several campaigns in Canada against “open access” legislation and the recent Bill C51 mobilizations, we detail the #TellVicEverything twitter campaign as an illustration of the difficult terrains of (in)visibilities that are marshalled against digital surveillance powers.

6.3.2 Data power and violence: why are the two expanding together under neoliberalism?

Midori Ogasawara (Queen's University).

Nobel power of data collection, emerged from the Information Society, has constructed mass surveillance systems over individuals in the last decade. Mass surveillance systems, such as surveillance cameras and biometric identification in both public and private spaces, have rapidly disseminated in the ongoing western "war on terror" (Lyon 2003). Though surveillance systems do not originate in the "war on terror", rather had been invented, tested, and sophisticated since the colonial time (Cole 2001, Zureik 2011, Breckenridge 2014), the war created the best opportunity for the states and industries to extend those practices. However, those surveillance systems have never succeeded to contain "terror”. Rather, violence, formed as reactions to enormous killings in the war, has been proliferating in new sites, such as the serial events in France in 2015-16. Ironically, it is often reported that data agency had enough information, but did not take actions to prevent the events. Against a popular view of violence as "cause" and data collection as "result”, the two forms a complicit spiral relation to grow. This relation can be theoretically clarified when framing the war as "the state of exception"(Agamben 1998), under which surveillance works as closely as sovereign violence to individuals. On the other hand, as "the war on terror" is increasingly described as "new imperialism" (Harvey 2003, Wood 2003), political economy of data power should be examined from historical, economic perspectives. While the current aggressive marketization of previously uneconomic domains is an essential tactic of neoliberalism (Foucault 2008), it can be also attributed to expansive nature of capitalism to reproduce itself (Luxemburg 2003[1951], Arendt 1968).

6.3.3 Dataveillance, screens, and interactive toys for tots

Leslie Regan Shade (University of Toronto) & Karen Louise Smith (Brock University).

This paper examines the commercial data infrastructure privacy policies and practices of tot-facing interfaces. The surveillant data infrastructures of these children's digital playgrounds are recasting notions of data citizenship. The YouTube Kids app and an emerging array of 'internet of toys' will be used as case studies to critically examine the

privacy implications of commercialized interactive play spaces that are available to the youngest data citizens in society. While YouTube Kids has been promoted by parent company Google as a "safer version of YouTube", the app has come under regulatory scrutiny for its stealth advertising tactics and use of youth influencers. Likewise, interactive stuffed toys, an example of the 'internet of toys' can be reliant upon parental controlled apps which surface tensions between personalization and privacy, as personal data is collected about a parent and their child. Using content analysis, we will examine the corporate discourses, product interfaces, privacy policies, and terms of service that exist for YouTube Kids and an interactive stuffed toy. Analysis of the data collection practices within children's digital playgrounds reveals a troubling normalization of the dataveillance of children and the asymmetric relationships between corporations and families. Little is understood about the implications of dataveillance over an entire lifespan and how such play reconfigures the texture of childhood and parenting.

Panel 6.4: Open & Civic Data

(RH 3224)

6.4.1 Making small talk about small data: A case study of civic data hacking in Colombia

Carlos Barreneche (Universidad Javeriana).

Drawing on an engaged research project (Milan & Milan, 2016) the presentation discusses a case of civic data hacking in Colombia—The Data Week—through the framework of data activism (Milan & Gutiarrez, 2015; Shrock, 2016) and critical (digital) citizenship (Isin & Ruppert, 2015). The Data Week is a periodic event organized by citizens that functions as both a hackathon and a workshop, as it is oriented mainly towards learning (open to non-technical expert publics). On one hand, the Data Week is an interesting case of experimentation with the hackathon form since its scope goes beyond the short-term goals of the traditional hackathon—producing a prototype or technical solution for a single problem in a short time. The Data Week in its different iterations has aimed mainly at fostering a community of people interested in the civic possibilities of data that works around multiple issues and emphasizes processes over solutions (D'Ignazio et al., 2016)—though coding is also a goal in itself, it is mainly a means. On the other hand, it represents an instance of critical citizenship as it adopts a set of politically motivated technical principles aiming at citizen empowerment: the adoption of moldable tools, pocket infrastructures and frictionless data, that is, small-scale technology that can adapt to people's needs and capacities in the Global South in order to overcome infrastructural limitations to civic engagement through data and the "Big Data divide" (Andrejevic, 2014). We will present one of their works concerning the opening up and visualization of public budget and spending data and describe how participants communicated with and questioned public institutions repurposing the hackathon form as an advocacy platform.

6.4.2 Co-creating public services: from participatory design to participatory open data

Juliane Jarke (Institute for Information Management Bremen, Bremen University).

Governments are placing an increasing emphasis on opening their data repositories so as to encourage new forms of service design and delivery (e.g. Shakespeare, 2013). A

growing number of cities are making their data openly available and facilitate communication with their citizens on the move. However, such open data is normally read-only (that is, citizens are usually not able to easily suggest changes, correct errors, etc.) and there is little return for local governments. Hence the provision of open government data does not directly translate into more open, transparent or accountable city administrations and governments. Rather somebody has to do something meaningful with the data. In times of considerable budget cuts in the public sector, public authorities are increasingly turning to civil society actors to help them meet citizens' expectations with respect to reduced administrative burden and more efficient services. One of the main problems with such civic open data apps is that the topics are mostly pre-defined and supply-driven (which means that the data provided by authorities determines the types of services to be developed). Further, the scope of such apps often relates to infrastructure projects focussing on mobility, transport and map-based reporting, and is as such quite limited. Often, citizens merely act as data collectors or sensors. In my talk, I will present a review of existing "participatory open data initiatives" that aim to engage citizens (also with non-technical backgrounds) in practices relating to different levels of open data use such as the requesting, digesting, contributing, modelling, and contesting of open data (Schrock, 2016). I will also report from our own project—MobileAge—in which older citizen are co-creating open data.

6.4.3 Dilemmas of sense: ethics and action for data citizenship

Alison Powell (London School of Economics and Political Science).

The expansion of sensors provides ways to monitor or track environmental changes such as movement, temperature, vibration, and to combine and manipulate the data that they produce. Sense data produces new mediations of everyday experience and new dilemmas for civic action. Sense data, along with trace data, exemplify the movement from mediation based on symbolic content towards mediation based on information. This shift can be associated with features as banal as navigating a city based on pathways more travelled by other smartphone users (Citymapper and Waze) and as violent as the use of data streams to direct drone strikes. This shift holds significant influence for the way that people are able to communicate and act as citizens. Citizenship becomes bound up with the capacity to collect or analyse data, and new data sources, like citizen science air quality measurements, are celebrated as means to bring civic and public interest perspectives into conversation with government. But the redesign of public services along neoliberal lines obliges governments towards becoming efficient providers of services rather than sites of consolidated knowledge. Thus, civic data action or data citizenship can also become implicated in the streamlining and optimization of city services, which can include the removal of institutionalized knowledge. Examining a case of a citizen-designed data collection and design program in Bristol, UK, this paper examines how civic data creates dilemmas of citizenship—while disenfranchised groups may be able to claim data as a new mode of power, civic data collection and analysis can also become connected with a streamlining of government and governance and the removal of public sector (and public interest) knowledge.

Panel 6.5 Data, Senses & Automation

(RH 3228)

6.5.1 News recommendation based on opinion mining: an approach to assist the automatic classification of controversies

Marcela Baiocchi & Dominic Forest (Université de Montréal).

Web-based reading services such as Google News and Yahoo! News have become increasingly popular with the growth of news information services on the Internet. To help users cope with the information overload on these search engines, recommender systems and personalization techniques are proposed. Acting as a kind of algorithmic curators, these services help users find content that matches their personal interests and tastes using their browser history and past behavior as a basis for recommendations. However, several researchers have criticized recommender systems, arguing that overspecialized recommendations lead to the creation of isolated communities (Van Alstyne and Brynjolfsson, 2005), the emergence of extremist opinions (Mutz and Young, 2011) and the overall degradation of the public sphere (Parisier, 2011; Sustein, 2007). The aim of our research to propose an opinion mining method to classify divergent opinions from a controversial debate on the press. We want to contribute to a solution to diversify recommendations in web-based reading services. Our classification approach advocates for the study of linguistics aspects of corpus prior to the classification task, to orientate the selection of the textual criteria which may contribute to the application performance. This approach explores theoretical concepts from Interpretative Semantics formulated by Francois Rastier and uses textometric techniques for the corpora analyses. Our corpora are composed by opinionated articles about the 2012 student protest in Quebec against the raise of the tuition fees announced by the Liberal Premier Jean Charest.

6.5.2 Predictive policing and the performativity of data

Aaron Shapiro (Annenberg School for Communication, University of Pennsylvania).

Predictive policing—the use of algorithms and machine learning to make statistically-driven predictions about the locations and/or perpetrators of crimes—has been roundly criticized by civil rights and social justice advocates for its propensity to exacerbate, rather than ameliorate, existing inequalities in criminal justice. In this paper, I examine how the producers of one predictive policing suite, HunchLab, understand the limits and dangers of prediction, and respond to them through software and algorithm design. I describe three strategies by which HunchLab seeks to mitigate these issues: randomization, diversification of data, and experimentalization. I argue that these technical responses can be understood as a problematization of data's performativity—data's ability not only to accurately represent social worlds, but also to affect the conditions in which the statistical-representational apparatus is situated. I conclude with a discussion of the problematics of data performativity, considering whether it suggests a progressive antidote to problematic patterns in prediction and in policing historically or signs of a more finely-tuned predictive and prescriptive apparatus for law enforcement agencies to police the poor.

6.5.3 Data-driven television: automating the audience commodity

Lee McGuigan (Annenberg School for Communication, University of Pennsylvania).

This paper tells the history of media convergence as a tale of four affordances. It is typical to hear commentators claim that television is becoming more like the internet. Some observers acknowledge that the inverse is equally true. Missing from many of these discussions, which focus primarily on text, technology, and reception behavior, is the

central recognition that both television and the commercial Web are organized around the production and sale of audiences. Rather than trying to parse the distinctions between TV and online video, this paper suggests that the development of the current information and entertainment environment has been shaped by a broader set of expectations about the possibilities implied by digital media convergence. Over the last 50 years, a set of discursively constructed affordances—ways of imagining the potentials of new media technologies, filtered through the priorities and proclivities of long-standing commercial institutions—have shaped commitments of attention, energy, and capital toward building the infrastructures, platforms, and applications comprising our digital media environment: addressability (targeting/personalization), accountability (measurement/analytics), shoppability (e-commerce), and programmability (automation). These four affordances, first imagined around interactive cable television, have been realized most fully in the commercial Web, and they continue to frame expectations about the future of video-based entertainment. Approaching digital media as socio-technical systems organized around the production of audience commodities, this paper considers how efforts to build into infrastructures and institutions these capacities of control, coordination, and efficiency set conditions of possibility for our mediated experiences.

Message from the School of Journalism and Communication

On behalf of the School of Journalism and Communication I wish to formally welcome you to the 2017 Data Power Conference. We are thrilled to host this critical meeting of leading international scholars.

Carleton University is celebrating 75 years of excellence in 2017, and a big part of that history is the storied role of the university's journalism program, the first such program of its kind in Canada. The School has been offering undergraduate degrees in communication since 1978 and graduate programs in communication since 1991. In 2018, we are launching a new undergraduate degree in media production and design.

Our renowned graduates are leaders in the media and communication industries, where they work as reporters, editors, and producers, policy analysts, communication strategists, entrepreneurs, lawyers, and professors. We are thrilled to see some of our distinguished alum returning to Carleton as Data Power 2017 delegates.

Enjoy your time at Carleton and please accept my very best wishes for a stimulating and successful conference!

Josh Greenberg, PhD
Director, School of Journalism and Communication

Conference Organizing Committee

Tracey P. Lauriault

Assistant Professor, Critical Media and Big Data, Communication and Media Studies, School of Journalism and Communications, Carleton University, Canada

Tracey Lauriault joined the School in 2015. Her areas of expertise are, critical data studies; small, big and spatial data policy; data infrastructures and open data, open government, geospatial data, open smart cities, and the preservation and archiving of data. She is a research associate with the European Research Council funded Programmable City Project led by Rob Kitchin at Maynooth University in Ireland and the Geomatics and Cartographic Research Centre at Carleton University in Canada. She is a Steering Committee member of Research Data Canada; on the board of Open North, a member of the Institute for Data Science at Carleton and is winner of the 2016 Inaugural Open Data Leadership award for Canada.

Merlyna Lim

Canada Research Chair in Digital Media and Global Network Society and Associate Professor, Communication and Media Studies, School of Journalism and Communications, Carleton University, Canada

Merlyna Lim's research and teaching interests revolve around socio-political implications of media and technology, in relations to social movements, citizen participation, and social change. Using empirical evidence from Southeast Asia and the Middle East and North Africa, Lim's current research attempts to analyze contemporary social movements, spatially and temporally, to offers an in-depth understanding of the relationship between movements, urban space and digital media. Prior to joining Carleton University, Lim has held positions in Princeton University, Arizona State University, and the University of Southern California, among others. In 2016, Lim was named a member of the Royal Society of Canada's New College of Scholars, Artists, and Scientists.

Helen Kennedy

Professor of Digital Society, Department of Sociological Studies, University of Sheffield

Helen Kennedy's research has focused on: social media, data in society, data visualisation, inequality, web design, digital identity. Recent work includes a) Seeing Data (www.seeingdata.org), which explored how non-experts relate to data visualisations, and b) Post, Mine, Repeat (2016), about what happens when social media data mining becomes ordinary (both funded by the UK's Arts and Humanities Research Council). She is interested in critical approaches to big data and data visualisations, how people live with data, how to make datafication and its consequences transparent, and whether it's possible to 'live well' with data.

Jo Bates

Lecturer in Information Politics and Policy, Information School, University of Sheffield

Jo Bates is Lecturer in the Information School at the University of Sheffield. Jo's research focuses on two related areas: the socio-cultural and political economic influences on the production, sharing and re-use of data, and public policy on data access and re-use. She has conducted research on the development of Open Government Data policy in the UK and is currently researching the socio-cultural life of weather data.

Ganaele Langlois

Assistant Professor, Department of Communication Studies, York University and Associate Director Infoscape Lab (www.infoscapelab.ca)

Ganaele Langlois is Assistant Professor in the Deparment of Communication Studies at York University (Toronto, Canada). Her research interests lies in software studies and critical media theory. She recently co-edited Compromised Data: From Social Media to Big Data (with Joanna Redden and Greg Elmer, Bloomsbury, 2015). She also wrote Meaning in the Age of Social Media (Palgrave, 2014).

Ysabel Gerrard

Intern at the Social Media Collective, Microsoft Research New England & Lecturer in Digital Media & Society, Department of Sociological Studies, University of Sheffield

Ysabel is an Intern at the Social Media Collective, Microsoft Research New England and will join the Department of Sociological Studies, University of Sheffield as a Lecturer in Digital Media and Society in September 2017. She is currently researching Instagram, Pinterest and Tumblr's algorithmic moderation of eating disorder hashtags and content, and is also publishing her research on cultures of derision in teen drama television fandom. Gerrard is a PhD candidate in the School of Media and Communication at the University of Leeds. She has recently submitted her PhD thesis, entitled 'Derision, Guilt and Pleasure: Teen Drama Fandom in a Social Media Age.'

Scott Dobson-Mitchell

Local Coordinator, PhD Candidate (ABD), Communication & Media Studies, School of Journalism & Communication, Carleton University

A former newspaper columnist and writer, blogger, and cartoonist with Maclean's magazine, Scott Mitchell is a PhD candidate (ABD) in Communication at Carleton University. After completing a BSc in Biomedical Sciences at the University of Waterloo, and then a Master of Science with research in bioinformatics, Scott focused his research on the public communication of science, risk, and big data.

Jessi Ring

Local Coordinator, PhD Candidate (ABD), Communication & Media Studies, School of Journalism & Communication, Carleton University

Jessi Ring is a PhD Candidate (ABD) in Communication at Carleton University. Her SSHRC-funded doctoral research investigates different Canadian 'tinker' spaces to locate feminist practices that disrupt typical White-hetero-masculinist understandings of how technology should be created and used, and who can have technological expertise and skills. She has also explored the relationship between feminism, hacktivism, and the Hacker Ethic in her article titled "Hacktivism, Interrupted: Moving Beyond the "Hacker Ethic" to Find Feminist Hacktivism" that was published in the *International Journal of Critical Cultural Studies*.

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