DEFINING THE SENSOR SOCIETY CONFERENCE
University of Queensland, 8 - 9 May 2014

PROGRAM: THURSDAY 8 MAY

Social Sciences and Humanities Library Conference Room

8:30 - 9:00am | Opening Remarks: Timothy Pilgrim

9:00 - 10:00am | Keynote Presentation 1

- Edward Felten: ‘Sensors Without Surveillance’

10:00 - 10:30am | Morning Tea (provided)

10:30 - 11:45am | Panel 1 - Making Sense of Sensors: Anywhere, Anytime Data Monitoring

- Gerard Goggin: ‘Domesticating Sensors with Smartphones’
- Gavin Smith: ‘Sensing Selfhood: An Ulterior Appetite for a Sensor Society’
- Mark Andrejevic & Mark Burdon: ‘Defining the Sensor Society’

12:00 - 1:15pm | Panel 2 - Sensor Histories: How Data Got Big

- Erin Giuliani: ‘Police “Knowledge”: Predictive Policing and Surveillance in Colonial India, 1861 to 1913’
- Charlotte Epstein: ‘Habeas Which Corpus? Privacy and the Place of the Body in Surveillance Societies’

1:15 - 2:00pm | Lunch (provided – Level 3, Forgan Smith Tower)

2:00 - 3:30pm | Panel 3 - Sensor Technologies and Ethics

- David Adams & Mark Dibben: ‘Sense T and the Sensor Society’
- Helen Chenery, Adrian Carter & Jaqueline Liddle: ‘Personalised Health Care for People with Parkinson’s Disease: The Ethical Implications of Smartphone Monitoring’
- Vasileios Routsis: ‘Privacy, self-disclosure and real-name policy social media: The past and the future of their identity recognition techniques and the implications of a potential mainstream use of biometric technologies’

3:30 - 4:00pm | Afternoon Tea (provided)

4:00 - 5:00pm | Keynote Presentation 2

- Lisa Parks: ‘Drones, the Sensor Society, and US Exceptionalism’

University of Queensland Art Museum

5:30 - 6:30pm | Panel Discussion - Drones: Avatars of the Sensor Society

(Light refreshments served after this panel.)

- Participants: Baden Pailthorpe, Sebastian Kaempf, Lemm Ex, Mark Pearson
PROGRAM: FRIDAY 9 MAY

Social Sciences and Humanities Library Conference Room

9:00 - 10:00am | Keynote Presentation 3

- Jennifer Gabrys: ‘Environmental Sensors and Participatory Urbanism: Troubling the Practices of Data-Based Citizenship’

10:00 - 10:30am | Morning Tea (provided)

10:30 - 11:45am | Panel 4 - Sensor Society: Law and Regulation

- Megan Richardson: ‘The Fate of “Privacy” in a Sensor Society’
- Thilla Rajaretnam: ‘The Privacy and Confidentiality Issues Related to the Use of Sensor and Monitoring Technology in Medical Data: An Australian Perspective’
- Melissa de Zwart, Sal Humphreys & Beatrix van Dissel: ‘Predictive Harms: Is Privacy Regulation the Answer?’

12:00 - 1:15pm | Panel 5 - Private Sector Surveillance

- Daniel Baldino & Mark Rix: ‘Domestic Spying: The Pitfalls of Metadata and Constant Surveillance’
- Felicity Gerry: ‘The Rule of Law Online: You can’t steal cakes that Google haven’t baked’

1:15 - 2:00pm | Lunch (provided – Level 3, Forgan Smith Tower)

2:00 - 3:30pm | Panel 6 - Sensors and Targets: Marketing in the Sensor Society

- Nicholas Carah: ‘Algorithmic Brands’
- Katina Michael, Tomas Holderness & Etienne Turpin: ‘Infrastructure Planning Through Geosocial Intelligence: Using Twitter as a platform for rapid assessment and civic co-management during flooding in Jakarta’

3:30 - 4:00pm | Afternoon Tea (provided)

4:00 - 4:30pm | Closing Reflections: The Hon Michael Kirby AC CMG

4:30 - 5:30pm | Panel Discussion - Defining the Sensor Society

    (Panel to be recorded by ABC Radio National's Big Ideas)

- Participants: Edward Felten, Lisa Parks, Jennifer Gabrys, The Hon Michael Kirby AC CMG

5:30pm | Close
VENUES

Social Sciences and Humanities Library Conference Room
Level 1, Duhig Building (No. 2)

Forgan Smith Tower (Venue for lunches)
Level 3, Central Tower of Forgan Smith Building (No. 1)

University of Queensland Art Museum
Building 11
ABSTRACTS

Edward Felten: ‘Sensors Without Surveillance’

Sensors by their nature collect information that can be used to construct detailed pictures of people’s lives. This talk will explore technical and policy approaches that can help us gain the benefits of sensor deployment without creating an infrastructure of surveillance. Technical approaches can limit the collection and use of information, while increasing the transparency and accountability of systems. Policy approaches can better align the incentives of businesses and users with the public interest.

Edward Felten is Director of Princeton’s Center for Information Technology Policy (CITP), a cross-disciplinary effort studying digital technologies in public life. His research interests include computer security and privacy, and public policy issues relating to information technology. Specific topics include software security, Internet security, electronic voting, cybersecurity policy, technology for government transparency, network neutrality and Internet policy.

Gerard Goggin: ‘Domesticating Sensors with Smartphones’

The 2007 launch of Apple’s iPhone kicked off an intense phase of innovation and take-up of smartphones, with considerable implications for how we think about media, networks, data, and personal information. A popular feature of Apple, Google, Samsung, and other smartphones were sensors — which perhaps for the first time in a mass market device brought them to attention as part of consumption, use, and everyday life.

Smartphones incorporate sensors within them, underpinning hardware and software functions, especially with the plethora of apps designed to avail themselves of sensing. And smartphones were also designed to better integrate, co-ordinate with, and harvest from, the growing number of sensing networks, infrastructures, and device ecologies. With smartphones, the social functions of mobile devices — and through these, media in general — entailed the affordances, user cultures, and social practices of sensors. Thus it is arguable that smartphones represent a pivotal moment in the definition of the sensor society.

Accordingly, this paper takes smartphones as an important entry point for theorization of the nature and co-ordinates of sensors as an increasingly important conglomeration in contemporary social and political life.

Firstly, I examine the emergence of mobile phones as sensing media, particularly analyzing the development of sensors as a key element of smartphones. I discuss the main kinds of sensor technologies and apps with smartphones and tablets, and how these have co-evolved with their uses and emergent social functions.

Secondly, I consider the placement of smartphones and cellular mobile networks in the wider assembling of sensing infrastructures — with case studies drawn from health technologies, connected cars, as well as the Internet of Things. Thirdly, I discuss the implications of sensors for media and communications policy, in particular. Smartphones, for instance, are still largely regulated using the
traditions of media, communications, and telecommunications policy, augmented, and problematized by new Internet policy frameworks. Yet the pervasive and complexity of sensors poses major challenges to policy, that go well beyond the discussions of convergence that have slowly evolved over since the 1990s. Privacy is one key issue, but there are various other issues raised by sensors — especially the overarching issue of how we think about media and cultural citizenship to stake a claim to the potential capabilities and benefits sensors offer.

Gerard Goggin is Professor of Media and Communication at the University of Sydney, and an ARC Future Fellow. His most recent books are Locative Media (2014; with Rowan Wilken), the Routledge Companion to Mobile Media (2014; with Larissa Hjorth), and Disability and the Media (2014; with Katie Ellis). With Fiona Martin and Tim Dwyer, Gerard is currently researching an ARC Discovery Project entitled Moving Media: Mobile Internet and New Policy Modes.

Gavin Smith: ‘Sensing Selfhood: An Ulterior Appetite for a Sensor Society’

A sensor society is one that prioritizes the mass sensing of informatic simulacra. It is an arrangement typified by rapid proliferation of sensors into the structural and relational threads of daily life, detectors which are designed to capture, and then circulate, compressed textual signifiers emanating from various social and material flows. In this distinctive order of things, pervasive sensing, be that of consumption habits, productivity rates, financial markets, food circulations or affective states, becomes a normalized and naturalized procedure – a banal feature and stipulated rite in structures of hypermobility. Attention, however, does not merely pivot on the extensive accretion of sensory discharges. It also bears to mining pursuits, that is to say, comparative mapping exercises and reflective analyses of the signaled indicators so as to establish their intrinsic truthfulness and meaning. Content derived from a multiplicity of sensing devices is now routinely aggregated, a process permitting all manner of decipherable patterns to be visualized and apprehended. Translated information is acted on by various authorities and audiences and utilized for purposes of enlightenment, power, supervision, convenience, pleasure and mobilisation. Although sensing the ontology of things is far from novel in terms of an approach to knowing and governing, the scale and purchase of this technique has increased dramatically in recent years. Indeed, sensing is no longer the exclusive preserve of an affluent and powerful elite. And being sensored, conversely, is no longer an intervention experienced solely by ‘problem’ populations. The sophistication of sensing has also developed in tandem with its extensive popularization and liberalizing accessibility. This, of course, has a lot to do with technological innovation and evolution, but it is also connected to social appetites, and to ideological rhetorics certifying both the indispensability and promise of sensing: as a guarantor of security, prosperity and maturation. Contemplating the dynamics underlying our susceptibility as subjects both to sense (to expose phenomena) and to be sensored (to be exposed as a phenomena) reveals intriguing components of selfhood – hopes, desires, fears and values; but also principles and interests aligned with wider systems of influence.

I will contend that ubiquitous sensing correlates as much with material compulsions – temporal fascination, spatial control and resource management – as it does with affective impulses – mistrustfulness, longings for evidence-based certainty, doubts regarding sensory intuition and fears of the unknown. It indicates a cultural
enchantment with self-reflection, self-projection and self-affirmation, a primal need for corroboration in charting a reliable past, sharing an ephemeral present and envisaging an uncertain future. Our fascination with sensing things may also manifest metaphysical concerns with regards mortality, necromancy, material degeneration and disappearance, specifically at a point in time where, for some, the social significance of religious doctrines and scientific metanarratives are diminishing. Given the sensor society thrusts each of us into a regime and line of permanent visibility (which entails our being simultaneously scrutinized and divided, connected and integrated), what might be some emerging social and ethical resonances? How does subjectivity inflect on sensing practices and how might mass sensing impact on subjectivity? These types of question influence the substantive analysis.

Gavin Smith is a Senior Lecturer in the School of Sociology at the Australian National University.

Mark Andrejevic & Mark Burdon: ‘Defining the Sensor Society’

Sensor technologies are proliferating in our networked environments. Devices such as smart phones, cameras, drones, and a growing array of fixed environmental sensors and interactive online platforms now permeate all aspects of our lives. This developing environment is causing radical changes to traditional forms of information collection, storage and analysis processes. We are witnessing a shift from targeted, purposeful and discrete forms of information collection to always-on, ubiquitous, ever-expanding and non-specific forms of data generation and acquisition. The increased use of sensors therefore marks important changes to our understandings of surveillance, information processing, and privacy. In this paper, we create a new lens that examines the radical information changes unfolding. We label this new lens the sensor society and we provide a conceptual basis to understand four currently distinct attributes, which when put together, provide a different viewpoint of how our technologically driven society is evolving and the potential consequences that are emerging.

Mark Andrejevic is an ARC QEII Research Fellow and Deputy Director of the Centre for Critical and Cultural Studies at the University of Queensland.

Mark Burdon is a Lecturer in the TC Beirne School of Law at the University of Queensland.

Elizabeth Stephens: ‘The Long History of the Sensor Society’

The premise of the paper is that while sensor technologies, and the particular sense-making structures of which they are a part, may be recent developments, the "shift away from targeted, discrete forms of information collection to always-on, ubiquitous, expanding and accelerating data collection" finds important precursors in the much longer history of datafication and data analytics. This paper aims to contribute a historical dimension to the symposium. It will examine the controversies surrounding the implementation of data collection and statistical analysis in the mid-1800s, and the emergence of the first large-scale data banks during the First World War.
While the emergence of commercial and government data analytics and technologies is one part of this history, the emergence of a "politics of participation," of a social citizenship derived from the voluntary collection and management of person data is another. From the eugenic Life Records books kept by British families in the late 1800s to the self-quantification movement of the present day, the long history of the sensor society has produced, in tandem with increasingly automated sense-making systems, a hyper-vigilance and self-observation.

Elizabeth Stephens is an ARC Research Fellow and Deputy Director of the Centre for the History of European Discourses at the University of Queensland.

Erin Giuliani: ‘Police “Knowledge”: Predictive Policing and Surveillance in Colonial India, 1861 to 1913’

This paper examines ‘predictive policing’ in an historical and colonial context. Over the course of the nineteenth century in British ruled India, a system of predictive policing emerged as part of a wider surveillance project. The system was aimed at preventing crime by deploying personnel to certain criminal ‘hotspots’ and keeping watch over individuals and groups of people whose criminality was assumed. For a predictive police function to operate, written information was vital. The collection, exchange and analysis of information allowed the police to make assumptions about where crime was likely to occur and to surveil only those criminals who were assumed most likely to commit crime. This required the development of systems of information collection, indexing, classification, and analysis, to ensure what was ‘known’ by the police became what was useable. Pursuant to the notion that crime could be predicted and therefore prevented, the Indian police developed tools and techniques to expand the outer limits of what was known about India’s criminal world.

Erin Giuliani is an Honorary Research Fellow in the School of History, Philosophy, Religion and Classics at the University of Queensland.

Charlotte Epstein: ‘Habeas Which Corpus? Privacy and the Place of the Body in Surveillance Societies’

Biometrics constitute one of the first sensor technologies with which specifically, since 2005, the state is collecting intimate information about our bodies through the mundane experience of travelling. In this article I consider how technologies and practices of surveillance are changing our experiences of bodily privacy. To this end I use biometric technologies as a lens for tracking the changing relationships between the body and privacy that underwrite our modern democratic polities. Adopting a broader genealogical perspective, however, I begin by retracing the role of the body in the constitution of the modern, liberal political subject. I consider successively two quite different understandings of the subject, the Foucauldian political subject as theorised by Michel Foucault, followed by the subject of psychoanalysis in the wake of Jacques Lacan. My genealogy of the modern political subject begins with the habeas corpus, and observes a classically Foucauldian periodization, the historical succession of a ‘regime of sovereignty’ with a ‘regime of
governmentality’ within which our surveillance societies are currently taking shape. In the final part of the article I then reverse the gaze, and consider the subject looking back. I consider the place of the body in the constitution of the psychic subject in Lacan’s mirror stage, and conclude to the importance of privacy in the development of the psychic subject. The psychoanalytic perspective, in which the gaze is revealed as that of the Other, serves to appraise the effects upon the subject of being exposed to constant viewing. By considering these two facets of subjectivity – political and psychic – I hope to make sense of our enduring passionate attachment to privacy, notwithstanding the normalization of surveillance technologies and practices.

Charlotte Epstein is an Associate Professor in the Department of Government and International Relations at the University of Sydney.

David Adams & Mark Dibben: ‘Sense T and the Sensor Society’

Sense - T is the first attempt in Australia to use Big Data to develop a comprehensive set of economic, social and environmental sensors on a spatial basis. Sense-T partners include the ABS, the CSIRO, State and Commonwealth Governments and many businesses.

Sense T is in the business of catalysing learning innovation to construct valuable knowledge for economies and societies by scaling up and scoping up a range of current and emergent data sensing practices about how information is generated, stored, shared, analysed, distributed and applied.

Embedded in each of these key words are elements of a new global approach to understanding how knowledge sources, forms and flows are being transformed. A new knowledge value chain. These transformations are fundamentally disrupting the roles of many of our key institutions, such as governments, industries, universities, and communities, to create the new institutions of the knowledge economy and the knowledge society.

Whilst globally there are presently numerous examples of various combinations of the Sense-T value chain in play – especially the commercialisation of big data for private value creation – there appear to be very few, if any, examples of a systematic tackling of the profound institutional complexities and barriers of upscaling and upscoping to the level of economy-wide and society-wide usable knowledge. That is usable knowledge that could, perhaps, address some of the ‘big challenges’ of our times. Hence the promise (and the risk) for Sense-T.

As with the development of the Internet, the business practices of sensing and Big Data are running ahead of our ability to theorise and understand the broader social ramifications. Sense-T is providing a range of insights as to those ramifications.

This Paper focusses on how and where ethical reasoning (for example around trust and privacy) is likely to occur within the Sensor Society and the implications for our current construction of ethics. In so doing, it looks to scope out some of the social problematics inherent in our engagement with and use of big data.
Helen Chenery, Adrian Carter & Jaqueline Liddle: ‘Personalised Health Care for People with Parkinson’s Disease: The Ethical Implications of Smartphone Monitoring’

Smartphones combine mobile computing capabilities with wireless telecommunications that significantly improves our ability to provide personalised health care while also providing a powerful new research tool for understanding disease and its response to treatment. Smartphone-based health applications may be used for monitoring disease and treatment outcomes over time particularly in chronic diseases, to support diagnosis, for automated health/medical calculations, for training and to enhance communication for health professionals.

One example of a chronic condition where remote symptom monitoring via smartphones is relevant and useful is Parkinson’s disease, a neurodegenerative condition which can lead to changes in mobility, communication and mood and result in reduced independence in everyday activities and reduced quality of life. People with Parkinson’s will often report adequate pharmacological relief from their Parkinsonian motor symptoms at their clinical appointments. However, they may still experience a range of psychological (e.g. anxiety, depression, impulsivity) and social (e.g. relationship breakdown) disturbances that can significantly impact on their welfare and general quality of life. These challenges may change on an hourly, daily and weekly basis in ways that are not apparent at the clinical consultation. In this paper, we describe a pilot study that used smartphones to measure the motor and non-motor symptoms of people with Parkinson’s disease and their resulting quality of life set against the geographic area in which the person lives and conducts their activities. This multidimensional construct is called Lifespace and reflects mobility, health and wellbeing.

Smartphones collect an array of personal information, including GPS data, motor activity, voice recordings, mood fluctuations and various diary entries, in novel ways that present unique ethical challenges to researchers and clinicians. For example, the variety and amount of data collected by these devices raises challenges for researchers in preserving participant/patient anonymity. This will create new challenges for health care professionals and researchers to protect the privacy of individuals using the technology, whilst complying with relevant legislative requirements. Data collected from smartphones may also be stored for unlimited periods of time and it may not be clear for what purpose the data could be put to at some point in the future. Smartphones can also collect information on secondary individuals, such as family, friends or bystanders. This raises additional challenges for obtaining consent from relevant stakeholders that is both informed and meaningful. It is also not clear who owns the health-related information collected via smartphone technologies, or what the role and responsibility of health care professionals or researchers using these technologies is to communicate the results of clinically-meaningful information to patients, research participants, or other
relevant stakeholders. This paper will examine these unique ethical challenges and provide possible guidelines for navigating this emerging ethical frontier.

**Helen Chenery** is a Professor at the University of Queensland Centre for Clinical Research.

**Adrian Carter** is an NHMRC Research Fellow at the University of Queensland Centre for Clinical Research.

**Jaqueline Liddle** is a Postdoctoral Research Fellow at the University of Queensland Centre for Clinical Research.

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**Vasileios Routsis: ‘Privacy, self-disclosure and real-name policy social media: The past and the future of their identity recognition techniques and the implications of a potential mainstream use of biometric technologies’**

Social media have created a global networking phenomenon that altered privacy ethics and led to an unprecedented practice of the self-disclosure of vast amounts of private information on more or less public online environments. Internet has been increasingly becoming a less friendly environment for anonymous users, with Facebook Connect, for example, penetrating third-party websites and discussion communities. In addition, Google has been aggressively expanding its social networking platform by combining all of its services, and forcing its users to use Google+ in order to actively participate in e.g. Google Play and YouTube. However, a significant amount of their users still refuse to upload their real details or create double accounts in order to protect their privacy. This has triggered a debate and discussion about the right to remain anonymous and the phenomena of trolling and sock-puppetry. There have been various attempts from real-name policy social media to overcome the problem of finding an effective way of members’ identification (e.g. phone number requesting, ‘soft’ biometric applications such as automatic photo-tagging, asking users identify friends’ photos, etc), but none has proven to be adequate enough. Recently, smartphones such as iPhone 5S or HTC One Max (with more to come) offer digital fingerprint sensors, while there are plans of mobile devices manufactures to introduce iris scanners as well. Although such implementation of biometric technology is currently restricted to phone unlocking convenience, there is the potential that in the future the applications of this kind of technology will be expanded and become mainstreamed, making the leap from mere authentication to identity recognition on various online platforms such as some social media services.

This paper will examine the background of the evolution of the mechanisms that real-name policy social media implement in order to enhance their members’ truthful self-disclosure, as well as the affect this has on the latters’ online privacy protection behaviour. However, it will particularly focus on biometric technologies and will discuss how they might become a ‘game-changer’ on online environments authentication and identity recognition in the future. The paper will analyse secondary material coming from researches, reports, news, etc. It will also utilise the responses from a broader survey on online privacy that includes a set of questions on everyday use of biometric technology in order to discuss the general attitude of the nowadays online users towards such implementations. Parts of this paper will
be based on material from the author’s unpublished work-in-progress doctoral thesis.

It is hoped that the final paper will contribute in the ongoing discussion on the ways of implementation, the ethics and the implications of the dispersion of biometric technologies into society. However, its intentions are also to provide a theoretical synthesis that critically assesses conventional Internet surveillance and dataveillance, as well as the – often overlooked – horizontal surveillance practices amongst people that has emerged through the use of social media and digital technology in modern societies.

Vasileios Routsis is a Research Associate at the University College London’s Centre for Digital Humanities.

Lisa Parks: ‘Drones, the Sensor Society, and US Exceptionalism’

During the past several years there has been a surge of international discussion about drone technology and drone warfare. A main impetus for this discussion has been the US deployment of drones in Pakistan, Yemen, Somalia, and beyond. Drone-facilitated targeted killing in these countries has generated heated debates over the legality and ethics of drone use. While some align the drone with an asymmetric form of warfare that is patently illegal, others characterize it as enabling a more “humane” form of warfare that minimizes civilian casualties. Still others insist that the drone has a useful array of applications and is here to stay so we must figure out how to live with it. Meanwhile, in the midst of these discussions, US targeted killing has continued, establishing a dangerous precedent that, in effect, sanctions similar drone use by other nation-states, such as Syria and Israel, and accelerates global trade of military drones.

Built upon pre-cursors ranging from the hot air balloon to the remote sensing satellite, US military drones such as the Predator or Global Reaper can hover in the air for hours and generate high-resolution, multi-spectral aerial imagery that can be networked in real-time and acted upon. As such they are paradigmatic technologies of the sensor society. Drones not only monitor the earth’s surface from a distance; they have the power to remediate and transform life worlds on the ground in a most material way. While such air-based practices are not new, they have been reconfigured in the current historical conjuncture of the war on terror and US exceptionalism. To explore these issues more fully, this paper provides an overview of US drone interventions abroad since 2001, describes the capacities of drone sensors and infrastructures, and, analyzes drone interventions in Somalia, Yemen, and Libya.

Lisa Parks is a Professor and former Department Chair of Film and Media Studies at UC Santa Barbara, and an affiliate of the Department of Feminist Studies. She also currently serves as the Director of the Center for Information Technology and Society at University of California, Santa Barbara. Professor Parks has conducted research on the uses of satellite, computer, and television technologies in different national contexts. Her work is highly interdisciplinary and engages with fields such as geography, art, international relations, and communication studies. She has published on topics ranging from secret satellites to drones, from the mapping of orbital space to political uses of Google Earth, from mobile phone use in post-
Jennifer Gabrys: ‘Environmental Sensors and Participatory Urbanism: Troubling the Practices of Data-Based Citizenship’

Urban infrastructures are increasingly embedded with computational sensor technologies that are intended to automate urban processes and facilitate urban efficiencies. While such smart city developments might clearly be addressed as infrastructural technologies, at the same time they influence modes of urban engagement through interaction both with urban sensor technologies, and with smart phones, digital devices and platforms that are meant to co-activate urban functions. This presentation will discuss the different ways in which sensor-based and digitally enabled modes of DIY and participatory urbanism have been taken up on the one hand as grassroots strategies for articulating new types of commons and democratic urban participation; and on the other hand as strategies integral to smart city development proposals. What are the convergences and divergences across these different mobilizations of DIY urbanism? How do models of participatory urbanism such as updatable maps for street repairs, air quality sensors, or platforms for tree planting organize new infrastructural and citizenship practices that emerge at this juncture of sensor-based and data-based citizenship? By focusing specifically on the use of citizen sensing applications for environmental monitoring and sustainability, this presentation will consider the distinct modes of participation and urbanism that emerge in these speculative and actual projects. The presentation will discuss the specific capacities of citizens and publics that are operationalized through digital practices dependent upon urban environmental sensors, and will speculate about what other practices and imaginaries might emerge through an approach that specifically seeks to trouble the dynamics of DIY digital urbanisms.

Jennifer Gabrys is a Senior Lecturer in the Department of Sociology at Goldsmiths, University of London. Her research and practice investigates environments, material processes and digital technologies through theoretical and practice-based work. Projects within this area include Digital Rubbish: A Natural History of Electronics (University of Michigan Press, 2011), which examines the materialities of electronic waste; and a study currently underway on environmental sensor technologies and practices, ‘Program Earth: Environment as Experiment in Sensing Technology’. She is a Co-Investigator on the ESRC / RCUK Energy Programme-funded project, ‘Energy and Co-Designing Communities’. This study investigates how new technologies might be designed to engage communities in rethinking energy consumption. Dr Gabrys is a member of Surface Tension; and a member of Weather Permitting, a collaborative environmental design and research group focused on climate change. Jennifer is also currently Principal Investigator on the European Research Council starting grant, ‘Citizen Sensing and Environmental Practice: Assessing Participatory Engagements with Environments through Sensor Technologies.’
Megan Richardson: ‘The Fate of “Privacy” in a Sensor Society’

The concept of ‘privacy’ defined as a right to be ‘let alone’ may have served well in the 20th century when much of the focus of legal attention was on personally intrusive publications especially by the media as well as more broadly (personally) intrusive conduct. But query whether the concept of ‘privacy’ will serve as well for the sensor society of the 21st century. While I want to argue that the concept of ‘privacy’ is quite elastic, alternative concepts such as ‘data protection’ or ‘surveillance’ may seem more satisfactory (especially from an aesthetic point of view) in the current environment. On the other hand, privacy has been protected quite well in the past under laws framed in terms of confidentiality, copyright and trespass, etc – and more recently under laws framed in terms of data protection and surveillance. Thus perhaps it is less important to be able to identify and agree on the relevant concept, or concepts, behind the current push for regulation in a sensor society. In other words, it may be more important to devise laws that effectively regulate problematic practices.

Megan Richardson is a Professor of Law in the Melbourne Law School at the University of Melbourne.

Thilla Rajaretnam: ‘The Privacy and Confidentiality Issues Related to the Use of Sensor and Monitoring Technology in Medical Data: An Australian Perspective’

A growing e-health industry harvests medical data using sensing and monitoring technologies such as bio-sensing technology, radio frequency identification (‘RFID’) technology and smartphones. The types of health information collected by health service providers using such technology include tracking pharmaceutical handling, assessing patients’ medical condition—for example, blood pressure, heart rate and body temperature—and genetic information. Such technologies facilitate patient diagnostics for those patients living in remote and isolated communities in Australia. Medical researchers are also using such techniques. The developments and use of such information processing technologies and the handling of sensitive healthcare information by healthcare service providers have heightened concerns regarding patient privacy and confidentiality in the medical context. The use of sensing and monitoring techniques also raise ethical concerns about the collection, use and disclosure of such data and the privacy of individuals’ personal information, sensitive information and health information.

The paper examines aspects of privacy and confidentiality and of their regulation under the Privacy Act 1988 (Cth) (‘Privacy Act’) and the Health Records and Information Privacy Act 2002 (NSW) which provide for and promote fair and responsible handling of health information. Also considered are the recommendations of the Australian Law Reform Commission on the legal and ethical handling of medical data.

Thilla Rajaretnam is an Associate Lecturer in the School of Law at the University of Western Sydney.
Melissa de Zwart, Sal Humphreys & Beatrix van Dissel: ‘Predictive Harms: Is Privacy Regulation the Answer?’

Every time a user clicks ‘Like’ on a Facebook page, makes a connection through LinkedIn, purchases a movie through iTunes, creates and uploads a video to YouTube, they are creating a digital trail. User preferences for movies, music, books, food, and other services are stored in cloud computing applications and aggregated and interrogated in order to determine and predict customer demand. The internet has facilitated a vast growth in information production and information sharing, and most services are ‘free’. However, most of these services are also privately owned, requiring users to consent to the Terms of Service that regulate their use. Those Terms of Service will require the user to consent to data collection, and in fact may require a certain amount of data to be disclosed by the user in order to function. Users have been told that ‘privacy is dead and to get over it’, or they may believe that use of the data being disclosed by them is regulated by domestic laws. However much of the data being collected is anonymised and thus is not subject to privacy laws. The law does not restrict the collection of mass data sets (so called Big Data) as it is not considered to be sensitive or personal, as no individual is identifiable. Therefore, Big Data operates outside of current privacy regulation (Rubinstein 2012, Tene and Polonetsky 2012).

This de-identified or mass data is now being used for a range of predictive purposes, facilitating use by governments and corporations alike, in areas such as health care, planning, employment, education, finance and law enforcement. Predictive data can be useful for planning and resource allocation, but it can also lead to significant predictive harm: personal consequences for users who become the target of predictive modelling (Crawford and Schultz 2013).

As predictive modelling is based on anonymised data collection, users have no awareness of, nor ability to object to, the development of detailed profiles which have been demonstrated to have a high degree of accuracy. Further, as it facilitates a highly detailed picture of an individual’s preferences and circumstances, it can have as serious an impact on an individual as directly ascertained personal information is used for example in areas such as denial of credit status, health care, prediction of crime and employment opportunities. It can also have serious consequences when data prediction is faulty, as again, there is no direct link between data and individual, and therefore no capacity to identify and correct inaccuracies. Further, studies have reported that users are deliberately seeding their responses in many instances with incorrect and misleading data. The risks generated by this data fall outside of existing privacy regulation.

This paper will consider the theoretical and legal contexts of Big Data and the consequences for privacy law generated by the always on and recursive nature of Big Data (Grimmelmann 2014). It will consider whether privacy law has any role to play in this new domain or whether a completely new approach must be developed to the generation, handling, management and use of personal information.

Melissa de Zwart is an Associate Professor in the Adelaide Law School at the University of Adelaide.

Sal Humphreys is a Senior Lecturer in Media at the University of Adelaide.
Daniel Baldino & Mark Rix: ‘Domestic Spying: The Pitfalls of Metadata and Constant Surveillance’

This paper will investigate whether the wholesale collection by governments of vast amounts of data (metadata and content) derived from the private digital communication activities of virtually all of their citizens is both necessary and reasonable to ‘neutralise’ the global threat of terrorism. Exposed in the recent disclosures of whistle-blower Edward Snowden, can the casting of constant suspicion and invasion of privacy of citizens in far-reaching domestic surveillance activities (as an ‘early warning system’) be justified by the claim that without doing so the terrorist threat would grow and become more deadly and destructive?

While the US, NSA and UK GCHQ are the major agencies involved in this industrial scale communications surveillance of just about everyone, many other governments, either independently or in partnership with these two agencies, are involved in the constant monitoring of similar digital actions and interactions of their citizens. In particular, it appears that the ‘five eyes’ club, including Australia, have been mimicking the US in their efforts to build and conduct sweeping domestic data mining programs. Further, it is not only governments which are involved. As many commentators have pointed out, communications surveillance and collection on this scale would not be possible without the willing (or coerced) collaboration of private corporations – predominantly internet and telecommunications companies like Google and Facebook – through the various sorts of public/private partnerships that have been formed with corporate counterparts.

At the same time, massive, indiscriminate communications surveillance continues to rely on the use of algorithms to filter, sort and analyse the vast amounts of digital data that is collected on an ongoing basis. Without these algorithms, wholesale communications surveillance would simply not be possible. Yet one of the core problems in using algorithms is that it automates and proliferates the casting of suspicion, and creates related problems such as construction of false positives, which can act to fundamentally change the relationship between the government and the governed. This includes violations that are potentially very corrosive of democratic participation and accountability without necessarily countering terrorism.

As such, this paper will investigate issues and themes related to the collection and analysis of private information of citizens and consider whether the ‘war on terror’ could be conducted in a manner that is more protective of democracy, and genuine national security, at the same time as effectively countering the terrorist threat.

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Felicity Gerry: ‘The Rule of Law Online: You can’t steal cakes that Google haven’t baked’

In 1885 Professor A. V. Dicey, Vinerian Professor of English Law at Oxford University gave three meanings to the rule of law:

(i) No man is punishable except for a distinct breach of law
(ii) No man is above the law
(iii) The rights of private persons are the result of judicial decisions at Common Law and in other jurisdictions by the security given by constitutions

Of course, as Tom Bingham wrote in 2010, Dicey’s ideas were founded in “the slow, incremental process of common law decision making, judge by judge, case by case” but the basic premise of those 3 concepts is enshrined in written constitutions across the globe. In the modern context, such territoriality is an anathema. The global gathering of data is a phenomenon from teenagers exchanging selfies and private details on the net to Government organisations apparently routinely monitoring their own people and their rivals.

Free Speech is no longer the sight of someone shouting at Speaker’s Corner in a far off corner of a grey London park but it is an instant online exchange whether written or visual. People are informed and empowered by the internet. The freedom to be yourself wherever you are and to publicize your view creates the ingredients for a valuable society where progress can include technological development without fear or repression.

From the creation of data follows the gathering of the data. That gathering is inevitable but what of the compilation and analysis of that data by large organizations? Most of this data is given with some fuzzy form of consent because it is gathered automatically from users without any genuine opt-out system. What results is the compilation of personal data for the purposes of data analysis by an unelected ‘internet government’ (Google, Facebook, etc). What inevitably follows is use by territorial Governments and their security agencies.

This paper seeks to analyse the concepts of a global rule of law: Enforcing rights to privacy as legal torts or civil wrongs might be useful to passing celebrities to prevent poking in bins or looking through people’s front windows but are never going to be able to respond to the global phenomenon that is twitter, email and now Google glass. The ‘sensor society’ concept presents two main categories of problems – active invasion of privacy (Google Glass footage shows a married man philandering in a wine bar, compromising his reputation), and passive invasion of privacy (Logarithmic analysis of someone’s daily routines using his location as provided by his smartphone’s GPS, and facial recognition from the footage of Google Glass users on the street, cause him to be placed on a government watch-list that hurts his potential future employment – or the data is used in personally-targeted advertising, thereby manipulating him into shopping sprees that worsen his mid-life crisis, resulting in wine bars and philandry).

The first category doesn’t require the restriction of data sensors – use of most of this data gathering is already prohibited by territorial laws. The second category
requires the restriction of companies like Google from compiling this data and analysing it.

If the answer is to licence or judicially restrict the non-governmental compilation of this data in the first place as a method of restricting mass surveillance by Governments themselves then all we have to do is identify the legal question for global leaders to answer. If the ingredients are the freedoms that we value, what cakes do we want to bake and in which judicial dining room should it be served?

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In recent times, Mexico has emerged as a striking, if not limit case of the sensor society — most notably in the networks of motion-sensing technologies that detect and alert the movement of migrants across its northern borders into the United States. In this paper, we discuss a distinct and significant Mexican case that has as yet received little attention internationally — the Geolocalization Law ratified by the Supreme Court in January 2014.

The Geolocalization Law (Ley de Geolocalización) was passed by the Mexican congress in September 2011. Its aim was to consolidate and fortify the existing provisions requiring telecommunications providers to make available their phone records and data to police and security agencies, for purposes of law enforcement. In particular, it extended existing provisions to require telecommunications carriers to make geolocal data, gathered through cellular mobile devices and networks, available to agencies — hence the title of the law.

The Geolocalization law enjoyed considerable support from lawmakers and some activists in Mexico, a society riven by el narcoterrorismo — the parastatal power of the drug cartels that has resulted in horrific, widespread violence, human rights violations, kidnappings, power voids in states such as Michoacán, and unprecedented impunity. However, the Geolocalization Law also drew significant criticism and opposition from the National Human Rights Commission and from critics for whom the poor track record of the State, law enforcement, and security agencies when it comes to protection of privacy and human rights raised serious qualms.

In this paper, we discuss the emergence of this regulation of mobile, locative media in Mexico, through the Geolocalization Law — and what it represents for the discussion of how to grasp and define the sensor society. We also raise the issue of the cultural specificity of sensors, and the need to grasp their infrastructural, historical, political economic, linguistic, and legal characteristics in particular social settings. What are the social imaginaries of sensors? How do these differ, and what are their entailments, and implications? And what kinds of research, critical discussions, and interventions do we need, if we are to acknowledge that sensor are involved in reworking the social in a wide range of places, beyond the dominant reference cases from the Global North?
DEFINING THE SENSOR SOCIETY CONFERENCE
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Nicholas Carah: ‘Algorithmic Brands’

This paper develops an account of the relationships between sensors like smartphones, the affective capacities of users, and the algorithms of social media. I argue that one of the distinctive features of sensor-logic is the effort to inculcate users in curating flows of content and data. Users can be thought of as affective labourers whose capacity to give and gain attention is critical to the production of networks and databases. Channeling the communicative capacities of users involves reconfiguring material cultural spaces.

I develop this account by drawing on a study of the Australian music festival Splendour in the Grass and its partnering brands. The festival features music performances by international acts and an extensive arts program. Smartphones and RFID chips are used to optimise the presence of the festival and its partnering brands on social media. Festival goers use their smartphones to capture and circulate images of themselves, their peers and the performances of musicians, artists and brands. In 2013 over 40 000 images were circulated on Instagram during the festival. Fans also wear RFID tags on their wrists which post content about their movements around the festival to their social media profiles. Alcohol brands like Smirnoff, Jagermeister and Strongbow have built bars featuring art installations, themed experiences and music performances. Fans register rich cultural content, data and social networks that connect together their social lives with the cultural experiences devised by the festival and brands.

I propose that this activity is a form of algorithmic communication. By this I mean that the festival and brands create cultural spaces and experiences attuned to the way social media’s algorithms sort and display content. On social media attention is generated via networks of affinity. The circulation of images is integral to the production of affinity. The more that actors on a platform like Facebook or Instagram circulate and interact with images, the more those platforms can make judgments about links and similarities between individuals and the more likely they are to be visible to each other. Brands attune themselves to algorithms by assembling cultural spaces and sensors where target audiences generate flows of
content that create affinity with the brand. This activity depends on the communicative capacity of users to judge, create and affect one another.

I conclude by suggesting that sensors are integral to the real-time employment of our communicative capacities and cultural spaces in the production of databases. Sensors harness our capacity to judge and affect, they enlist us as primary coders of databases. Sensors mark a critical shift, where once branding predominantly involved surveillance of markets and then targeted messages through media; it now also assembles space and networks to manage a continuous circulation of attention. This process depends not only on the technical capacity of networked mobile devices but also the distinctively human capacity to channel attention. The contribution of this paper is to argue that a critical account of sensors needs to address how they assemble cultural spaces and social relationships in their efforts to modulate our capacity to affect one another.

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Over the last decades, critical accounts of advertising and branding have been dominated by a focus on the semiotic strategies used by advertisers in their attempt to associate products with desirable lifestyles and the aura of ‘cool’ (Williamson 1978; Wernick 1991; Goldman 1992; Goldman and Papson 1996; Klein 2000; McGuigan 2009). In this context, Nike has often served as a prime example for advertising’s power to create ‘mystifying’ commodity signs – its famous ‘Swoosh’ logo and the ‘Just do it’ slogan – and branding strategies that are built on identifying and exploiting ideological tensions in consumer society (Holt 2002; 2010).

This paper however takes Nike’s FuelBand as an example for the argument that the semiotic, representational and ideological enterprise to account for advertising and branding has become insufficient for theorising modern marketing communications.

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Katina Michael, Tomas Holderness & Etienne Turpin: ‘Infrastructure Planning Through Geosocial Intelligence: Using Twitter as a platform for rapid assessment and civic co-management during flooding in Jakarta’

The ability to collect data using sensor-based technologies is increasing within a public technical means. As governments in rapidly-urbanising developing nations seek to address the climatic, social and economic challenges of the 21st century, there is a progressive requirement to map and articulate civil infrastructure. When a local government needs to proactively react to impending and disruptive phenomena they increasingly look to data and technology to help them manage and respond accordingly. Mobile social media, in a citizens-as-sensors paradigm, offers the potential to collect data with which to advance our capacity to understand and promote resilience of cities to both extreme weather events as a result of climate
change and to long-term infrastructure transformation as a process of climate adaptation. Location-based social media, in a big-data context, can drive rapid assessment processes of affected areas, and emerging patterns and trends can be revealing about “next steps” for situational management. This paper emphasises the positive uses of smart systems, drawing on research of infrastructure analysis using geosocial intelligence, in response to seasonal flooding in the city of Jakarta, Indonesia. Using a series of real-world examples, we argue that data collected from the field can be secured, anonymised and encrypted to support improved planning and civic co-management of megacities. The factors that affect such bi-directional information flows need to be built on sound principles of basic needs, privacy, and trust at the individual, neighbourhood and city scales.

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