

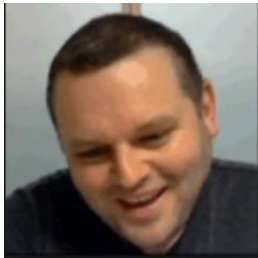
## Keynote speakers

### Professor Katie Atkinson



Katie Atkinson is Professor of Computer Science and Head of the Department of Computer Science at the University of Liverpool, UK. Her research concerns computational models of argument, with a particular focus on persuasive argumentation in practical reasoning and how this can be applied in domains such as law, e-democracy and agent systems. Katie gained her PhD in Computer Science from the University of Liverpool in 2005. She has published over one hundred articles in peer-reviewed conferences and journals, both specifically within the field of AI and law, and more generally within the topic of artificial intelligence. Katie's work covers both theoretical and applied aspects; recent collaborative projects have concerned the development of intelligent tools for a law company, and realisation of tools to support e-democracy and legal knowledge-based systems. Katie was Program Chair of the fifteenth edition of the International Conference on Artificial Intelligence and Law held in San Diego, USA in June 2015 and she currently serves as President of the International Association for Artificial Intelligence and Law (IAAIL).

### John McNamara



John McNamara is a Senior Inventor and Innovation Centre Technologist Lead at IBM. John is responsible for a team of technologists in the IBM Hursley Innovation Centre where his team utilises an array of technologies including Watson, IoT, Messaging, Integration, Analytics and Cloud. He also creates One of a Kind projects using newly released IBM technology, in partnership with universities. These projects have included an Internet of Things Space probe, a Cognitive Search and Rescue Drone.

## 10:20-11:20 Breakouts

### Stream 1A: Automated weapons & automated investigations

**Page 6** – ‘Autonomous weapons, conflict and international law: can old rules govern new tricks?’ Max Brookman-Byrne, University of Reading

**Page 7** – ‘Automated Investigations: The Role of the Request Filter in Communications Data Analysis’ Allison M Holmes, University of Kent

### Stream 1B: Smart retail & behavioural advertising

**Page 8** – ‘Consumer decision-making in smart retail settings – actors, actants and agency’ Julia Wolny, University of Southampton

**Page 9** – ‘Intelligent online behavioural advertising’ Guido Noto La Diega, Northumbria University

### Stream 1C: Artificial intelligence, decision-making & the protection of human interests

**Page 10** – ‘Have we asked if we should?’ Jezz Kelway, IBM

**Page 11** – ‘Introducing ALGO-CARE™: a decision-making framework for algorithmic assessment tools in the policing context’ Marion Oswald, University of Winchester

## 11:30 – 12:30 Breakouts

### Stream 2A: Algorithms & criminal justice

**Page 12** – ‘Algorithms in Durham Constabulary custody suites - How accurate is accurate?’ Sheena Urwin, Head of Criminal Justice, Durham Constabulary

**Page 13** – ‘Algorithms in the Dock: should machine learning be used in British courts?’ Allan Brimicombe and Pat Mungroo, University of East London

### Stream 2B: Data power & its regulation

**Page 14** – ‘Facebook beyond the ‘filter bubble’: Problematizing the News Feed algorithm’ Niall Docherty, Nottingham University

**Page 15** – ‘Personal data, profiling and competition policy: third party tracking on the web and mobile app ecosystems’ Reuben Binns, Jun Zhao, Max Van Kleek, Nigel Shadbolt, University of Oxford

### Stream 2C: Smart contracts & smart machines

**Page 16** – ‘Smart Contracts: Are They Smart and Are They Contracts?’ Kieron O’Hara, University of Southampton

**Page 17** – ‘Robots and online intermediaries: a single battle?’ Enguerrand Marique, Université catholique de Louvain

## 14:05 – 15:25 Breakouts

### **Stream 3A: Workshop run by the UnBias project: An exploration of trust, transparency and bias in law enforcement and judicial decision support systems**

**Page 18** – Workshop details

### **Stream 3B: Autonomous vehicles**

**Page 19** – ‘How far is the law of tort ready to adapt to driverless cars?’ John Bates, Northumbria University

**Page 20** – ‘Trust in the machine: the case of Autonomous vehicles’ Lisa Collingwood, Kingston University

### **Stream 3C: Values & machine learning**

**Page 21** – ‘Machine Learning with Personal Data’ Dimitra Kamarinou, Christopher Millard and Jatinder Singh, Queen Mary, University of London

**Page 22** – ‘How do public sector values get into public sector machine learning systems, if at all?’ Michael Veale, University College London

## Poster Abstracts

**Page 23** – ‘The Human side of HR Analytics: Exploring the second order impacts of HR Analytics implementation’ Michael Coleman, University of Winchester

**Page 24** – ‘A multi-stakeholder perspective on the regulation and design of algorithm fairness’ Ansgar Koene, Horizon Digital Economy Research institute, University of Nottingham

**Page 25** – ‘An examination of the correlation between normative expectations on the matter of data privacy, and specific social contexts’ John Northam, University of Winchester

**15:50 – 16:50**

**Panel discussion**

**The Future of A.I., machine learning and algorithmic decision-making**

***Chair:* Timandra Harkness**

Timandra Harkness is a writer, comedian and broadcaster, and author of *Big Data: Does Size Matter?* published by Bloomsbury. Timandra is a Visiting Fellow in Big Data, Information Rights and Public Engagement at the University of Winchester.

***Panel speakers:***

**John McNamara**, Senior Inventor, IBM

**Sheena Urwin**, Head of Criminal Justice, Durham Constabulary

**Michael Veale**, Doctoral researcher, University College London and Data Governance Researcher, The Royal Society

## **Autonomous weapons, conflict and international law: can old rules govern new tricks?**

Max Brookman-Byrne  
University of Reading

---

Non-autonomous combat drones have become an increasingly prevalent method of combat by states, and it is often reported that autonomous drones, with the ability to conduct lethal strikes without the input of a human operator, are being developed. For international lawyers, the use of armed drones in accordance with the law of armed conflict is an important and contentious point, around which much debate continues. It is the question of the interaction between these elderly rules—the 1949 Geneva Conventions and their Additional Protocols, drafted in 1977—and the ultra-modern development of autonomous combat drones with which my paper will engage.

First I will broadly set out the current landscape in terms of drone use in combat and the development of autonomous weapons. I will then provide an overview of two key aspects of the law of war, specifically the concepts of distinction and proportionality, governing who may be targeted and when. After this I will consider the degree to which autonomous combat drones fit within these rules and whether the decades old law is still relevant and able to deal with this new horizon. The question will be asked whether it is in fact the case that autonomous weapons may be the pinnacle of states' attempts to adhere to the law of armed conflict by eliminating human error and hardwiring adherence to certain basic principles.

It is hoped that this paper will generate discussion between those working in international law and others from disciplines such as computer science. These unrelated disciplines must become part of the same conversation in order to fully understand how the generation of autonomous weapons and the law relating to their use intersect and whether the law as it stands is capable of sufficiently regulating autonomous weapons.

[m.f.brookman-byrne@pgr.reading.ac.uk](mailto:m.f.brookman-byrne@pgr.reading.ac.uk)

## **Automated Investigations: The Role of the Request Filter in Communications Data Analysis**

Allison M Holmes  
University of Kent

Automated processing of data is a valuable tool through which information is extracted without the need for human intervention. While traditionally used for commercial purposes, these automated systems are increasingly being employed in the field of law enforcement. Data which is filtered and processed utilizing algorithmic analysis is seen to be impartial and circumscribed, focused purely on that information which is crucial to the investigation. In the field of communications data generated by mobile telephony and internet communications, and governed under the Investigatory Powers Act 2016, such automated processing is provided for by the 'request filter'. Promoted as a safeguard to prevent the disclosure of irrelevant communications data to public authorities, the 'request filter' proposes to limit collateral intrusions by applying automated processing to the large datasets of communications data retained by communications service providers.

However, despite the proposed benefits of the 'request filter', issues remain. The implementation and functionality of the filter does not occur through traditional law enforcement or state run mechanisms. Rather, is built and operated by the private sector and works as an intermediary between these traditional public authorities and the private companies whose data they must access. By removing public actors from the processing of data by virtue of automated filtering there is a risk to transparency and accountability which underpin the legitimacy of these mechanisms. Similarly, the removal of the human element from the process does not guarantee the exclusion of biases from the system, nor from within the data sets themselves. A critical analysis of the automated technologies employed for the retention and processing of communications data is therefore necessary in order to determine whether the 'request filter', as set forth in the Investigatory Powers Act, can be an effective safeguard for personal data and against privacy intrusions.

Contact: [a.m.holmes@kent.ac.uk](mailto:a.m.holmes@kent.ac.uk)

## Consumer decision-making in smart retail settings - actors, actants and agency

Julia Wolny  
University of Southampton

Consumer purchase decisions are becoming ever more complex with the proliferation of channels, platforms and devices in addition to the dizzying array of products and services on offer. Yet the amount of cognitive effort required to make most (even simple) decisions, means that human intermediary actors (for example, reviewers) and non-human actants (for example, sensors and bots) are asserting growing influence within most digitally mediated shopping experiences. The author interrogates what this increasing use of digital, and particularly *smart* technologies means for individual customer journeys and for the broader retail ecosystem. This paper illustrates how agency in retail decision making is increasingly programmed into non-human actants, a notion now further evidenced in the Internet of Things (Hoffman and Novak, 2015).

There is a need to better understand the intended and unintended impact of smart technological interactions on individuals and consumers as a whole; for example, the impact that monitoring embedded in wearable technologies has on user well-being, or that a predictive recommendation system has on customer retail decision making (Ashman et al., 2015 and forthcoming).

We present an illustration of multichannel customer journey in a smart grocery retail store, which offers an opportunity to extrapolate a number of actors and actants in the broader smart ecosystem. The narrative synergises several innovations that have been introduced in retail in recent years, including smartcards, smart sensors, facial recognition, learning algorithms and augmented reality among others. The technologies described already exist and herald an inevitable re-imagining of consumer experiences based on smart innovations. We contend that an ongoing, and early, understanding of consumer interactions with smart innovations (and the consequences for decision-making) is valuable for theory as well as for responsible practice.

Dr Julia Wolny  
Principal Fellow in Marketing  
University of Southampton  
j.wolny@soton.ac.uk



## Intelligent online behavioural advertising

Guido Noto La Diega

Northumbria University

In recent years, facilitated by the growth of artificial intelligence (e.g. machine learning and predictive analytics), cloud computing, and big data, new tracking and profiling techniques have been developed. They have enabled the rise of online behavioural advertising (OBA), that is the provision of advertisements, which are tailored to the tastes and habits of the user who actually views them. The role of artificial intelligence is fundamental from at least two points of view. Firstly, it enables better tailored and less intrusive advertisements. Secondly, and this is the main suggestion of this paper, it enables companies serving OBA in the position to put in place bespoke compliance mechanisms based on the knowledge of the users' profiles. In simple terms, for certain users (e.g. tech-savvy and well-educated) agile seamless tools will be sufficient (e.g. no cookie notice).

However, a more cautious approach (more information provided in an interactive and straightforward way) could be necessary for more vulnerable categories of users. The structure of this paper is as follows. The starting point is the comparison between the Data Protection Directive and the General Data Protection Regulation, with a focus on direct marketing, but touching also on profiling and algorithmic decision-making. It is then dealt with the non-judicial remedies if a user wanted to complain about the unauthorised use of their data for OBA purposes. The use case is a qualitative experiment on the use of sexuality data in Italy. Then, the paper focuses on the relation between artificial intelligence and OBA. The conclusion presents a pragmatic proposal which aims to empower the users, yet striking a balance between their interests and rights and those of the businesses (ad networks, publishers, advertisers, etc.).

Correspondence address [guido.diega@northumbria.ac.uk](mailto:guido.diega@northumbria.ac.uk)

## Have we asked if we should?

Jezz Kelway  
IBM Cloudant Development Manager

With the rapid progression of automated technologies and the equally rapid evolution toward functioning Artificial Intelligence, the human race has grown dependent on technology to ensure speed and accuracy of manual tasks. Are we moving toward a culture where we become dependent on technology to make decisions for us?

We might already be there from some perspectives, but one critical aspect remains; technology does not make moral choices for us....

The intention of this presentation is to discuss the question; “We are experimenting to see if we ‘can’ create AI. Is anyone asking if we ‘should’ create AI?”

## **Introducing ALGO-CARE™: a decision-making framework for algorithmic assessment tools in the policing context**

Marion Oswald

Centre for Information Rights, University of Winchester

As is common across the public sector, the police service is under pressure to do more with less, target resources more efficiently and take steps to identify threats proactively under schemes such as 'Clare's Law' and 'Sarah's Law'. Algorithmic tools promise impact on a force's outcomes by allowing them to improve decision making and to predict where to focus effort by making better use of data.

This paper comments upon the potential benefits of such tools, and analyses legal issues stemming from their implementation, in particular regarding data acquisition, transparency and the exercise of discretion. For instance, to what extent should the police be required to show how an algorithm's 'mind is working' (*Doody* [1993] UKHL 8)? These aspects need to be considered when assessing overall value-for-money.

The paper proposes a decision-making framework called 'Algo-care'™, developed by the author in collaboration with Durham Constabulary. Rather than a set of high level, and therefore hard-to-implement, principles, 'Algo-care' aims to translate many of the key legal and practical concerns into questions that should be considered in relation to the use of algorithmic risk assessment tools by policing and which recognises that there is no one-size-fits-all solution in this context.

[marion.oswald@winchester.ac.uk](mailto:marion.oswald@winchester.ac.uk)

## **Algorithms in Durham Constabulary custody suites - How accurate is accurate?**

A presentation by Sheena Urwin, Head of Criminal Justice, Durham Constabulary

## Algorithms in the Dock: should machine learning be used in British courts?

Allan Brimicombe & Pat Mungroo  
University of East London

Machine learning has been used within the United States criminal justice system for about a decade for predictive policing on the one hand and within the courts and parole hearings for risk of recidivism on the other. Proponents of these tools point to the accuracy of the models and the need to overcome individual biases in decision-making. Critics contend that these models, built on data which reflect those biases in past decisions, are merely perpetuating and amplifying those biases. The public face of the debate has focused on the issue of race and how models of risk of recidivism in the courts are particularly biased against black people. The issue was keenly debated in 2016 with investigative work by Pro Publica(1) into the use of the Compas(2) software in the courts with rebuttals by the product owners; a debate that was reviewed by the BBC programme More or Less(3). The issue has also latterly entered the genre of popular science with O’Neill’s Weapons of Math Destruction: how big data increases inequality and threatens democracy.

Within the Magistrates and Crown Courts in Great Britain on a daily basis, the question of granting or refusing bail to an accused’s request to be released needs to be decided: refused or agreed with conditions, and what those conditions should be. Arguments from the police, the prosecution and defence are made over a wide range of crimes and individual circumstances. The courts have no decision-support systems based on past successes or failures to guide decisions. Unsubstantiated claims of racial and economic discrimination have been made and, whether true or not, have created a climate of distrust for the system. But the use of proprietary black-box algorithms where no single actor within the court can challenge a supposedly unbiased and objective result, raises issues of natural justice. This paper reviews the use of machine learning in the US criminal justice system, examines the legal and practical basis for implementing such systems in British courts for granting bail, the risks of reducing the human role and what new legislation might be required.

[a.j.brimicombe@uel.ac.uk](mailto:a.j.brimicombe@uel.ac.uk)

[p.mungroo@uel.ac.uk](mailto:p.mungroo@uel.ac.uk)

1 <http://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing>

2 <http://www.northpointeinc.com/products/northpointe-software-suite>

3 <http://www.bbc.co.uk/programmes/p04c18fz>

## Facebook beyond the ‘filter bubble’: Problematizing the News Feed algorithm

Niall Docherty  
The Centre for Critical Theory  
Nottingham University

The algorithm that orders Facebook’s News Feed takes into account over 100,000 variable and personalized calculations to connect individuals with the stories that ‘matter most to them’. It uses machine learning to establish the cultural preferences and behavioural predilections of each user, and hierarchically situates objects on the News Feed according to these perceived interests. Little is understood about the precise operations and impacts of this highly complex algorithm beyond current framings that focus on its propensity to exacerbate the ‘filter bubble’ effect – the process whereby individuals are inoculated from alternative views to their own to the detriment of good citizenship. However, I will suggest that this conceptualization of Facebook’s ‘influence’ in wider socio-political spheres is a limited way to understand the ways in which algorithms and machine learning shape the (conjoined) ‘online’ and ‘offline’ experience of users. I develop a software studies approach that recognizes the notion that the technical protocols of everyday technologies introduce and ratify codes of conduct in the world through our use of and engagement with them. I suggest that the calculations of the News Feed algorithm can be unified around the key concepts of ‘freshness’, ‘popularity’, and ‘relevance’, and argue that this trio of valuation asserts a cultural and epistemological bias consistent with existing socio-political relations of power. I demonstrate how constant iteration of the algorithm encourages novel and exponential user engagement consistent with the commercial interests of Facebook as an advertising and marketing platform, whilst concurrently working to entrench and normalize a certain mode of social interaction and behaviour at the expense of other possibilities. By drawing attention to the cultural assumptions and economic incentives mobilized through its digital infrastructure, my approach moves beyond evaluating Facebook upon its relative success as a neutral ‘tool’ of communication, and instead scrutinizes in more depth Facebook’s self-stated mission to connect people with the stories that ‘matter most to them.’

[nialldocherty@hotmail.com](mailto:nialldocherty@hotmail.com)

## **Personal data, profiling and competition policy: third party tracking on the web and mobile app ecosystems**

Dr. Reuben Binns, Dr Jun Zhao, Dr Max Van Kleek, Prof. Sir. Nigel Shadbolt  
Department of Computer Science, University of Oxford

This paper considers the use of algorithmic profiling by third party tracking networks, from the perspective of competition regulation. Machine learning algorithms have been applied by firms in a variety of commercial contexts to derive substantial returns. They enable individual behaviour and attributes to be predicted on the basis of past data. Their success is premised on the ability to gather behavioural data from multiple contexts, in order to build detailed profiles and prediction models. Third party tracking networks, deployed on websites and mobile applications, are instrumental in this regard; and enable perhaps the most profitable, far-reaching and legally contentious application of machine learning.

Third party tracking has been heavily discussed in the context of data protection and privacy law. While undoubtedly important, these perspectives tend to neglect the risks arising from the consolidation of tracking capability in a small number of firms. When the quality of a firm's machine learning models depends on quantity of data, capacity to track users provides a disproportionate advantage.

The need to address the intersection of personal data and competition policy is increasingly recognised by regulators. Drawing from an empirical study of trackers identified in a sample of 10,000 websites and smartphone applications, we argue that current approaches to anti-trust and competition fail to adequately reflect and constrain the power of the largest networks. Traditional measures of market concentration, based on revenue share, do not reflect the true power of third party tracking networks. Instead, they derive their power from their position within a broader socio-technical ecosystem of users, service providers, browsers and smartphone platforms. We propose a novel way for regulators to measure this alternative form of power, rooted in the capacity to collect and utilise data, and discuss the implications for data protection, privacy and competition policy.

## Smart Contracts: Are They Smart and Are They Contracts?

Kieron O'Hara  
Web and Internet Science Group  
Electronics and Computer Science  
University of Southampton

In the 1990s, it was argued that e-commerce created a need for contracts to be smarter. A smart contract has been defined as “a mechanism involving digital assets and two or more parties, where some or all of the parties put assets in and assets are automatically redistributed among those parties according to a formula based on certain data that is not known at the time the contract is initiated.”

Their implementation became practical with blockchain technology. The terms of the contract and the assets to be transferred can be arithmetically coded into an open-source, consensus-based, timestamped chain, and its execution verified independently. Neither party can independently modify the code, so a blockchain-enabled smart contract will chug on to its conclusion. Smart contracts underlie the idea of a Decentralised Autonomous Organisation (DAO), driven by a distributed peer-to-peer network which dispenses with a managerial hierarchy entirely and in which decisions are made collectively.

Using the example of the 2016 collapse of The DAO investment fund on the Ethereum platform, this paper argues that contracts, as with other types of constraining commitment such as promises and vows, increase trust and spread it more widely than local social mechanisms such as those based on acquaintance, kin or tribe. In a society with the rule of law and in which contracts are generally respected, cooperation is less risky (and therefore more common). Contracts play a more complex role in the coordination of action than envisaged by proponents of smart contracts, and cannot simply be replaced by automation. In a smart contract, the code *is* the contract, and so there is little room for adaptation or efficient breach, and little comeback against a hacker who discovers and exploits weaknesses in the code itself.

[kmo@ecs.soton.ac.uk](mailto:kmo@ecs.soton.ac.uk)



## Robots and online intermediaries: a single battle?

Enguerrand MARIQUE

Université catholique de Louvain (Belgium)

The Legal Affairs Committee of the European Parliament has published in January 2017 a study on “European Civil Law Rules in Robotics”. It urges the European Commission to take initiatives in the regulation of smart autonomous robots. This piece of legislation should apply when there is no master-slave relationship between a decision-making machine and its conceivers. Qualifies as a robot a machine (1) interacting with its environment by the exchange data (2) and able to adapt its behaviors subsequently (3).

This paper highlights thus that the challenges for creating liabilities in the sharing economy and for the robotics sector are highly similar, although the structures of the risks created differ significantly.

On the one hand, the definition covers a large range of machines. From a purely legal standpoint, digital platforms of the sharing economy could qualify as robots, as platforms are server-rooted systems (1), exchanging and gathering information about users (2) and providing information relevant to the queries of the users (3). This research shows the challenges raised by the actual framework and the answers expected in a future instrument.

On the other hand, establishing the liabilities for the conceiver, distributor, seller and owner of the ‘robot’ is absolutely necessary. Firstly, from a contractual perspective, ‘smart contracts’ are occurring increasingly often, even in the sharing economy, which offers much potential for economic growth and sustainable development while displacing trust from individuals to algorithms. Secondly, from a tortious perspective, the respect of fundamental rights (especially non-discrimination) shall be considered by the Commission in proposing a new instrument.

An effective regulation on autonomous decision making would in any case benefit for the regulation of internet intermediaries, as the latter currently attempt to remain in a vacuum and enjoy liability exemptions, especially under the directive on electronic commerce.

e-mail: [enguerrand.marique@uclouvain.be](mailto:enguerrand.marique@uclouvain.be)

## **Workshop: An exploration of trust, transparency and bias in law enforcement and judicial decision support systems**

Chair: Ansgar Koene, Horizon Digital Economy Research institute, University of Nottingham  
[ansgar.koene@nottingham.ac.uk](mailto:ansgar.koene@nottingham.ac.uk)  
<http://unbias.wp.horizon.ac.uk/>

The UnBias project investigates the user experience of algorithm driven services and the processes of algorithm design. We focus on the interest of a wide range of stakeholders and carry out activities that 1) support user understanding about algorithm mediated information environments, 2) raise awareness among providers 'smart' systems about the concerns and rights of users, and 3) generate debate about the 'fair' operation of algorithms in modern life. This EPSRC funded project, full title, "UnBias: Emancipating Users Against Algorithmic Biases for a Trusted Digital Economy" runs from September 2016 to August 2018. It will provide policy recommendations, ethical guidelines and a 'fairness toolkit' that will be co-produced with stakeholders.

This workshop will consist of two parts. In the first twenty minutes we will review some of the outcomes of the UnBias project. Specifically, we will contrast the concerns and recommendations that were raised by teenaged 'digital natives' in our Youth Juries deliberations with the perspectives and suggestions from our stakeholder engagement discussions. We will then spend a couple of minutes to introduce our workshop participants to a case study based on the ProPublica report of bias in the COMPAS algorithms for recidivism probability forecasting and the subsequent studies showing that when it is not possible for an algorithm to be equally predictive for all without disparities in harm of incorrect predictions when the two populations have unequal base rates. This case study will form the basis for discussions during the remainder of the session. Some of the questions we will raise include: what are the implications of such findings for trust in law enforcement and judicial rulings? What are the minimum levels of transparency and output audit-ability that a decision support system must have in order to maintain trust in a fair application of the law? The outcomes of the discussion will be summarized in a short report that will be sent out to all participants and feed into the development of policy recommendations by UnBias.

The organizing committee for the workshop are all members of the UnBias project:

Dr. Ansgar Koene (chair) and Dr. Elvira Perez Vallejos, from the University of Nottingham  
Dr. Helena Webb and Dr. Menisha Patel from the University of Oxford

## How far is the law of tort ready to adapt to driverless cars?

John Bates  
Northumbria Law School

In its July 2016 Consultation Paper, 'Pathway to Driverless Cars: Proposals to support advanced driver assistance systems and automated vehicle technologies', the United Kingdom's Department for Transport concluded:

'We are not currently proposing any significant change in our rules on liability in road traffic accidents to reflect the introduction of automated cars. We still think a fault based approach combined with existing product liability law, rather than a new strict liability regime, is the best approach for our legal system. We think that the existing common law on negligence should largely be able to adapt to this new technology'

What impact will the evolution of driverless cars have on the application of existing common law principles of negligence of a human actor where harm is caused in a road traffic accident? Should a driver be liable for an omission to engage (or disengage) onboard automotive assistance? What standard of care is expected of a driver stepping in to take control? How far are perceptions of trust and risk relevant to a transitional phase with a mix of autonomous and non-autonomous traffic? What new risks are created by autonomous vehicles, such as reliance on third party services (such as mapping), interoperability failures with other systems (such as highway control), faults in data collection and sharing (such as telematics and onboard records of driver autonomy) and of cyber-security comprises (including hacked systems).

The common law of negligence is predicated on the piecemeal development of principles and their application incrementally through case law and decisions of appellate courts. That is a naturally time-consuming process, and recent reform proposals may remove many road traffic accident claims from the litigation process. Is the civil justice system equipped effectively to deal with driverless vehicles?

This paper hopes to explore some of these issues.

[john.bates@northumbria.ac.uk](mailto:john.bates@northumbria.ac.uk)

## Trust in the machine: the case of Autonomous vehicles

Lisa Collingwood

Kingston University, Faculty of Business and Law

Autonomous vehicles have the potential for a variety of societal benefits. However, what constitutes an autonomous vehicle, can these vehicles be trusted, what might the future look like with them on our roads and how have they become so prevalent? In short, what impact will they have and will this always be for the better?

One concern relates to privacy. This is because it may be asserted that the ability to move about in relative anonymity will be lost in such vehicles given the myriad of information they will carrying. This might relate to exactly who is riding, where the passengers were picked up and dropped off, at what time and what route was taken. This information is a legitimate business asset of the companies that own and operate autonomous vehicle fleets, who rely on such data to analyse how many vehicles are needed, in which locations and when they should be charged or re-fuelled, but who will control the usage of this data and what will the consequences in terms of privacy be?

Similarly, whilst one of the major advantages of autonomous driving is that traffic accidents may be virtually eliminated, the fact is that people will die (and already have died) in accidents involving autonomous vehicles. Therefore, in autonomous driving, a key question is who will be liable for machine-made decisions.

The paper will consider these topics so as to explore how the privacy and liability landscape will be affected by autonomous vehicles.

[Lisa.collingwood@kingston.ac.uk](mailto:Lisa.collingwood@kingston.ac.uk)

## Machine Learning with Personal Data

Dimitra Kamarinou, Christopher Millard and Jatinder Singh

### **Institution/Organisation details:**

Dimitra Kamarinou, Christopher Millard

*Centre for Commercial Law Studies*

*Queen Mary University of London*

Jatinder Singh

*Computer Laboratory*

*University of Cambridge*

This paper provides an analysis of the impact of using machine learning to conduct profiling of individuals in the context of the EU General Data Protection Regulation.

We look at what profiling means and at the right that data subjects have not to be subject to decisions based solely on automated processing, including profiling, which produce legal effects concerning them or significantly affect them. We also look at data subjects' right to be informed about the existence of automated decision-making, including profiling, and their right to receive meaningful information about the logic involved, as well as the significance and the envisaged consequences of such processing.

The purpose of this paper is to explore the application of relevant data protection rights and obligations to machine learning, including implications for the development and deployment of machine learning systems and the ways in which personal data are collected and used. In particular, we consider what compliance with the first data protection principle of lawful, fair, and transparent processing means in the context of using machine learning for profiling purposes. We ask whether automated processing utilising machine learning, including for profiling purposes, might in fact offer benefits and not merely present challenges in relation to fair and lawful processing.

Email correspondence address: [d.kamarinou@qmul.ac.uk](mailto:d.kamarinou@qmul.ac.uk)

## How do public sector values get into public sector machine learning systems, if at all?

Michael Veale

Department of Science, Technology, Engineering and Public Policy (STeAPP)  
University College London

More machine learning algorithm–powered decision-support systems are piloted and deployed in the public sector each day to help detect individuals and corporate wrongdoing in areas such as taxation, child protection and policing. While some welcome this trend as the dawn of more evidence-based administrative decision-making, others worry that the opacity and perceived objectivity of such systems usher in unwanted biases through the back door just as they kick due process out.

Studies of these systems have primarily attempted to look-in or reverse-engineer them from the outside, missing the people that obtain, deploy and manage these technologies within diverse institutional contexts. To help fill this gap, 25 public servants and technologists from different sectors and countries involved in public sector machine learning projects were identified and interviewed. They were asked about their experiences with these technologies, focussing on how they understood and approached operational barriers and ethical issues they encountered. Analysis of these interviews shows promising roles for recent technological approaches to responsibility in this field such as ‘fairness-aware’ or interpretable machine learning systems. Yet these interviews also raise questions and issues that are both currently underemphasised and unlikely to be resolved by technical solutions alone. This research suggests that governance mechanisms for applied machine-learning must be more sensitive to on-the-ground pressures and contexts if they are to succeed in ensuring new data-driven decision-support systems are societally beneficial.

[m.veale@ucl.ac.uk](mailto:m.veale@ucl.ac.uk)

## Poster Abstracts

### **The Human side of HR Analytics: Exploring the second order impacts of HR Analytics implementation**

Michael Coleman  
University of Winchester

This poster describes the research I will be undertaking as part of my Doctoral Business Administration Degree Program at the University of Winchester. HR Analytics is the use of data to take more evidence-based people decisions. It is generating high levels of interest in the HR practitioner community due to its promise of significant impacts on both costs and the strategic effectiveness of the HR function. It is however also an area that is currently under-researched with much of the existing literature coming from practitioners and suppliers of HR systems. Where impact analysis is performed, the existing literature is focused on immediate measures of success that arise directly from the implementation of HR Analytics, such as cost savings in recruitment or employee retention programs. The contribution of this research will be to look beyond this immediate impact and consider the second order effects arising from the introduction of HR Analytics to an organization. The prime focus of the research will be into the consequences of the resultant reduction in human managerial decision making in favour of system derived recommendations. What, for example, would the impact be on the informal organizational support received by a recently promoted employee if existing leaders are no longer called upon to advocate or sponsor candidates as part of the promotion process? To embrace HR Analytics and use data to drive decisions on employees is an inherently positivist approach and is the dominant philosophy in the literature. This research will however take a different stance and adopts a pragmatist research philosophy and will take an iterative approach using practices from Action Research methods. The anticipated contribution to practice will be through recommendations to organizations on steps to take to reduce unanticipated negative consequences arising from the implementation of HR Analytics.

## **A multi-stakeholder perspective on the regulation and design of algorithm fairness**

Ansgar Koene

Horizon Digital Economy Research institute, University of Nottingham

The UnBias project investigates the user experience of algorithm driven services and the processes of algorithm design. We focus on the interest of a wide range of stakeholders and carry out activities that 1) support user understanding about algorithm mediated information environments, 2) raise awareness among providers 'smart' systems about the concerns and rights of users, and 3) generate debate about the 'fair' operation of algorithms in modern life. This EPSRC funded project, full title, "UnBias: Emancipating Users Against Algorithmic Biases for a Trusted Digital Economy" runs from September 2016 to August 2018. It will provide policy recommendations, ethical guidelines and a 'fairness toolkit' that will be co-produced with stakeholders.

As part of the UnBias project we ran a multi-stakeholder engagement event to share perspectives and seek answers to key project questions such as:

- ❖ What constitutes a fair algorithm?
- ❖ What kinds of (legal and ethical) responsibilities do internet companies have to ensure their algorithms produce results that are fair and without bias?
- ❖ What factors might serve to enhance users' awareness of, and trust in, the role of algorithms in their online experience?
- ❖ How might concepts of fairness be built into algorithmic design?

To support the discussions, we used four case studies concerning: 1) gaming the system – anti-Semitic autocomplete and search results; 2) news recommendation and fake news; 3) personalisation algorithms; 4) algorithmic transparency.

In this poster we will present an overview of the outcomes from the stakeholder engagement event.

[ansgar.koene@nottingham.ac.uk](mailto:ansgar.koene@nottingham.ac.uk)

<http://unbias.wp.horizon.ac.uk/>



## **An examination of the correlation between normative expectations on the matter of data privacy, and specific social contexts**

John Northam  
University of Winchester

In the age of social media platforms such as Facebook, and technological innovations such as Google Glass, Lockean distinctions between 'public' and 'private' have become blurred. Increasingly, the Court is called upon to adjudicate on cases where the facts occupy this 'grey area' which lies between the 'public' and the 'private'. One area is such Article 8 cases as *Mosley v Newsgroup Newspapers* and *Murray v Big Pictures*, and the 'super-injunction' cases which led to the Neuberger Report. Another 'grey area' is statements made on social media platforms, considered in such cases as *Chambers v DPP* and *CG v Facebook Ireland*. Here the Court has indicated a tentative movement towards considering privacy issues within their particular discursive context, rather than in the abstract. Have these developments gone far enough, however, in navigating a course through the tricky privacy issues arising in the Internet age?

Modern jurists such as Helen Nissenbaum and Daniel Solove have suggested an entirely new approach to privacy issues, seeking more 'fluid' privacy distinctions, based on particular normative expectations and the social contexts which engender them. Nissenbaum's model, which has helped to inform the Government's ethical approach in their data sharing initiatives, draws upon the Field Theory of Pierre Bourdieu.

Drawing on the same Field Theory that informs Nissenbaum's work, this is an examination of the ways in which particular social contexts influence data privacy expectations. Subjects will be invited to discuss hypothetical scenarios raising privacy issues; providing insights in the way in which privacy issues are constructed socially. The aim is to inform the Office for National Statistics/Government regarding any disconnect between governance/laws around social media, privacy and individual attitudes.

Email Correspondence: [J.Northam.16@Unimail.Winchester.ac.uk](mailto:J.Northam.16@Unimail.Winchester.ac.uk)