



Crime and Security  
Research Institute  
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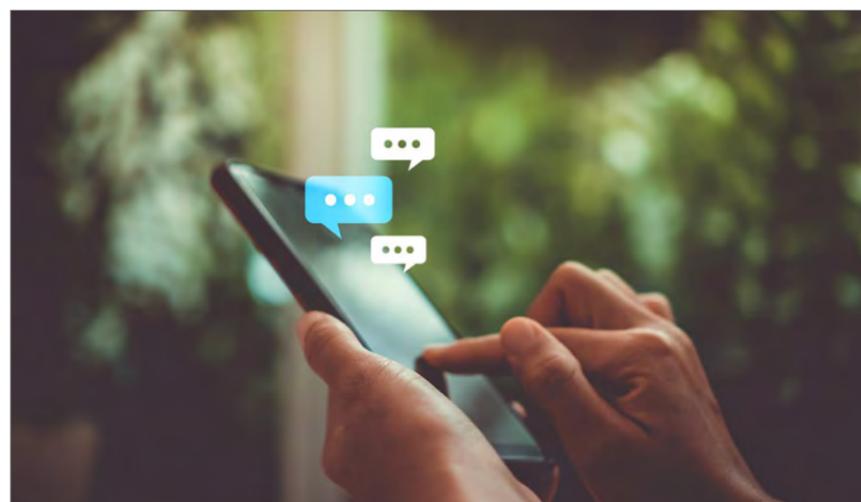
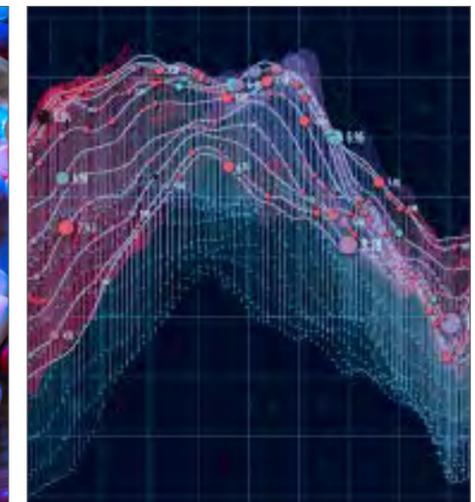
# Crime & Security Reporting 2019

Annual Reporting Magazine of the  
Crime & Security Research Institute,  
Cardiff University

[www.crimeandsecurity.org](http://www.crimeandsecurity.org)

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## Get in touch.

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If you would prefer to receive a Welsh version of this document, we would encourage you to contact us at: [crimeandsecurity@cardiff.ac.uk](mailto:crimeandsecurity@cardiff.ac.uk)



Welcome to 'Reporting' 2019, the third edition of the Crime and Security Research Institute's annual magazine. Each year we look to provide policymakers, practitioners and academics with a snapshot of our research into some of today's most pressing security challenges. Our Institute is now well established and the content of this year's 'Reporting' provides a flavour of the diversity, reach and impact that the projects undertaken by our research teams have accomplished.

An important theme touched upon by much of the research referenced within these pages is the increasingly fine balance between acknowledging the rights and desires of individuals, against protecting society from collective and aggregating harms. For instance, in his first year as Co-Director of the Institute, Professor Simon Moore has led work exploring the costs of an individual's unhealthy consumption of alcohol to both themselves and wider society. It has triggered significant discussion in the national media.

Although weighing individual freedoms against wider responsibilities to society is an age old challenge, the rise of new security technologies and the dramatic societal changes they are inducing have revitalised the importance of such debates. This has been evident in political and public reactions to our police science team's assessment of South Wales Police's deployment of 'Automated Facial Recognition' technology. As the world's first ever independent evaluation of facial recognition use by a police force, this work has garnered much international attention. Evidence from

the research was cited several times in the recent High Court Judicial Review and we are proud that it has provided a factual basis from which ethical discussions around the technology have been able to emerge. Similarly, our social scientists have become increasingly interested in looking at social media and its implications for the security of democracy. Their work into the spread of disinformation online has shown the ways in which everyone's right to free speech is being 'hacked' by malign actors.

As well as responding to technologies triggering concern and insecurity, you will also find within this magazine reference to cutting edge tools being created by researchers at Cardiff which seek to make the world a safer place. Notably, our computer scientists have continued their work unlocking the potential of "big data" and "fast data" as part of the joint US/ UK International Technology Alliance in Distributed Analytics and Information Science (DAIS ITA). Their work has fed into the inter-disciplinary Wales Safeguarding Repository, which is using machine learning techniques, alongside social science research methods, to derive new learning from statutory homicide review documents.

I would like to take this opportunity to say thank you to our various funders and collaborating partners. Finally, special recognition should go to the students who carried out placements in the Institute this year. I was incredibly impressed with how they embraced the opportunity to work alongside professional researchers to tackle real world challenges, each of them bringing enthusiasm and unique perspectives to the individual projects they were working on.

I hope you enjoy this year's edition of 'Reporting'.

**Professor Martin Innes**

## **The Crime and Security Research Institute uses the existing expertise of three core multi-disciplinary research groups:**

### **The Universities' Police Science Institute**

[www.upsi.org.uk](http://www.upsi.org.uk) E: [upsi@cardiff.ac.uk](mailto:upsi@cardiff.ac.uk)

The Universities' Police Science Institute (UPSI), led by Professor Martin Innes, was established in 2007 in partnership with South Wales Police to develop the research evidence base for the art, craft and science of policing. It has secured in excess of £5million external funding from various policing and governmental agencies. Combining academic rigour with a strong focus upon policy and practice, it has achieved international renown for its innovations in designing, developing and assessing new solutions to policing problems. The Institute's work ranges from 'problem-finding' to 'problem-solving' across the full spectrum of policing.

### **Violence Research Group**

[www.csri-vrg.org](http://www.csri-vrg.org) E: [csri-vrg@cardiff.ac.uk](mailto:csri-vrg@cardiff.ac.uk)

The Violence Research Group (VRG), headed by Professor Simon Moore, has helped bring about action to reduce violence at a global level. Through practical research on violence, leading clinical academics, working in collaboration with external partners and organisations, have helped to understand, monitor and alleviate the causes of violent behaviour. VRG research focusses on understanding the causes of violence and producing real-world applications to help prevent it, examining violence prevention initiatives, working with service providers to evaluate the effectiveness of interventions designed to reduce the psychological, social and economic impacts of violence and translating effective innovations into local, national and international policy and practice.

### **Distributed Analytics and Information Sciences**

[www.csri-dais.org](http://www.csri-dais.org) E: [daisgroup@cardiff.ac.uk](mailto:daisgroup@cardiff.ac.uk)

The Distributed Analytics and Information Sciences (DAIS) group brings together colleagues from the College of Physical Sciences and Engineering with specialist expertise in artificial intelligence, machine learning, social computing, signal processing, and distributed computing. The group, led by Professor Alun Preece, carries out fundamental research in areas such as distributed information management (important for sharing information between agencies), knowledge representation and reasoning (key to building computer systems that can collaborate with humans on decision-making processes), and machine learning (able to automatically build models for complex pattern recognition and prediction tasks). The group includes several colleagues in the School of Computer Science & Informatics – Federico Cerutti, Padraig Corcoran, Dave Marshall, Ian Taylor, Liam Turner and Roger Whitaker – and Yulia Hicks in the School of Engineering.



## Neighbourhood Policing: The Rise and Fall of a Policing Model

Members of the Universities' Police Science Institute (UPSI), Professor Martin Innes, Dr Colin Roberts, Trudy Lowe and Dr Helen Innes, have written a new book based upon a unique ten-year dataset that tells the story of community policing. It explores how and why the neighbourhood policing model was originally designed and implemented, and then, what has led to a decline in its prominence in terms of everyday police practice. The book will be published by Oxford University Press in December 2019.

[www.amazon.co.uk/Neighbourhood-Policing-Clarendon-Studies-Criminology/dp/0198783213](http://www.amazon.co.uk/Neighbourhood-Policing-Clarendon-Studies-Criminology/dp/0198783213)

[www.bertrams.com/BertWeb/public/itemLookup.do?method=list&ITEM=9780198783213](http://www.bertrams.com/BertWeb/public/itemLookup.do?method=list&ITEM=9780198783213)



## International Joint Conference on Artificial Intelligence, Macau

Dr Federico Cerutti presented new research at the International Joint Conference on Artificial Intelligence 2019 Workshop on Explainable Artificial Intelligence. The paper 'Discriminating Spatial and Temporal Relevance in Deep Taylor Decompositions for Explainable Activity Recognition' was written by CSRI PhD student Liam Hiley, through funding from the DAIS ITA programme. The work develops a new algorithm to allow an AI system that processes video, for example CCTV feeds, to generate explanations for the events it detects.

Learn More: [www.csri-dais.org/news-blog/explainable-activity-recognition](http://www.csri-dais.org/news-blog/explainable-activity-recognition)



## Detecting Violence in Videos Fusing Proxy Models

Contributing to the 22nd International Conference on Information Fusion, CSRI PhD Student Marc Roig Vilamala presented his paper "A Pilot Study on Detecting Violence in Videos Fusing Proxy Models".

Marc reported results from research that applies state-of-the-art machine learning and reasoning to a dataset of crime (CCTV) videos in order to detect violent events. This novel pilot study has begun initial exploration into creating a system in which anomalies in CCTV feeds such as fighting, road accidents and other unusual events in the street are identified.

The presentation noted the difficulties of such a project in responding to the wide spectrum of data

caused by variables in the activity, environments and times of day that the feeds recorded.

Responding to these challenges, the researchers used two off-the-shelf neural networks, rather than developing their own training. The first neural network detected activities from fragments of video of around half a second, whilst the second identified people and other objects within each frame. To detect when an anomaly was happening, the researchers applied manually defined generic rules to fuse both of these outputs.

Learn More: [www.csri-dais.org/news-blog/violence-in-videos](http://www.csri-dais.org/news-blog/violence-in-videos)

Download Paper: [orca.cf.ac.uk/122640](http://orca.cf.ac.uk/122640)

## CSRI Fellow Receives the British Society for Criminology Award 2019

Professor Mike Levi of Cardiff University's School of Social Sciences has received the BSC Outstanding Achievement Award 2019 in recognition of his significant body of work enhancing the study of criminology on the national and international stage. Professor Levi is a close

collaborator and fellow of the CSRI and has provided indepth analysis of the linkages and differences between white-collar and organised crime and was one of the first criminologists to write about the globalisation of financial crimes.

## CSRI Shortlisted for Research Excellence Award

The Celebrating Excellence Awards are an annual event which celebrate departments and individuals noted for their outstanding contribution to Cardiff University. The CSRI has been shortlisted for the 'Excellence in Research' award for making an observable impact on its subjects, inspiring others and affecting the research agenda. On the 14th November 2019, members of the CSRI will attend the award ceremony for the unveiling of the winners.



## SPIE Defense + Commercial Sensing Event in Baltimore

Several members of the DAIS group presented papers at the annual SPIE Defense + Commercial Sensing event in the session 'Artificial Intelligence and Machine Learning for Multi-Domain Operations Applications'.

Taking place between the 14th to 18th April in Baltimore, Maryland, the event has more than 4,500 attendees and is one of the leading conferences on sensors, infrared technology, laser systems, spectral imaging, radar and LIDAR.

DAIS Research Student Dave Braines from IBM Research UK presented his paper 'Achieving useful AI explanations in a high-tempo complex environment'. The paper seeks to address how artificial intelligence (AI) and machine learning (ML) techniques are often inscrutable and hard for users to trust since they lack effective explanations for their outputs. Dave's work investigates which explanation to choose for a particular user and task, considering information such as the time available to them, their level of skill and the device they are using. By defining a meta-model for AI/ML explanation provision, Dave shows how an interactive conversational interface can deliver explanations to users across a range of situations, datasets and modalities (text, images, audio).

Another member of the DAIS group presenting at the conference was Crime and Security Research Institute (CSRI) PhD Student Iain Barclay. In his paper 'A conceptual architecture for contractual data sharing in a decentralised environment', Iain examined how to

provide 'traceability' for data in AI/ML systems. This will ensure that whenever a consumer's data is sourced and used, they have assurance that the data accuracy is as described, has been obtained legitimately and the terms under which it is made available are understood. Iain's approach uses blockchain-based distributed ledger technology, which can facilitate transactions in situations where parties do not have an established trust relationship or centralised command and control structures.

Richard Tomsett (IBM Research) presented 'Uncertainty-aware situational understanding', a paper co-authored by Dr Federico Cerutti, as well as other DAIS colleagues. The work focuses on how AI/ML systems need to be aware of when they are uncertain about a prediction in order to be useful to human users. When observations are out of the ordinary, system confidence decreases because the relevant training data for the machine learning system is significantly smaller than the size of the training data set. The paper proposes new techniques based on subjective and uncertain Bayesian networks be employed to overcome this problem. The merits of these methods were evaluated using a case study developed in collaboration with professional intelligence analysts.

Currently, the only full paper available for download is 'A conceptual architecture for contractual data sharing in a decentralised environment'. However, all of the above papers will become available shortly via: [orca.cardiff.ac.uk](http://orca.cardiff.ac.uk).

## CSRI Joins World's First Social Sciences Research Park

Construction is currently underway for Cardiff University's Social Science Research Park (SPARK), a cutting-edge new innovation campus on Maindy Road. The CSRI is one of several specialist outfits selected to create pioneering research at this flagship centre. The institute will use its well established inter-disciplinary approach to collaborate with other social scientists to solve real world problems. The building is due to be completed in 2021 and will be located within the Cardiff University campus on Maindy Road.

## Alcohol: Putting a Value on the Hidden Costs of Drinking



The Violence Research Group (VRG) has sought to quantify the affective consequences of alcohol consumption using UK Biobank data. The study looked at the long-term consequences of drinking in 243,133 individuals between the ages of 40 and 70 who consumed alcohol in varying amounts.

The study illustrates the estimated household income needed to offset the increase in depression due to an increase in alcohol. Research shows that depression is greater in heavy alcohol users compared to moderate alcohol users and decreases as household income increases.

The paper estimates that for each additional gram of alcohol consumed each day, annual household

income would need to increase by £210 to offset the increase in depression. An increase in depression associated with drinking a bottle of wine each week could be eliminated by increasing annual household income by £2,400.

The study seeks to develop a better understanding of the true costs of alcohol and will be of most interest to those weighing up the costs and benefits of initiatives designed to reduce consumption.

[www.doi.org/10.1371/journal.pone.0211357](https://doi.org/10.1371/journal.pone.0211357)

[www.theconversation.com/alcohol-putting-a-value-on-the-hidden-costs-of-drinking-111110](https://www.theconversation.com/alcohol-putting-a-value-on-the-hidden-costs-of-drinking-111110)

## Marketing Professor Joins CSRI



The CSRI welcomes Professor Kate Daunt, who has joined the team on a secondment for the academic year 2019-20. Kate is a Professor of Marketing from Cardiff University's Business school and is a mixed method and multi-disciplinary researcher. Professor Daunt has expertise in services marketing and social marketing with a specific focus on consumer deviance and service dysfunction. Her past research has involved cognitive, emotional and environmental drivers and consequences of consumer deviance. Professor Daunt will apply her knowledge of consumer psychology and marketing theory to a number of projects throughout the year, including analysis of disinformation on social media and the effectiveness of crime prevention messaging campaigns.

"I'm hugely excited to be working in the Crime and Security Research Institute's interdisciplinary team over the next year. Their research has had an enormous impact in the real world and I'm delighted to work on projects that will no doubt deliver other important benefits to society."



## DAIS/CSRI Joins Artificial Intelligence Doctoral Training Centre

The CSRI is joining a new Centre for Doctor Training (CDT) to grow a future generation of leaders in Artificial Intelligence (AI).

The CDT will specialise in AI, Machine Learning and Advanced Computing and the CSRI will contribute its expertise in providing innovative AI solutions to real world problems to aid its success. CSRI, in cooperation with the International Technology Alliance in Distributed Analytics and Information Science (DAIS ITA) is "proud

to be key partners in training the next generation of experts in AI" noted Professor of Collective Intelligence, Roger Whitaker.

The CDT will see PhDs working at the CSRI contribute toward pioneering research which will unlock the potential of big data analytics and AI in front line situations.

The CDT will be led by Swansea University alongside partners in Supercomputing Wales. Funding for the project has come through a £100m investment from the UK Research and Innovation (UKRI) alongside an additional £100m from project partners. The funding will allow 1,000 PhDs specialising in AI to work in 16 new UK centres alongside partners such as AstraZeneca, Google and Rolls-Royce.

## Best Paper Award: Advanced Collaborative Networks, Systems and Applications, Venice

CSRI PhD student Chris Simpkin attended the Eighth International Conference on Advanced Collaborative Networks, Systems and Applications which is part of the InfoWare conference in Venice, Italy. Chris' paper, titled 'A Scalable Vector Symbolic Architecture Approach for Decentralized Workflows' was awarded 'Best Paper' at the event.



Workflows provide a robust means of describing applications consisting of control and data dependencies, along with the logical reasoning necessary for distributed execution. In the current state-of-the-art, discovery of workflow steps is not dynamic; the exact services to be used for each workflow step must be specified in advance and, further, workflow orchestration is typically managed via a central point of control.

Download Paper: [www.csri-dais.org/news-blog/advanced-collaborative-networks](http://www.csri-dais.org/news-blog/advanced-collaborative-networks)

# CSRI

## Making the News

### Police Get Facial Recognition Go Ahead in World-first Case

The UPSI AFR evaluation is used as important evidenced in the landmark judgement by the High Court ruling against human rights challenge by a Cardiff resident.



Sep 2019

### Government Should Fully Implement 'Cardiff Model' to Fight Knife Crime

Multiple commentators point to full implementation of the VRG's data sharing model as a means to tackle the rise of knife crime.



Mar 2019

### NHS Considering 'Drunk Tank' Schemes to Relieve Pressure on A&E Services

Simon Moore, Director of the VRG, leads a £925,000 evaluation assessing whether Drunk Tanks, Alcohol Treatment Centres and Safe Havens should be rolled out.



Dec 2018

### Robots Can Become 'Racist and Sexist' All on Their Own, Study Finds

A study by the DAIS group reveals artificially intelligent (AI) machines have the capacity to develop prejudice on their own.



Sep 2018

### Russia Used Social Media to Target 2014 European Parliament Election, Evidence Suggests

CSRI study into disinformation garners international interest and is used in testimony to US House Committee on Foreign Affairs concerning "Undermining Democracy: Kremlin Tools of Malign Political Influence".



May 2019

### Facebook Needs Regulation to Combat Fake News, Say MP

CSRI research features in UK parliamentary report "Disinformation and 'Fake News'" as strong evidence that the Kremlin has attempted to influence attitudes about British politics.



Feb 2018

### Police Facial Recognition 'Needs Considerable Investment'

UPSI release findings from the first independent evaluation of Automated Facial Recognition (AFR) technology in major policing operations, garnering widespread media attention.



Nov 2018

## Neil Basu, Metropolitan Police Assistant Commissioner, Delivers Inaugural CSRI Distinguished Lecture



The Crime and Security Research Institute were honoured to welcome Metropolitan Police Assistant Commissioner of Specialist Operations, Mr Neil Basu, to deliver the Institute's inaugural Distinguished Lecture.

Mr Basu represents Counter-Terrorism Policing in its engagement with Government on operational and policy issues associated with tackling terrorism, espionage and proliferation.

The Assistant Commissioner shared insights on the current security context and the unprecedented demands upon counter-terrorism policing. He discussed the Government's recently updated counter-terror strategy CONTEST, which provides a strategic framework for reducing the threat of both domestic and international terrorism, based around four work streams: Prevent; Pursue; Protect and Prepare.

*"The most pressing issues are the way targeting has changed, the way methodology has changed and the way the speed from radicalisation to capability has actually changed"*

**Assistant Commissioner Neil Basu**

**WATCH:** [www.crimeandsecurity.org/feed/distinguished-lecture-neil-basu](http://www.crimeandsecurity.org/feed/distinguished-lecture-neil-basu)

## Cardiff University Students Tackle 'Fake News'



This summer, the CSRI hosted a number of students keen to explore the spread of 'fake news' across Europe. Using the academic expertise and social media data available, the students designed and conducted their own research projects over a period of eight-weeks.

Each student used their unique interests, knowledge and skills to contribute to the Institutes' understanding of online disinformation. Particularly valuable was the range of language skills that the students brought to data collected in other European languages.

The cohort supported the institutes aim to bring together different academic disciplines for problem-solving research, with three social science undergraduate placements and three computer science students in postgraduate placements.

The CUROP students undertook projects looking at online disinformation associated with elections in Lithuania, anti-immigration narratives promoted by the Alternative for Germany party (AfD) and opposing political parties in Spain. These were complemented by computer science projects that used a computational, machine-learning, approach to the CSRI's large data set. The fresh perspectives brought by the projects have shed new light on trends and patterns in both the content and volume of fake news vocabulary circulating online in Europe.

**WATCH:** [www.crimeandsecurity.org/feed/student-placements](http://www.crimeandsecurity.org/feed/student-placements)

## Hacking through the issues for 21st Century Policing



The effective management of local, national and international security is one of the biggest challenges we face in today's world. The CSRI's response to this challenge is to work alongside security practitioners, combining existing academic excellence to foster creative and innovative conceptual and methodological approaches to shape policy and practice development.

One such concept is that of the 'hackathon'. The UPSI and CSRI hosted its first Civil Hackathon event with South Wales Police in the summer of 2018. The two organisations worked together to define a broad set of challenges, which became the focus of the problem-solving event. A number of teams composed of police officers and staff, other public-sector practitioner partners, private sector stakeholders and academics worked together over

two days to apply their knowledge and experience to that problem. Firstly, they identified the constituent issues and problems faced, before turning to the development of potential solutions.

The hackathon culminated in a 'Dragon's Den' style pitch, where each group presented their ideas and findings to a judging panel. The teams competed for a cash prize which the winners with a budget to refine and develop their ideas, guiding appropriate multi-disciplinary practice development and interventions within their respective organisations.

The winning team were given the broader theme of Road Safety in Major Cities and after analysing the data provided identified an area of Cardiff (St Mary's Street) as being a hotspot for pedestrian road traffic incidents. The group developed an idea for a behavioural change intervention, and are currently using their funding to conduct further research.

**If you are interested in running similar programmes within your own force please contact:** [crimeandsecurity@cardiff.ac.uk](mailto:crimeandsecurity@cardiff.ac.uk)

**WATCH:** [www.upsi.org.uk/news/hacking-the-21st-century](http://www.upsi.org.uk/news/hacking-the-21st-century)

## Evidence Based Policing Programme Completes Third Year



For the third year running, academics from the Universities' Police Science Institute have worked with officers and staff within South Wales Police to deliver the 'Policing Futures programme'. Marking thirteen years close collaboration between both organisations, the course enabled policing practitioners to develop insights and evidence from research projects designed to address

contemporary crime and policing challenges. *"Based around the five themes of People; Prevention Partnership; Developing Our People; and Developing Our Organisation, the work of this programme will help develop our knowledge, influence our response to certain types of crime and ultimately enable us to be more effective"*  
**Chief Constable Matt Jukes, South Wales Police**

The programme culminated with a prestigious event, in which participants presented their evidence-based recommendations to the leadership of SWP.

**WATCH:** [www.crimeandsecurity.org/feed/policing-futures](http://www.crimeandsecurity.org/feed/policing-futures)

# Events

## CSRI Seminar: The South Wales Joint Public Service Centre Project: An Independent Evaluation

The development of the Joint Public Service Centre (JPSC) aimed to improve collaboration between the emergency services to generate both economic and public benefits. In this seminar, UPSI Research Fellow, Trudy Lowe, will present the findings of a multi-method evaluation (pg 33) of the joint endeavour which sees call-handlers from emergency services in South Wales co-located in a shared control room in Bridgend. The presentation will illustrate how this substantial change has required close cooperation between organisations with different policies, procedures and cultures. The analysis finds that JPSC achieved many of its initial goals despite encountering a number of distinctive challenges. The project was funded under the Home Office's Police Innovation Fund, alongside a loan obtained by the Fire and Rescue Services via the Welsh Government's Invest to Save Scheme.

**Time:** 12.30pm to 2pm

**Date:** 14-Nov-2019

**Location:** Crime & Security Research Institute, Level 2, Friary House, Greyfriars Road, Cardiff

**Booking information / links:** [www.crimeandsecurity.org/events/JPSC](http://www.crimeandsecurity.org/events/JPSC)

**Contact:** [crimeandsecurity@cardiff.ac.uk](mailto:crimeandsecurity@cardiff.ac.uk)

## VRG Seminar Series: Evaluating the Diversion of Alcohol-Related Attendances (EDARA)

Director of the Violence Research Group (VRG), Professor Simon Moore, will present the much-anticipated findings from the 30 month EDARA project. The results evaluate the effectiveness, cost-effectiveness, efficiency and acceptability of Alcohol Intoxication Management Services (AIMS) in managing alcohol-related Emergency Departments' attendances. AIMS are designed to receive, treat and monitor intoxicated patients who would normally attend Emergency Departments and to lessen the burden that alcohol-misuse places on unscheduled care. They are usually located close to areas characterised by excessive intoxication and are open at times when levels of intoxication peak (eg Friday and Saturday nights). The project was funded by £925,000 funding National Institute for Health Research Health Services and Delivery Research Programme. It started in January 2016 and will run for 30 months with £925,000 funding.

**Time:** 12.30pm to 2pm

**Date:** 10-Dec-2019

**Location:** Crime & Security Research Institute, Level 2, Friary House, Greyfriars Road, Cardiff

**Booking information / links:** [www.crimeandsecurity.org/events/EDARA](http://www.crimeandsecurity.org/events/EDARA)

**Contact:** [crimeandsecurity@cardiff.ac.uk](mailto:crimeandsecurity@cardiff.ac.uk)

## CSRI Seminar: Reading The Signs: Investigating the Unintended Consequences of Servicescape Signage

Service organisations are increasingly using signage to communicate expectations of conduct to their customers with the aim of mitigating deviant customer behaviour. Deviant customer behaviour refers to acts by customers that infringe the norms of the consumption environment and include rude, abusive and aggressive behaviours. In this lunchtime seminar, Professor Kate Daunt will examine the unintended impacts of such signage on customers attitudes and behaviours. Her work draws on reactance theory, in which reactance occurs when an individual perceives that a freedom or choice has been removed. The seminar will provide an insight into the expertise Professor Daunt will be bringing to the CSRI during her one year secondment from Cardiff University's Business School (pg 9).

**Time:** 12.30pm to 2pm

**Date:** 6-Feb-2020

**Location:** Crime & Security Research Institute, Level 2, Friary House, Greyfriars Road, Cardiff

**Booking information / links:** [www.crimeandsecurity.org/events/readingthesigns](http://www.crimeandsecurity.org/events/readingthesigns)

**Contact:** [crimeandsecurity@cardiff.ac.uk](mailto:crimeandsecurity@cardiff.ac.uk)

## Could AI Robots Develop Prejudice on Their Own?

Showing prejudice towards others does not require a high level of cognitive ability and could easily be exhibited by artificially intelligent machines, new research has suggested.

Computer science and psychology experts from Cardiff University and MIT have shown that groups of autonomous machines could demonstrate prejudice by simply identifying, copying and learning this behaviour from one another.

It may seem that prejudice is a human-specific phenomenon that requires human cognition to form an opinion of, or to stereotype, a certain person or group.

Though some types of computer algorithms have already exhibited prejudice, such as racism and sexism, based on learning from public records and other data generated by humans, this new work demonstrates the possibility of AI evolving prejudicial groups on their own.

The new findings, which have been published in the journal *Scientific Reports*, are based on computer simulations of how similarly prejudiced individuals, or virtual agents, can form a group and interact with each other.

In a game of give and take, each individual makes a decision as to whether they donate to somebody inside of their own group or in a different group, based on an individual's reputation as well as their

own donating strategy, which includes their levels of prejudice towards outsiders.

As the game unfolds and a supercomputer racks up thousands of simulations, each individual begins to learn new strategies by copying others either within their own group or the entire population.

**Co-author of the study, Professor Roger Whitaker, from CSRI's DAIS Group, said:**

*"By running these simulations thousands and thousands of times over, we begin to get an understanding of how prejudice evolves and the conditions that promote or impede it."*

**Learn More:** [www.cardiff.ac.uk/news/view/1273236-could-ai-robots-develop-prejudice-on-their-own](http://www.cardiff.ac.uk/news/view/1273236-could-ai-robots-develop-prejudice-on-their-own)





“The idea that social media is problematic for democratic politics because it induces ‘echo chamber’ effects is now well known. Our detailed analysis of public reactions to the murder of Jo Cox MP in the context of the Brexit referendum campaign, identifies how specific types of social media message triggered these echo chambers, polarising public sense-making.”

**Professor Martin Innes,  
Director of the CSRI**

## Murder of Jo Cox Used by “Digital Prophets” to Widen Divides Before EU Vote, Research Finds

Predictions about the future implications of the murder on social media, were a key polarising moment in the Brexit campaign. MP Jo Cox’s murder sparked a wave of inaccurate speculation on social media which may have influenced voters before the EU Referendum, research concludes.

The CSRI analysed nearly 44,000 tweets mentioning key terms “Jo Cox” and “Brexit”, which were posted in the run up to the crucial vote. Jo Cox, who had supported the Remain side during the EU campaign, was killed outside her constituency surgery in Birstall, near Leeds, on 16 June 2016. The EU Referendum was held seven days later. Her death, researchers say, amplified political divisions and triggered a surge in soft facts – rumours, conspiracy theories and unverified claims – on social media.

Researchers found a small number of twitter accounts – supportive of both the Leave and Remain campaigns – were responsible for sending out tweets about the reasons for the attack and what it could mean for the forthcoming vote. For example, the data shows how two posts sent from a single account with more than 550,000 followers influenced 7,000 other tweets.

These ‘digital prophecies’ worked by connecting the current crisis event, to an established narrative of grievance, to predict future harmful consequences for the result of the impending Brexit referendum.

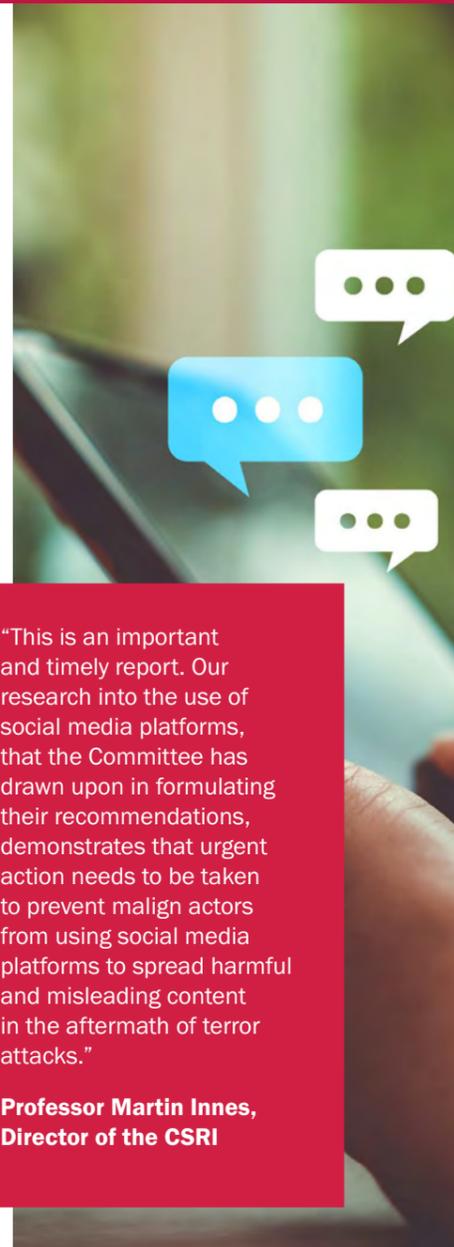
*“More than two thirds (28,170) of the posts we analysed were in fact, retweets, which demonstrates the way in which politically motivated rumours and predictions quickly gained momentum among a significant number of social media users. In turn, embedding increasingly polarised opinions.”*

**Professor Martin Innes**

The research also reveals linkages between the #Usepens conspiracy theory, which accused the Remain side of a plot to erase Leave votes made in pencil, and the soft facts circulated about the murder of Jo Cox. The paper shows that on the 22nd and 23rd June 1,114 tweets were made in support of the #Usepens theory. Amongst those posting, 76 individuals promoting the #Usepens theory had also been found to be disseminating soft facts about Jo Cox’s murder.

Academics conclude a better understanding is needed of the role of social media in the wake of such crimes, in order to prevent wider harm.

Learn More / Download Paper:  
[www.crimeandsecurity.org/feed/jocox](http://www.crimeandsecurity.org/feed/jocox)



“This is an important and timely report. Our research into the use of social media platforms, that the Committee has drawn upon in formulating their recommendations, demonstrates that urgent action needs to be taken to prevent malign actors from using social media platforms to spread harmful and misleading content in the aftermath of terror attacks.”

**Professor Martin Innes,  
Director of the CSRI**

*The research was funded by the Centre for Research and Evidence on Security Threats (CREST).*



## Research Sparks Calls by MPs for Tougher Enforcement on Social Media Companies

CSRI Research into the use of Russian-linked social media accounts following the 2017 UK terrorist attacks has led to calls for greater scrutiny of technology companies in the spread of harmful online content. In their report on Disinformation and ‘fake news’, the Digital, Culture, Media and Sport Committee described how CSRI’s work was among “strong evidence”, which “detailed ways in which the Kremlin attempted to influence attitudes in UK politics”.

Following the inquiry, MPs have called for stronger enforcement on technology and social media companies. They also found that current electoral law is “not fit for purpose” and that Facebook “intentionally and knowingly violated both data privacy and anti-competition laws”.

The CSRI’s ground-breaking report entitled, ‘**Russian influence and interference measures following the 2017 UK terrorist attacks**’ showed the level of influence and interference by Russian-linked social media accounts was considerably more extensive than had been reported previously.

After analysing 30 million data points across a variety of social media platforms, researchers identified at least 47 different accounts that strived to manipulate the public debate that followed each terrorist incident.

**Professor Innes said:** “The evidence we collected suggested a systematic strategic political communications campaign being directed at the UK designed to amplify the public harms of terrorist attacks.”

Learn More / Read Report:  
[www.crimeandsecurity.org/feed/socmed-enforcement](http://www.crimeandsecurity.org/feed/socmed-enforcement)

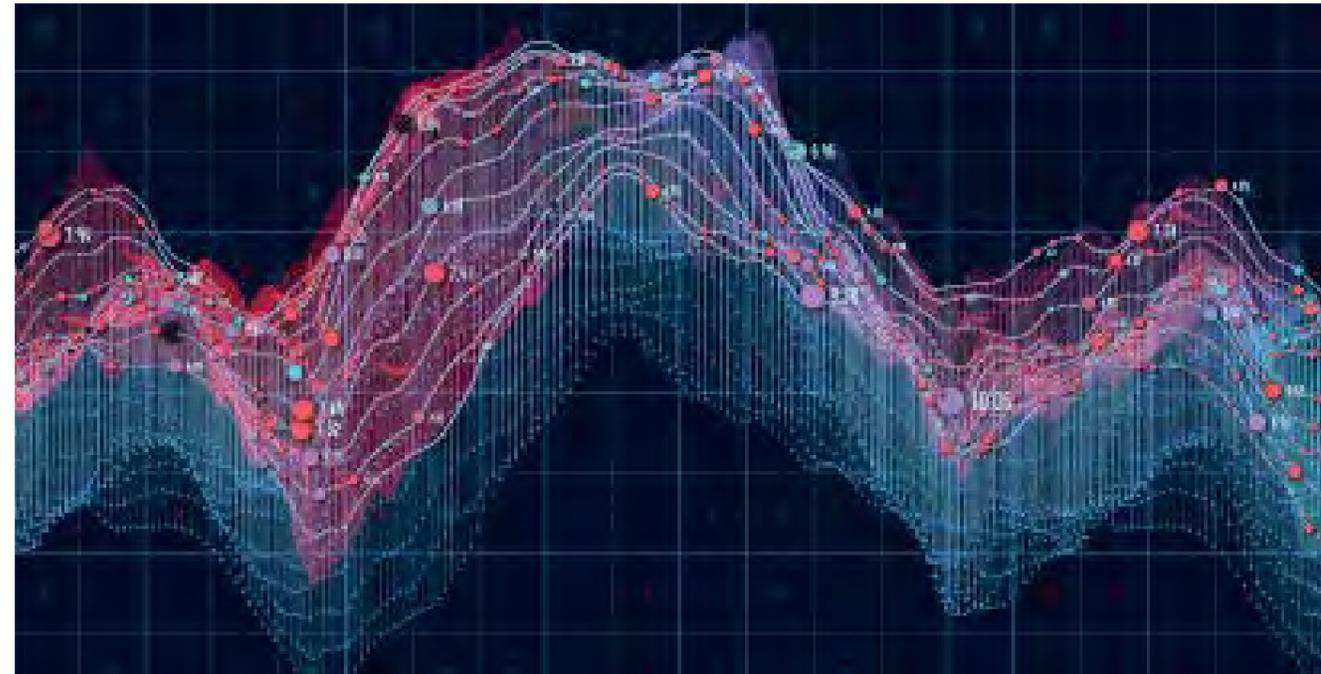
# DAIS ITA: Highlights From the Third Annual Meeting

The International Technology Alliance in Distributed Analytics and Information Sciences (DAIS ITA) is a collaborative partnership between the United States Army and the United Kingdom Ministry of Defence. The programme brings together researchers from US Army Research Laboratory (ARL) and UK Defence Science & Technology Laboratory (Dstl) to work alongside a consortium of universities and industrial research laboratories in the two countries.

DAIS ITA is conducting multidisciplinary research to provide the fundamental underpinnings for future coalition distributed analytics and situational understanding in the context of ad hoc coalition operations at the tactical edge. To this end, they explore the principles underlying distributed analytics and situational understanding, taking into account the fact that coalition operations involve contested and complex multi-actor situations, have information with a high degree of complexity, need to be processed in a time-sensitive manner at a high tempo, and are required to be aligned with human needs and capabilities.

## Research Focus:

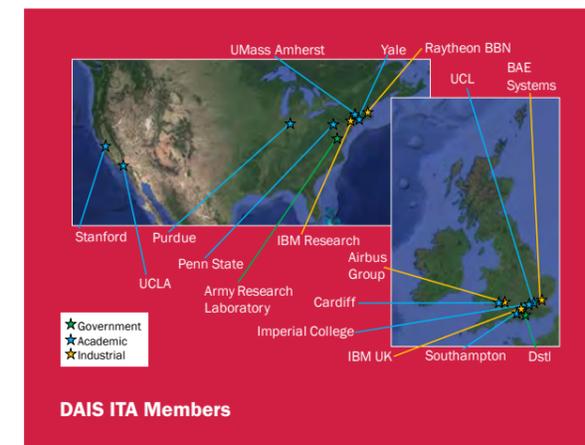
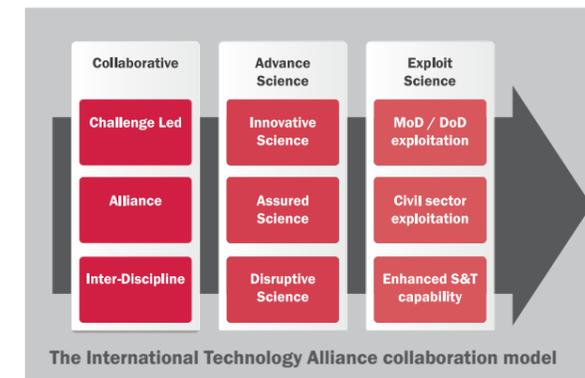
At Cardiff, the DAIS ITA programme supports a team of five principal investigators and eleven PhD students working in collaboration across three projects:



**Instinctive Analytics in a Coalition Environment:** This project addresses the challenge of how to make coalition information systems adaptable to user-context and able to fully exploit a resource-constrained heterogenous edge environment, by defining algorithms: (1) to learn representations and dynamically compose complex services in a distributed environment and (2) to execute these composed workflows in a decentralised and energy-efficient manner.

**Anticipatory Situational Understanding for Coalitions:** This project addresses the challenge of providing assured predictive analytics operating synergistically between users and machines, by (1) integrating learning and reasoning techniques while dealing with uncertainty in the presence of sparse data and (2) making Machine Learning-based services more interpretable and more robust to adversarial attacks, and thus more exploitable in human-agent teams.

**Evolution of Complex Adaptive Human Systems:** This project addresses the challenge of understanding complex adaptive human groups, their mutability and evolution, by (1) creating novel models of fracture and formation of groups, based on psychological modelling of inter-group behaviour and (2) gaining understanding of behaviours by characterising social network sub-structures in terms of network motifs.



## Scientific Highlights:

The DAIS ITA programme recently held its third annual meeting at which the Cardiff group's research accomplishments over the last year were highlighted:

- Researchers from Cardiff, IBM, Purdue, and ARL demonstrated the viability of using a Vector Symbolic Architecture (VSA) approach to encode workflows containing multiple coordinated sub-workflows in a way that allows the workflow logic to be unbound on-the-fly and executed in a completely decentralized and scalable way.
- Researchers from Cardiff, UCLA, and ARL successfully achieved efficient uncertainty-aware learning and reasoning by integrating neural networks and logic programming, exploiting the theory of subjective logic to facilitate robust human-machine decision making.
- A team from Cardiff, IBM, UCL, UCLA, BAE, Airbus and ARL addressed the problem of assured machine learning in a multi-partner context by formulating a framework to express the requirements of stakeholders of explainable AI systems as well as quantifying the effectiveness of interpretability mechanisms.
- Collaboration between Cardiff and Yale has advanced the state-of-the-art in the psychological modelling of groups, resulting in a new model to understand the effects of stereotyping; this model forms the basis for further understanding the "devoted actor" phenomenon.
- Researchers from Cardiff, IBM, PSU, UMass and ARL showed the significance, value and utility of motifs, including a demonstration that motifs provide valuable predictive features, both for temporal scenarios and in modelling human behaviour.

## Student Cohort:

The 12 PhD students in the CSRI are part of a cohort of over 40 students working across the 15 DAIS partners, in collaboration with industry and government scientists as well as advisors from the Ministry of Defence and US Department of Defense.

Learn More: [www.csri-dais.org](http://www.csri-dais.org)



*“Over the past five years or so, both the mechanics and dynamics of terrorism and how it is reported via media sources, have altered dramatically. There has been a diversification in terms of ideological motivations, and a shift to a full-spectrum of attack methodologies, ranging from bombings to knife and vehicle-based attacks. Over the same period, the logics of media and the information environment have been fundamentally transformed.”*

**Professor Martin Innes**

# From Minutes to Months:

## A rapid evidence assessment of the impact of media and social media during and after terror events

Researchers develop a new framework for governments and police forces around the world to help mitigate against harm caused by mass and social media following terror events.

Academics at Cardiff University's CSRI led an international team of analysts from the University of New South Wales, Michigan State University and the Canadian Society of Evidence Based Policing, to learn lessons from the terror attacks in the UK, US, Canada, New Zealand and Australia. Led by Professor Martin Innes, Director of the CSRI, the team of academics have developed a Minutes to Months (M2M) framework (See pg 22), to help authorities formulate robust strategies for managing the resulting online reactions after a major incident. The study illustrates how communications after a terrorist incident can lead to a spike in hate crimes, incite and fuel extremism as well as prompt damaging disinformation and rumours.

The researchers urge governments, police and others involved in public safety of the need to be ready after such incidences to offer accurate, regular information to minimise negative fallout.

The study was formulated through reviewing published research on the role of media and social media in the wake of terror attacks alongside analysing detailed case studies of specific incidents. Their final report provides new evidence and insights into how media and social media coverage can increase the public harms of terrorism, as well as advice on how to mitigate such effects. Importantly, the research found that such attacks continue to have an adverse impact long after the initial incident, as a wide range of voices compete through mainstream and social media.

The report highlights how Terrorist violence is intended as a provocation to elicit intense and vivid reactions; the relative neglect of how to manage post-event situation is a current weak point in many governmental counter-terrorism frameworks.

The increasing volume of communication enables different groups to develop alternative interpretations and framings of the same event. As a consequence, there are typically multiple narratives and accounts circulating in the post-event environment.

Terrorist violence is purposively designed to 'terrorise, polarise and mobilise' different public audiences, therefore understanding and managing the dynamics of public reaction to these provocations is vital.

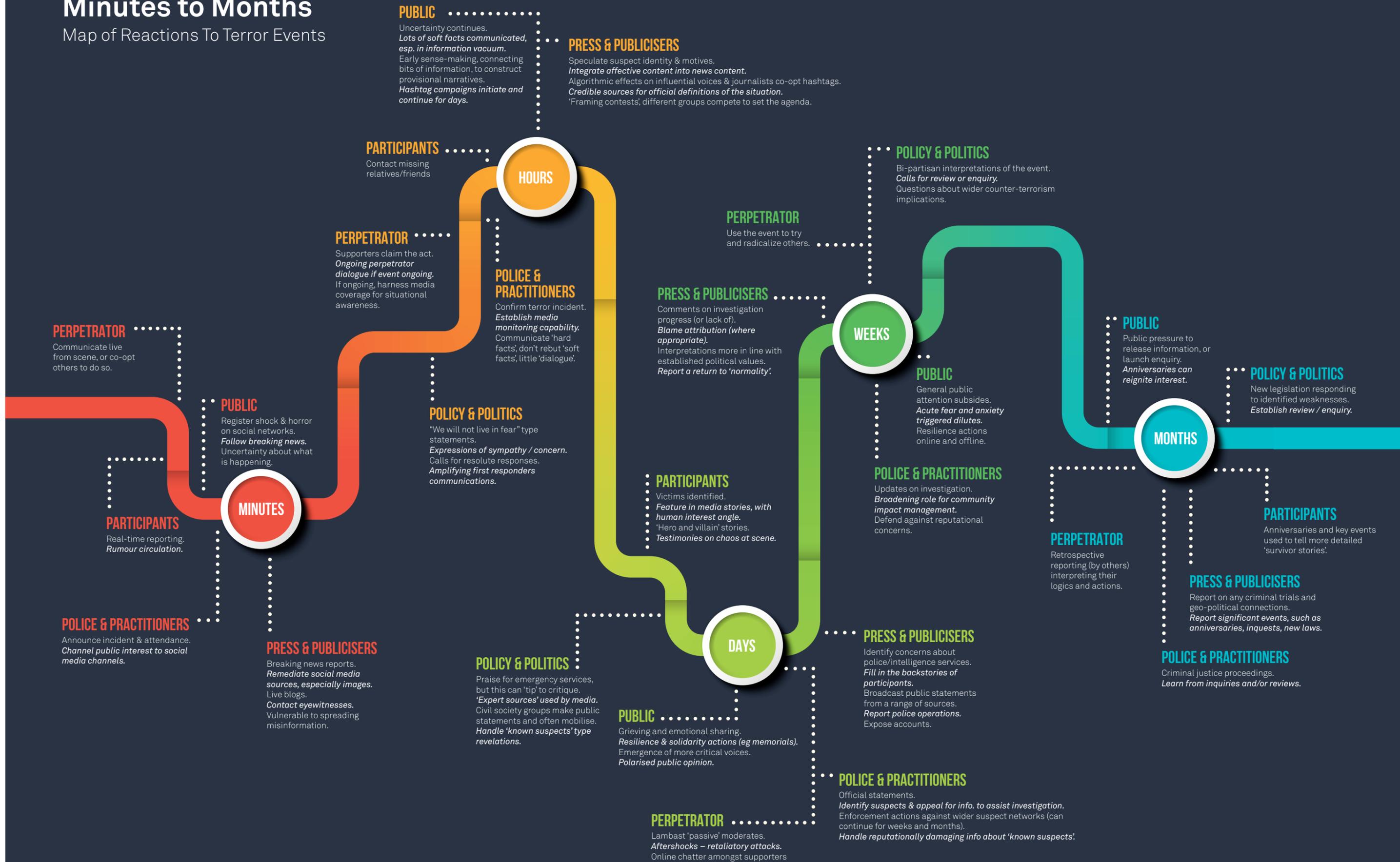
**The report was funded by the Federal Government's Canada Centre for Community Engagement and Prevention of Violence (Canada Centre) on behalf of the Five Country R&D Network (5RD), in support of the Five Country Ministerial Countering Violent Extremism Working Group. The Canada Centre is working with international partners to help identify knowledge gaps in countering radicalization to violence.**

**Learn More/Download Report:**  
[www.crimeandsecurity.org/feed/minutestomonths](http://www.crimeandsecurity.org/feed/minutestomonths)



# Minutes to Months

## Map of Reactions To Terror Events



## How IRA Accounts Built Audience and Influence

To enhance their persuasive capacity and capability, accounts belonging to the IRA strived to build their following through a number of methods. To do so, these accounts spoofed personas by creating false account profiles and then messaged around issues of interest to the online communities associated with their fake digital social identities. Although some IRA accounts built their audiences over several years, not all did. Some tried to shortcut the process of building audience and influence by using specific techniques.

# How Russia's Internet Research Agency Built its Disinformation Campaign

**This article provides an overview of the CSRI's research into the Kremlin-backed Internet Research Agency's (IRA) long-term influence and interference measures directed towards European politics and elections. The research highlights some of the techniques and tactics that have been used in IRA information influence operations and evidences the growth of their operational capacity in Europe.**

Several official US Government sources have documented that the 2016 Presidential Election was the subject of an intense and sustained information influence operation conducted by the St. Petersburg based IRA. However, far less has been known about the IRA's interests and activities in Europe around this time. New research by the CSRI has provided significant evidence of similar influence and interference strategies being operationalised in Europe.

Using detailed 'digital forensic' investigative methods, researchers have attempted to distil the IRA's disinformation playbook by providing an evidence-based understanding of how IRA operators built their audience and influence. This

briefing focuses upon the IRA's formative years between 2014-16, denoting how their strategic interests shifted from a focus upon the Ukrainian conflict towards the rest of Europe. It also highlights the discovery of reconnaissance style activity of weaknesses in Greece's 2014 electoral procedures.

This article is based upon two projects undertaken by the CSRI. These studies were informed by analysis of two data sets; The 'FiveThirtyEight Internet Research Agency Twitter dataset', an extensive non-anonymised corpus of tweets posted by IRA accounts, and a larger cohort released afterward, encompassing accounts publicly defined by Twitter as "IRA-linked". Insights were also underpinned by a number of published accounts

and stories from former workers at the IRA describing its organisation and routines.

### Buying followers

An alternative to the long term investment required to organically grow follower numbers is to 'buy' a following. Websites such as 'buycheapfollowerslikes.org' offer to increase a client's Twitter following by 1,000 accounts for less than \$20. According to reviews, the followers have profile pictures, unique bios and are active tweeters; however they will not interact with posts, as they are bots. Evidence has been found of IRA accounts instantaneously gaining hundreds of followers which can be explained by this method. However, it is not clear whether such an action was performed as part of the overarching organisational strategy, or because a worker was 'gaming' the internal performance measures they were subject to.

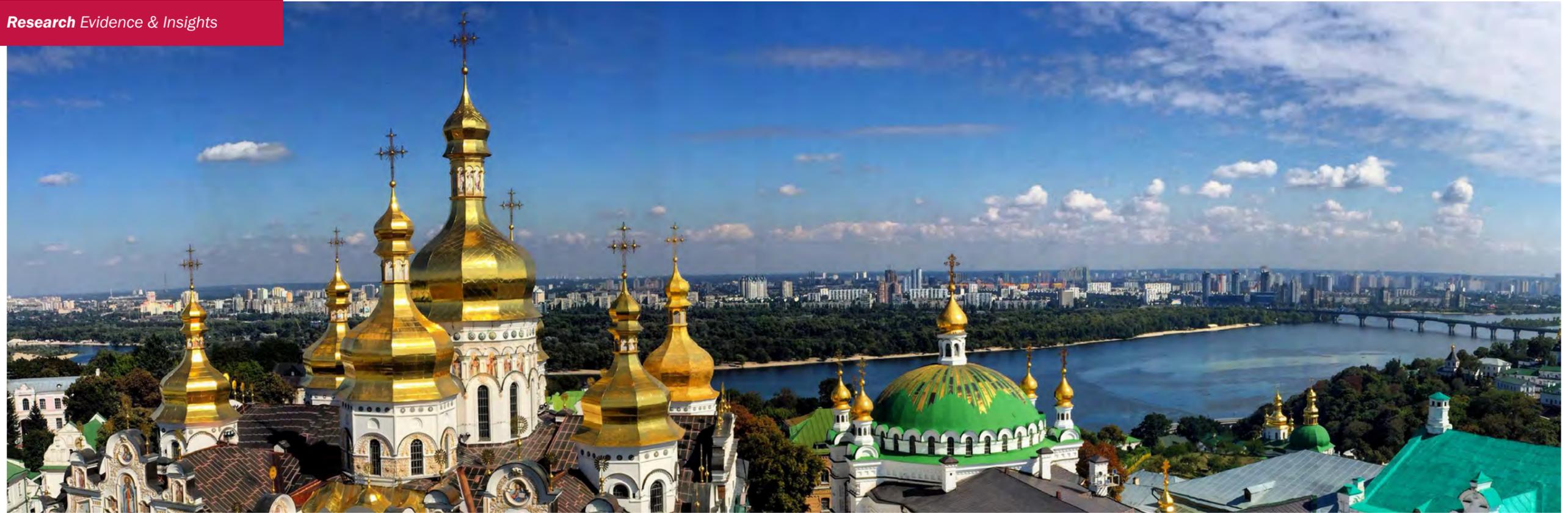
### Follower fishing

A second pattern of behaviour designed to build audience and influence is 'follower fishing'. The tactic works by the IRA accounts following hundreds or thousands of new accounts in a very short time frame. The aim is to get the newly added accounts to reciprocate by following the IRA account (follow-back). After a few days,

the IRA operator then unfollows the accounts, increasing their 'followers per followed' ratio and with it boosting the account's implied 'authority', at least in terms of how this is assessed by platform algorithms. This tactic is commonly used by 'social media influencers', such as celebrities or marketers.

### Narrative switching

A third pattern of IRA account behaviour is 'narrative switching'. The operators start by talking about fairly mundane issues, consistent with the spoofed account persona. However, at some point, often after an extended time period, messages become overtly political and frequently aligned with established pro-Russian interest narratives. Evidence shows the IRA not only switched from banal to pro-Russian views, but also switched abruptly between different political positions according to current Kremlin operational priorities, or even just to create confusion. For example, researchers found a German language account that started off anti-AFD, then paused its activities, and resurfaced pro-AFD. Narrative switching can also be used to collect certain types of followers, for example people interested in French yellow jacket protests, so that they can be targeted with messages at a later time. In some instances, these switches happened after the account was dormant for a time.



# Ukraine: A Defining Moment for the IRA

2014 was a key period in the expansion of the scale and intensity of IRA activity, with Ukraine as a clear propaganda priority.

Using the anonymised dataset of IRA accounts issued by Twitter, researchers extracted a corpus of 5032 tweets from 202 accounts defined by Twitter as “IRA-linked”. These were taken over the polling of the European Parliamentary Elections 2014, between 21st and 26th May 2014. Whilst only five confirmed IRA accounts were identified messaging about the EU elections, over 20% (1022) of the tweets in the corpus contained clear references to the situation in Ukraine. Events leading up to this point had escalated quickly with Russian soldiers appearing in Crimea; its annexation in an illegal referendum; the shooting down of flight MH17; and the war in the Donbass, all occurring within six months.

Analysis shows that these IRA accounts were prioritising the Ukrainian Presidential Election that

took place on the 25th May, with 41% of the tweets mentioning ‘Ukraine’ also referencing the ballot in some way. These tweets referred to Ukrainians being ‘fascists’ led by a ‘murderous junta’ as well as there being a corrupt electoral process. The leading candidate Poroshenko was a particular target, with multiple messages alleging that he was a ‘stooge’ put in place by western intelligence agencies.

The study showed large numbers of new accounts being quickly set up during this period and suggests this was a defining moment where the IRA operation expanded in scale and intensity. In particular, where previously they had been primarily focused upon Russian domestic public opinion, they were becoming increasingly externally focused.

## Case Study

### Greece: A Case Study of Election Reconnaissance

Although the IRA was largely focused on Ukraine at this time, evidence shows unusual activity being carried out in relation to the European Parliamentary Elections of that year in Greece. 2014 was a pivotal moment for Greek politics with the EU elections seen by many as a referendum on the ruling party’s ability to handle the financial crisis engulfing the country. In their analysis, researchers show how “Account A”, one of the 202 accounts active in 2014 that Twitter defined as “IRA-linked”, was physically present in Greece at the time of the elections and was engaging in reconnaissance-type behaviour.

Researchers found that “Account A” was sharing with others based in Russia written descriptions denoting specific weaknesses in the Greek electoral process. Alongside these were also a number of pictures inside and outside of polling stations, photographs of ballot papers and voter identification list. Furthermore, analysis shows that the account operator also appears to have travelled to multiple other countries, including the US, Italy, Norway, France, the Netherlands, Israel, Thailand, Malaysia, Egypt, Hong Kong and Austria.

The findings show a pattern of activity that possesses the hallmarks of a reconnaissance operation devised to collect ‘intelligence’ about European Parliamentary election processes in Greece. In an attempt to better understand how this IRA-linked account operated, its interactions with other known IRA accounts in the dataset were mapped.

Whilst unusual, researchers show how IRA engagement with Greece and the elections to the European Parliament was limited in 2014 due to the situation in Ukraine. Moving into 2015 however, there was a large volume of messaging activity targeting Greece. There were in excess of 9600 tweets from IRA linked accounts, with the main topics being the disagreements between Greece and the EU over its bailout. Multiple IRA-linked accounts pushed the narrative that Greece should turn its back on Europe and embrace Russia instead.

**Learn More:** [www.crimeandsecurity.org/feed/ira-europe](http://www.crimeandsecurity.org/feed/ira-europe)

# European Democratic Events in 2016

Based upon the material contained within Twitter's classification of IRA linked accounts, by 2016, there were 1380 accounts that tweeted over 1.5million messages during that year. When compared with levels of activity prior to 2014 this represents a significant growth in the scale and the intensity of operations.

Whilst the data only indicates the language that Twitter's algorithm believes the tweet was composed in, it does provide an indicator of shifts in IRA strategy. In 2014 the IRA sent nearly 2 million tweets in Russian, but by 2016 this number had fallen to less than half a million. English had become the predominant language by 2016, with the IRA also exploring the use of German, Arabic, Bulgarian, Estonian, French, Italian, Romanian and Spanish as it became increasingly interested in influencing audiences across multiple European countries.

By looking at the timeline of when different accounts were created, the analysis suggests that the IRA strategy was to expand their focus upon manipulating Western political opinion. However, events in Ukraine at this time induced a need for a reactive pivot that temporarily inhibited pursuit of this strategy. By 2016, the events in the Russian sphere of influence had stabilised sufficiently to allow the IRA to focus externally again. For example, a number of the English and German accounts were especially interested in Brexit.

## Implications

Multiple previous studies and reports have demonstrated that the IRA were highly active sowing discord in US politics during 2016. The evidence gathered by researchers at the CSRI shows that IRA operators were also performing information influence operations designed to advance Russian interests in the European theatre. If the best predictor of likely future

conduct is past behaviour, then this analysis has documented a sustained and wide-ranging interest in European political elections and democratic events on the part of social media accounts covertly run on behalf of the Kremlin.

At a time in which European politics is increasingly polarised, the analysis presents evidence of potential risks and threats to the integrity of democratic processes throughout the continent. The 2014 Greek case study implies an attempt to collect and share information about a range of weaknesses identified with the security and integrity of election procedures in one country. In the hands of actors with malign intent, it is clear how this could be used to subvert and interfere with the voting process. This has been supplemented and augmented by evidence of growing interest in European democratic institutions and practices amongst Russian backed social media accounts. Importantly, by identifying the IRA's key tactics and techniques, the work will help detect similar disinformation campaigns in other contexts.

Learn More: [www.crimeandsecurity.org/feed/ira-europe](http://www.crimeandsecurity.org/feed/ira-europe)



# Bellingcat: Open Source Investigations

The CSRI team were joined by Eliot Higgins and Donara Barojan from Bellingcat and the Atlantic Council's Digital Forensic Research Lab (DFR Lab), who led an instructive workshop on open source investigations. The session explored the boundaries of open source research in analysing the nature and impact of disinformation campaigns and hybrid threats in the digital domain.

**How has open source data changed the ways in which we can create public awareness of human rights issues?**

**Eliot:** We now have access to a vast amount of imagery that can be cross referenced and verified against other material, such as witness statements and satellite imagery. Even in what were considered remote areas of the world, the use of satellite imagery to examine and verify reports of incidents is something that's very powerful, and its usefulness has already been demonstrated in countries like Myanmar.

**Donara:** We very frequently hear about numbers but never see that human face of the human suffering, and the open source research that uses proof and evidence generated by real users on social media I think allows us to see that.

**What do you think are the future challenges and needs for development?**

**Eliot:** The biggest challenge seems to be training. There's a rapidly increasing interest in the sort of work Bellingcat does, but very few people who are trained to do the work in the way Bellingcat does it.

**If you could change one thing to increase the impact of your work what would it be?**

**Eliot:** More collaborations with organisations where our investigative techniques can be used to support their own investigations. We've done it in the past, and it's been very successful, so being able to do it on a regular basis would be very effective

**What technical challenges do you face in your job, and how do you verify whether images are genuine or fake?**

**Donara:** Because we don't have access to the back end of Twitter or Facebook, it means we cannot conclude with any kind of certainty who was behind an influence campaign or an influence operation. That's a real shame because the best deterrent and the best protection from disinformation and dissemination of fake news is being able to point out who did it, and who might be targeting you, and when we can't do that then that presents a dilemma.

**How large a problem do you think the spread of fake news is?**

**Eliot:** From the perspective of discourse around a topic it's an increasing issue, especially now you can find anything to support your pre-convinced notions, rather than being challenged by evidence and facts. From the perspective of using it as evidence it's not a big issue, as any quality investigation will fact check and verify all the evidence, so fake news will be easily identified.

**Donara:** The problem of fake news does more to polarise societies than to change people's opinions or effect the way they are voting. So although it is an important problem I don't think it is as important as disinformation, which is the nudge that does try to change people's behaviours.

Read the full interview: [www.crimeandsecurity.org/feed/bellingcat](http://www.crimeandsecurity.org/feed/bellingcat)

# The Wales Safeguarding Repository

“This Repository of public protection reviews is long overdue. But the real win for safeguarding is the use of machine learning to make it possible to extract and embed the learning from the reviews. This will make people who are now at risk safer both in and beyond Wales.”

Jan Pickles OBE,  
National Independent  
Safeguarding Board

**A multi-disciplinary project seeking to build a novel document repository for housing safeguarding reviews and reports has begun to produce results able to assist practitioners.**

Led by the CSRI, The Wales Safeguarding Repository (WSR) project is an ongoing research venture undertaken in conjunction with the National Independent Safeguarding Board (NISB) and Welsh Government. It seeks to enhance the future safeguarding practice of professionals such as police officers, social workers and those working in health and social care through creating a framework and digital repository to allow for better learning to emerge from death reviews via state-of-the-art text mining and machine learning techniques.

Researchers in the Insitute have completed the initial development phase through the creation of a prototype repository capable of housing multiple types of safeguarding reviews and reports. The framework was focused on 29 Domestic Homicide Reports (DHRs) sourced from both Wales and England.

Although ongoing, the research has already found that a higher quality of report can be achieved through maintaining a select pool of experienced authors as well maintaining the consistent anonymity of the report’s subjects. Family involvement has also been found to be an important factor in the creation of an expedient report. Researchers noted that their involvement produced more consistent analysis around agency contact and performance.. This is especially significant where protected characteristics or language barriers preventing access to services are a theme within a report.

Further insights are hoped to be encouraged by the recent incorporation of 29 Mental Health Homicide Reviews (MHHRs) into the coding framework. The introduction of different reports is being used to test the framework’s robustness as well as provide a greater volume of data to assist in the early development of machine learning techniques.

The project demonstrates the inter-disciplinary nature of the CSRI, with the coding of the reports being undertaken manually by an undergraduate Politics student, which in turn is assisting the development of machine-driven automatic coding developed by a computer science PhD student. Together, the researchers have developed the framework inside of five high level concepts that support the application of machine learning in identifying themes present within both DHRs and MHHRs.

The WSR project has so far been funded at different stages by the Welsh Government via the NISB, Cardiff University’s School of Social Science and the CSRI.

The WSR project aims to secure further funding that will allow for continued development of the coding framework. This involves expanding the framework to encompass concepts pertaining to Adult Practice and Child Practice reviews, integrating the coding framework into the repository software, and further exploration into the automatic application of the coding framework through state-of-the-art text mining and machine learning techniques.

Learn More: [www.upsi.org.uk/projects-2/wsr](http://www.upsi.org.uk/projects-2/wsr)



## Serious violence in England and Wales dropped by 1.7% between 2017 and 2018

The study, which examines data by age and sex, is produced from a scientific sample of 126 emergency departments (EDs), minor injury units and walk-in centres across England and Wales. All are certified members of the National Violence Surveillance Network (NVSN), which has published an annual report for the past 18 years.

Professor Jonathan Shepherd of the CSRI, one of the authors of the report, said: “Violence levels in England and Wales have not changed significantly between 2017 and 2018. However, the longer term trend shows a large decline in serious violence; between 2010 and 2018 we have identified a drop of 41% in people needing treatment in emergency departments after violence.”

Overall, an estimated 187,584 people attended EDs in 2018 (3,162 less than in 2017). As in previous years, those most at risk of violence-related injury in 2018 were males and those aged 18 to 30, however, violent injury of males declined by 2.5% (3,297) in this period. Violence-related ED attendance was most frequent in July and on Saturdays and Sundays. Decreases among children were largest (0-10 years, down 9.3%; 11-17 years, down 7.4%). Violence affecting those aged 51 years and over increased (up 5.2%) relative to 2017.

In contrast to the slight decrease overall, knife related serious violence has increased according to separate hospital admissions data.

Whilst the study does not examine the reasons behind the violence numbers, it cites a number of possible explanations for the slight decrease, including better targeted policing, and better inter-agency collaboration.

“Greater local effort to improve the quality of information collected in emergency departments and the use of this information by police and local authorities, working with the NHS in violence prevention units, is a priority.”

Professor Shepherd, Founder of the Violence Research Group (VRG)

Professor Shepherd concluded: “Trends in violence are going in the right direction but a lot more prevention is achievable with determined multi-agency effort.”

Learn More: [www.crimeandsecurity.org/feed/violence-2018](http://www.crimeandsecurity.org/feed/violence-2018)





# Alcohol Use and Cognitive Decline

Recent figures reveal that alcohol-related harms cost the NHS around £3.5 billion every year, with an estimated 1.1 million alcohol-related hospital admissions in 2015/16. New research may explain why so few desire a hard-line on alcohol misuse.

Whilst alcohol is widely enjoyed in the UK, new research increasingly uncovers the peculiar effects that alcohol can have on its users. These studies may help to explain the large difficulties in the UK and elsewhere around changing drinking behaviours. For example, those who drink think they are healthier than those who do not, despite drinkers using healthcare services more frequently.

Research by the Violence Research Group (VRG) has explored the impact alcohol on drinkers' ability to think and reason. The study found that consuming any more than just one unit a day may have adverse cognitive effects, perhaps explaining some of the unusual attitudes drinkers have towards alcohol.

Their research used UK Biobank, a cohort of 500,000 people, to look at the relationship between alcohol consumption and cognitive function in people aged between 40 and 73 years. The results show cognitive decline is likely to become apparent at levels of alcohol consumption much lower than previously thought.

Subsequently, the authors call for recommendations of safe alcohol consumption to take this into account. Currently, the UK's Chief Medical Officers' recommendation makes no mention of age and allows up to 14 units of alcohol to be consumed each week.

In a different study by the VRG, the researchers highlight how drinkers might be less objective in their

judgements for alcohol. It was found that drinker's judge their level of drunkenness by comparing themselves to those around them. People were more likely to underestimate their own drunkenness when surrounded by others who were more drunk.

**Professor Simon Moore, Director of the VRG, said** "Researchers have historically worked under the assumption that those who drink the most alcohol incorrectly 'imagine' everyone else also drinks to excess. It turns out that irrespective of how much someone has drunk, if they observe others who are more drunk than they are, they feel less at risk from drinking more."

*"Our findings have important implications for how we might work to reduce excessive alcohol consumption. We could either work to reduce the number of very drunk people in a drinking environment, or we could increase the number of people who are sober. Our theory predicts the latter approach would have greatest impact."*

**Download Paper:** [academic.oup.com/jpubhealth/article/40/2/304/4793394](https://academic.oup.com/jpubhealth/article/40/2/304/4793394)



"In its first two years of operation, The Joint Public Service Centre has enabled emergency services in South Wales to respond to public calls for service in a more co-ordinated and cost-effective way. As the second phase of the implementation process gets underway, we would anticipate significant economic benefits to become fully realised"

**Trudy Lowe, UPSI Research Fellow**

# The South Wales Joint Public Service Centre Project: An Independent Evaluation

A new evaluation notes the success of an integrated control room for emergency services, highlighting the benefits of multi-agency collaboration whilst illustrating the challenges inherent in its implementation.

The development of the Joint Public Service Centre (JPSC) aimed to improve collaboration between the emergency services to generate both economic and public benefits. However, implementing such substantial changes within an emergency service environment has been a complex undertaking, especially with the requirement for close cooperation between organisations with different policies, procedures and cultures.

Researchers from the Universities' Police Science Institute (UPSI) have created a multi-method evaluation of the project by assessing available data provided by the different partners. The joint endeavour sees call-handlers from South Wales Police, South Wales Fire and Rescue Service and Mid and West Wales Fire and Rescue Service co-located in a shared control room in Bridgend, together with a Clinical Desk operated by staff from the Welsh Ambulance Service NHS Trust.

The report finds that the JPSC has achieved many of its initial goals, including significant savings in time and resources since it became operational in October 2017. When the Clinical Desk was in operation to triage calls, the research shows a significant number of ambulances saved from dispatch and police officers released from scenes where they might otherwise have been left waiting with patients. The data obtained by the evaluation team also suggests that the number of adverse incidents recorded against the Welsh Ambulance Service NHS Trust by South Wales Police has been reduced.

Researchers observed that the JPSC has successfully created a highly collaborative environment, with substantial interaction between the emergency services. For example, the shared space has created new opportunities to host joint training exercises. Such collaboration has in turn led to better understandings of each service's 'business' and operational demand.

Whilst these positive results help validate the rationale behind the project, the study also highlights how the specific challenges of bringing together diverse organisations should not be underestimated. Most notably, the evaluation found that blending cultural differences between the services constituted a significant implementation challenge. For instance, the two Fire and Rescue Services are subject to less, but very different demand to that faced by South Wales Police, and as such have very different working practices.

**The project was funded under the Home Office's Police Innovation Fund, alongside a loan obtained by the Fire and Rescue Services via the Welsh Government's Invest to Save Scheme.**

**Learn More:** [www.crimeandsecurity.org/feed/JPSC](http://www.crimeandsecurity.org/feed/JPSC)



## Electronic Longitudinal Alcohol Study in Communities

In recognition of the multitude of adverse effects alcohol has on health, the Violence Research Group (VRG), in collaboration with Swansea and Bristol Universities, have constructed an alcohol-specific analytical platform to facilitate research into the patterns of alcohol use, harms to consumers and those in their immediate environment.

The UK is internationally preeminent in the quality and range of available longitudinal data collected to inform policy and practice. However, this data has previously been difficult to use for analysis due to the volume, diversity and accessibility of different data sources.

With a focus on Wales, academics have sought to address this problem through the creation of a record-linked, population-based research protocol for alcohol related harms on a secure platform. The protocol links routine data, such as hospital admission data and general practice data, with cohorts specific to children, such as the Millennium Cohort Study and ALSPAC. Also linked were routine socioeconomic descriptors and mortality data.

*“Longitudinal studies that follow individuals throughout their lives are well placed to improve our understanding of alcohol use patterns in communities, across the lifespan, and can illuminate plausible mechanisms promoting harm. Our new platform will aid in generating such knowledge which in turn can assist with the design and delivery of interventions.”*

**Professor Simon Moore, Director of the VRG**

The data platform involved assessing a vast amount of individual data sources to ascertain whether they signalled alcohol-related conditions. This included 87,000 ICD10 codes, used to describe the health status of those in healthcare, and 83,000 Read Codes, used by GPs to describe the health of their patients. After

collecting and assessing these data, the researchers brought the relevant sources under one roof for analysis.

The creation of the platform is part of the wider Electronic Longitudinal Alcohol Study in Communities (ELAS*t*iC) funded by the UK’s Economic and Social Research Council, Medical Research Council and Alcohol Research UK. ELAS*t*iC has been set up to exploit the availability of longitudinal data in the UK and address outstanding questions concerning the causes and consequences of alcohol use and misuse.

Several papers have already been released relating to the ELAS*t*iC project and more are expected now the protocol has been finalised. Future research will continue, providing key sources of evidence for social and health policy as well as making substantial contributions to the understanding of disease and health trajectories across the life course caused by alcohol.

**The paper ‘Electronic Longitudinal Alcohol Study in Communities (ELAS*t*iC) Wales – Protocol for Platform Development’ can be accessed here: [ijpds.org/article/view/581](http://ijpds.org/article/view/581)**



## Parents’ Drug, Alcohol and Tobacco Use Negatively Impacts All Areas of Child Wellbeing



New research by the Violence Research Group (VRG) uncovers the extent to which parental substance use can affect a child’s well-being. Using a multi-level analysis, their results show such use to have a detrimental impact upon all measured areas of wellbeing; physical, psychological, cognitive, social and economic.

The study established the clear relationship between parental use of drugs, alcohol or tobacco and child wellbeing through analysis of 56 studies. The results also starkly show how this linkage endures over time as the relationship was still present even with a gap between when the parent and child’s information was collected.

Other findings showed that non-dependent substance use by a parent also affected child well-being. Illicit drug use was shown to have the greatest effect on childhood wellbeing out of the three, with researchers partly attributing this to its illegal status which puts parents at risk of being fined and arrested. Alcohol use was shown to exhibit similar risks for child wellbeing as tobacco.

The study is extremely pertinent given that there are 15m people aged 18 years and under in the UK. 30% of children in the UK live with at least one parent or carer who binge drinks alcohol and 6% live with a parent who is alcohol dependent. 8% of children also live with at least one parent or carer who uses drugs up to once a month. 3% live with a parent who is drug dependent, which means that nearly 500,000 children could be living with a drug dependent adult.

To address this problem, the paper recommends further work that supports the challenges of family life and addresses family interactions, strain in the family, and considers structural challenges, such as poverty.

*“Given that large numbers of children may be affected by parental substance use, this is an important public health challenge that must be addressed for the future wellbeing of children. That’s easier said than done, however, and our study shows that it is not as simple as addressing a dependent substance use problem in isolation.”*

**– Professor Simon Moore, Director of the VRG**

**Download Paper: [www.cambridge.org/core/journals/development-and-psychopathology/article/enduring-effects-of-parental-alcohol-tobacco-and-drug-use-on-child-wellbeing-a-multilevel-metaanalysis/CBDF7A2308D3F37B2AE20079C4834B7A](http://www.cambridge.org/core/journals/development-and-psychopathology/article/enduring-effects-of-parental-alcohol-tobacco-and-drug-use-on-child-wellbeing-a-multilevel-metaanalysis/CBDF7A2308D3F37B2AE20079C4834B7A)**

**Learn More: [www.csri-vrg.org/news-1/child-wellbeing](http://www.csri-vrg.org/news-1/child-wellbeing)**



# Disinformation and Digital Influencing After Terrorism: Spoofing, Truthing and Social Proofing

Researchers at the CSRI provide new understanding to how digital communications platforms are used in the aftermath of terrorist attacks to amplify or constrain their wider social impacts and consequences. Using 30 million data points collated across a variety of social media platforms, researchers uncover three techniques used to author and amplify disinforming communications of the four UK 2017 terrorist attacks.

## Spoofing

The first is 'spoofing': where an individual claims to be someone, or have a social status, or social identity, they do not really possess. Information spoofing involves misrepresenting the content of a message, through processes of falsification, suppression or amplification.

### CASE STUDY

 EVERYONE PLEASE RETWEET THIS HELP ME! THIS IS MY LITTLE BROTHER FRANK WE WENT TO THE CONCERT TONIGHT IN #MANCHESTER & NOW WE CANT FIND HIM PLS  
(RT 18,131) 22 May 2017, 1:55 AM

In the emotionally charged post-attack atmosphere, this single message was retweeted at least 18,131 times. It was entirely fabricated. The picture of the 'missing child' accompanying the text was originally published in an online clothes catalogue for children with Down's Syndrome.

## Truthing

'Truthing' persuades by claiming to be furnishing the audience with the 'real' facts. One version of this identified across the four 2017 attacks involved invoking statistics, data, quotes and official statements to try and discredit other narratives. A second version, related to how proponents of conspiracy theories use truth claims to convey what really happened in relation to a contentious or contested episode. In truthing behaviours, actors do not just undermine accounts but proffer a more or less plausible alternative.

### CASE STUDY

*"... we must recognise now that our Muslim communities will feel anxious at this time given the past behaviour of the extreme right wing and we will continue to work with all community leaders in the coming days."*  
**Statements issued following attack in Westminster.**  
Retrieved from: [news.met.police.uk/news/latest-on-westminster-incident-229843](https://www.met.police.uk/news/latest-on-westminster-incident-229843)

This particular comment, drawing attention to the potential for extreme right-wing violence, which constituted a small fraction of an otherwise lengthy, informative and reassuring statement, triggered a considerable number of negative reactions from supporters of far-right ideologies. These reactions escalated into the construction and dissemination of a meme. Two days after the attack, it was posted by several high-profile far-right groups and individuals, for example, Tommy Robinson and the British National Party. It contained Rowley's image on the left, an extract of his far-right concerns quote on the right, and an alternative truth claim at the bottom:

*'No mention of the concerns of the English community feeling anxious concerning Muslim terrorism and prime example of the liberalism that is killing England.'*

## Social proofing

'Social proofing' works by manipulating the biases of human cognition to look to the behaviour of others to shape and steer an individual's responses and actions. Online environments are especially susceptible to social proofing effects. It is the reason why many celebrity fan social media accounts 'purchase' thousands of followers, to make themselves look more popular and thus attract other genuine fans to them. It is also a key role played by bot-nets, to increase the visibility of messages and accounts.

### CASE STUDY

One rumour that gained a lot of traction was that the infamous hate preacher, Abu Izzadeen, was the attacked despite the fact he was in prison. The research team discovered that the propagation of this rumour had been fuelled by 20 bot accounts that had been tweeting identical content with a time difference of a couple of seconds:

 **FergusMcPop:** Sources say London attack was an Islamist attack carried out by Abu Izzadeen <https://t.co/M90tVimwQP> #London #PrayForLondon #LondonAttack  
(RT 0) 22 March 2017, 7:22 PM

 **Mcpopg:** Sources say London attack was an Islamist attack carried out by Abu Izzadeen <https://t.co/M90tVimwQP> #London #PrayForLondon #LondonAttack  
(RT 0) 22 March 2017, 7:22 PM

"Tracking and tracing social media data affords a high resolution picture of what happens in the wake of an attack. By systematically researching the 2017 attacks, we have gained an important insight into how communicative actions and interventions performed by a range of different actors influence how the event comes to be defined and publicly understood."

**Professor Martin Innes**  
Director of the CSRI

The research also discovered the use of these techniques by hostile states engaged in authoring and amplifying rumours, conspiracies and fake news, as part of an apparent attempt to induce increased social tensions in the aftermath of terror. Empirical evidence of such activity was found in the wake of all four attacks, with accounts 'spoofing' identities across the political spectrum, from white male Republicans, to black female activists. Significantly, the research shows a wider sphere of interests and activities on the part of the Kremlin's disinformation assets through finding such activity in a non-election space.

The paper suggests the development of post-event counter terrorism strategies, to reduce the wider harm of such attacks. Increased focus on the mitigation and management is required as the sequence of attacks over the past five years show that authorities cannot interdict all plots. Through demonstrating how social reactions to terror events are patterned, the study helps show that it is possible to influence the tenor and tone of any public impact.

'Disinformation and digital influencing after terrorism: spoofing, truthing and social proofing' was published in Contemporary Social Science and can be accessed here:

Learn More: [www.blogs.lse.ac.uk/politicsandpolicy/social-media-terrorism/](http://www.blogs.lse.ac.uk/politicsandpolicy/social-media-terrorism/)



“There is increasing public and political awareness of the pressures that the police are under to try and prevent and solve crime. Technologies such as Automated Facial Recognition are being proposed as having an important role to play in these efforts. What we have tried to do with this research is provide an evidence-based and balanced account of the benefits, costs and challenges associated with integrating AFR into day-to-day policing.”

**Professor Martin Innes**  
Director of the CSRI



# Evaluating the Use of Automated Facial Recognition Technology in Major Policing Operations

Academics at the CSRI have conducted the world's first independent academic evaluation of Automated Facial Recognition (AFR) technology across a variety of major policing operations.

The project was undertaken by the CSRI's Universities' Police Science Institute (UPSI) and evaluated the South Wales Police (SWP) deployment of AFR across several major sporting and entertainment events over a 10-month period. This included the UEFA Champion's League Final and the Autumn Rugby Internationals held in Cardiff. Researchers used a mixed-method approach to develop a rich picture and systematically evaluate the use of AFR by police across multiple operational settings.

SWP use the technology in two modes, Locate and Identify. Locate is the live, real-time application involving marked police vans. This scans faces from CCTV feeds from cameras on top of the vans, searching for possible matches against a pre-selected

watchlists of individuals deemed to be persons of interest by the police.

Identify, on the other hand, takes still images of unidentified persons (usually captured via CCTV or mobile phone camera) and compares these against the police custody database in an effort to generate investigative leads.

The study found that AFR can enable police to identify persons of interest and suspects where they would probably not otherwise have been able to do so. For example, a total of 18 arrests were made as a result of Locate deployments during the evaluation, and in excess of 100 people were charged following investigative searches during the first 8-9 months of

AFR Identify. These numbers have continued to grow in the 18-months since the end of the evaluation. However, considerable investment and changes to police operating procedures are required to generate consistent results.

The report suggests that it is more helpful to think of AFR in policing as 'Assisted Facial Recognition' rather than a fully 'Automated Facial Recognition' system. 'Automated' implies that the identification process is conducted solely by an algorithm, when in fact, the system serves as a decision-support tool to assist human operators in making identifications.

## IMPACT

### AFR is not a “Silver Bullet” – The Impact of the Evaluation

Since its publication in November 2018, the UPSI evaluation of SWP's use of AFR has become a rich source of evidence within the global debate surrounding the use of facial recognition technology by the police.

As legislators worldwide react to the availability of facial recognition software, the evaluation has helped provided a number of considerations about its use in the policing context. In the UK, UPSI's findings been a main contributor to the Government's first white paper on the subject,

'Ethical issues arising from the police use of live facial recognition technology. The briefing paper by the Biometrics and Forensics Ethics Group outlines a framework of ethical principles that should be taken into consideration when developing policy on the use of live facial recognition technology for policing purposes.

The evaluation was also considered in the proceedings of the world's first legal challenge over the use of facial recognition by police. Cardiff resident Ed Bridges filed the challenge after suspecting he had been scanned twice during Locate deployments, arguing that SWP had breached human rights, data protection and equality laws. The court refused the legal challenge on all grounds, finding SWP had followed the rules and their use of AFR was justified. UPSI's findings helped the High Court judges to consider both the pros and cons of the technology.

*“The UPSI Report makes it clear that AFR Locate is not a “silver bullet” and that there are a number of challenges. Nevertheless, it concluded that “The evidence clearly supports the conclusion that AFR processes and systems can contribute to police identifying persons of interest that they would not otherwise have been able to do so.”*

**R (Bridges) v CCSWP and SSHD, 2019**

### What's Next for South Wales Police's Use of the Technology?

The CSRI have been approached to evaluate a pilot of a mobile app variant of AFR which will broaden the use of the technology beyond its current uses by SWP, and by other police forces across the UK. Researchers from the UPSI will evaluate a three month pilot by SWP, that seeks to test whether providing officers with access to facial recognition technology on their work-issued mobile devices can assist them when they need to carry out identification checks.

The evaluation will seek to robustly and independently evaluate the process of implementing the AFR mobile app and how it is used in practice by officers across different policing roles. Importantly, it will measure whether such an intervention generates improved policing outcomes. It will consider the future implications of using the app, including issues of public permission and legitimacy.

Learn More: [www.crimeandsecurity.org/feed/afr](http://www.crimeandsecurity.org/feed/afr)



# The Cardiff Model in the US

## Evaluation Calls for Rollout Across the States

A new report assessing this application of the information sharing model in the US context has called for its implementation across the country to tackle serious violence. This reinforces the decision of the federal Centers for Disease Control and Prevention (CDC) to promote the Cardiff programme across the country.

Violence is a major public health problem in the US. However, local prevention efforts have struggled to respond due to a lack of information on the magnitude, locations and times of violence. It is estimated that over half of violent incidents in the US which result in emergency hospital treatment are unknown to the police. In Georgia, this proportion approaches 90 per cent.

A recent evaluation of the Cardiff Model in the Southeastern US indicates that it could be highly

beneficial if implemented nationwide. The report confirms that where the Cardiff Model was implemented, newly discovered violence hotspots prompted community safety partnerships to undertake evidence-based violence prevention action.

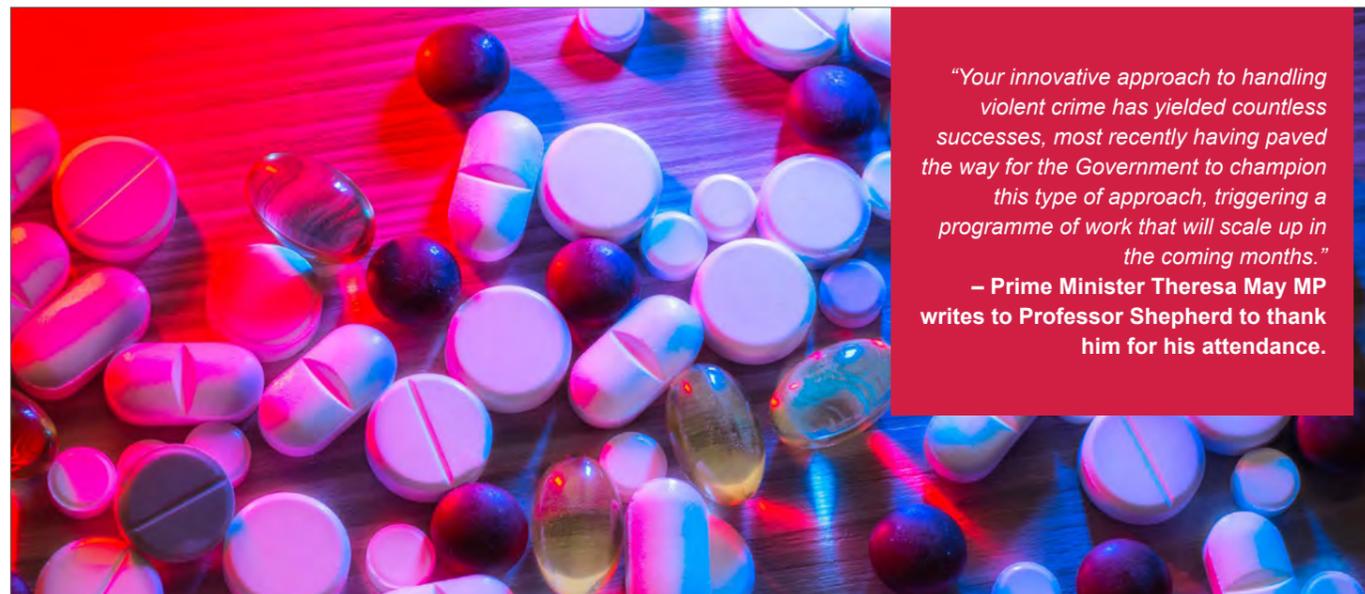
Whilst the evaluation illustrates that even partial implementation in an area can reduce violence, it is clear that scaling up implementation across a region could have much greater effects. As has happened in the UK, the sharing of this unique information should be mandatory at state or federal level.

### Evaluation:

■ [www.injuryprevention.bmj.com/content/early/2019/04/16/injuryprev-2018-043127](http://www.injuryprevention.bmj.com/content/early/2019/04/16/injuryprev-2018-043127)

### CDC Toolkit:

■ [www.cdc.gov/violenceprevention/publichealthissue/fundedprograms/cardiffmodel/index.html?CDC\\_AA\\_refVal=https%3A%2F%2Fwww.cdc.gov%2Fviolenceprevention%2Ffundedprograms%2Fcardiffmodel%2Findex.html](http://www.cdc.gov/violenceprevention/publichealthissue/fundedprograms/cardiffmodel/index.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fviolenceprevention%2Ffundedprograms%2Fcardiffmodel%2Findex.html)



*"Your innovative approach to handling violent crime has yielded countless successes, most recently having paved the way for the Government to champion this type of approach, triggering a programme of work that will scale up in the coming months."*

**– Prime Minister Theresa May MP writes to Professor Shepherd to thank him for his attendance.**

## Cardiff Model Adopted to Tackle Opioid Misuse and Violence in Wisconsin, US

The US Bureau of Justice Assistance has awarded funding to a consortium of Public Safety and Public Health Information-sharing partnerships in Milwaukee, Wisconsin to implement the Cardiff Model to prevent opioid misuse.

At present in the US, drug abuse is addressed by different agencies working in their own silos - the Cardiff Model provides a way to coordinate multi-agency action based on reliable data. This will ensure stakeholders, such as public safety, public health, and behavioural health partners, are provided with timely and accurate data that can be used to identify places where opioid misuse takes place. In turn, this will drive changes in policy or practice, monitor community-level outcomes, and implement proven practices on a larger scale.

Learn More: [www.crimeandsecurity.org/feed/cardiff-model-wisconsin](http://www.crimeandsecurity.org/feed/cardiff-model-wisconsin)

[www.crimeandsecurity.org/feed/cardiff-model-us](http://www.crimeandsecurity.org/feed/cardiff-model-us)



# The Cardiff Model in the UK

## Home Office Highlights Vast Savings From Further Data Sharing

A new government report shows that even the worst case scenario, in which only five per cent of community safety partnerships in England and Wales implement the Cardiff Model, savings for taxpayers would still amount to £858 million over ten years. The impact assessment by the Home Office underpins proposed new legislation that would mandate collaboration between police, local authorities and health to reduce serious violence.

The assessment recognises that whilst the government's Serious Violence Strategy calls for harnessing the value of cross-sector partnerships, an estimated 71 per cent of community safety partnerships are not operating effectively. This is especially important given that knife violence has increased by 71 per cent between December 2014 and December 2018.

Wider implementation of the Cardiff Model is the Government's preferred solution, citing the impressive 38% reduction in serious violence, relative to other cities, recorded after the model's implementation in Cardiff. However, it also suggests a risk that not all partners would adopt the multi-agency approach and that in some cases the crime-reduction benefits may not be as large as previous estimations.

In the worst case scenario that only 5 per cent of partnerships implementing the Cardiff Model will show benefits, the assessment still shows that the £858 million gained over 10 years would outweigh any costs.

## Founder of the VRG, Professor Jonathan Shepherd, calls for wider implementation of the Cardiff Model at the Government's Serious Youth Violence Summit.

Prime Minister Theresa May invited Professor Shepherd to share his expertise on violence reduction to cabinet ministers, the Metropolitan Police Commissioner, Cressida Dick, and the CEO of NHS England, Simon Stevens, among others. The multi-day summit built on the Government's Serious Violence Strategy released in April 2018 which adopted the multi-agency data sharing approach developed by Professor Shepherd.

During the summit, Professor Shepherd highlighted the necessity that emergency departments share Cardiff Model data and that violence reduction units - an essential component of the Model - are set up to use this information to reduce youth violence. His call that a national audit of Cardiff Model implementation to tackle violence was accepted by the Secretary of State for Health.

## Other Cardiff Model News

1) The World Health Organisation has included the Cardiff Model in its INSPIRE strategy to reduce violence against children. Professor Shepherd was invited to speak about Cardiff Model successes at the INSPIRE Jamboree in Kampala, Uganda as well as in seminars in Tbilisi, Georgia and Montevideo, Uruguay.

2) The Ministry of National Security in Jamaica has announced its adoption of the Cardiff Model across the country. This follows Professor Shepherd's visit and implementation of the model in the capital, Kingston, where hospital data revealed new violence hotspots unknown to the police.

3) Professor Shepherd's achievements in leading violence prevention as a hospital consultant led him to initiate the creation of new Clinical Consultant Prevention Champions (CCPCs) by Cardiff and Vale University Health Board. These 10 hospital specialists now lead prevention across a wide range of life and health threatening behaviours, including smoking, obesity, lack of exercise and alcohol misuse. The creation of these "Champions" is an innovation designed to help NHS hospitals prioritise prevention as well as treatment.

4) The first ever Bazalgette Professorship was awarded by the Faculty of Public Health to Ian Roberts, Professor at the London School of Hygiene & Tropical Medicine. This new award scheme, named after the engineer who built the London sewers which did so much to eradicate cholera, was initiated and developed by Professor Shepherd to celebrate and incentivise academics to translate their research into public health practice.



## Alcohol Use and Related Behaviours of European Students' Studying Abroad

**New research revealed that European students who travel abroad to study increase their alcohol consumption by 35% while they are away from home. This corresponded with an increase in alcohol-related harm.**

The paper by the Violence Research Group (VRG) provides an insight into the risks posed by alcohol to increasing numbers of students who study abroad. Completed by 1,145 students across 42 countries, the longitudinal survey is one of the first and largest to take data from students before departure, whilst abroad and after their return. The frequency and volume of alcohol consumed, and related negative outcomes, were the paper's primary focus. Secondary outcomes for heavy episodic drinking, drug use and unprotected casual sex were also considered.

The study showed participants drank a mean of 12.59 standard drinks per week at pre-departure which rose to 17.06 during the study abroad trip. The rise correlated with other data and shows important factors are pre-departure expectations about alcohol use while abroad, lower academic engagement, positive adjustment and cheaper perceived living costs in the host country.

Unexpected results showed that upon returning a mean 8.01 standard drinks were consumed. Consequently, it is the first study to show levels of consumption to fall below pre-departure levels on their return home. This pattern continued in the percentage of students who became drunk at least once a month, with 41.6% at pre-departure, 52.9% during and 31% post-return.

Importantly, the study reveals how students on these programmes will experience on average a higher number of negative alcohol related consequences each month. While some of these experiences may be low level, such as hangovers, others are serious, such

as injury, violence, and sexual assault. Simon Moore, a co-author of the paper, noted *"with over 300,000 participating on these programmes in Europe alone, the number of students exposed to potential risks is dramatic and rising."*

*"While students can gain considerably from a period of study in another country, we should look to ways in which we can maximise students' potential, their enjoyment in foreign countries but to also minimise risk."*

**Professor Simon Moore, Director of the Violence Research Group (VRG)**

The pre-existing assumptions by students about drinking whilst on their study abroad will be difficult to change. Host institutions should instead consider promoting activities that encourage overseas students to socialise outside of their exchange cohort through social and cultural activities that do not involve alcohol.

The paper was authored by Dr Giovanni Aresi, an International Fellow of the Insitute, alongside academics in the Catholic University of Milan, Cardiff University and Swansea University.

**Learn More: [www.crimeandsecurity.org/feed/students-alcohol-use-abroad](http://www.crimeandsecurity.org/feed/students-alcohol-use-abroad)**



## Interview: Professor Wilker Nóbrega Visiting Fellow from the Federal University of Rio Grande do Norte, Brazil.



The CSRI provides a range of resources and collaboration opportunities for fellows of the institute. On behalf of CSRI Academic Fellow, Professor Trevor Jones from Cardiff University's School of Social Sciences, the Insitute hosted visiting Professor Wilker Nóbrega from the Federal University of Rio Grande do Norte in Brazil.

Professor Nóbrega conducts research in the field of cultural tourism in conservation units within the Atlantic Forest and the Brazilian Amazon biomes, funded by the Brazilian National Council for Scientific and Technological Development. Recent studies include Governance and Development in Tourist Poles in the state of Rio Grande do Norte; Tourism Planning and Management: the Role of Public Forums in the Development Process in the Seridó Region; and Tourism and Governance in Conservation Units: Conflicts, Models and Development Strategies

### What research did you undertake during your time in Cardiff?

The study entitled: 'Governance, Violence, And Perception Of Fear: The New Dynamics of Tourism In Brazilian and British Public Spaces', sought to explore the relationship between perceptions of fear and violence and leisure and tourism practice in Brazilian and British cities. The UK has been a leading proponent of neoliberal urban governance models based on public-private partnerships (PPPS) and the reconfiguration of public spaces as leisure areas.

### Did your interaction with academics at Cardiff University have any impact on your research?

Definitely. The opportunity to acquire knowledge from specialists in the area of crime and security from the multidisciplinary team helped to better direct my research. This contact allowed me to further develop my own research by learning about the methods and conceptual frameworks used in research by the Institute.

### What benefits and opportunities did you obtain from being based at the CSRI?

Despite having only lived in Cardiff for 6 months, I was able to form an initial network of Welsh and Brazilian researchers. We have already begun to build and carry out initiatives to strengthen the relationship between the University of Cardiff and the Federal University of Rio Grande do Norte, in Brazil. Our intention is to carry out study and research missions, hold seminars, and develop student and professor exchanges between these countries.

**Learn More: [www.researchgate.net/profile/Wilker\\_Nobrega](http://www.researchgate.net/profile/Wilker_Nobrega)**

# Policing Yesterday, Today, Tomorrow: The View from South Wales

## 31st March 2020

The Exchange Hotel, Cardiff



**Speakers:** Chief Constable Matt Jukes (SWP),  
Prof Martin Innes (CSRI) & More TBA

Celebrating fifty years since the establishment of South Wales Police (SWP), the Universities' Police Science Institute (UPSI) will be hosting a conference in conjunction with SWP to mark the release of the book 'Policing Yesterday, Today and Tomorrow: A View from South Wales'. The event will feature presentations from a variety of practitioner and academic experts who will be working closely with each other to co-produce different chapters of the publication. The speakers will address a range of policing issues and challenges that SWP have engaged with historically and presently as well as those areas likely to become important in the future.



Crime and Security  
Research Institute  
Sefydliad Ymchwil  
Trosedd a Diogelwch

The event is invitation only, however, if you would like to attend or find out more about the book please contact [crimeandsecurity@cardiff.ac.uk](mailto:crimeandsecurity@cardiff.ac.uk) expressing your interest.