LAW CRIMINAL JUSTICE AND COMPUTING RESEARCH AND ENTERPRISE NEWSLETTER

SUMMER 2018 EDITION

News/

REF Internal Review Workshop for Computing

On 25th June 2018, Professor Nik Bessis from Edge Hill University was invited to CCCU to deliver the REF internal review workshop for Computing. Nik clarified the REF 2021 rules, summarised his review feedback on the submitted papers and offered specific advice for CCCU Computing to prepare for the next stage before REF 2021. Professor Bessis provided some invaluable insight and great advice as we move closer to the REF.

Project updates/

Police Federation England and Wales – Officer Perspectives of College of Policing Initiatives

In October 2017 Emma Williams and Jennifer Norman from CCPR were approached to conduct independent analysis for the Police Federation England and Wales (PFEW) on qualitative data the Federation had collected from their annual Pay and Morale survey. The survey explored a number of the College of Policing proposals – particularly the Police Education Qualification Framework (PEQF) and the Direct Entry Scheme. Previous research by the Police Federation has also shown that changes such as Direct Entry were associated with a reduction in morale among officers (Boag-Munroe, 2015). The findings and final report have been returned to the PFEW and have now been published. The analysis showed that officers felt the Direct Entry Scheme impacted negatively on policing; officers were frustrated and sceptical about the Assessment and Recognition of Competence Initiative; the Licence to Practice was not understood and was perceived as a waste of resources and the National Register for Police

Officers was seen as unnecessary and risky. The main area of concern was the direct entry scheme and the specific findings on this were presented at a conference in January 2018 by Jenny and Emma. The key issues have also featured in a Policing Insight article https://policinginsight.com/analysis/cannot-learn-policing-book-serving-officers-really-think-direct-entry/. The findings are likely to inform the PFEW policy around their communications with the policy, driven by an evidence based approach. For details please contact Emma.Williams@canterbury.ac.uk or Jenny.Norman@canterbury.ac.uk

Computing, Digital Forensics and Cybersecurity working with European Partners

Georgina Humphries is working on a project with industry and academic partners under the European Cybercrime Training and Education Group (ECTEG). The project is working to update, upgrade and synchronise evidence materials for training courses covered in the ECTEG repository used internationally to train professionals in aspects of digital forensics and cybercrime. The project's main aim is to provide a set of materials which can be used to train and assess professionals on the vast range of courses, as well as to provide a methodology for development and implementation of such a large scenario for training and education. This is an extensive project, where it is believed nothing of this scale has been synchronised to such levels before.

Several CDF&C staff have expressed their interests in contributing to ECTEG projects. Dr Ian Kennedy has been approached by the Cypress Police to update training courses on Network & Internet Investigation and Dr Abhaya Induruwa has been approached by French National Police to contribute to update training material on Mobile Phone Forensics. Dr Paul Stephens is bidding to lead the project on updating training material on Linux Forensics. Dr Abhaya Induruwa, Director of the Cyber Innovation Hub, serves as a member of the General Assembly of ECTEG.

Bystander Intervention Programme

As part of an on-going Research and Knowledge-Exchange project, funded by the School of Law and Criminal Justice and Student Experience, Dr Sofia Graca produced a second report on the bystander intervention programme that ran in 2017 with a group of Applied Criminology students. The report considers the impact that the programme had on participants' views of sexual and domestic abuse, and their willingness to act as bystanders. Aspects of the report already informed the second iteration of the programme in 2018, which also included students from Law, Policing, Forensic Investigation and Computing.

The expectation is that the bystander programme is rolled-out to the whole student population, as it has been found to have overwhelmingly positive results in students' views of gender and relationships. The programme has been found to increase students' willingness to act as bystanders and dispelling myths and stereotypes regarding sexual and domestic abuse. This can have a positive impact on students and their peers, not least, by increasing levels of safety and generating a more positive community spirit. In doing so, it contributes to a positive student

experience, which may enhance retention levels and reinforce the University's community engagement. You can access the full report in CReaTE via: http://create.canterbury.ac.uk/17442/

Conferences and event reports/

Taming the Wicked: The Role of Partnerships

On the 20th and 21st June The Canterbury Centre for Policing Research (CCPR) held its third annual conference, marking the second birthday of the centre. The CCPR has had a very successful year, with a growing number of postgraduate students and research projects. The theme of the conference was partnership working and aimed to highlight how a number of very complex and challenging issues require a more joined up approach in order to more effectively deliver on outcomes for the public. Papers were delivered by eminent speakers such as Professor Maurice Punch and Keith Grint who opened the conference by providing some real context about leading through 'wicked problems' and highlighting that many of these complex issues are now strongly linked to public health matters which should, perhaps, not be entering the criminal justice arena AND BEING DEALT WITH, PREDOMINANTLY, BY THE POLICE.

The conference was a huge success, attended by practitioners and academics from the policing arena. We are already thinking about conference four. A huge thanks to everyone involved in helping organise it and those that gave papers over the two days.

International Law in Context

This year's international Law conference hosted by the School of Law on 21st – 22nd June interrogated some of the pertinent issues in the field with a number of presentations suggesting new reform models. The Director of Law (Tom Mortimer) opened the first day of the conference with an address on the challenges facing international investment law and the need for reform. On the second day of the conference, the Faculty Director of Research (Dr Steve Tong) spoke about the emerging research culture within the Faculty and the School of Law,

Criminal Justice and Computing. The second day explored some of the major developments over the past years from all subfields of international law, from human rights and international criminal law, to international economic law. As we make preparations for REF 2021, these events will continue to shape the quality of our research and create an environment that supports the production of high quality research as summed by the Head of the School of Law, Criminal Justice and Computing (Dr Dominic Wood) in his closing remarks.

- **Emma Williams** attended the American Society of Evidence-Based Policing (ASEBP) conference in Philadelphia in May to deliver a paper on the Police Education Qualification Framework and its' connection with the Evidence Based Policing agenda in the UK. The conference was attended by a number of academics and practitioners across the USA. Emma also has two chapters coming out in a new EBP book which is being edited by the chair of the ASEBP and the Canadian equivalent.

- **Joe Williams** presented his paper on OSIRT (http://osirtbrowser.com) at The 14th International Conference on Open Source Systems (OSS2018), June 8-10, 2018 in Athens, Greece at Harokopio University.

- **Fida Hussain's (PhD candidate, Computing)** paper 'Developing Security Framework for Smart Home' was accepted by CCCU Postgraduate Research Association Conference on and he presented the paper in the conference on 24th May 2018.

- **Dr Man Qi** has been invited to review papers since April 2018 for Neurocomputing, IEEE Transactions on Emerging Topics in Computational Intelligence, Journal of Network and Systems Management, Concurrency and Computation: Practice and Experience and review for international conferences of IEEE The 14th International Conference on Natural Computation and The 20th IEEE International Conference on High Performance Computing and Communications (HPCC-2018), Exeter, England, UK, 28-30 June 2018 and the 16th Annual Conference on Privacy, Security and Trust (PST 2018), August 28-30, 2018, Belfast, Northern Ireland, United Kingdom.

- **Ben Waters** presented at *The Legal Education and Training Review: Where are we 5 Years on?* Conference at Leeds Beckett University on 25th June 2018. A paper entitled *How can we SQEeze it all In? Some Challenges Facing Law Schools in England and Wales*. This paper considers some important issues in legal education in anticipation of the impending changes to the solicitors training regulations proposed by the Solicitors Regulation Authority planned for implementation in September 2020. In May he consulted at Oxford Brookes Law School and presented on *How to Set Up a Social Justice Project*.

- **Muhammad Hassan Idrees (PhD candidate, Law)** was invited to present his paper "An Extensive Depiction of Lender of Last Resort" at the International Academic Multidisciplinary Research Conference held in Las Vegas, on 12th – 13th April and organised by the 'ICBTS'. Muhammad was awarded the best paper presentation award at the close of the conference; a fantastic achievement.

Events/

CCPR lecture series 18-19

7th September, 9th November, 18th January 2019, 8th March 2019.

All 5.30 – 7.30pm on Canterbury campus, lecture theatres TBC.

Publications/

Azhar, M. H. B., Barton, T. and Islam, T. (2018) Drone forensic analysis using open source tools. Journal of Digital Forensics, Security and Law, 13 (1). pp. 7-30. ISSN 1558-7223.

Hussain F. and Qi M., (accepted) Integrated Privacy Preserving Framework for Smart Home, IEEE the 12th International Conference on Fuzzy Systems and Knowledge Discovery (ICNC-FSKD 2018), 28-30 July 2018 in Huangshan, China.

Shipman, S., Waters. B., Wood. W & Brown., (eds) (Forthcoming Aug 2018) ADR: Principles and Practice, 4th Edition, London: Sweet & Maxwell

Wang, Q., Gong, D., Qi, M., Shen, Y. and Lei, Y. (2018) Temporal sparse feature auto-combination deep network for video action recognition. Concurrency and Computation: Practice and Experience. ISSN 1532-0626.

Publications news/

- **Ben Waters** article in *The Law Teacher: The International Journal of Legal Education*, *The Importance of Teaching Dispute Resolution in a Twenty First Century Law School* was

one of the journals' 10 most downloaded articles during 2017. **Gowri Nanayakkara's** book review of *Lionel Bently and Brad Sherman's, Intellectual Property Law*, was the most downloaded review article in 2017.

- **Dr Man Qi** has been invited as an Editor Board Member, Journal of Artificial Intelligence Practice, Clausius Scientific Press since May 2018.

- **Emma Williams** passed her PhD viva in July. Emma's PhD explored police treatment of victims of sexual violence.

University internships/

Here we have rounded up feedback from some of the interns who have based in the School this summer.

Rebecca Thomson, Forensic and Investigative Psychology MSc - School Research & Enterprise Impact Officer

1. What were your main responsibilities during the course of your internship? The internship focused on the REF. The aim, originally, was to collate all research conducted and to be conducted, within the School. It soon expanded to become an exercise in understanding the barriers academics and the School as a whole, face when considering their submission for REF 2021.

The outcome has been a mixture of physical outputs (e.g. report on REF reviews, REF toolkit for upload onto the website, poster and research spreadsheet) and continued development both personally and for the School (acquired training, purchasing of impact collection software, increased awareness of what REF and impact is).

2. What would you say was your biggest achievement over the course of the internship?

Increasing awareness of what REF and REF impact is, in relation to specific research. Equally, by raining the question of software and undertaking research about what is available, it has begun a process to consider purchase of a university wide platform.

3. Would you recommend university internships to other students? If so why?

I would always recommend an internship within the university! This is my second and I can honestly say that each one has opened up so many doors for my personal and academic development. Not only do you learn new skills such as interpersonal and communication skills, critical thinking and administration, the networking opportunities are invaluable.

Sam Herring, year 1, BSc Computer Science - BCI assistive system for people with severe motor disabilities

Over the course of the past 8 weeks, I have been working as a Research Associate Intern for the BCI Assistive Systems Internship under supervision of Dr Hannan Azhar.

The research project has been a part of a close collaboration with Dr Mo Sakel, Director of Neuro-Rehabilitation at East Kent and Canterbury Hospital. For this internship, we have been researching the use of brain-computer interfaces in the context of assisting people with severe motor disabilities. The goal was to produce a software implementation that allowed us to interpret evoked responses in the brain using visual stimuli.

Specifically, one method was by using a flashing matrix that contained the alphabet. In turn, this allows the patient to communicate or spell a word by concentrating on a single character. A considerable amount of the time on the internship has been focussed around increasing the accuracy and success rate of the interpreter. So far, we have successfully seen considerable increases in accuracy from our research work by using machine learning approaches to analyse the incoming EEG (brain-signal) data. The custom programs and scripts that we have produced have allowed us to implement a wide-range of different systems for this analysis.

As a first-year student, many of the challenges arise from this project, simply because at the start of the research project I was entering a completely new field of study. Looking back at the past few weeks, the amount that I have learned in such a short time-span has been amazing.

'From the experience, I have learnt new techniques that I would simply not have been able to learn in a typical classroom environment'.

Specifically, the programming skills that I have taken on-board relating to artificial intelligence, neural networks and data science will allow us to progress further into developing more complex and robust assistive systems.

For any students who are considering applying for an internship, without a doubt take the leap. You can happily expect a challenging start, particularly if you are in you an undergraduate. However, this only makes the reward of succeeding that much better.

Ant James Murray, year 3, BSc Computer Forensics & Security - Smart Home Internet of Things (IoT) Forensics

My main responsibilities was to conduct in-depth research on current acquisition methods used on the IoT devices and to discover and develop forensic sound ways to conduct analysis on each of the devices.

The biggest achievement so far, would be discovering major vulnerabilities with one of the devices, and able to extract data from this device to evident the flaw.

The biggest challenge has been that as the devices are strictly internet connected devices, this has restricted me trying to perform device level analysis when developing sound ways to extract data.

I would recommend university internships to other students. This is a great way for the student to test their skills and knowledge and a great stepping-stone to starting a career in their field.

LCJC research leads:

Law – Chrispas Nyombi
Criminal Justice – Maryse Tennant
Computing – Man Qi
Policing – Katarina Mozova

Research and Enterprise Integrity and Development Office (formerly RED)

For bidding enquiries contact RIFU@canterbury.ac.uk, for research policy or staff development enquiries relating to research email REIDO@canterbury.ac.uk

The LCJC research newsletter is produced quarterly. If you have any items you would like to be included in the next edition please contact hannah.bygraves@canterbury.ac.uk