UTS: CENTRE FOR FORENSIC SCIENCE
RESEARCH STRENGTH
UNIVERSITY OF TECHNOLOGY SYDNEY

Centre for Forensic Science Newsletter December 2017

From the Director's Desk:

Dear Centre's Members, Associates, Colleagues and Friends, this issue marks the end of another very active and successful year. 2017 was the start of our new forensic science degree. Notwithstanding usual teething problems, I am proud to say that this is a success and the demand for 2018 is even growing further. I am more than ever convinced that the degree's improved transversal approach will go a long way to educate tomorrow's scientists our discipline need, be it in the industry or in research. Our research output is more productive than ever and our research earnings remain strong. 2017 saw the operations of the Australian Facility for Taphonomic Experimental Research (AFTER) ramping up at a significant pace. Further, CFS members made significant contributions to a number of international conferences and expert working groups in Australia and overseas. We also started to implement our Strategic Plan entitled CFS+: Growth Strategy for the Centre for Forensic Science 2017-2020. The latter presents a clear forensic science philosophy and inform our directions for the next three years. Interestingly, many of our focal themes align well with the recently published Research and Innovation Roadmap of ANZPAA National Institute of Forensic Science Australia and New Zealand.

Personally, it is difficult to forget my election as President of the International Association of Forensic Sciences for 2017-2020 in Toronto in August. This will make our region the centre of gravity for forensic science and medicine for the next three years. This will allow unique collaborations from around the world and grow our capacity to build opportunities for the Asia-Pacific region and beyond. The whole forensic science community in Australia and New Zealand must be congratulated and thanked for the strong unified support. I am also grateful for the worldwide support.
With all this in mind, I look forward to coming back in 2018 for another busy year ahead, including a strong presence at the ANZFSS 24th International Symposium on the Forensic Sciences in Perth and at many other conferences and meetings around the world.

It has been a privilege to lead such a talented and committed team this year – congratulations on all your achievements! I thank all our partners in Australia and overseas. Finally I wish everyone a safe and happy festive season and a healthy and successful year in 2018

Professor Claude Roux

Research Spotlight: Matthieu Maitre – Detection and interpretation of gunshot residues

PhD Candidate Matthieu Maitre

Traditionally, inorganic gunshot residues (IGSR) have been used to investigate firearm-related events, however there is increasing uncertainty over the assigning of particles as GSR, due to possible alternative sources, as well as an increase in the use of heavy metal-free ammunition which fails to produce inorganic particles. Hence, current protocols used for IGSR analysis may be challenged. In order to provide complementary evidence to IGSR particles, my PhD project focuses on organic components (OGSR) produced by the combustion of the ammunition gunpowder and is divided in two studies relating to persistence and secondary transfer of OGSR traces.

Centre for Forensic Science Newsletter December 2017

Knowledge of persistence and transfer is crucial for the interpretation of OGSR evidence. In this project two commonly encountered ammunition calibres (.357 Magnum and .40 S&W) are studied. As the activity, the chronology and the circumstances of the case need to be accounted for to study persistence, several time intervals (up to 4 hours) between firearm discharges and GSR collection are assessed to determine the influence of time and activity on detection of OGSR traces.

Secondary transfer of OGSR is studied based on three questions: (1) can OGSR be transferred by handling a firearm without discharge?; (2) Can OGSR be transferred through a legitimate contact between a shooter and a third person (e.g. a handshake)?; and (3) Can OGSR be transferred through a contact between a police officer during an arrest process (e.g. handcuffing)? The study of both persistence and transfer is producing an additional knowledge about OGSR to improve the ability of forensic scientist to interpret such traces.

Congratulations

New Post-Doctoral Appointments

- Dr Maiken Ueland was appointed Chancellors Postdoctoral Research Fellowship for project titled: Search and recovery of human remains and associated evidence in mass burials.

- Dr Fehmida Kanodarwala was appointed to work on the ARC Linkage project entitled: Next-Generation Latent Fingermark Detection Using Functional Nanomaterials

- Dr Ronnie Ng was appointed to work on the ARC Linkage project entitled: A New Tool to Fight Crime: Illicit Drug Profiling in Forensic Intelligence.

Congratulations

- Congratulations to Prof Claude Roux, our new president for the International Association of Forensic Sciences

- Shari for being appointed the Ambassador of the Sydney Science Festival and congratulations on her story on 60 Minutes on Channel 9

- Dr Xanthe Spindler, Sebastien Moret and Prof. Claude Roux on winning a major grant from the US National Institute of Justice with Prof Oliver Hofstetter (Northern Illinois University) for "Development of next-generation fingermark lifters and on-the-spot visualisation devices" (USD628,327)

- Morgan Philp for: [1] receiving Scholarship top-up from the Research and Attraction Acceleration Program (RAAP) as part of the ARC IDEAL Hub in June, [2] being interviewed by Richard Glover on ABC Radio's Drive program as part of the Cutting Edge segment in October.

- Dr Sébastien Moret for best poster at FoSTER: Faculty of Science Transdisciplinary ECR Retreat for "Single metal deposition vs physical developer, a comparison of two fingermark detection techniques"

- Congratulations to Morgan Philp, Daniel Pasin, Shimpei Watanabe, Jingya Yan for winning paper of the month.

- Congratulations to the following HDR students for completing their stage 2 assessments: Matthieu Maitre, Nicole Cattarossi, Mohammad Asif Iqbal, Smitha Panicker, Andrew Walton, Ana Popovic, Natasha Benson

UNIVERSITY OF TECHNOLOGY SYDNEY

Centre for Forensic Science Newsletter December 2017

Congratulations

- Congratulations to the following students for submitting their PhD Thesis for examination: LaTara Rust, Rolanda Lam, Daniel Pasin, Shimpei Watanabe

- Congratulations to Dr Mac De La Hunty for her conferral on her thesis titled: 'An investigation of latent fingermark residues and their development on porous substances using physical developer and nile red'.

- Dr Xanthe Spindler for being appointed member of the Steering Committee of the International Fingerprint Research Group

- Congratulations to Dr Sebastien Moret and his wife Camille on the birth of their second child, baby Henry!

- Dr Xanthe Spindler for her promotion to Senior Lecturer

- Dr Sébastien Moret received strategic scholarship for "Inkjet printing of artificial latent fingermarks for improved quality assurance and research efficiency"

- Mackenzie De La Hunty received 2017 UTS VC's Teaching & Learning Grants success for project "Students as co-creators of knowledge using Learner-Generated Digital Media in Undergraduate Science subjects."

- Congratulations to Alexandra Summerell for receiving the Holsworth Wildlife Research Endowment Grant

Congratulations

- Jingya Yan received best oral presentation prize at the Forensic and Clinical Toxicology Association conference (FACTA)

- Dr Shanlin Fu and Morgan Philp secured a Priming Grant from the Australian Academy of Technology and Engineering

- Dr Shanlin Fu secured an ARC LIEF grant and a NHMRC centre of research excellence grant. Dr Shanlin Fu, alongside with Dr Ronald Shimmon and Morgan Philp, secured two UTS Commercialisation Seed Funds

- A Patent was granted to Dr Shanlin Fu, Dr Ronald Shimmon and Morgan Philp: Australian Provisional Application No 2017902520 (Cathinone Test), lodged in July 2017

Licensing and Commercialisation

UTS: CENTRE FOR FORENSIC SCIENCE
RESEARCH STRENGTH
UNIVERSITY OF TECHNOLOGY SYDNEY

Centre for Forensic Science Newsletter
December 2017

Forensic Statistics and the way forward in Forensic Science: by A/Prof Simone Gittelson

In my opinion, a major issue in forensic science is the lack of knowledge about forensic science among non-forensic scientists. This issue has serious consequences, because many non-forensic scientists have been and are currently involved in various so-called attempts to improve forensic science: the Organization of Scientific Area Committees (OSAC) was created in the USA in 2014 to write guidelines and standards for forensic science, the President's Council of Advisors on Science and Technology (PCAST) released a report with recommendations in 2016, and highly regarded institutes (e.g., the US National Institute of Standards and Technology) and universities (e.g., the US Center for Statistics and Applications in Forensic Evidence, headed by Iowa State University), who are entirely detached from casework and court testimony and the reality of forensic science in general, have received large amounts of funding for performing fundamental research in forensic science.

The first of these (i.e., OSAC) seems to be attempting to replace the forensic scientist with a forensic technician by putting emphasis on following protocols rather than on scientific reasoning. However, there are several instances in the US where a protocol-driven approach has been detrimental to the correct functioning of a forensic laboratory: in 2015 DNA analyses were suspended in the forensic science laboratory in Washington DC, and in 2015-2016 the state of Texas was forced to review thousands of DNA cases because of either incorrect or outdated protocols. If the original focus had been on teaching the DNA analysts the core principles and scientific reasoning in their work, rather than on following protocols, I am convinced that the issues with the protocols could have been identified and corrected much sooner.

Hence, the establishment of more and more guidelines and standards runs the risk of retrograding the forensic scientist to a forensic technician rather than advancing the forensic technician to a forensic scientist.

The second example, the PCAST report, is an excellent instance of the widespread attitude of non-forensic scientists to incorrectly think that they know what forensic science is, and to act upon their false beliefs about forensic science.
This leads to the inevitable consequence that the focus of the published recommendations is on the wrong issues. The main cause of this is, as Prof. Claude Roux pointed out at the 50th Anniversary of the Australian Academy of Forensic Sciences Symposium (21 November), that there are different types of sciences: experimental sciences and historical sciences. Forensic science is a historical science, yet many non-forensic scientists incorrectly categorize forensic science as an experimental science and attempt to apply theory from experimental science to forensic science. As a result, they tend to treat forensic science as a black box and focus on determining error rates. However, as we well know, forensic science is not a black box, and determining error rates is not helpful for interpreting the forensic scientist's results or for making advancements in forensic science.

Further, the PCAST report is also an example of the negative attitude that seems to have developed among non-forensic scientists towards forensic science: instead of acknowledging the great achievements in the field, a list of negative statements are made (of which some are true and some are not true) to make it seem like forensic science is fraught with bad methodologies, limitations, and unjustified inferences. This is sad because it reveals the intentions of the authors to be political rather than scientific.

The third point, the funding for institutes and universities that are detached from forensic science, is, to state the obvious, a waste of government money.

The government's intention here may be positive, but unfortunately, non-forensic scientists in these institutes and universities do not know how to perform meaningful research in forensic science. This is because they have a poor understanding of what the issues are, and again, this is usually a consequence of mistakenly classifying forensic science as an experimental science rather than as a historical science. Another reason is simply their ignorance of the forensic science literature. In the best-case scenario, the consequence is that these researchers repeat studies that have already been done. In the worst-case scenario, their incorrect beliefs about forensic science will result in research outputs containing ideas that are either incorrect or irrelevant in forensic science. The latter is dangerous because many judges and lawyers are also very ignorant about forensic science and cannot differentiate between correct and incorrect research outputs in forensic science. As a result, there is a risk that excellent forensic evidence may not be admitted in a case if lawyers and judges believe unjustified conclusions reached by non-forensic scientists.

To conclude, the way forward in forensic science:

- is not by creating standards (Standards make sure that everyone does the same thing, but if the standards are wrong, everyone will be making the same mistakes.)
- is not by following the PCAST recommendations (These fail to recognize that there is a large body of knowledge in forensic science, knowledge that consists of the understanding of different possible phenomena that can cause specific traces.)
- is not by funding non-forensic scientists to conduct fundamental research in forensic science (As Evett et al. (2017) correctly imply, non-forensic scientists tend to treat research in forensic science as a passing interest without understanding or taking the responsibility for the consequences of their erroneous statements.)
- is education.

To overcome the problem of having a lack of knowledge about forensic science, the solution is to educate this and the future generation about what forensic science is, the scientific reasoning processes the forensic scientist needs to do to solve problems in forensic science, and how to advance the field of forensic science.

Reference

I.W. Evett, C.E.H. Berger, J.S. Buckleton, C. Champod, G. Jackson. Finding the way forward for forensic science in the US—A commentary on the PCAST report. *Forensic Science International* 2017; 278: 16-23.

This is an idea that I share with many people with whom I have discussed this topic: I'd like to acknowledge Profs. Christophe Champod, Claude Roux and Pierre Margot.

A/Prof Simone Gittelson presenting at the CFS meeting

Centre for Forensic Science Newsletter
December 2017

Memorial Service
by Prof Shari Forbes

On Tuesday 14 November, the Surgical and Anatomical Sciences Facility (SASF) and the Australian Facility for Taphonomic Experimental Research (AFTER) held their first memorial service to honour and thank the families of those who had donated their body to science since the commencement of the program in 2012. The Vice-Chancellor, Professor Attila Brungs, and Interim Dean of Science, Professor Bill Gladstone, both thanked the families for the generosity and thoughtfulness of every donor at UTS and the impact they have on teaching our students. Associate Professor Allan Jones (Director, SASF) and Professor Shari Forbes (Director, AFTER) also spoke about the teaching, research and training conducted in their facilities and the importance of learning using human cadavers. The service was a wonderful opportunity to honour and remember the donors and to speak with their families. The contribution that each of our donors make is truly a priceless gift that benefits science enormously. Through a partnership with Rookwood Cemetery, a memorial monument and reflective garden is currently being established for the UTS Bod Donation Program. This will provide families a place to visit and will also be the venue of the annual memorial service in the future.

UTS Science in Focus public lecture – 27th April 2017

Dr Marie Morelato and Morgan Philp presented at the UTS Science in Focus public lecture on the 27th of April 2017. Their presentation entitled "Illicit drugs – Are we fighting a losing battle?" delved into the latest developments in drug detection, and revealed how scientists are developing new ways to fight drug crime through forensic intelligence.

The public talk can be found here: https://www.youtube.com/watch?v=cjDsjc2KhUw

http://newsroom.uts.edu.au/content/new-ways-to-fight-drug-crime?utm_source=new_gk6&utm_medium=gk&utm_campaign=new_apr17

Dr Marie Morelato and Morgan Philp at the UTS SCIENCE in focus public lecture

Furthermore, Dr Marie Morelato and Morgan Philp were interviewed by UTS radio, 2ser 107.3 Think: Digital Futures to explore the changing landscape of recreational drug use, and the developments in science and technology that are challenging the way we connect drugs to crime

http://2ser.com/episodes/1030am-14th-may-2017-think-digital-futures/

UNIVERSITY OF TECHNOLOGY SYDNEY

Centre for Forensic Science Newsletter December 2017

Sherlock Holmes exhibition, Speed Meet an Expert, 1st of June 2017

Dr Marie Morelato, Dr Scott Chadwick, Dr Sébastien Moret, Morgan Philp, Rolanda Lam and Prof Claude Roux were invited to take part of the Speed Meet an Expert at the Sherlock Holmes exhibition launched in June 2017 at the Powerhouse museum.

Sherlock Holmes – Speed Meet an Expert group photo

Volunteer for forensic science research at UTS: Andrew Walton

We are looking at people's DNA and trying to identify the small parts that make an individual's unique appearance.

It will take 15mins of your time and involves filling out a short questionnaire, provide a DNA sample (Saliva), and have your face and fingerprints scanned. Everything is anonymous, nothing will be shared with other organisation and you can cancel at any time.

We are hoping to reach 500 samples by the end of 2017 so we need you help! If interested, feel free to book an appointment at: www.bitly.com/DNAResearch

Rewards include a coffee voucher and/or face and fingerprint scans.

If you have any questions email: Andrew.D.Walton@student.uts.edu.au or Mark.Barash@uts.edu.au

Visiting Scholars – Prof Didier Meuwly

Professor Didier Meuwly shares his time between the Forensic Institute of the Ministry of Security and Justice of the Netherlands (Netherlands Forensic Institute), where he is a principal scientist, and the University of Twente, where he holds the chair of Forensic Biometrics. He visited the Centre for Forensic science here at UTS in February and discussed the Netherlands Forensic Institute (NFI), its tasks, its organisation, its requesters and the role of forensic biometrics within the Institute. Then he spoke abut the definition of forensic biometrics, the description of the informative value of the different biometric modalities in a forensic context and cover the different forensic applications of biometric technology using operational examples and the validation of forensic evaluation methods used to assess the strength of evidence.

Visiting Scholars – Dr Frederic Been

Dr Frederic Been works as a postdoctoral researcher at the *Toxicological Centre* of the University of Antwerp under the supervision of Prof Adrian Covaci. Funded by the *Swiss National Science Foundation* (SNSF), his current research focuses on extending the use of wastewater analysis to monitor human health (i.e., exposure to carcinogens and environmental contaminants). He visited the centre in March where he resented an overview of the mechanism involved between the consumption of an (illicit) drug, its occurrence in wastewater and the “back-calculation” of the amounts consumed. Furthermore, presenting the outcomes of monitoring programs conducted in Switzerland, Belgium and Australia. Additionally, emphasis was set on spatial and temporal differences, as well as the methods used to combine these results with population statistics about illicit drug use was discussed with limitations of the approach, and how those were overcome.

Centre for Forensic Science Newsletter December 2017

Visiting Scholars – Prof. David Skillicorn

David Skillicorn is a Professor in the School of Computing at Queen's University, he has also been involved in interdisciplinary research on radicalisation, terrorism, and financial fraud. He consults for the intelligence and security arms of government in several countries, and appears frequently in the media to comment on issues such as cybersecurity and terrorism. He visited the centre in June to discuss the social networks through using data from terrorist publications, company filings, drug smuggling networks, and local police incident data. He discussed how these data can be captured and analysed using information technology, allowing inferences to be made about the individuals and groups concerned.

UTS Science Research Day

UTS Science's Research Day allows members of the various research centres to provide an update on their progress plans for the coming year. Prof Claude Roux delivered his vision for the Centre for Forensic Science and emphasized the inter-disciplinary fields in our centre, and highlighted the collaborations made, as well as the achievements and accomplishments.

Prof Claude Roux presenting at UTS Science Research day

Out and About

International Association of Forensic Sciences (IAFS) Conference – Toronto, 21-25th August

The 21st Triennial meeting of the International Association of Forensic Sciences is a worldwide association comprising of both academics and practicing professionals from various disciplines in forensic science, including: Forensic scientists, Forensic Pathologists, Professionals working in police, forensic laboratories dealing with fingerprints, DNA, drug analysis, firearms, trace evidence, forensic anthropology and more. This conference allows scientists and practitioners to share new developments, to exchange scientific and technical information across the globe.

The centre for forensic science maintained a strong presence at the conference with Oral and Poster presentations that covered a wide range of topics. Professor Claude Roux was an invited speaker and gave a plenary presentation titled 'Deciphering Crime Systems through Forensic Science: The Emergence of Interdisciplinary Approaches'. Australia was bidding for IAFS 2020 and an enormous congratulations to Prof Claude Roux, who has been announced the new president. IAFS 2020 will be hosted here in Sydney, Australia.

Prof Claude Roux announced the new president of IAFS

Centre for Forensic Science
Newsletter
December 2017

Out and About

ENFSI European Textile and Hair Working Group (ETHG) Meeting

By Prof. Claude Roux

The European Textile and Hair Group held its annual meeting in the Netherlands in early June. This group reached a milestone this year as it was the 25th such meeting. It is worth mentioning that the group was created under the name of European Fibres Group and its inception preceded the European Network of Forensic Science Institutes (ENFSI). Only two delegates already present at the first meeting in 1993 attended the meeting this year, namely Jurij Majdic and myself.

The two sub-groups, namely Textile and Hair, were combined during the whole duration of the meeting. The latter was very well organised by Jan-Eric Grunwald (Chair) and Jaap van der Weerd (host) and well attended by European, American and Australian delegates. Many of the themes discussed will resonate with the topics debated in Australia and New Zealand, e.g. how can we get more information from the data available? How can we go faster and closer to the scene? What is our contribution to intelligence and counter-terrorism activities? Can we go beyond the source? How can we interpret forensic evidence effectively? etc.

The results of two collaborative exercises, namely on fibres and on hairs were reported and confirmed the high level of proficiency of such experts. Some issues were however identified with respect to species identification of animal hairs. For this reason, a workshop on (morphological) animal hair identification with the aid of an electronic identification key is being instigated and will hopefully eventuate in 2018.

The evaluation of forensic evidence is taken very seriously by this group. A number of presentations reflected on this topic, including case studies and our own UTS research entitled “The Influence of Physical Activity Upon the Population of Extraneous Fibres on Cotton T-shirts”. The Netherlands Forensic Institute (NFI) also provided an excellent workshop on the topic, capitalising on their strong forensic statistics group. Finally, Knut-Endre Sjåstad from Norway presented a thought-provoking talk entitled “Why everything was easier in the good old days and why Bayes make me so confused?” Overall, the evaluation session clearly showed the continued need for education, training and R&D in this crucial area. Case studies also highlighted that today’s complex situations require a holistic transdisciplinary approach to correctly exploit the information that is available. This is evident in traffic accident investigation cases where information from physical traces such as fibres and hairs and also physical damages are combined with digital data from modern cars’ computers, dashboard cameras, etc.

At a strategic level, Chris Gannicliffe (UK) and Jan–Eric Grunwald (Germany) jointly presented “The Situation of fibre trace analysis in the UK and in Germany”. Finally, it’s worth highlighting that the Australian research (UTS & AFP) on the development of a stabbing machine for the analysis and evaluation of textile damage was received with enthusiasm. The meeting was complemented by the visit of NFI and many networking opportunities in the pretty city of Leiden.

Workshops about Forensic Science Fundamentals at the American Academy of Forensic Sciences and at the International Association of Forensic Sciences meetings in New Orleans and Toronto

Prof. Claude Roux took part in two workshops with renowned experts and famous thinkers: Our Future Reflects Our Past: The Evolution Of Criminalistics - with Profs. Pierre Margot and Peter De Forest, Drs. Doug Lucas and Sheila Willis in New Orleans and The Questions of Forensic Science: Quintilianus Revisited - with the same authors and also Profs. Frank Crispino and Michelle Miranda. These workshops attempted to steer the current debate about forensic science towards

Centre for Forensic Science Newsletter December 2017

fundamental questions as a way to move forward. They covered much ground including how we've lost sight of key aspects of the field – it's not all about identification but also the criminal activities and reconstruction – and are more concerned with what sophisticated instrumentation to use rather than focusing on the trace itself and asking the right questions. See http://www.forensicmag.com/news/2017/02/disconnect-between-science-and-law-and-howpast-can-fix-it for an account of the first workshop.

From left to right: Pierre Margot, Doug Lucas, Peter De Forest, Sheila Willis and Claude Roux

11th International Fingerprint Research Group (IFRG) Meeting, 16-20th October, Beijing

Two CFS members (Prof. Claude Roux and Dr Xanthe Spindler), one associate member (Prof. Chris Lennard, Western Sydney University) and one current visiting scientist (Ya-Bin Zhao) attended and presented at the 2017 IFRG meeting hosted by the People's Public Security University of China in Beijing. In addition, Dr Sebastien Moret made IFRG history by presenting via video-link. The organisation was fantastic and clearly met the objectives of this meeting, which is to bring together a group of scientists working at the leading edge of fingerprint research in detection and identification and give them a platform to share their work in the most informal way as possible.

The visits and the social program allowed everyone to continue fruitful discussions about current and future research in the fingerprints area.

The IFRG Meeting at the People's Public Security University of China in Beijing

Ifocus conference organised by the New South Wales Police Force (NSWPF), State Intelligence Command, 2nd-3rd of November 2017

by Dr Marie Morelato

Dr Marie Morelato and Professor Claude Roux were invited to the Ifocus conference organised by the New South Wales Police Force (NSWPF), State Intelligence Command to give a talk about forensic drug intelligence and the rise of darknet marketplaces in November 2017. Ifocus is the annual NSWPF conference for intelligence practitioners. The aim of this conference is to inform intelligence practitioners through exposure to innovative practice and ideas.

UTS: CENTRE FOR FORENSIC SCIENCE
RESEARCH STRENGTH

UNIVERSITY OF TECHNOLOGY SYDNEY

Centre for Forensic Science Newsletter December 2017

Out and About

Australian Academy of Forensic Sciences Symposium (AAFS)

It has been 50 years since the Australian Academy of Forensic Sciences (AAFS) was established by its founder, Oscar Schmalzbach. To mark this anniversary the Academy held a one day symposium on Tuesday 21 November at the University of Technology, Sydney (UTS); the theme being The Academy: Past, Present and Future. Professor Claude Roux presented as a keynote speaker, highlighting the future of forensic science followed by presentations from PhD candidate Matthieu Maitre regarding gunshot residues and UTS lecturer Mackenzie De La Hunty, who spoke about the development of latent fingermarks.

Prof. Claude Roux, Matthieu Maitre and Mac De La Hunty

ANZFSS 2018

The next Australian and New Zealand Forensic Science Society 24th International Symposium will be held in Perth, Australia between the 9th – 13th of September in 2018.

The theme of the Symposium is "Forensic Science Without Borders" and will bring together experts from a range of science disciplines and jurisdictions. The Symposium will provide participants with an invaluable opportunity to share knowledge, develop ideas and network with colleagues from around the globe. Make sure you secure your spot for this exciting symposium!

ANZFSS 2018 Promotional Flyer

Twitter Page and CFS Website

Make sure you follow us on Twitter: **@CFS_UTS** for the latest updates about upcoming events and information! Also make sure to regularly check out our website: www.forensics.uts.edu.au that is being upgraded!

UTS: CENTRE FOR FORENSIC SCIENCE
RESEARCH STRENGTH
UNIVERSITY OF TECHNOLOGY SYDNEY

Centre for Forensic Science Newsletter
December 2017

Out and About

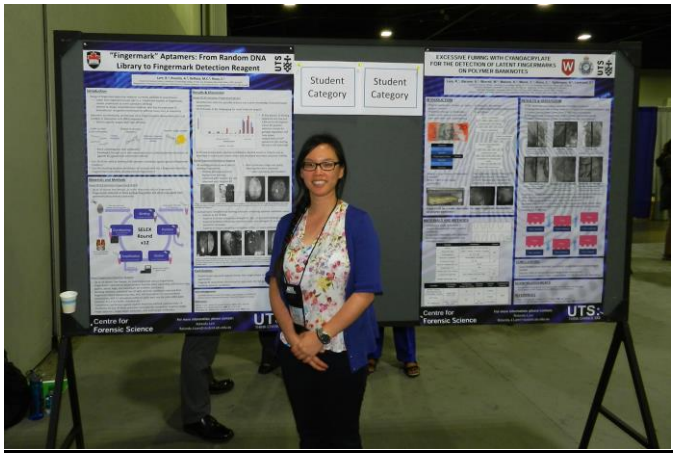
Recap: The International Association for Identification's (IAI) 102nd International Forensic Educational Conference – August 6 to 12, 2017 in Atlanta, Georgia, USA

by Rolanda Lam

It is hard to believe that I only recently attended my first ever International Association for Identification (IAI) – the oldest and largest forensic professional organisation in the world – Conference, as I was a forensic identification practitioner prior to my doctoral studies at UTS. With scientific, technical, and operational lectures and hands-on workshops covering topics such as crime scene investigation, forensic photography, bloodstain pattern analysis, fingermark detection and identification, footwear and tire track examination, and biometrics, I was like a kid in a candy store. There were many interesting presentations including the Travis Alexander/Jodi Arias case and keynote presentation on the authentication of the missing 9/11 Ground Zero flag, which had been recovered. I also appreciated the many opportunities available to interact with exhibitors and to network with delegates from all over the world.

I was fortunate to have two poster presentations accepted into the program: one describing part of my PhD research and the other summarising a former Western Sydney University Honours student's research in which I had been involved. As a first-time attendee and sole UTS representative, I was surprised when they announced that my PhD research won Best Student Poster ("Fingermark" Aptamers: From Random Oligonucleotide Library to Fingermark Detection Reagent). This was just another example of how UTS continues to make its mark on the international research stage.

If you want to make sure that your research studies are practical and address professionals' immediate questions and concerns, I highly recommend you attend the IAI Conference. The IAI organisers are looking to increase their student delegate numbers and are interested in adding a Biology/DNA stream to their program next year. Stay tuned to the IAI's updates and save the date: the next IAI Conference will take place July 29 to August 4, 2018 in San Antonio, Texas, USA.



Rolanda Lam at the IAI Conference – Won Best Student Poster award

UTS: CENTRE FOR FORENSIC SCIENCE
RESEARCH STRENGTH

UNIVERSITY OF TECHNOLOGY SYDNEY

Centre for Forensic Science Newsletter December 2017

Out and About

Society of Wildlife Forensic Science meeting

PhD Candidate Alexandra Summerell presented at the Society of Wildlife Forensic Science meeting at Edinburgh in June

PhD candidate Alexandra Summerell presenting at the meeting

FACTA meeting in Melbourne 19-22 November

We have just returned from attending the Forensic and Clinical Toxicology Association (FACTA) 2017 meeting in Melbourne. UTS is well represented at the meeting with 130 delegates from 7 countries. We had nine participants representing UTS giving 10 oral presentations (out of 44 oral presentations in total). Morgan Philp was the recipient of the FACTA Travel Scholarship (one of the two recipients) and Jingya Yan received the Best Oral Presentation Prize.

At FACTA meeting

Out and About

Biometrics Summer School – Alghero, Italy

by Dilan Seckiner

Attending the 14th International Summer School for Advanced studies on biometrics for Secure Authentication: Biometrics for personalisation and Forensic Identification in Alghero Italy from the 12-16 of June provided insight into the various areas within the biometrics field. Networking opportunities with biometrics experts, the lectures and workshops, as well as learning how to code for the first time allowed me to learn further than just my area of Forensic Gait Analysis. It was truly an invaluable experience that has contributed tremendously to my research.

PhD Candidate Dilan Seckiner with Prof Didier Meuwly

UNIL Doctoral School – Les Diablerets, Switzerland

PhD Candidates Ana Popovic and Smitha Panicker both attended the ÉCOLE DES SCIENCES CRIMINELLES (UNIL) doctoral school in Les Diablerets Switzerland from the 28th – 31st August. Ana's research revolves around 'Illicit Drug profiling in Forensic Intelligence' whereas Smitha's research focuses on 'Ink Dating: Resin characterization and integrated modelling approach'. An escape room workshop allowed students to utilize their forensic and/or criminology skills to 'escape' the room, workshops and the lectures proved to be important with their learning experience.

Centre for Forensic Science Newsletter December 2017

Ana and Smitha at the Doctoral School

Meetings and presentations at NFI, UTwente University in Netherlands CAHID in Dundee, Scotland

by Dilan Seckiner

My experiences to meet with various experts regarding my research positively impacted the viewpoint and statstical interpretation of my research. Firstly, attending the Centre for Anatomy and Human Identifiacation (CAHID) in Dundee, Scotland, allowed me to present my research to trhe CAHID centre, followed by meetings with Prof Tracey Wilkinson, Dame Prof Sue Black and Prof Niamh Nic Daeid.

Dilan with Prof Sue Black and Prof Niamh Nic Daeid

Following my my meetings at CAHID, I met with my co-supervisor Prof Didier Meuwly, and after presenting at the Netherlands Forensic Institute and at UTwente University, I was introduced and had meetings with world leading experts in my field.

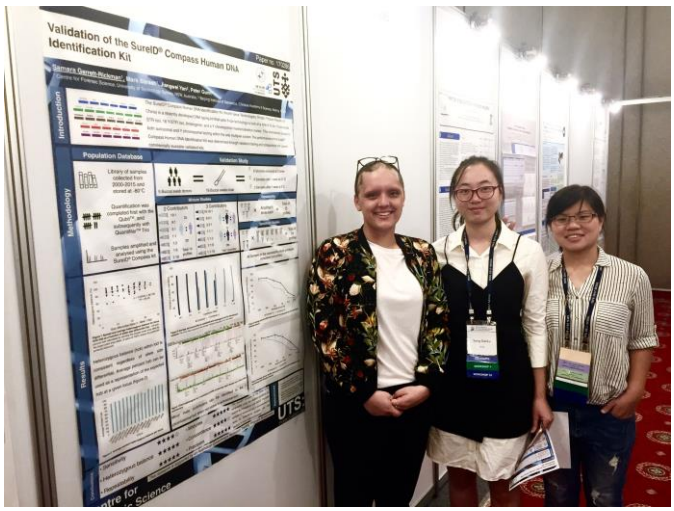
During this time, following my presentation at IAFS, I was invited to the University of Zurich, where I was shown the facilities, introduced to staff and experts in the forensic biometrics field.

This experience was so valuable both professionally and personally as it allowed me to build my networking skills as well as aid my research by numerous opinions that were provided for me - I am thankful and so appreciative.

Recap: 27th congress of the international society for forensic genetics, Seoul South Korea aug28th - sept 2nd 2017

by Samara Garrett-Rickman

Dr Mark Barash, Andy Wai (masters student), and Samara Garrett-Rickman (PhD candidate) attended the 27th Congress for ISFG held in South Korea this year. As a world leading conference, this meeting showcased research at the coalface for forensic genetics from academics across all continents. The opportunity also allowed a face to face meeting with collaborators from Health Gene Technologies in China. HGT had previously collaborated for the validation of their new human identification kit.



Samara with her poster

UNIVERSITY OF TECHNOLOGY SYDNEY

Centre for Forensic Science Newsletter December 2017

Publications

A. Agius, R. Epple, K. Jones, **M. Morelato, S. Moret, S. Chadwick, C. Roux.** *The use of handwriting examinations beyond the traditional Court purpose*, Science & Justice 57 (5) (2017) 394-400.

A. Agius, **M. Morelato**, **S. Moret, S. Chadwick,** K. Jones, R. Epple, **C. Roux.** *Using handwriting to infer a writer's country of origin for forensic intelligence purposes*, Forensic Science International, In Press.

Anna Agius, Marie Morelato, Sébastien Moret, Scott Chadwick, Kylie Jones, Rochelle Epple, James Brown, **Claude Roux**, Dataset of coded handwriting features for use in statistical modelling, In Data in Brief, 2017, , ISSN 2352-3409.

T. Bedward, **L. Xiao** and **S. Fu** (2017). Application of Raman spectroscopy in the detection of cocaine in food matrices. *Australian Journal of Forensic Sciences*. In press. DOI: 10.1080/00450618.2017.1356867.

Benson, N., Dos Santos, R.O., Griffiths, K., Cole, N., **Doble, P., Roux, C.** and Blanes, L., 2017. The development of a stabbing machine for forensic textile damage analysis. *Forensic Science International*, *273*, pp.132-139.

Bright, J.-A., Taylor, D., **Gittelson, S.,** Buckleton, J. The paradigm shift in DNA profile interpretation (2017) Forensic Science International: Genetics, 31, pp. e24-e32.

Bidny, S., Gago, K., Chung, P., Albertyn, **D., Pasin,** D. Simultaneous screening and quantification of basic, neutral and acidic drugs in blood using UPLC-QTOF-MS (2017) Journal of Analytical Toxicology, 41 (3), pp. 181-195.

J. Broséus & **M. Morelato**, M. Tahtouh, **C. Roux.** *Forensic drug intelligence and the rise of cryptomarkets. Part I: Studying the Australian virtual market*, Forensic Science International 279 (2017) 288-301.

J. Broséus, D. Rhumorbarbe, **M. Morelato**, L. Staehli, Q. Rossy. *A geographical analysis of trafficking on a popular darknet market*, Forensic Science International 277 (2017) 88-102.

Publications

L. Carroll, D. Pattison, **S. Fu**, C. Schiesser, M. Davies and C. Hawkins (2017). Catalytic oxidant scavenging by selenium-containing compounds: reduction of selenoxides and N-chloramines by thiols and redox enzymes. *Redox Biology* **12,** 872-882.

Chadwick, S., Neskoski, M., **Spindler, X.,** Lennard, C. and **Roux, C.,** 2017. Effect of hand sanitizer on the performance of fingermark detection techniques. *Forensic Science International*, *273*, pp.153-160.

Chilcote, B., Rust, L., Nizio, K.D., Forbes, S.L. Profiling the scent of weathered training aids for blood-detection dogs (2017) Science and Justice, . Article in Press.

Chua, L., Head, K., Thomas, P. and **Stuart, B.**, 2017. FTIR and Raman microscopy of organic binders and extraneous organic materials on painted ceremonial objects from the Highlands of Papua New Guinea. *Microchemical Journal*, *134*, pp.246-256.

Devièse, T., Ribechini, E., Castex, D., Stuart, B., Regert, M., Colombini, M.P. A multi-analytical approach using FTIR, GC/MS and Py-GC/MS revealed early evidence of embalming practices in Roman catacombs (2017) Microchemical Journal, 133, pp. 49-59.

Doddridge, A., Collins, M., Salouros, H. Profiling ephedrine prepared from N-methylalanine via the Akabori-Momotani reaction (2017) Drug Testing and Analysis, . Article in Press.

Forbes, S. Body farms. (2017). Forensic Science, Medicine, and Pathology, 13 (4), pp. 477-479.

Heather, E., Bortz, A., Shimmon, R., McDonagh, A.M. Organic impurity profiling of methylone and intermediate compounds synthesized from catechol (2017) Drug Testing and Analysis, 9 (3), pp. 436-445. Cited 1 time.

Hofstetter, C., **Maitre, M., Beavis, A., Roux, C.P**., Weyermann, C., Gassner, A.-L. A study of transfer and prevalence of organic gunshot residues (2017) Forensic Science International, 277, pp. 241-251.

Iqbal, M.A., Nizio, K.D., **Ueland, M**. and **Forbes, S.L.,** 2017. Forensic Decomposition Odour Profiling: A review of experimental designs and analytical techniques. *TrAC Trends in Analytical Chemistry*. Chilcote, B., Rust, L., Nizio, K.D. and Forbes, S.L., 2017. Profiling the scent of weathered training aids for blood-detection dogs. *Science & Justice*.

UNIVERSITY OF TECHNOLOGY SYDNEY

Centre for Forensic Science Newsletter December 2017

Publications

Lee, R., Comber, B., Abraham, J., Wagner, M., Lennard, C., **Spindler, X., Roux, C.** Supporting fingerprint identification assessments using a skin stretch model — A preliminary study (2017) Forensic Science International, 272, pp. 41-49. Cited 1 time.

Maitre, M., Kirkbride, K.P., Horder, M., **Roux, C.** and **Beavis, A.**, 2017. Current perspectives in the interpretation of gunshot residues in forensic science: A review. *Forensic science international*, *270*, pp.1-11.

L. Meng, B. Zhu, K. Zheng and **S. Fu** (2017). Ultrasound-assisted Low-density Solvent Dispersive Liquid-liquid Microextraction for the Determination of 4 Designer Benzodiazepines in Urine Samples by Gas Chromatography-Triple Quadrupole Mass spectrometry. *Journal of Chromatography B.* **1053,** 9-15.

H. Michelot, B. Stuart, S. Fu, R. Shimmon, T. Raymond, T. Crandell and **C. Roux** (2017). The mechanical properties of plastic evidence bags used for collection and storage of drug chemicals relevant to clandestine laboratory investigations. *Forensic Sciences Research*. In press. DOI:10.1080/20961790.20962017.21335459.

H. Michelot, S. Fu, B. Stuart, R. Shimmon, T. Raymond, T. Crandell and C. Roux (2017). Effect of drug precursors and chemicals relevant to clandestine laboratory investigation on plastic bags used for collection and storage. *Forensic Science International* **273**, 106-112.

M. Morelato, M. Barash, L. Blanes, **S. Chadwick,** J. Dilag, U. Kuzhiumparambil, K.D. Nizio, **X. Spindler, S. Moret,** *Forensic science: current state and perspective by a group of early career researchers,* Foundations of science 22(4) (2017) 799-825.

M. Morelato, J. Broséus, P. Esseiva, *Studying illicit drug market through the analysis of its central component: how to provide intelligence by profiling law enforcement seizures*, The International Society for the Study of Drug Policy (ISSDP), Aarhus, 17-19th May 2017.

Nizio, K.D., Ueland, M., Stuart, B.H., Forbes, S.L. The analysis of textiles associated with decomposing remains as a natural training aid for cadaver-detection dogs (2017) Forensic Chemistry, 5, pp. 33-45.

Publications

D. Pasin, A. Cawley, S. Bidny and **S. Fu** (2017). Current applications of high-resolution mass spectrometry for the analysis of new psychoactive substances: a critical review. *Analytical and Bioanalytical Chemistry*. In press. DOI: 0.1007/s00216-017-0441-4.

D. Pasin, A. Cawley, S. Bidny and **S. Fu** (2017). Characterization of hallucinogenic phenethylamines using high-resolution mass spectrometry for non-targeted screening purposes. *Drug Testing and Analysis.* In press. DOI: 10.1002/dta.2171.

Philp, M., Shimmon, R., Tahtouh, M., **Fu, S**. 2017. Color Spot Test As a Presumptive Tool for the Rapid Detection of Synthetic Cathinones. J. Vis. Exp. (), e57045, doi:10.3791/57045.

M. Philp and S. Fu (2017). A review of chemical 'spot' tests: a presumptive illicit drug identification technique. *Drug Testing and Analysis.* In press. DOI: 10.1002/dta.2300.

I. Pokorski, N. Clement, N. Phung, M. Weltman, **S. Fu** and J Copeland (2017) Cannabidiol in the management of in-patient cannabis withdrawal: clinical case series. *Future Neurology* **12**, 133-140.

Popovic, A., McBriar, T., He, P. and **Beavis, A.**, 2017. Chiral determination and assay of optical isomers in clandestine drug laboratory samples using LC-MSMS. *Analytical Methods*.

Roux, C., 2017. Alexandre Girod, Christophe Champod, And Olivier Ribaux (2008). Traces De Souliers. *Policing: A Journal of Policy and Practice*. Heather, E., Bortz, A., Shimmon, R. and McDonagh, A.M., 2017. Organic impurity profiling of methylone and intermediate compounds synthesized from catechol. *Drug testing and analysis*, *9*(3), pp.436-445.

Schotsmans, E.M., Nicholas, M. and **Forbes, S.L.** eds., 2017. *Taphonomy of Human Remains: Forensic Analysis of the Dead and the Depositional Environment*. John Wiley & Sons.

Stuart, B.H., Thomas, P.S. Pigment characterisation in Australian rock art: A review of modern instrumental methods of analysis (2017) Heritage Science, 5 (1), art. no. 10, . Cited 1 time.

Tam, R., Heather, E., **Shimmon, R.,** Lam, B., McDonagh, A.M. Synthesis and organic impurity profiling of 4-methoxymethamphetamine hydrochloride and its precursors (2017) Forensic Science International, 272, pp. 184-189.

UTS: CENTRE FOR FORENSIC SCIENCE
RESEARCH STRENGTH

UNIVERSITY OF TECHNOLOGY SYDNEY

Centre for Forensic Science Newsletter December 2017

Publications

Taudte, R.V., **Roux, C., Beavis, A.** Stability of smokeless powder compounds on collection devices (2017) Forensic Science International, 270, pp. 55-60. Cited 2 times.

Voskoboinik, L., Amiel, M., Reshef, A., Gafny, R. and **Barash, M.**, 2017. Laundry in a washing machine as a mediator of secondary and tertiary DNA transfer. *International Journal of Legal Medicine*, pp.1-6.

S. Watanabe, U. Kuzhiumparambil, M. A. Nguyen, J. Cameron and **S. Fu** (2017). Metabolic Profile of Synthetic Cannabinoids 5F-PB-22, PB-22, XLR-11 and UR-144 by Cunninghamella elegans. *The AAPS Journal*. In press. DOI: 10.1208/s12248-12017-10078-12244.

Watanabe, S., Vikingsson, S., Roman, M., Green, H., Kronstrand, R., Wohlfarth, A. In Vitro and In Vivo Metabolite Identification Studies for the New Synthetic Opioids Acetylfentanyl, Acrylfentanyl, Furanylfentanyl, and 4-Fluoro-Isobutyrylfentanyl (2017) AAPS Journal, 19 (4), pp. 1102-1122. Cited 1 time.

Z. Wei, Q. Niu, F. Zhang, K. **Xiao, L.** Liu, Y. Wang, J. Jia, J. Cao, **S. Fu** and K. Yun (2017). The effect of sodium fluoride, formaldehyde, and storage temperature on the stability of methamidophos in post-mortem blood and liver. *International Journal of Legal Medicine* **131**, 667-675.

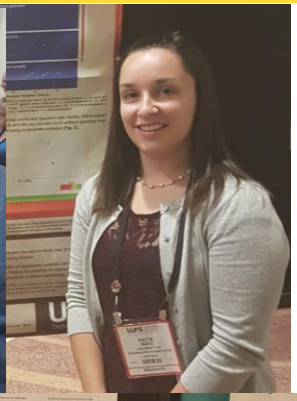
L. Xiao, R. Alder, M. Mehta, N. Krayem, B. Cavasinni, S. Laracy, S. Cameron and **S. Fu** (2017) Development of a quantitative method for the analysis of cocaine analogue impregnated into textiles by Raman spectroscopy. *Drug Testing and Analysis*. In press. DOI:10.1002/dta.2261.

J. Yan, U. Kuzhiumparambil, S. Bandodkar, N. Solowij and **S. Fu** (2017). Development and validation of a simple, rapid and sensitive LC-MS/MS method for the measurement of urinary neurotransmitters and their metabolites. *Analytical and Bioanalytical Chemistry*. In press. DOI: 10.1007/s00216-00017-00681-00213.

UTS: CENTRE FOR FORENSIC SCIENCE
RESEARCH STRENGTH

UNIVERSITY OF TECHNOLOGY SYDNEY

Centre for Forensic Science Newsletter December 2017



CENTRE FOR FORENSIC SCIENCE

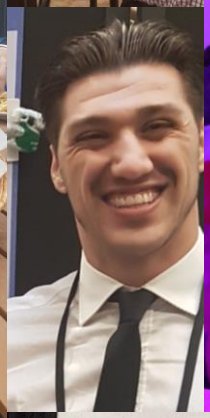
UTS: CENTRE FOR FORENSIC SCIENCE
RESEARCH STRENGTH

UNIVERSITY OF TECHNOLOGY SYDNEY

Centre for Forensic Science Newsletter December 2017








CENTRE FOR FORENSIC SCIENCE