



THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA

CREATE CHANGE

TECHNET AUSTRALIA CONFERENCE

Draft Program



*SuperTechs - From invisibility cloaks to capes;
revealing your value*

22 – 23 November 2018

Global Change Institute Building,
The University of Queensland, St Lucia, Brisbane

WELCOME

We are pleased to welcome you to the 2018 TechNet conference at the picturesque Global Change Institute Living Building, The University of Queensland St Lucia campus.

THANKS TO OUR TRADES EXHIBITORS



<http://www.vicom.com.au/>



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<http://www.scientrific.com.au>



<https://triotest.com.au/>



<https://www.johnmorrisgroup.com/>



www.labtek.com.au



www.airmet.com.au



PLENARY - KEYNOTE TALKS

Reimagining tertiary education: potential effects on classical career paths through a life-long learning and skill economy

Professor Roger Wepf

Director, Centre for Microscopy and Microanalysis, UQ

The industrial revolution introduced cycles of innovation and industrial change. These waves of change from around 1770 to 1970 had one thing in common: the time between the changes was always longer than a typical generation time. This allowed individuals to plan their education and career path within their youth and early adulthood period. However, the latest innovation and industrial wave – the “green technology” wave – started around 2010 and has impacted on our day-by-day living and education, particularly with the world-wide instant flow of ideas and opinions.

Shorter change cycle times mean faster changes for individuals, which creates challenges for higher education and future career plans. As for most changes, this creates both hope and insecurity. Slogans such as “Moving to a skills economy”, “Artificial intelligent (AI) driven technology revolution” or “How to survive in the age of automation” do not really help most of us in the day-by-day struggle to find a fulfilling, engaging and meaning full job in an ever faster changing international “learning-society”.

Reflecting on my own career, on the careers of scientists in Europe, and the technical career pathways in my own or peer teams, I will discuss the challenges for our technology driven future, discuss alternative career paths and learning scenarios, and show that highly skilled technicians and scientists have an optimistic future and that (yes we can!) can enrol into leadership positions in industry, society and also into the future higher education environment. Professor Wepf will address the conference theme, Super Techs.

Our tech services journey at Exeter

Dr Elizabeth James

Technical Services Business Partner CEMPS, University of Exeter

Dr James will take us through the tech services journey at Exeter University and what the technicians' commitment means to us (as well as outlining the purpose of the commitment generally).



PLENARY – KEYNOTE PANEL

The panel will discuss the conference theme, 'SuperTechs - From invisibility cloaks to capes; revealing your value' with questions and discussion with the floor.

Associate Professor Susan Rowland

Deputy Associate Dean Academic (Future Students and Employability), UQ

Dr Dee Gibbon

Associate Director, Workplace Diversity and Inclusion, UQ

Dr Clint Chapman

Senior Manager, Research Facilities & Infrastructure Planning, Faculty of Science, UQ

Barry O'Sullivan

Director of Sustainable Change

20 MINUTE TALKS

Professional Development of Technical Staff

Mark Hayne

Queensland University of Technology

Professional Development (PD) should be beneficial for workers and their employers alike. Yet, it is sometimes, even in universities, treated not as an investment, but as an overhead to be trimmed. Why?

Likewise, some well-intentioned PD is seen by technical staff as being of little to no value. Why?

PD means different things to different people and their organisations. This presentation explores those differences, how different universities support professional staff development, and suggests how, with a little effort, the diverse TechNet community itself may offer some practical exchange opportunities worth considering beyond the national and regional conferences. Various international PD opportunities including the Endeavour and Churchill Fellowships will be discussed as well.

20 MINUTE TALKS

The Half-Life of a Radiation Safety Officer
Bill Booth
University of Technology Sydney

Radioisotope usage in scientific research has waxed and waned over many decades. Following earlier eras of largely unregulated usage, all States of Australia currently enforce strict compliance with local Acts and Regulations. To aid institutional compliance, most universities have employed a Radiation Safety Officer(s) (RSO) to oversee radiation usage and provide systems and processes to ensure safe work practices. In larger institutions this role may be centralized in, e.g., a Work, Health and Safety unit, and be predominantly administrative in function. In smaller institutions, as is the case at UTS, the role of RSO has fallen to local technical management. On the whole, radiation usage involving unsealed isotopes has declined significantly in the past decade, being replaced by alternative technologies. Yet such usage continues to function, making it necessary that the skills and knowledge underpinning the role not be lost.

In this presentation, I will provide a brief history of my own work with radioisotopes in medical research, as a prelude to accepting the role of RSO at UTS. I will discuss my role as an RSO, the current spheres of radiation usage and the issues commonly faced, the systems employed to oversee radiation work and the training necessary to work safely with radiation.

What do you mean it's not ready!
Lynn Ferris
University of New South Wales

The fun filled roller-coaster ride that is the floor to ceiling rebuilding of a PC2 lab. One lab manager's journey of discovery on the importance of consultants, and project managers; what 3 meters looks like to builders, academics and technical staff, and a builder's definition of the word finished.

Difficult technical points will be discussed such as who pays for the "I'm sorry we flooded your office for the third time" fruit basket and why it is not my fault the light switches are on the far side of the room. What worked and what didn't work and what I would do differently. Audience contributions would be most welcome.



20 MINUTE TALKS

Laboratory Enhancements
Nikitas Economou
University of Western Australia

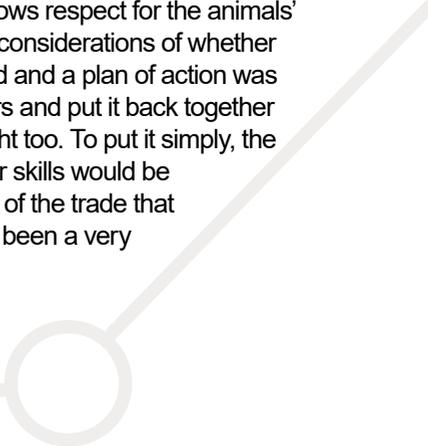
In this presentation I will endeavor to stimulate your minds on how to improve the look of you labs. Create a safer environment as well as improve the esthetics of the lab. Yes, it will cost money but not hundreds of thousands of dollars to rebuild the lab. It is just a matter of thinking out of the square and make little improvements.

Most times you can push safety issues get around the negative responses you will ultimately meet from your superiors and fellow workers as I did. Careful thinking and planning as well as getting reasonable quotes for your improvements will help achieve your ultimate goal.

The Skeleton Crew Project
Paul Graham and Margaret Stockill
Central Queensland University

For many years CQUniversity has owned a collection of museum-display skeletal material that has been used to aid the teaching of anatomy, zoology and other biology courses. In time, they sort of become part of the furniture - always there when they're needed, interesting to bring out for open day displays and irreplaceable when it comes to teaching. Like everything, now and then it needs a bit of TLC and for at least 30 years, these hard working (literally worked themselves to the bone) displays have gone about their business of teaching without a single complaint. SO... When The Skeleton Crew acknowledged that the displays were looking a bit tired we thought 'We should fix these up, what a brilliant end-of-year project!'

CQUniversity has a commitment and a strong consideration for ethics. From that perspective alone, the renovation/rejuvenation work shows respect for the animals' lives that are represented by these displays, as well as considerations of whether they are replaceable or not. Each display was inspected and a plan of action was determined... yep, pull it apart, clean it up, do the repairs and put it back together again. Sounds simple right? Yeah that's what we thought too. To put it simply, the challenge was unknown. We had no idea what level our skills would be stretched to, we had no idea of the new skills and tricks of the trade that we'd learn along the way, but what has transposed has been a very enjoyable and VERY rewarding experience.





20 MINUTE TALKS

How did I get here?

Sonia Neville

The University of Adelaide

I'm Sonia Neville and currently work in the Technical Services Unit, for the School of Animal and Veterinary Science, The University of Adelaide. My role primarily is to prepare and set up practical sessions for Veterinary and Animal Science students in a diverse range of subjects. This includes Microbiology, Immunology, Haematology, Parasitology and Physiology. The role is as diverse as it is menial, as difficult as it is mundane and no two days are ever the same. A day can start out by plating out single colonies of bacteria, progress to collecting faecal samples from alpacas, pithing cane toads and end cleaning and packing up microscopes ready for the next days challenges.

So how did I get here? From a Technical Assistant in 1981, drudging through preserved sheep intestines for worm larvae in the Veterinary Sciences division of the IMVS, Adelaide. There were 100 staff who performed every test manually (Chemistry, Haematology etc.) and reported the results handwritten in triplicate using carbon paper. We had tea ladies and glassware washers. From Hippos and crates of live chickens in the basement PM room to the arrival of the first computers and automated systems. From making and conjugating antibodies by hand for Immunology and rooms full of spinning glass tubes growing numerous cell lines for Virology. From New Zealand to a tiny one person Pathology laboratory in the Barossa, my career as a Laboratory Scientist since 1981 is as diverse as the role I now find myself in.

Forging a Supply Chain: The Ins and Outs of a University Store

Wendy Brockhouse

University of Adelaide

This is a look at the many facets of a University store and the bumps in the road of forging a reliable supply chain. It is a journey from paper to spreadsheets to databases, all to keep stock of laboratory equipment, chemicals, paperwork and suppliers. It may be of interest to anyone who purchases goods or tracks inventories.

40 MINUTE TALKS

Redesigning a First Aid Service – 4 Steps to Effectiveness

Greg Pullman

The University of Adelaide

As the front-line of injury management, first aid is a critical service in any organization and is subject to various levels of legislation and workplace policy. To be effective, first aid needs to be readily accessible under different circumstances and times of day, but must also be compliant with record-keeping and incident reporting requirements. The difficulty in balancing these two requirements often leads to either uncontrolled access to first aid kits, or a tightly managed system under direct control of first aiders.

Following its Professional Services Reform in 2016, the Faculty of Engineering, Computer and Mathematical Sciences conducted a detailed review which led to the design of a new four-stage first aid service. The solution is readily accessible while fully compliant with record-keeping and reporting requirements, and caters for many foreseeable situations - those who just need a band-aid for a blister, to those who receive more serious injuries in laboratories, to those who suffer any type of after-hours first aid incident when first aiders are absent. The new first aid system has considerably reduced the administrative overhead of previous systems, made it easier for people to get the most appropriate level of treatment, and reduced the costs associated with maintaining a first aid service.

So...What do you do?

Morwenna Boddington

University of Southern Queensland

This simple question can be a difficult one for technical staff to answer, unless the questioner is prepared for a lengthy response! But within that answer lies the depth and breadth of our knowledge and skills, ones that many people don't realize, understand or see. Our work is hidden in the background and goes unnoticed, leading many to think we don't do anything of importance. This needs to change.

As a profession, we need to step out of the shadows and promote what we do and why we can do it. We don't need to answer this question as a response to small talk. We need to answer it so our managers, Human Resources and the wider education community know and appreciate what we do. We need to highlight how we contribute to education and student success. We need to demonstrate our awesomeness, but where do we start? I have some thoughts, which will be explored through this presentation. However, we are a unique group of people, and one answer will not fit everyone. So, before we educate others, we need to educate ourselves. The more we learn about our roles, the better our response will be. So...What do you do?



40 MINUTE TALKS

A High Velocity Impact Tester at the Edge
Mark Hayne & Anthony (Tony) Morris
Queensland University of Technology

An impact tester for the uninitiated is basically a hammer that is dropped, swung or otherwise flung at the specimen under test in order measure its resilience to the abuse. It breaks things. Size does matter. In late 2017, QUT was awarded a \$1.4M ARC LEIF grant, led by Prof David Thambiratnam, to develop a 50m/s, 125kJ impact tester following the success of our novel horizontal 10kJ impact tester built in 2012.

To put things in perspective, 125kJ at 50m/s is the equivalent of dropping 100kg from a height of 129m. In our case, space constraints require us to find a practical and safe way to achieve the same velocity and energy in less than 4m. Horizontally. Structural target specimens can be of any material or geometry and axially loaded up to 300kN. It can take an entire day to setup one specimen yet the test is all over in a mere 0.3s. The velocity of 50m/s is 180kph or 1mm every 20us which is at the upper end of likely vehicular impact speeds directed at civil structures.

Reliably and accurately measuring what happens during the impact is a crucial part of the project. This involves cameras recording at 50,000 frames per second to measure surface stress fields on the specimens via Digital Image Correlation. In addition, strain gauges, accelerometers, laser displacement transducers and load cells, including in the projectile itself, all have to be faithfully recorded.

The mechanical design process has already exhausted two initial flywheel based concepts and has now settled on a compressed air cannon approach which is currently being refined ready for manufacture early in 2019. The instrumentation is a parallel work in progress and it too has exhausted some initial concepts. Many aspects of the project are at the very limits of materials, technology or funding. Development has required secondment of two technologists from within QUT's Technical Services Unit which has in itself created challenges and opportunities. This presentation will explain a little about ARC LEIF grants generally, a review of existing impact testers and what they break and the current state of our project, the solutions found and the problems remaining.

TOURS AND WORKSHOPS

Tour of the new UQ MakerSpace - a space odyssey!

Vince Kelly

EAIT Faculty Workshop Group, University of Queensland

Come and tour the new UQ MakerSpace and marvel at the array of equipment and facilities available for UQ students and staff. What is a MakerSpace you may ask? No it is not a celestial machine that warps the fabric of time and space, but rather a learning facility where people can meet, collaborate, experiment and create. Yes it has machines, but it is more than just that – it is about a place where dreams are made into reality by the action of hands-on Making. In the tour we will have a look at the facilities and equipment, but also discuss the complex journey of setting up this new venture at UQ. We welcome any questions during or after the tour.

Please wear covered-in shoes for the tour.

Guided Tour of the Faculty of Science Workshops

Alan Reid

Faculty of Science Workshops, University of Queensland

Take this rare opportunity to visit one of the “engine rooms” of research & development support within the Science Faculty. You will be able to observe leading edge CNC (computer numerical control) machinery in action producing intricate and at times, esoteric, components for the many world class R&D laboratories located within the Science Faculty. You will also be able to observe the Workshops custom-made 3D printer in operation producing a myriad of components, ranging from highly complex, such as a dog’s skull, down to quite ordinary things, such as simple but hard to get helical gears for laboratory equipment.

Visit our webpage for a preview!

<https://science.uq.edu.au/facilities/content/science-workshops>

Please wear covered-in shoes for the tour.



TOURS AND WORKSHOPS

First Year Physics Toys – OPPS Experiments Workshop

Marianne Doyle-Pegg

School of Maths & Physics, University of Queensland

Come and have a play with some of the experiments our 1st year students do. Build your own house and sheep. Play with charge. Make some lightning. Make smoke disappear. See what you can do with a frog & steel balls. What can you do with a magnet, wire, screw & battery?

While you are here have a look at our recently refurbished 1st year lab.

Brought to you with the help of some fantastic physics tutors.

Faculty of Science Glassblowers Tour

Robin Berlyn

School of Chemistry & Molecular Bioscience, University of Queensland

UQ Centre for Microscopy and Microanalysis (CMM) Tour

Ron Rasch

Centre for Microscopy and Microanalysis, University of Queensland

Civil Engineering Fire Lab Tour

Jeronimo Carrascal Tirado

School of Civil Engineering, University of Queensland

Immersive 3D Visualisation Lab Tour

Associate Professor Mehmet Kizil

School of Mechanical & Mining Engineering, University of Queensland





Super Techs

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