

InFoST – April 2017 Edition

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A Message from the Executive Dean

Well into another year at FoST and the Faculty continues to grow and adapt to new opportunities and challenges. Our success over the last 3 years is best illustrated by the fact that we have renewed almost every program and course we teach, or we will have by the time we introduce our new engineering programs next year! This has been a significant effort by all concerned and the increasing enrolments in the Sciences (all changed in 2016); the accolades for our new IT degrees (changed this year); new teaching and research partnerships in China; successful startup of a new campus at Berwick and rapidly increasing

enrolments in our new online offerings equals success by any measure.

That our students are also appreciative is more than welcome and our continuing success in the QILT survey is a great reward. Our rating for over 7 years at the top of Australian Universities for teaching by the Good Uni Guide is confirmed by the QILT data and analysed in some detail with top scores in Science, IT and Engineering in the overall student experience, teaching quality, student support, employment rate and median salary categories.

Clearly, we are doing well in teaching but we continue to develop our teaching methods especially to support online students and develop cross campus teaching structures including more effective teaching teams and student communication strategies.

Research has also been reformed with 4 new thematic areas to cover our expertise in ecology and environmental management (Impact Ecology), computational engineering, mineral resources engineering and systems engineering (Engineering Resources and Technology), microbiology, clinical health sciences and veterinary sciences (Biomarker Development), informatics and optimisation, multimedia computing and artificial intelligence (Computer Science and Mathematics). These thematics cover all research active staff and are being funded to improve collaboration and research success.

In that respect, recent applications to industry and government have resulted in significant success in the fields of environmental restoration, geotechnical analysis, carbon capture analysis and developing high performance soils. The success of our wildlife genotyping service also seems assured with significant interest from institutions and government departments.

Our success with industry collaborations continues with our professional practise degree with IBM our flagship and with collaborations with companies such as MaxiTrans, Castlemaine Goldfields, Gippsland Water Factory, Australian Bureau of Meteorology, DSTG, various Water and Catchment Authorities and many more.

Professor Mark Sandeman, Executive Dean, Faculty of Science and Technology

You can submit your article to InFoST by emailing Jessica Hodder at j.hodder@federation.edu.au. All articles, profiles and reports are welcome.

Academic promotions

Congratulations of the following academic promotions effective from 1 January 2017:

Promoted to Academic Level C

Dr Andrew Percy

Dr Julien Ugon

Promoted to Academic Level D

Dr Jason Giri

Dr Shyh Wei Teng

Promoted to Academic Level E

Associate Professor Stuart Berzins

ICT Educator of the Year



Congratulations to **Dr Richard Dazeley** who was named the "ICT Educator of the Year" at the prestigious 2016 ACS Digital Disruptors Awards held in December last year. The award recognises his outstanding work in leading our innovative and exciting renewal of the BIT.

Taiwo Oseni graduates from her PhD

Congratulations to **Taiwo Oseni** who graduated in December from her PhD in Information Systems at Monash University.



IEEE-IES Vice-President Membership

Well done to **Prof Yousef Ibrahim** who has been formally elected by IEEE-IES International Administrative Committee (AdCom) to the Officer Position as the Vice-President Membership starting from 1 January 2017.

QILT data outcomes

Data about teaching and employment outcomes from three surveys of our current and graduating students from 2016 have been combined and published on the [QILT website](#). The attached data shows once again, the overall quality of the educational experience, teaching quality and student support for our current students are among the highest in Victoria. We are ranked number 1 in Victoria in overall quality of the educational experience in Engineering and IT and number 2 in Science. For teaching quality and

student support, our current students rank us number 1 in IT and Science and number 2 in Engineering.

Our science graduates rank our program number 1 in Victoria in teaching scale. Our students have close to the highest employment rates in the state with Engineering and IT ranking number 2 and Science number 1. Our graduates also have the highest starting salary for science in Victoria – insufficient students responded to the survey regarding starting salary in engineering and IT.

Best Presentation Award

Congratulations to FoST PhD student **Ms Pradnya Kulkarni** for winning the Best Presentation Award at the IEEE International Conference on Signal and Image Processing.



New staff

Sam Hashemi, Lecturer, Civil and Geotechnical Engineering



Dr Sam Hashemi is a Lecturer in the field of Civil and Geotechnical Engineering at the Gippsland campus. Before joining FedUni, Sam used to work at CQ University as a lecturer. He received his PhD from the University of Adelaide and his thesis was on "Drilling and maintaining stable boreholes in poorly cemented sands". Sam holds a Master's

degree in Geotechnical Engineering from the Sharif University which is the highest ranked university in Iran, and a Bachelor's degree in Civil Engineering from Iran University of Science and Technology. He is the first author of several papers in A⁺ and A journals (ERA ranking) and conferences. Sam has demonstrated experience in lecturing various Civil Engineering courses and in supervising student projects at the University of Adelaide and CQ University. Besides his academic work experience, Sam also has more than 7 years of industry work experience where he worked on different construction and oil and gas projects. Dr Hashemi received several research grants and awards during his career in Australia, such as Joint Research Engagement Engineering Cadetship Grant, Deep Exploration Technologies CRC, etc. Also, he is a permanent member of Engineers Australia as a PE and Organisation for Engineering Order of Buildings in Iran.

Feifei Chen, Lecturer, IT



Dr Feifei Chen received the B.S and M.S in 2005 and 2008 respectively. She obtained her PhD from Swinburne University of Technology in 2015. She is a Lecturer in School of Engineering and IT and joined the

University in 2017. Feifei worked as a postdoctoral research fellow at Swinburne University after receiving her PhD. She had previously worked in industry as Quality Analyst in Motorola China and Health & Australia.

Her current research interests are in the area of Software Engineering, Cloud Computing, Green Computing, Performance Engineering, Service-Oriented Engineering and Data Analytics.

Sarah Preston, Lecturer, Veterinary Bioscience



I have a passion for research and education in the control of infectious diseases in agricultural animals and this is largely driven by my background growing up in a rural setting on a sheep/cattle farm. I received my science qualifications (B.Sci Honours) at Monash University and followed on with a PhD investigating the control of parasitic worm infections in sheep using immune markers of parasitic

resistance. From 2014-2016 I worked at the Faculty of Veterinary and Agriculture Sciences at the University of Melbourne as a postdoctoral researcher in the area of drug discovery for parasitic diseases. I am now looking forward to my new career direction as a lecturer for the Bachelor of Veterinary and Wildlife Sciences at Federation University whilst still pursuing research in the area of worm control for agricultural animals.

Danielle Auldish, Lecturer, Veterinary Bioscience



Equipped with a rural background and a Bachelor degree in Agricultural Science, **Danielle** began her Masters research in northern Victoria (DPI). It focussed on lactating dairy cows and the suitability of maize silage fed with different nitrogen sources. Lactation was also the subject of her research at the Victorian Institute of Animal Science, Werribee where she studied lactation physiology of sows. An

interest in the persistence of lactation led to a PhD in New Zealand that investigated the DNA synthesis of mammary

epithelial cells during lactation. She returned to Australia and for 11 years was the CEO of a not-for-profit organisation which had the aim of addressing the extension and research needs of the Gippsland dairy industry. Joining an agricultural consultancy company, Danielle was involved in projects delivered for water corporations and local government on soil fertility and water quality as well as writing practice notes for the DPI relating to the broiler and pig industries. Her corporate governance experience is currently practiced in her role as a Director of the board of management of the Phillip Island Nature Parks and as the Executive Officer of the Australia Association of Ruminant Nutrition.

Andrew Barton, Assoc Prof, Water Engineering



Assoc Prof Andrew Barton is a Senior Lecturer in engineering at Federation University Australia where he supports the civil, mechanical and mining engineering disciplines. Specifically he teaches in the areas of fluid mechanics, hydraulics, hydrology and environmental engineering.

Andrew is recognised nationally and internationally for his research and consulting skills in water resources engineering.

Ali Samani, Lecturer, Civil Engineering

Dr Ali Samani work in civil engineering industry for 8 years as structural engineer and design manager with expertise in design and construction of high rises and post tension floors. Before commencing his role as Lecturer in Structural Engineering at Federation University Australia, he was a Lecturer in Civil Engineering at University of Waikato New Zealand for over two years.

He has experience in teaching of Structural Engineering topics such as Engineering Mechanics, Mechanics of Solids, Concrete Design and Prestress Concrete Design. His main research interests lie in behaviour of concrete columns, concrete plasticity, numerical modelling of concrete elements and self-healing concrete material.

Dean Webb, Lecturer, IT



Dean Webb is a lecturer in IT in the Faculty of Science and Technology. Dean has strong experience in both data analysis and computer programming, undertaking work in the insurance industry and as a Research Associate. Dean's research interests are in artificial intelligence and data analytics, with a focus on information retrieval

techniques for commodity exchange.

Truong Phung, Scholarly Teaching Fellow, Mechanical Engineering



I am currently holding the Scholarly Teaching Fellow (Mechanical Engineering) position, prior to that I have been a lecturer and tutor within FoST since 2013. I am finalising my PhD in Engineering here at FedUni. I received my MEng from University of Ballarat and BEng from Ho Chi Minh City University of Technology and Education.

Before commencing the Master's degree at University of Ballarat, I have worked in the industry in the field of engineering. My focus was mechanical, hydraulic, and pneumatic systems. After completing my Master's, my main professional activity has been education and research in engineering.

Meagan Dewar, Lecturer, Biological and Environmental Science



I am a lecturer in Biological and Environmental Sciences here at Federation University. My research focuses on profiling the composition of the gastrointestinal microbiome of wildlife and understanding the role of microbes in wildlife health, disease and physiology. My previous research has

explored the microbial composition of penguins and procellariiform seabirds, examined the influence of fasting during moult on the microbial composition of king and little penguins and explored how the microbiome changes during development in little penguins and short-tailed shearwaters. My current research projects include; examining the influence of artificial penguin burrows on nest microbiome composition and its influence of reproductive success which was funded by SeaWorld Research and Rescue Institute, and understanding the role of microbes in penguin health and physiology, funded by Crowdfunding campaign "PenguinMicrobes".

2016 New Leaders Conference and Intercollegiate Mining Games

On 18 September, the Sunday preceding the first week of the semester two lecture break, six representatives of the Ballarat AusIMM student chapter flew out of Melbourne headed for Brisbane. Hosted by the University of Queensland, the 2016 New Leaders Conference and National Intercollegiate Mining Games was set to take place. A week designed for the enlightenment and education of the

undergraduates, providing networking opportunities between all branches and disciplines for those with experiences ranging from undergrad to post-grad and including industry professionals. Upon the conclusion of the New Leaders Conference the students proceeded to prepare themselves for the impending games, where teams would vie for accolades proving their team and education establishment superior in certain event disciplines.

The New Leaders Conference consisted of a wide range of talks, mostly focused on overcoming issues within the industry, and being innovative in tough times. The first presentation of the first day focused on career transitions within the mining industry, and how to remain positive in challenging times. The speaker, Sharna Glover, also touched on ways to enjoy the journey through your career, even if it does not always go to plan.

The following presenter, Kane Usher, gave an overview of METS Ignited. He spoke about the plans for the future of METS Ignited within the industry, as well as the level of research in mining, and ensuring that they are ahead of the curve when it comes to new technologies. The speaker also discussed the issue with predicting the future of the mining industry, as it changes from day to day form a wide range of factors.

Later in the day, the delegates heard from two innovators who identified a common problem, and found a simple and implementable solution. The first was Christopher Mata, who found that the mine he was working in had a large problem of dilution. It was discovered that this was caused by deviations in the drill holes, resulting in too much waste being fractured. Christopher used statistical analysis of a large number of drill holes to form predictions on the amount and direction of deviation that is likely to occur in future holes. With this, it was possible for the mine to adjust the drill patterns or amount of explosives accordingly.

The second presenter was Alexander Nicholls, who decided that the traditional use of paper plans was no longer appropriate in the modern age, and came up with an application to do the job. After lots of research into the current market, and of similar products, Alexander designed his own program. It was found that the implementation brought great value to North Parkes Mine, and that much better communication was occurring. Besides discussing his application, the presenter reiterated the importance of identifying issues, and being the one to discover the improvements. In the ever changing industry, the importance of having an extra skill to make you more valuable than others is crucial.

The final section of the first day, the audience received talks about how to break into the resources industry and to achieve your goals. The speaker, Brad Franklin, gave details of his experiences in the industry, from vacation work, to his graduate position. He spoke about the importance of making contacts, as these are what get the jobs in the industry. He also spoke about the importance of being persistent when seeking new opportunities, and finding ways to achieve your goals. Nothing is impossible when you put the effort into making it happen.

The evening of the first day consisted of a networking function. Here the Ballarat students could get to know new people, as well as mingle with old friends and others they had met during the day. In all the first day of the conference was an excellent experience, and there was a lot more in store for the second day.

The first session for day two of the conference was an interactive session chaired by Dale Sims, a board director of AusIMM. Each table worked together to outline some of the problems faced in the development of a project. This session was successful in getting people to give input into the wider discussion and was a light start to the day. Building on from this, in the second session for the day, attendees heard from Matt Lord, Professor David Brereton and Neil Cusworth. They discussed a number of different aspects, in regards to project development, that mining professionals must be aware of.

After lunch, the third session for the day switched focus from project development to professional and personal development. Kylie Mercer and Carly Jayet gave presentations representing the BPEQ and North Parkes Mines respectively. The highlight of the session was an engaging presentation on public speaking to build your brand and boost your career, from Lisa Evans, the founder and director of Speaking Savvy. The final session for the conference had a focus on leadership and the new skills you need for the future. The speakers were all quite different; with a range of insightful, interactive and at times, challenging topics that provoked much discussion from the audience.



Natasha Farr, Lia Cherico, Samuel Hodgetts and Brad Drake at the 2016 New Leaders Conference

There was a one day event of mining related tasks such as rail-set, hand mucking, gold panning, swede saw, blast-face tie-in, air leg drilling and mineral ID. Overall the day was filled with fun, team work and support. The first event we competed in was the hand mucking, a good team effort and a lot of communication to produce a time of 1 minute and 38 seconds. Blast face tie-in was the second event, thanks to the efforts of the mining engineers for the planning and good communication we worked soundly, safely and at a good pace. Gold panning was the third event, Elysia produced one of the fastest times on the day. After a short lunch break the team gathered to cheer on Olivia and Ryan, who were competing in the air leg task. This task involved them working as a team to both drill a hole in a small ruled out

square. The next event was the mineral and rock ID; this event involved us identifying four rocks and eight minerals with basic mineral ID equipment and the knowledge of our geo's. Our last event was the swede saw, which was our most challenging event. This involved the five team members competing to take turns in sawing a line as straight as possible in a ruled out square. This task pushed all team members due to the height of the frame, thickness of the wood and time of day. The whole day was filled with a great environment, with everyone encouraging every team and creating friendships. With a result of first place in mineral ID and third place in Blast face, we were a very happy team.

Championing STEM Outreach in regional Victoria

The Faculty of Science and Technology continues to engage with regional secondary teachers and students and community members as part of its commitment to strengthening capacity in the four STEM areas-Science, Technology, Engineering and Maths. Each year academic and technical staff contribute to the delivery of interactive laboratory activities for students and facilitate professional development opportunities for teachers in these areas.

Professional development for VCE (Victorian Certificate of Education) maths teachers took place on the Mt Helen and Gippsland campuses earlier this year. Workshops for VCE students in biology and chemistry are to be held at Gippsland mid-year and we were excited to learn that this year's RACI's Hartung Youth Lecture will be delivered by Sir Martyn Poliakoff *CBE CChem FRS FRSC FICHEM*. Sir Martyn is a prominent Research Professor at the University of Nottingham. Each year the Royal Australian Chemical Institute hosts this lecture with the aim to inspire students in Years 9-12. This lecture will be delivered on the Mt Helen and Gippsland campuses.

Collaboration with external agencies is an important aspect of STEM engagement and the Faculty values its connections with [Ecolinc](#), [Local Learning and Employment Networks](#) and the [Victorian Curriculum Assessment Authority](#).

The Faculty's Executive Dean, Professor Mark Sandeman says 'STEM education is essential to regional growth and it is the Faculty's mission to ensure regional teachers and students have access to the same opportunities as others in the State.'



Students investigate and identify the contents of an owl pellet - the undigested parts of a bird, rodent or insect regurgitated by the owl

Working together

Castlemaine Goldfields and Federation University Australia have joined forces to provide a work placement for students currently studying Geology, Mining Engineering and Metallurgy at the University's School of Mines.

Castlemaine Goldfields is the operator of the Ballarat Gold Mine in Mt Clear and is currently mining and processing over 250,000 tonnes of gold bearing ore at an average grade of between 5 and 6 grams per tonne to produce in excess of 40,000 ounces of gold each year. The mine is a major employer in the Ballarat region and spends approximately 40% of its costs in the local Ballarat economy. The mine is therefore perfectly situated to partner with the University to provide a unique environment where students from various vocations can obtain hands-on experience and observe the application of techniques and knowledge obtained through their fields of study.

The inaugural program is providing seven students with access to geology, engineering and metallurgy professionals working within the mining industry at the Ballarat Gold Mine. The partnership developed between the mine and the university will assist current and future students in gaining general workplace experience and career development in their chosen fields of study. It is anticipated that the program will increase student's general understanding and awareness of workplace environments but more specifically spur student interest and personal development through their exposure to an operating mine.

All parties involved hope that the inaugural program will further build relationships between the Ballarat Gold Mine and Federation University and provide invaluable experiences that encourage students to pursue careers within the mining industry.



Photo: (from left to right) David Carden, Samuel Rangel, Sean Murphy, Jarryd Tribe, Samuel Chikohwa, Harrison Knox and Ryan Marshal.

Engineering challenge for FedUni students at MaxiTRANS

Geraldine Lewis from the Commercial Services Unit of FedUni was proud to see the partnership between FedUni & MaxiTRANS Australia Pty Ltd Australia's largest manufacturer and supplier of trailing transport equipment and solutions, take on yet another facet. Supporting FedUni to

expose Mechanical Engineering students to a real time industry challenge.

Six 2nd year students took up a MaxiTRANS designed challenge as part of their course and assessment. The students spent a semester consulting with, being mentored by and encouraged to think outside the square, to come up with solutions for the panel of 5 engineers at MaxiTRANS.

Ibrahim Sultan-Associate Professor of Engineering FedUni worked closely with Steve Cole – Engineering Manager MaxiTRANS to bring their passion for engineering to the students. Carl Schaller – Engineering Lecturer FedUni introduced the program to his class, encouraging students to take up this opportunity, supporting them to take every opportunity to engage with their mentors.

Despite some nerves, the students presented their designs and findings to the MaxiTRANS panel, "It was so different to just presenting to your class, these guys know so much more than us" said James Radford.

All of the students felt invested in the project and now see the challenges and value of practical application of their studies.

The project has offered this group of students an insight into industry and the challenges they may face, yet they still all want to be Engineers.

MaxiTRANS as an industry leader and major employer in our region, sees the project as a pathway to engage and promote engineers into a leading design and manufacturing environment. This year alone MaxiTRANS has hosted 4 engineering interns of which 3 have been offered subsequent employment.

MaxiTRANS and FedUni enjoy an ongoing partnership in the development and education of our future industry leaders and look forward to a new challenge for next year's students.



Left group – L to R Carl Schaller – Engineering Lecturer FedUni, Ibrahim Sultan-Associate Professor of Engineering FedUni, 2nd year engineering students - Middle row - Mazin Bektash , James Radford, Thomas Brett, Back Row- Sam Cooney & Ryan Kerr.

Right Group – L to R Daniel McNaulty- Production Development Manager MaxiTRANS, Joel Balmer – Production Enhancement Leader, Andrew Folker – Engineering Brand Leader, Truong Phung - PHD Student FedUni, Steve Cole – Engineering Manager MaxiTRANS, Greg Brown – Technical Manager

Engineers and Engineering students Information Night

Engineers Australia Gippsland Regional Group, The Asset Management Council and Federation University Australia conducted an "Engineers and Engineering Students Information Night" on 30 March 2017 at Federation University Australia, Churchill Campus.

Guy Hodgkinson, Engineers Australia, Victoria Division Vice President, presented information on Engineers Australia and the benefits of membership.

Professor Steve Wilcox, Discipline Head Engineering, Federation University Australia, Gippsland Campus presented on Strategy and Direction of Engineering Education at Federation University Australia.

More than 50 students, Federation University Australia staff and practicing engineers from a range of industries across Gippsland were able to meet and network. This provided opportunities for engineering professionals and engineering students to discuss current and future opportunities in the Engineering field.

The event was sponsored by Gippsland Water, Chris O'Brien & Company, Brendan Wilkinson from Australian Paper, Ian Newnham from GHD and Gopi Chattopadhyay from the Asset Management Council.



Speakers, Sponsors, Brendan Wilkinson and the Engineers Australia Gippsland Group Team, along with Federation University team members, Hayden McArthur, Dr Susanga Costa, Dr Gopi Chattopadhyay (Chair for AM Council, Gippsland), Dr Harpreet Kandra, Dr Tanveer Choudhury and many others were acknowledged for their valuable contribution for making this event a great success.

Peter Gell co-edits new environmental research book

Prof Peter Gell is one of four editors of the newly released volume 'Applications of Paleoenvironmental Techniques in Estuarine Studies', which is part of the prestigious Springer series Developments in Paleoenvironmental Research.

Paleoenvironmental Techniques unearth the fossil evidence for long term change in the nature of estuaries. Anything with a shell or hard skeleton that has lived in an estuary leaves behind evidence of its existence in the sediments which build up over thousands of years. Evidence of past estuarine ecosystems can also be divulged from the sediment's organic matter that can also be analysed. By slicing up a sediment core researchers across the world have revealed the history of estuaries and their response to climate and sea-level variability and the impact of humans.

The 700 page volume examines a wide range of sampling techniques and the chemical and biological indicators that can be preserved in sediments. The book finishes with case studies examining the history of several estuaries including Chesapeake Bay, the Everglades, The Baltic and the Coorong in Australia. While there are several contributions from Australian scientists, the book has a strong international focus with authors from over ten countries.

Dr Jessica Reeves published a chapter on ostracod crustaceans. Professor Gell authored three chapters including the Coorong case study and the implications of the evidence of long term change on the management of estuaries worldwide.

New scholarship opportunity through Defence Sciences Technology Group and Defence Sciences Institute

Assoc Prof Peter Vamplew from the Federation Learning Agents Group (FLAG), in the Centre for Informatics and Applied Optimisation (CIAO) has been successful in negotiating a joint PhD scholarship project through the Defence Sciences Technology Group (DSTG) and Defence Sciences Institute (DSI) of \$45k over 3 years to support a defence-related project titled "*Multi-Objective Reinforcement Learning in Dynamic Team Based Adversarial Games*".

A range of technologies have the potential to change the way future military aerospace operations are conducted. In order to maximise the utility of these technologies, future tactics and concepts of operations will need to be developed and explored. Machine learning techniques have revolutionised a number of fields such as new drug discovery in the pharmaceutical industry and gene discovery in computational biology. Similarly, these techniques have the potential to be equally transformative in the field of computational operations research in the area of tactics discovery for new aerospace technologies.

Reinforcement learning in particular shows significant promise in discovering optimal behaviour in a number of application domains. While single agent reinforcement learning with a single objective can be useful, most problems in multi-agent simulation (such as multi-ship air combat) have multiple (often competing) objectives and include multiple agents on opposing teams.

The fields of Multi-Objective Reinforcement Learning (MORL) and Multi Agent Reinforcement Learning (MARL) are nascent

but have the potential to be transformative in the area of tactical discovery. Additional basic research needs to be undertaken to develop these fields to meet the requirements for tactical discovery in multi-agent team based adversarial simulations.

The proposed research program will undertake basic research in Multi-Objective Reinforcement Learning (MORL) within the following contexts:

- Multiple competing objectives
- Multi-agent simulation with a dynamic and continuous state space
- Team based NvM adversarial game
- Coordinated team behaviour

Peter said "this is a great opportunity to apply our theoretical expertise in multi-objective reinforcement learning to a significant real-world problem of national importance".

Zhejiang University of Technology

A delegation of six senior staff from Zhejiang University of Technology visited Mt Helen campus on 26 April. A senior leadership team of FedUni and the faculty welcomed and met visitors.



The collaboration with ZUT started 4 years ago with a joint program (approved by Chinese Ministry of Education) in Civil and Environmental Engineering at Monash Gippsland Campus. Since the formation of FedUni, FedUni has taken on the responsibility of teaching the joint program. Our staff have taught 11 courses at ZUT. 17 joint program students are currently studying at Gippsland campus. Their performance so far is very good.

In 2016, Chinese Ministry of Education formally approved transfer of the joint program from Monash to FedUni. There will be a new intake of 60 students into the joint program in September 2017, subject to final approval of provincial government.

In addition to the joint program, the two universities have signed an MoU with intention to develop collaboration in articulation pathways for other disciplines (e.g. IT, Science and Business), research collaboration, and student and staff exchange.

The visit was a success and consolidated the collaboration between the two universities.

Major award to Mining Engineering student

Congratulations to **Rahel Abebe**, a Mining Engineering student who has been awarded the Sir Frank Espie/Rio Tinto Leadership award. This is the highest undergraduate award which the Institute awards through its Education Endowment Fund.

The Australasian Institute of Mining and Metallurgy supports students who are strong leaders by awarding them The AusIMM Education Endowment Fund (EEF) Scholarships.

Student receives DATA61/CSIRO Summer Scholarship

The Faculty would like to congratulate student **Umair Khan** on being awarded a DATA61/CSIRO Summer Scholarship of \$6,000.

Umair's research project will be developing an early warning system using wearable sensors that can inform health practitioners if a patient's health condition starts to deteriorate and the need for appropriate action.

His FedUni supervisors for the project will be Andrew Stranieri and Venki Balasubramanian and co-supervised by DATA61's Arkady Zaslavsky.

Assoc Prof Stranieri said "the DATA61 Summer Scholarships provides students with opportunities to develop and grow their research skills while working on a real project and will be a valuable experience for Umair as it has been for other FedUni students in the past".

FoST researcher patents new research on Biodiesel Compositions and Methods of Use

Congratulations to **Larissa Koroznikova** on the successful negotiation of a provisional patent application for her research into Biodiesel Compositions and Methods of Use. The research is directed to the processing of mined materials including organic compounds (such as coal) and inorganic compounds (such as minerals). In particular, but not exclusively, the present invention is directed to biodiesel compositions and uses methods for separation and/or recovery of a mined material such as coal. The process has shown efficiency of greater than 10% than current methods.

Larissa is a lecturer in metallurgy in the Faculty of Science and Technology and works closely with a number of mining companies and peak bodies.

If you would like to find out further information on the patent research please contact [Larissa Koroznikova](#).

FoST researchers to participate in ON Prime 2 Melbourne

Dr Venki Balasubramanian and **Assoc Prof Andrew Stranieri** conduct health informatics in CIAO and have successfully applied to be part of the ON Prime program (<http://bit.ly/2kqjrAC>) which is run through the CSIRO. The program assists research teams to validate their research and discover a real work application. The program provides access to experienced facilitators and business and entrepreneur mentors. There are a series of workshops which culminate in a Showcase event that profiles and assesses the team's readiness to apply for further support through the ON Accelerate program.

Dr Venki Balasubramanian said "The On Prime 2 will provide valuable support for our research on a real-time patient monitoring system and application for wearable sensors and we look forward to participating in the program and working with the mentors."

Rare tree planted in the Botany Garden

The Faculty of Science and Technology maintains several gardens at Mt Helen for teaching Environmental Science and Conservation, including the Botany Garden, located near F Building and the Graeme Ambrose Rainforest Garden, which occupies the impluvium within S Building. The Botany Garden has recently been the fortunate recipient of an extremely rare Australian species, a 'living fossil', the gift of one of our doctoral candidates, Ashley Olson.

Wollemia nobilis is one of the rarest trees in the world, having only been discovered as a living tree in 1994 in the Blue Mountains, NSW. Previously this genus was only known from 2-million-year-old fossils from Tasmania. Fewer than 30 trees still exist in the wild, some over 500 years old. To preserve the species, cuttings were taken and distributed widely throughout the world.

Ashley Olson, a FoST PhD student, has been growing a specimen of *Wollemia nobilis* for the past 10 years, and donated it to the University, for the Botany Garden. Wendy Cloke, assisted by Engineering student Tim Milenkovic and grounds staff from Facilities, planted this magnificent 3-metre tree in the Botany Garden, where it will become an important element of the Australia Flora course in the Environmental and Conservation Science program.

Fadi Charchar receives major NHMRC funding

Prof Fadi Charchar received funding from the National Health and Medical Research Council (NHMRC) for a major research project on 'Y chromosome mechanisms in coronary artery disease'.

Collaborators in the project are from the University of Melbourne, Leicester, Manchester UK and MIT, USA. The project will be funded over three years.

"The Y chromosome determines sex in men and until recently was not thought to contribute to heart disease. We previously found a specific type of Y chromosome that does contribute to heart disease." The current project plans to find the exact gene and mechanism in the search for a therapeutic target.

Royal Australian Chemical Institute (RACI) award



Prof Clifford Jones, an adjunct in FoST since February 2015, was awarded a Citation by the Royal Australian Chemical Institute (RACI) for his services to chemistry and the chemical

profession at their annual awards ceremony on 18 November. It was the 55th such award made since they came into existence in the 1980s. Clifford's main interests over the years have been in fuels and combustion and his extensive publications list includes 23 books including one on lignites launched recently at the opening of the CCS laboratory by Darren Chester MP. Clifford worked full time in Australia over the period 1978-1995, latterly at UNSW, before returning to the UK where he was at the University of Aberdeen. Clifford is now emeritus there. Clifford worked for the former SEC in Melbourne for four years in the 1980s, and has kept up an interest in low rank coals in all of the posts he has had since.

Funding received for the Gippsland Lakes

Dr Jess Reeves has received funding from the Victorian State Government for the Gippsland Lakes through the Gippsland Lakes Coordinating Committee. This funding is part of a suite of works associated with maintaining or improving the health and environmental values of the Lakes as a component of the Ramsar Management Plan.

The funding is for a pilot study on the potential of mobilisation of heavy metal contaminants from the sediments of the Lakes. The areas of focus are the fringing wetlands of Lake Wellington and the deep anoxic zones of Lake King. The research follows on from the identification of heavy metals in the lake sediment in PhD student Adam Trewarn's project. Dr Keryn Roberts from Monash University will be employed as a post-doc to undertake this work. Keryn will commence in mid-May and will be based in Churchill.