



iPREP WA PRESENTATION EVENT

ROUND 2, 2019





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ABOUT iPREP WA

Connecting Researchers and Industry

THE CHALLENGE

With under 40% of PhD graduates obtaining employment in academia (graduatecareers.com.au), there is a need to equip them with competitive skills for industry and government organisations. Industry feedback suggests universities need an increased focus on developing non-technical skills in their doctoral candidates to prepare them for a wide range of future careers.

THE INNOVATION

iPREP WA is a unique collaboration between the five WA universities. iPREP WA has been established for PhD candidates who may not have had previous industry engagement opportunities. They participate in an induction program focussed on business skills, prior to commencing a six-week team project under the supervision of an industry mentor. The teams share the outcomes of their project with the industry partner at the conclusion of the program through a formal presentation, written report and other deliverables.

THE PROJECTS

iPREP WA projects focus on solving authentic workplace problems. Projects range from blue sky design thinking to highly technical projects. Examples include:

- Concept design
- Pilot study
- Needs assessment
- Review market trends
- Create or test a product

- Develop or evaluate a service
- Prepare a publication
- Apply for a grant or tender
- Program evaluation
- Feasibility study

THE PhD CANDIDATES

Participating PhD candidates are in the late stages and hence possess extensive research expertise. The PhD candidates gain greater and more diverse career opportunities through developing skills and experience in:

- Business acumen
- Project management
- Strategic problem solving
- Interdisciplinary teamwork
- Leadership

THE INDUSTRY PARTNERS

Industry partners range from start-ups and SME's through to large corporations and government departments. The industry partners benefit from:

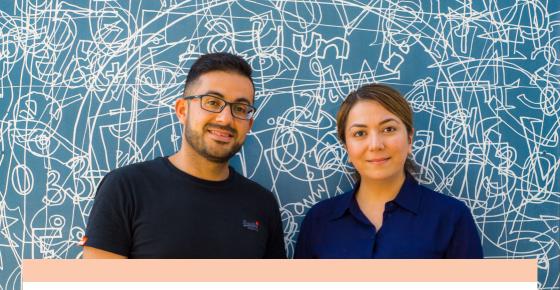
- Value for money consultancy from an interdisciplinary team of experienced researchers
- Innovative, creative and credible solutions to problems
- Increased engagement with WA universities to optimise knowledge translation from research outcomes
- Potential to recruit outstanding PhD graduates

THE FUTURE

Through a regular program of industry based projects, iPREP WA will maximise benefits for PhD candidates, industry partners and the universities of Western Australia.

If you would like to become involved in iPREP WA, further information can be obtained by:

Email: iprepwa@ecu.edu.au Website: www.iprep.edu.au



LACONIK

Mentors: Darren Hughes, Wayne Pluske, John McGreadie

Students: Araz Solman, Nazanin Nourifard

Project Title: Using data to improve fertiliser decisions

Laconik's vision is to improve fertiliser use. We are developing technology to improve farm productivity and reduce the harmful environmental effects of excessive fertiliser use. There is a global opportunity for technology to help farmers decide how much fertiliser to apply.

The iPREP candidates worked on a real problem that is currently restricting the profitability of Australian farmers. Using machine-learning principals and algorithms to accurately predict grain yield, they analysed a database containing historical crop yields to accurately predict the fertiliser requirements of wheat, barley and canola. In summary, the iPREP candidates reviewed and presented solutions to improve Laconik's products and developed software to collate and analyse data for generating maps.

Araz Solman

My PhD bridges the gap between the heterogeneity of plant diseases and the emerging field of molecular pathology. It uses a three-way system, consisting of the wheat host and two fungi, and a range of techniques relating to plant pathology and histology, as well as advanced molecular biology and cytology to study the progress of disease and pathogen interactions in wheat plants co-infected by two major fungi.

What were your motivations for studying a PhD? To learn how complex field-like systems work when more than one pathogen challenges a host.

What is one skill that you excel at? Handling complex data.

What is your ideal profession? An entrepreneur.





Nazanin Nourifard

I studied the effects of stress magnitude and stress rate on elastic properties of reservoir rocks. I designed and developed experiments to: (i) examine the dynamic and static elastic moduli of reservoir rocks; (ii) quantify the effects of wave amplitude on the longitudinal and transverse velocities in porous media; and (iii) investigate the anisotropy of sandstone subjected to stress in dry and saturated porous media. The results will have a wide range of applications from reservoir simulation to hydrogeology and safety of underground structures.

What were your motivations for studying a PhD? A deeper understanding of physical interactions at micro scale inside porous media.

What is one skill that you excel at?

Design and conduct independent research and communicate the technical results to a wider audience.

What is your ideal profession? Consultant.







SOUTH METROPOLITAN HEALTH SERVICE

Mentor: Chloe Goodred

Students: Wissam Chiha, Grant Rowe

Project Title: Improving metabolic health for people with serious mental illness, and Designing and implementing "pre-habilitation" for lung cancer patients awaiting treatment

People diagnosed with lung cancer have poor outcomes compared to other cancers, with wait times for treatment ranging 4-10 weeks from the first specialist appointment and diagnosis to initiation of treatment. There is strong evidence to support the contention that people who optimise their health prior to treatment have better heath and clinical outcomes. The iPREP project focused on developing and optimising current pre-habilitation protocols and explored implementation possibilities in the south metropolitan area.

Key project activities included:

- Exploring and defining the issue, including analysis of the current service model;
- Stakeholder consultation and engagement, including consumers (patients), clinicians, community service providers and others;
- Identifying and developing clinically appropriate pre-habilitation guidelines and local referral pathways/support options that SMHS can deliver in partnership with community-based service providers, including methods enabled by digital technology;
- A final report outlining recommendations and implementation options for SMHS.

Wissam Chiha

My PhD research adds to our understanding of pathophysiological sequel of secondary degeneration in soma and axon and the effect of targeted neuroprotection. These findings are significant because they provide a foundation for understanding the CNS response to secondary degeneration, a common feature in several traumatic models and disease states.

What were your motivations for studying a PhD? I wanted to unravel the complexity of the human brain. Despite our technological advances, people are still suffering from neurodegenerative disease and neurotrauma. I wanted to be able to make a difference to the quality of their lives.

What is one skill that you excel at? I excel at science communication and public speaking in general.

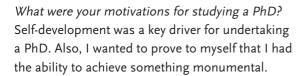
What is your ideal profession? Develop new therapeutic drugs for a pharmaceutical company.





Grant Rowe

Unilateral or single muscle group training is widely known to provide a stimulus to the homologous muscle(s) of the contralateral limb, referred to as the cross-transfer effect. Over time, the cross-transfer effect enables the homologous muscles of the contralateral limb to get stronger without exercise. However, the effectiveness of the phenomenon has not been investigated following a previous training period. The findings of this research will have important practical implications for rehabilitation settings.



What is one skill that you excel at? Listening to others.

What is your ideal profession? Teaching (or anything where I work with others).







VERATIN

Mentors: Chris Fairman, Ramiz Boulos, Daniel Kollehn

Students: Poe Nander Kyaw, Omar Al Awad, Rahil Malekipoor

Project Title: Verigrow – Fertiliser and Soil Conditioner Made from Waste Wool

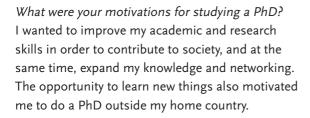
At Veratin we strive to innovate the Australian wool industry and have developed Verigrow® as the world's first fertiliser and soil improver using novel technology for the extraction of amino acids from waste wool. As we are seeking to expand our product range, the students were tasked to develop a new evidence-based competitive potting mix range based on Verigrow™ as a bio-based nutrient source.

It was a pleasure to work with such high-calibre students, who have shown great dedication and skill in applying their knowledge of soil composition and plant nutrition, whilst working together as an efficient team. It was a great opportunity to once more experience how commercial enterprises can benefit from collaborating with academia to drive Australian ingenuity.

We highly value the IPREPWA program and its energetic team and look forward to participating in future programs.

Poe Nander Kyaw

Horticultural crops such as stone fruits are highly perishable and tend to overripe and spoil within a week after harvest. This limits their domestic and international trade potential and leads to massive food waste. Delaying the ripening or ageing process of horticultural crops will allow more crops to reach end users, reduce food waste and maximise growers' profits. My research aimed to develop user-friendly applications of new compounds that will postpone the ageing process of crops and impact positively on the production chain of horticultural crops.



What is one skill that you excel at?

Adaptation and communication - I have been away from my parents since my early teenage years for the sake of a better education. I am now about to complete 4 years of study in Australia that involved dealing with people from different cultural and academic backgrounds.

What is your ideal profession?
One that allows me to make the greatest possible contribution to society and my personal growth.
One where I can implement all my skills and knowledge.





Omar Al Awad

Canola is a major oil crop that is sensitive to soil ammonium concentrations. The objective of this thesis was to characterise the resistance of canola genotypes under varying soil ammonium concentrations at various growth stages, and to evaluate strategies to mitigate ammonium toxicity. The thesis identified the relative sensitivity of canola genotypes and demonstrated that ammonium toxicity can be alleviated by increasing the proportion of nitrate in the mixed ammonium nitrate supply and by adding oil mallee biochar at the rate of 20 t/ha.

What were your motivations for studying a PhD? I did my PhD because I was interested in studying the effects of NH4+ toxicity on the growth of canola. The research enabled me to discover information on the management of N fertilizer to minimize NH4+ toxicity in canola and how to increase the resistance of sensitive genotypes to ammonium toxicity. My goal is to develop my scientific knowledge within agriculture, as agriculture is a very important discipline.

What is one skill that you excel at? Teamwork

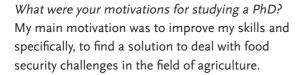
What is your ideal profession? Researcher and lecturer.





Rahil Malekipoor

My research was motivated by a desire to increase consumer awareness and concerns about the influence on human health of chemical compounds used in food industries, leading to a growing demand for organic food without consequences for humans and the environment. We need to find new improved alternative methods of organic farming systems and therefore my research assessed the efficacy of two organic compounds for reducing post-harvest fruit losses, delaying the ripening process and retaining quality.



What is one skill that you excel at?

Multi-tasking, conducting experiments, undertaking data analysis, reviewing documents to develop ideas and finding practical solutions for identified problems.

What is your ideal profession?
My ideal profession is to work as a researcher or an engineer in a company where I can collaborate effectively, use my abilities and enhance my current skills.







LANDGATE

Mentors: Jorgen Mackie

Student: Toto Olita, Enrico Ianni, Srimin Perera

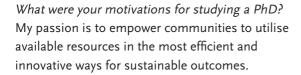
Project Title: Future Quality and Standards in Property Valuation

The Western Australian Land Information Authority is a statutory authority that operates under the business name of Landgate. As the guardian of property ownership in Western Australia, Landgate is the custodian of the state's location information asset. Our role underpins the economic security and prosperity of the state and citizens of Western Australia.

The iPREP project identified whether the two current standards used by Landgate's Valuation & Property Analytics business, Coefficient of Dispersion (COD) and the Median Value Price Ratio (MPR) tests, as well as other quality mechanisms are fit for purpose in our environment, and investigated appropriate measures of quality in computer-assisted mass valuations.

Toto Olita

The cost of providing environmental services by private landholders is often highly uncertain. However, standard bidding models for conservation tenders often ignore this uncertainty. As a result, they fail to suggest suitable mechanisms to reduce the negative impact of cost uncertainty. The study contributes to this knowledge gap by developing an optimal bidding model for a conservation tender and analytically explore the impact of an insurance mechanism which offers income protection in the event of a loss. The research found that with an actuarially fair premium, an insurance mechanism lowers optimal bids and potentially improve the cost-effectiveness of a conservation tender.



What is one skill that you excel at? Listening to people.

What is your ideal profession? Humanitarian.





Enrico Ianni

Due to its thermodynamic, hydrogen- specific weight and volumetric properties, NaAlH4 is a promising solution for storing hydrogen in vehicular applications. However, NaAlH4 suffers from slow hydrogen absorption/desorption kinetics. A simple and cost-effective method for the synthesis of porous Mg and Ti-enriched porous Al scaffolds was developed — NaAlH4 was meltinfiltrated inside the porous Ti-enriched Al scaffold to investigate the combined effects of catalysis and nanoconfinement on its hydrogen desorption kinetics and thermodynamic properties.

What were your motivations for studying a PhD? Interest in renewable energy, enhancing my knowledge and learning new skills to use in future projects.

What is one skill that you excel at? Critical thinking and data analysis.

What is your ideal profession?

Data scientist or scientific instruments developer.





Srimin Perera

My study investigates the factors that influence Perth homeowners' choices of heating and cooling features in the design of their homes, in response to their high energy usage. The findings signal a need to provide homeowners with recommendations for more energy-efficient design features and building techniques.

What were your motivations for studying a PhD? Personal interest/goal. Flexible lifestyle for family while achieving career progression.

What is one skill that you excel at? Research skills.

What is your ideal profession? Working in the industry utilising my research skills and interests.







ECU BUSINESS GROWTH & DEVELOPMENT

Mentor: Caroline Shepherd

Student: Erchuan Zhang, Ngan Vo, Jonas Klutsey

Project Title: ECU's Customer Experience (CX) Research Project

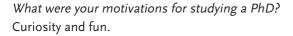
The ECU CX Research Project delivered on ECU's Strategic Goal 4 to ensure organisational sustainability by analysing the current and future student experience with professional services provided by the Business Growth and Development Directorate.

The project enabled us to understand the end-to-end student experience by analysing all aspects of interactions, including but not limited to service, resolution, culture, channels, people, processes, systems and technology. A data collection tool was developed and populated with a unique data set which was analysed so that the iPREP team could identify and document pain points, derive insights and recommend initiatives.

The final report provided by the iPREP team provided the pillars for a future ECU Customer Experience Framework that will be used to drive the organisation's Customer Experience Vision and Ambition.

Erchuan Zhang

Have you ever wondered why a water drop is the shape it is? Have you ever wondered how to construct a beautiful surface of the cup? Have you ever dreamed about controlling the movement of a robot? My PhD aims to understand the complicated yet fascinating world of mathematics, specifically, uncovering formulae, equations and theories behind optimal surfaces and curves. For example, revealing differences between two images, finding the optimal trajectory of robotic movement or inferring missing data from information provided.



What is one skill that you excel at? Problem solving.

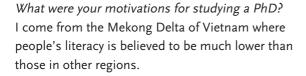
What is your ideal profession? Teaching and research in mathematics.





Ngan Vo

Given the key role played by Information and Communications Technology (ICT) and English as a Foreign Language (EFL) in Vietnamese educational reforms, the process of implementing ICT into a pre-service EFL teacher education program is investigated. This mixed method case study explores and analyses ICT national policy for EFL teaching and learning, ICT implementation, and EFL lecturers' and pre-service teachers' perceptions and practice of the TPACK framework. The findings from the study will contribute to existing knowledge on ICT integration into EFL teacher education, help create guiding principles for successful ICT implementation and support educational managers in making informed decisions related to ICT policies in EFL education.



What is one skill that you excel at? Data analysis and problem solving.

What is your ideal profession?

After completing my PhD study, I plan to contribute to linking education-scientific research and commercialisation in my hometown.





Jonas Klutsey

Regional development disparities dominate contemporary development literature, particularly in developing countries. I ethnographically explored the factors contributing to northern Ghana's underdevelopment from the perspectives of 61 participants, underpinned by climate theory of underdevelopment; imperialist theory of development; neoliberal development theory and bottom-up development theory. The findings pointed to fundamental endogenous challenges to implementing Sustainable Development Goals. Overcoming the barriers will require value reorientation and a significant investment by central government to develop infrastructure and support local government units.

What were your motivations for studying a PhD? I see a PhD as an opportunity to develop my research competencies to be in a position to contribute relevant and evidence-based solutions for dealing with the dynamic needs and challenges in society.

What is one skill that you excel at? Writing.

What is your ideal profession? Teaching.







MALDI-ID

Mentor: Sofie De Meyer

Student: Albert Amankwaa, Tafesse Estifanos, Rusianti Amat Sugio

Project Title: A world view on aquaculture - where are the growing markets for

BACTO-ID?

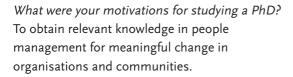
MALDI-ID is a start-up business specialising in identifying micro-organisms for farmers, medical practitioners, the food industry and researchers. BACTO-ID focuses on identifying a large range of bacteria in the aquaculture environment helping to establish effective monitoring systems and prevent outbreaks, reducing production costs and increasing profit margins.

The iPREP WA team investigated international markets where BACTO-ID could be implemented. They identified the geographical areas where aquaculture is important and presented an overview of the industry in those countries, in addition to providing recommendations that can lead to future opportunities.

"Although coming from very different backgrounds and minimal aquaculture experience, the iPREP team quickly settled in and has been a delight to work with. They offered us the missing hands we desperately needed to do the international market analysis, and due to the support of Narelle and her team, we have been able to achieve far more than what we expected. I recommend every business, whether large or small, to participate!" Sofie De Meyer, Director, MALDI-ID

Albert Amankwaa

My thesis explored specific antecedents and outcomes of employees' job embeddedness in the Ghanaian hotel industry. The study found that employees' perceptions of organisational support and transformational leadership are fundamental, and that without job embeddedness, organisational and managerial strategies neither promote innovative behaviour nor address employee turnover. This empirical evidence should encourage hotel managers and HR practitioners to focus on strategies that enhance desirable work relations and align employee goals to that of the organisation in order to foster organisational innovation and employee retention.



What is one skill that you excel at? Interpersonal skills.

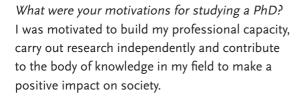
What is your ideal profession? Lecturing and corporate consultancy.





Tafesse Estifanos

Biodiversity is severely threatened by human actions because its economic value is often poorly understood. My PhD thesis evaluates public preferences and the economic benefits of conserving the endangered Ethiopian wolf in protected areas. The findings identified the support of tourists and residents in protecting the species. Ethiopian national parks also have a positive effect on total household income. The findings of this research are expected to mitigate the conflict between land use for preserving biodiversity and residential use, and inform policy decisions that will be of benefit to biodiversity and communities alike.



What is one skill that you excel at? My PhD training equipped me with the best research experience in problem-solving and analytical skills in environmental valuation.

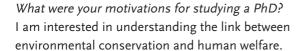
What is your ideal profession? Environmental research scientist in applied economics that involves the valuation of property and environmental assets while undertaking research with professionals.





Rusianti Amat Sugio

My thesis focuses on how marine protected areas (MPAs) impact on food security. The results indicate that food security of communities living around MPAs, particularly Karimunjawa National Park, is relatively good since they have access to sufficient micro and macro nutrients. 'Fishing down the food web' has not occurred in this MPA, as most fishers target high trophic fish. Major socio-economic factors that impact on residents' food security were found to be education and food production.



What is one skill that you excel at? Conserving the environment.

What is your ideal profession? Environmental Social Scientist.







SOUTHERN CROSS CARE (WA) INC.

Mentors: Tracey King, Rejane Le Grange

Student: Bronwyn Wilson, M-Muriel Hillion Toulcanon

Project Title: What is healthy ageing?

Southern Plus was created in response to the need for the next generation of aged care services. The marketplace for aged and health care is changing, and we continue to look for innovative ways to deliver the desired outcomes.

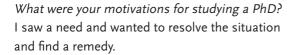
The project has helped us understand the "social values gap" about exercise and good health amongst our ageing population. The team conducted interviews with our clients to examine location preferences for education and exercise programs.

The iPREP WA team investigated:

- What seniors today perceive to be healthy ageing;
- Why seniors desire to live independently at home, despite declines in health and frailty;
- What appropriate services are needed for seniors to enjoy a healthy ageing experience so that they can maintain their independence, health and wellness? They also designed a range of services to suit various health needs;
- Accessibility where would they prefer to undertake education and health activities?
- Affordability what are they willing to pay for services?

Bronwyn Wilson

My thesis investigates adults with autism, their close relationships and interactions within relationships. I developed a model illustrating how adults who do not have autism prompt for reciprocal interaction, since adults with autism frequently avoid reciprocal interaction. My research confirms that dependence on these prompts evolves into a communication cycle that becomes an interlocked, constant and unresolvable power struggle to meet individual needs. This research will assist developers of educational programs, clinical interventions and classroom support to bridge the knowledge gap that currently exists between service providers, the community and those involved in these relationships.



What is one skill that you excel at? Writing.

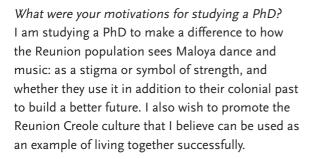
What is your ideal profession? Writing books and policies.





M-Muriel Hillion Toulcanon

Maloya is a multicultural art form and gathering of ancestry, slavery, resistance, resilience and reconnection. The importance of acknowledging the past and passing on this art form from one generation to the next is significant. In 2009, Maloya was recognised by UNESCO as having intangible cultural heritage value. In my research I argue that Maloya embodies the spirit of the Reunionese identity and investigate how this powerful symbol of freedom from colonial oppression is a celebration of multicultural, contemporary, postcolonial La Réunion. I explore how performing Maloya dance and music contribute to performing Reunionese identity/ identities



What is one skill that you excel at? Leadership.

What is your ideal profession?

My ideal profession involves creativity, leadership, goals and flexibility: Project Manager or Consultant.





GET INVOLVED WITH IPREP WA

Industry Partners

Do you have a business problem to solve or an opportunity to address? Could your organisation benefit from university expertise? Do you want to expand R&D capacity on a tight budget?

iPREP WA supports research engagement between the universities and industries of Western Australia. The program involves interdisciplinary teams of PhD students, from all five WA universities, working on a 6-week project with an industry partner. Industry Partners are expected to submit a short project outline that can be further scoped once students are selected, provide a mentor from the organisation who is available during the program, and provide space for the team at your workplace.

We offer two different levels of engagment for industry partners who wish to be involved with the iPREP WA program.

\$10,000 + GST PARTNERSHIP

- Team of 3 PhD students for 6 weeks full-time
- Prominent position of logo and link to company website on iPREP WA home page, industry partner page and promotional materials
- Project profile and short video on iPREP WA website
- Opportunity to include flyer in Induction pack
- Banner to be displayed at final celebration event

NOT-FOR-PROFIT & STARTUP SPONSORSHIP OPPORTUNITY

- 50% off for eligible startups and not-forprofits (\$5000 + GST)
- All applications will be assessed for the reduced fee

TAKE PART IN IPREP WA

PhD Candidates

WHY PARTICIPATE IN IPREP WA

- Diversify your career opportunities
- Develop new networks and contact
- Gain new skills in project management, team work, interdisciplinary problem solving, business awareness and leadership
- You may be eligible for a \$3000 scholarship

ELIGIBILITY

- Enrolled as a PhD candidate at a university in Western Australia
- Applicants should have submitted their thesis for examination prior to the program commencement but their degree must not be conferred before the end date of the program
- Domestic students who have completed 2 EFTSL of their research degree program may also be eligible for iPREP WA
- Must be available to complete the project on a full time basis during the scheduled six-week program

Student guidelines and online application form are available on the iPREP WA website. Check back to see when applications open: www.iprep.edu.au

INDUSTRY PARTNERS









Government of Western Australia South Metropolitan Health Service







Southern Cross Care[†](WA) Inc.

SUPPORTERS



















Special thanks to:

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