

FULLY FUNDED PhD SCHOLARSHIP OPPORTUNITY IN AUSTRALIA

The Malaysia Automotive Institute (MAI) in conjunction with the University of South Australia (UniSA) have established a joint Automotive Innovation Centre (AIC). This centre undertakes advanced research and training around the future of “mobility”, looking at the scientific, engineering, social and environmental factors that will drive the next generation of innovations in the automotive industry. Our research covers areas from nano-molecular engineering and functional surfaces to consumer choice and the levers driving future government policy in this sector.

A key component of the collaboration is the training of Malaysian PhD students in disciplines from science and engineering to business and health sciences. Under this program, students will work closely with industry/government (both in Australia and Malaysia) to contribute to thought leadership in key strategic areas of relevance to transportation and mobility.

We are now seeking highly motivated Malaysian students with out-standing academic records to undertake a PhD in Australia as part of the AIC collaboration. These prestigious, fully funded scholarships will enable you study for a PhD at the University of South Australia, working with our world-class researchers.

Scholarship:

This scholarship will cover the costs for international students looking to undertake a PhD research degree at the University of South Australia. The scholarship will cover;

- your tuition fees,
- your standard overseas student health cover (single), and
- provide you with a living allowance/stipend at the current University rate of AUD\$27,082 per annum (2018 stipend rate). The PhD will be for 3 years (an additional 6 months may be available under special circumstances)
- For outstanding students, an additional top-up amount to the living stipend will be considered

To be eligible students will need to meet the following criteria:

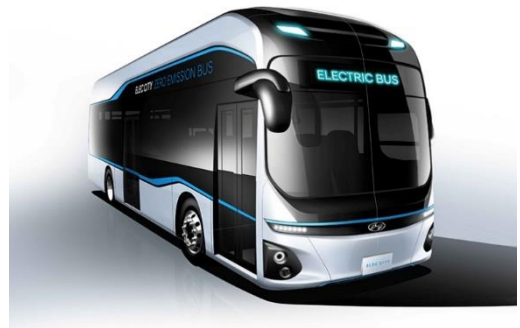
- Be Malaysian Citizen
- Achieved a graduating CGPA of at least 3.5 or higher out of 4
- Completed either an undergraduate degree (H1) and/or about to complete a Masters by research degree in a related area
- Have either a material science/engineering or business/econometrics background
- Must be willing to return to Malaysia to work in industry at the conclusion of the PhD
- PhD studies must be undertaken in Australia at the University of South Australia
- Some domestic/international travel may be required
- Meet UniSA scholarship entry and English Language requirements (IELTS overall 6.5 – 7 with Reading and Writing at not less than 6.5) or equivalent

PROJECT 1: *Towards An Electric Vehicle Future: A study of graded thin film coatings for IR reflectivity in the energy efficient vehicles of the future*

Location: University of South Australia, Future Industries Institute, Mawson Lakes, Adelaide, South Australia, AUSTRALIA

With the transition towards an electric vehicle future, vehicle weight is of paramount importance in delivering maximum range from battery systems. For this reason, polymer based window materials are highly attractive as a replacement for traditional glass windows. To be a high value add product however, the polymer windows need additional functionality to impart benefits for the end user, such as increasing vehicle range through keeping the vehicle interior cooler and thereby requiring less utilization of the air-conditioning system.

After the drive train, the air-conditioning system of a vehicle is the major consumer of energy and is an essential and integral part of all modern vehicles. Current window tinting is highly effective at reducing visible light transmission through windows, and whilst it can also block some of the infra-red spectrum, it does not actively reflect this radiation away from the window. Rather the IR is predominantly absorbed within the glass and then re-radiated as long wave radiation, both into and away from the vehicle. This results in the vehicle interior heating up, causing the air-conditioning system to work harder and consuming more energy.



To overcome these challenges, it is possible to apply a thin film coating system to the polymer to actively reflect IR radiation, whilst transmitting high levels of visible light. This coating system must impart properties such as abrasion resistance, IR reflectivity and environmental durability from -40C to +80C. The great challenge in designing and applying these coatings is to achieve long term adhesion between thin layers (usually <100 nm). The boundaries between layers with different material properties is a potential point of weakness and is responsible for the vast majority of coating failures. This project aims to study the potential of creating graded interfaces between materials whilst retaining the optical performance of the coating. This would eliminate sharp boundaries between materials and eliminate a potential point of coating failure. During the course of the project, the stability of the graded interface will be studied using a range of surface characterization techniques including SEM, TEM, XPS and AFM. This information will then be used to design and engineer highly robust graded coatings able to survive the extremes of real world conditions.



PROJECT 2: *Discrete Choice Methods for understanding and predicting the adoption and diffusion of new transport technologies and services*

Location: University of South Australia, Institute for Choice, North Sydney, New South Wales, AUSTRALIA

The Institute for Choice, University of South Australia is seeking applicants interested in pursuing a Ph.D. in discrete choice methods and their application to the adoption and diffusion of new transport technologies



and services. Recent advances, such as the development of autonomous vehicles (AVs), the invention of unmanned aerial vehicles, the growth of shared mobility services, and the commercialization of alternative fuel vehicle technologies, promise to revolutionize how humans travel. The implications are profound: some have predicted the end of car dependent societies, others have portended greater suburbanization than has ever been observed before. This research will seek to understand how different agents will engage with these new

systems and services, and what will be the consequent economic, social and environmental impacts of their decisions.

This will be a 3- to 4-year doctoral program conforming to the general requirements of the University of South Australia and further conditions imposed by the Institute for Choice. Candidates should be aware that formal graduate-level foundational and specialist coursework will be required. Candidates with strong mathematical skills, some experience in computer programming, and an interest in econometric methods are especially encouraged to apply. The Institute has a strong research environment and is deeply committed to world-class research performance. It is expected that the individual selected for this program will be highly competitive in the academic job market after completing this program.



IF YOU ARE INTERESTED IN APPLYING FOR ONE OF THE PHD POSITIONS LISTED PLEASE SEND A COVER LETTER, CURRENT CV/RESUME, COPIES OF UNDERGRADUATE AND POSTGRADUATE ACADEMIC TRANSCRIPTS TO;

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Applications close: 30th November 2018
Suitable applicants will be invited for Interviews