

EXCITE

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News from the School of Engineering, Design and Built Environment.

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Message From The Dean



Dear Colleagues,

It is with immense pride and sadness that I welcome you to this edition of the Excite Magazine. I will be departing WSU at the end of June 2023 to take up the position of Pro-Vice Chancellor Research and Business Innovation, at De

Montfort University in the UK. Therefore, this is the last edition for me!

The last three and a half years have been some of the best I have experienced as an academic leader in a University setting. I have been fortunate enough to work with excellent people in the school and across the University, committed to our students and to each other and making sure that everyone of us contributes to the future generation of Western Sydney and beyond. We did this by creating a larger and more cohesive School of Engineering, Design and Built Environment, allowing us to capture the whole built environment from conceptualisation (e.g. Architecture) to delivery, operation, and maintenance both in teaching and in Research, with new programs and new research centres and capabilities. We now have Design embedded in the School. We have addressed gaps in our curriculum in significant areas of sustainability and advanced manufacturing and now creating a significant number of Micro-Credentials, addressing direct industry needs, with partners. Our engagement with the new model and pilot of the Institute of Applied Technology in Construction is going from strength to strength with our first delivery coming soon. Massive future scope and potential. We have also fully embraced partnership pedagogy by engaging closely with students and industry across all our activity, working in unison with industrial colleagues across our external advisory boards, the implementation of the National Priorities and Industry Linkage Fund (NPILF) seeing most of our programs redesigned with increased currency and relevance to an ever-emerging place of work. We have undergone a number of Australasian accreditations as well as adding international accreditation, enhancing our focus in making us relevant and impactful globally.

Our engagement with industry, schools and our STEM and Indigenous communities has been exemplary with new approaches, such as the ASPIRE program and an increase of our indigenous students of more than 15% this year. We have engaged productively with a number of industrial companies and other organisations such as the Powerhouse Museum development in Parramatta and the new Airport in Western Sydney. I am impressed by the way colleagues in the School and across the University have embraced innovation and always seeking improvements to what we do. This is also true in research where we have completely reshaped our research environment and the platform within which we operate, allowing focus and growth, whilst addressing real needs with solution and innovations in materials, processes, technologies, digital environments, among many. I am incredibly pleased that 2022 was our most successful year, yet.

This issue provides further examples of the excellent work in the school, of the community of academic and professional staff, working with outside partners and stakeholders in making our world a better place. It is no surprise that the University was ranked No.1 in the world (out of more than 1700 global Universities), for a second consecutive year, in the THE Impact rankings for the University's commitment to the United Nations Sustainable Development goals (UNSDGs). I am proud of the University and the contributions that the School of Engineering, Design and Built Environment has made towards this achievement. It has been a privilege and an honour to have been part of this journey and whilst I will miss everyone, I know that the School and the University will keep on going from strength to strength. Onwards and Upwards!

Best Wishes
Mike



The Buzz

Career Night

The School Engagement team participated at St Gregory's College Catholic School Career Night event at Campbelltown. Associate Dean Engagement Professor Olivia Mirza was asked to give a presentation about her interesting life as a women engineer. She represents as President for Engineers Australia and another as Associate Dean Engagement for School of Engineering, Design and Built Environment, Western Sydney University. It was such a momentous event, so good to see over 100 students with their parents interested in Engineering and our team had the opportunity to talk to their families. They were impressed with WSU engineering and the university facilities.

A big thank you to the engagement team, Belinda Ruiz and Emily Gilligan, solar car team Kartik Kumar, Leigh Sheppard for showing spot to the student.



Teaching and Learning

Autumn semester classes have finished and the final exam is in full swing. The School has now pivoted to face-to-face exams, after running online exams since the beginning of the COVID-19 pandemic. The relative calm of the COVID-19 pandemic also brought many face-to-face activities back on campus. These activities provided opportunities for the students to interact with peers and academic staff as well as industry experts.

The co-design exercise as a part of the National Priorities and Industry Linkage Fund (NPILF) is going from strength to strength. The School is way ahead and will easily meet its target of co-designing two-third of all the programs it is responsible for.

I wish best wishes to all the students who have worked so hard during this semester. I am confident that all students and staff will be able to take the well-deserved break and be back on time with new strength and vigour for the Spring semester.

Staff News

Success of Unnati Research Collaboration Grant 2023

This grant application was led by Dr. Dharma Hagare, Ms. Jen Dollin and Dr. Susan Germein. The grant is to support collaborative project, "Making village groundwater visible: Outscaling MARVI" and is valued at \$29,800. This is a grant funding from Australian Government Department of Education administered by Australia India Institute. The main objective of this grant is to enhance the research collaboration between Australia and India.

The project, Managed Aquifer Recharge and Sustaining Groundwater through Village-level Intervention (MARVI) commenced in 2012. The current project aims to expand its application to Maharashtra, Uttara Pradesh and other parts of Gujarat. The project will help refine the process of outscaling the MARVI approach under different hydrogeological and socio-economic conditions. The results of this study will be used to further engage the state governments, NGOs, and village communities for outscaling the approach at a larger scale.



Research News

We are delighted to announce the School's Research Awards 2023, a celebration of outstanding achievements in academic research performance and collaboration. The Research Awards serve as a platform to recognize and honour those researchers, HDR students and research teams who have demonstrated excellence in their research endeavours. This year, the Awards were presented in a total of 12 categories. Among these, 4 categories were dedicated to recognizing the exceptional contributions of our HDR students, and 7 categories were specifically designed to honour the remarkable achievements of our esteemed academics, in order to highlight their scholarly excellence. The diverse range of categories ensures that the School's Research Awards 2023 encompass a wide spectrum of research excellence.

The list of Awards and Awardees are as follows:

- Award for HDR Top 2022 Journal Publication Prize goes to S. M. Arifuzzaman & Mohammad Rashed Mia
- Award for Excellence in HDR Publication goes to Isaac Akomea-Frimpong
- Award for Excellence in HDR Study goes to De-Graft Joe Opoku & Qingtao (Edward) Huang
- Award for Honours' Top 2022 Research Publication Prize goes to Phan Quoc Khang Nguyen
- Award for Top 2022 Journal Publication Prize goes to Dr. Keivan Bamdad
- Award for Excellence in Academic Publication goes to A/Prof Kejun Dong
- Award for Early-Career Researcher of the Year goes to Dr. Robert Osei-Kyei
- Award for Mid-Career Researcher of the Year goes to Dr. Yingbin Feng
- Award for Researcher of the Year goes to A/Prof. Pejman Sharafi
- Award for Researcher of the Year through Industry Partnership goes to Dr. Mariam Darestani
- Award for Interdisciplinary Research Team of the Year goes to Modular Prefab Design Lab

- Award for Researcher of the Year through National and International Collaborations goes to Dr. Maria Rashidi

On 13 Jun 2023, we held our annual HDR Forum, including 3MT competition and annual progress review.
The 3MT awards go to :

- Winner and Peoples Choice: Parham Mohajerani, topic: Improving Flexural Performance of Moment-resisting Joints in Volumetric Modular Steel Buildings
- Runner up - Atousa Khazaie

Dean Prof. Mike Kagioglou presented the awards while Dr Christophe Camille shared successful PhD journey.



Engagement News



Women of Wisdom (WoW) from School of Engineering, Design and Built Environment, Western Sydney University organised a Speed Networking event last night. 20 Industry partners participated in the event. They include WSP, AW Edwards, Controfreq, Trazibat, NDY, Bechtel, Arcadis, MU Group, Acor, Aurecon, APG, SMEC, Lang O' Rourke, Building Innovations Australia, Turnbull, Hadron Group, Ventia, Hitachi, Shape and Mott MacDonald.

We had more than 120 students registered for the event. One of the aims of WoW is to retain and increase the visibility of women in the school. We presented awards for the 2022

Female Research Competition.

The winners are Kuer Duot (Winner), Christy Cheng (First runner up) and Yeukai Deshe (Second runner up). I would like to thank my team for their tremendous hard work and professionalism Alyce Coleman, Tharika Kahandawa Arachchi, Saman Karimi, Neelam Singh, Semandara Farhan, Kuer Duot and Yeukai Deshe for making this a very successful event.

Lastly I would like to thank Engineers Australia Regina Liao and Nahia Islam for the sponsorship.

International News

As ADI, I visited Vietnam in mid-May with the mission of promoting Engineering as the career of choice. I met with several outstanding institutions such as HCMC Uni of Technology, University of Architecture HCMC, Hanoi Uni of Science and Technology and of course our Vietnam Campus. A few articulation negotiations have already commenced. I also ran couple of training sessions for our agents and met with parents.

But the highlight of my visit was the sustainability lectures and hands-on engineering competitions that I conducted at two high schools. As the world number one, my lecture on sustainability was very well received. Each of these lectures and seminars was attended by more than 100 students.





Expert Corner

Developing Sustainable and Resilient Supply Chains Dr Peng Zhang

This project aims to develop sustainable and resilient construction supply chain capabilities, especially for SMEs in Australia to bridge the gap between supply chain capabilities and client expectations. The outcomes of this project would help the clients to achieve their sustainability goals and help Australian SMEs in the construction supply chain to build their sustainable and resilient capabilities and improve their competitiveness in participating in building and infrastructure projects. This study is co-designed and co-delivered with government and industry, which enables the outcome of this research to be directly upheld by industry practitioners.



Delivering Affordable and Sustainable Retirement Village Homes through Public-Private Partnership Dr Robert Osei-Kyei

Considering that the current Australian retirement village industry is stricken with many problems of which the major one is high cost of investment, there has been a call for the delivery of affordable and sustainable retirement village homes using the PPP concept. Collaborating with the Australian Retirement Village Association Ltd and international private investment companies, this research developed a framework for a successful implementation of PPP in delivering affordable and sustainable homes for the aged. The framework proposes appropriate risk allocation modalities and performance measures for using PPP in aged care homes delivery.

Unveiling Psychological Distress in the Construction Industry: Exploring Causes, Consequences, and Interventions for Australian Workers Dr Ali Al-Ashwal

This research project aims to comprehensively examine the psychological distress experienced by construction workers in Australia. The construction industry's demanding and high-stakes nature, combined with long working hours and the temporary nature of employment, expose workers to a range of challenges, including high stress levels, occupational injuries, and various psychological issues. These factors contribute to adverse outcomes such as increased stress, an increased risk of suicide, reduced productivity and safety, as well as higher turnover rates and absenteeism. Understanding the root causes and consequences of psychological distress among construction workers is crucial for implementing effective interventions and promoting mental well-being within the industry. By addressing these factors, the aim is to create a safer and more supportive working environment for construction workers in Australia.



Staff Awards



Professor Olivia Mirza won the 2023 UNSW Women in Engineering Judy Raper Award for Leadership. As Alumni, UNSW recognised her initiative on Aspire Program to increase the number of Indigenous in STEM Education and improve diversity (not only gender but background and cultural) in STEM education. Furthermore, part of the Western Sydney University Strategic Plan is to secure employment for the graduates, due to her drive to connect with external industry partners, she manages to increase the number of graduate positions for the School of Engineering, Design and Built Environment at Western Sydney University.

Student Success



The Brainary-WSU Collaboration

Recently, one of our students was asked to present at the Canada Bay Library on the STEM Education focusing on Mechanical and Mechatronics Engineering. Professor Olivia Mirza asked one of our female Mechanical Engineering student Miss Linh Trinh.

This is what she shared, "I had the amazing opportunity to showcase MetaCat and Marscat at the event to the public (which were robotic cats supplied by the Brainary). Metacat is a stationary cat which was able to autonomously react to touches and sounds. Its body was fluffy hence, it drew a lot of attention from young audiences. While Marcat was a mobile robotic cat that was able to walk around, lay down and interact with the crowd. It was able to react to sight, sounds and touches. It was also compatible with an app which allowed the audience to change the color of its eyes. The cats drew so much curiosity and interest from the crowd that I barely had time to take a sip of water and by the end of the night, I had lost a bit of my voice."

Leading up to the event, I had some time with the staff at Canada Bay Library to play around with the cats and understand how they work and troubleshoot any issues beforehand. The staff were all very nice and helpful, and I well prepared for the night and was able to overcome a lot of the technical issues with the cats.

Overall, the event was great! I had a great time helping out and sharing my passion of robotics. It was also amazing to see people of all ages enjoy robots and to be surrounded by other robotic enthusiasts as well. They got me even more inspired about robots!"



Alumni Achievements

Dr. Christophe Camille won the 2023 Railway Technical Society of Australasia (RTSA) award under Railway Engineering – PhD Thesis. The thesis entitled, "Feasibility study on the macro synthetics fibre reinforced concrete for sleepers applications". The findings are well received by the industries. These innovative and green sleepers fulfill the Government Green Infrastructures pledge and will be implementing in the railway system for the new Western Sydney International Airport.



School Engagement News

A construction site visit to the Powerhouse Parramatta

On Friday, 21 April 2023, Dr. Won Hee Kang and A/Prof Fidelis Mashiri in collaboration with Prof Olivia Mirza arranged a construction site visit to the Powerhouse Parramatta. This visit was offered to Bachelor of Engineering students in the School of Engineering, Design and Built Environment at Western Sydney University majoring in Civil and Construction Engineering. It was organized in collaboration with Lendlease, who is in charge of the construction project. A total of 10 students from years 1-4 attended this visit.



The Lendlease team led by Martin Robinson welcomed the attendees to the construction site visit presentation and provided a balcony tour of the construction site to the students. They highlighted the unique and complex project of the Powerhouse Parramatta Museum, which is the largest investment in the arts since the Sydney Opera House. They also introduced the architectural, structural, and constructional aspects, including their sustainability considerations, which achieved a 6-star green building V1 rating. The project also considers potential risks, such as public interface, geotechnical ground conditions, and structural stability.

Overall, the construction site visit, along with the presentation and discussion, provided valuable insights to our students into the construction of the Powerhouse Parramatta. Lendlease showcased their organizational capabilities as a multifaceted and global organization for construction and property lifecycle. The presentation was informative and highlighted the unique and complex aspects of the historically significant construction project for Powerhouse Parramatta.

Western Sydney University would also like to thank Sandra Quan, Communications and Engagement Manager at INSW and Darren Tan, Social Impact Manager at Lend Lease for coordinating the visit for the students.



One of the School of Engineering, Design and Built Environment Engagement Strategy is to promote STEM at early age. Today my team, Christophe Camille and Tharika Kahandawa Arachchi and I went to Parramatta West Public School to run a engineering workshop (Dam It!) for 120 students. The student gave us good feedback. Not only we promote STEM but also promote Western Sydney University. Go Western!!!

The school attended Canterbury Bankstown Chamber of Commerce showcasing Western Sydney International Airport Event. An inspiring keynote speaker Simon Hickey the CEO of Western Sydney International Airport talking about opportunities for Western Sydney Region, such as development of high standard hotels and convention centres for international events. A great discussion from panellists about improving the local communities via employment opportunities and businesses investment to the Western Sydney Region.



Western Sydney University Research Theme Champion, Professor Olivia Mirza, Professor Neil Perry, Associate Professor Nichole Georgeou, Associate professor Sebastian Pfautsch and director of Centre for Urban Transformation, Professor Greg Morrison visited SaveBOARD factory. The company locally manufacture high performance low carbon building materials. This is a fantastic opportunity for us to collaborate moving towards the carbon zero pledge.

People Who Inspire

Introduction

Hello, everyone! My name is Qinjun Liu, but you can also call me Lavender. I'm thrilled to be a part of Western Sydney University and to join the School of Engineering, Design and Built Environment as an associate lecturer. I recently completed my PhD in Construction Management at Western Sydney University, and I feel privileged to continue my academic journey within this esteemed institution.

Throughout my research background, my focus has revolved around construction safety and health management. I am deeply committed to enhancing the well-being of construction workers and cultivating safer working environments within the industry. By exploring innovative strategies, implementing effective protocols, and promoting a culture of safety, my aim is to mitigate risks and safeguard the lives of those working in construction.



How has working/studying at Western determined your accomplishments?

Working and studying at Western Sydney University has had a profound impact on my personal and professional growth, shaping my accomplishments in significant ways. Through my previous experiences at the university, I have gained invaluable knowledge, skills, and opportunities that have contributed to my success.

My supervisors have been an incredible source of support throughout my research journey. Their clear direction, constant assistance, and invaluable insights have significantly contributed to my study. Their mentorship has nurtured my research skills, deepened my understanding of the field, and encouraged me to strive for excellence.

Studying at Western Sydney University has also provided me with access to state-of-the-art facilities, research resources, and a vibrant community of scholars. These resources have enabled me to conduct in-depth research, collaborate on interdisciplinary projects, and present my work at conferences, ultimately leading to significant academic accomplishments.

Western Sydney University's commitment to diversity, inclusivity, and community engagement has fostered a supportive and inclusive environment. This has not only enriched my personal development but also influenced my research agenda, as I am passionate about creating safer working environments for diverse groups of construction workers.

What events in your life most impacted your career choices and especially in relation to your research field?

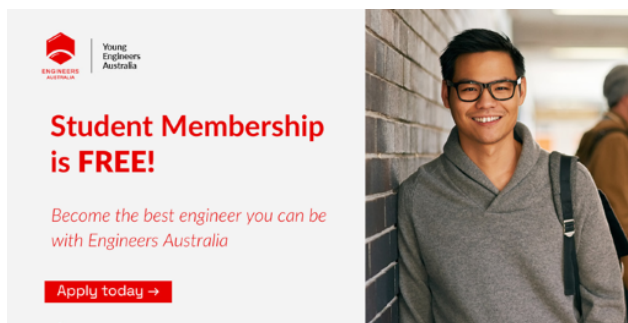
Several significant events in my life have profoundly influenced my career choices and my research field. One impactful event that significantly influenced my career choice was witnessing the remarkable achievements of great women researchers in the male-dominated construction industry. These exceptional individuals, including my supervisor and the esteemed faculty members of the school, have served as inspiring role models for me. Their accomplishments and dedication have ignited my aspirations to contribute to the construction industry through research and innovation.

In terms of my research field, a pivotal moment occurred when I became aware of the alarming number of injuries and suicides that occur on construction sites every year. This realization highlighted the pressing need to prioritize safety and well-being in this high-risk sector. My research endeavours are driven by the aim to contribute innovative strategies and practical solutions to address these challenges head-on.

Which advice would you like to leave to others who want to follow your steps?

Embrace and enjoy the challenging yet incredibly rewarding journey!

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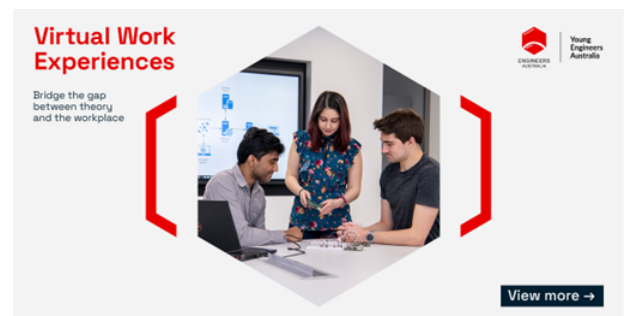
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