

**WESTERN SYDNEY**  
UNIVERSITY



**SCHOOL OF ENGINEERING  
RESEARCH PROFILES**

**2020**



## Excellence at the School of Engineering

Western Sydney University values academic excellence, integrity and the pursuit of knowledge. Ranked in the top 3% in the world, we are globally focused, world class teaching delivering, research-led and committed to making a positive impact on both the local and International communities and making a real contribution to the UN Sustainable Development Goals (SDGs), ranked 3<sup>rd</sup> for impact in the world.

In order to secure the success of our students and the Greater Western Sydney region, School of Engineering have a strong vision and commitments through innovation and discovery in a dynamic and technology-enabled world. Our commitments and values are:

- Creating a strong impact to our region and communities as well as globally;
- Providing scholarly teaching and research rigour and integrity;
- Practise equity and inclusiveness;
- Reach out, recognition and respect for Aboriginal and Torres Strait Islander peoples and their diverse knowledge systems;
- Practising collegiality and participation in our School.

School of Engineering consists of multidiscipline engineering disciplines in Civil and Environmental, Electrical and Telecommunications, and Mechanical, Mechatronic and Robotics Engineering.

We are key to the innovation agenda and commit to be at the forefront of Western Region to service our communities. This is why we are focused on producing high quality students though developing academic and research programs of strong links with industry and community.

Our active research culture encompasses several research concentrations and has achieved world recognition. We have excellent research themes which specialise in Structural Engineering (Building and Infrastructures), Water and Environmental, Telecommunications and Electrical, Geotechnical and Mechanical and Mechatronic. We are successfully securing significant research funds form a range of sources, ranging from Industrial funded grants to Australian Research Council Competitive grants.

With a strong vision for student employability and future jobs, our vision is to produce graduates with strong ethical underpinnings and ready for multicultural workplaces, ready to work anywhere in the world. We are a dynamic and vibrant university with high ambitions, with a strong sense of who we are, and where we are going in the future.



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## RESEARCH PROFILE

### Professor Michail (Mike) Kagioglou Dean of Engineering



**Career profile:** Professor Mike Kagioglou is Dean of Engineering at Western Sydney University in Australia, Provost of the Penrith Campus and Institutional strategy lead for the engagement of the University with Europe and the UK. Mike was, until recently, Dean of Art, Design and Architecture at the University of Huddersfield and prior to that at the University of Salford where he was the Head of the School of Built Environment. Mike's career spans Engineering, Manufacturing, Creativity, Design, Architecture and the Built Environment, engaged in inter and multi-disciplinary research at a global level.

**Key Skills/Expertise:** Mike has taught in product design and development, manufacturing and production systems, lean construction/manufacturing/healthcare, requirements management, among other subject areas. He has been involved in more than £25m of research across many funding agencies in the UK and Europe. He was an Academic Director for the £11M EPSRC funded interdisciplinary IMRC in Health and Care Infrastructures Research and Innovation Centre (HaCIRIC) and was previously the Director of the £8M EPSRC (Engineering and Physical Sciences Research Council) Salford Centre for Research and Innovation (SCRI) in the built and human environment. Mike has published more than 215 research outputs. His current research is around Healthcare infrastructure and better decision making in complex settings, following an outcomes/benefits based philosophy – benefits realisation. He is also working in diverse areas, such as living labs, location based and project planning, decision making, BIM and automated regulation capture.

**Professional Experience:** Mike frequently acts as research proposal reviewer for all major UK research councils and has participated and lead international reviews in Civil Engineering in Holland and Greece. Mike is board member of the Global Leadership Forum in Construction Engineering Management, Fellow of the Chartered Institute of Building (CIOB), a Fellow of the Royal Institute of Chartered Surveyors and Vice-President of the International Council for Research and Innovation in Building and Construction (CIB).



## RESEARCH PROFILE

### Professor Yang Xiang Professor in Civil Engineering



**Career profile:** Yang is currently the Deputy Dean of School of Engineering. He has a wide range of research and teaching experience acquired over the past 25 years. He has taught subjects in Civil Engineering discipline from fundamental mechanics, structural analysis, numerical methods to structural designs. He has supervised Honours, Master and PhD students in the areas of structural engineering, computational mechanics and advanced nanocomposite materials and structures.

**Key Skills/Expertise:** Research: Yang's research career spanned over 25 years and he has research expertise in structural engineering, computational methods, applied mechanics, composite structures and nanocomposite materials and structures.

**Professional Experience:** Yang has been active in serving his profession. He was the Chair of Stability Committee, Engineering Mechanics Institute of ASCE. He was chair or co-chair for several international conferences. He is on the editorial board for several international journals and is an associate editor for an international journal. He has obtained three ARC Discovery Project grants in supporting his research which are listed below:

- Australian Research Council (ARC) Discovery Project (DP), 2016-2018, \$180,000, Modelling surface stresses in crystalline plates, Y. Xiang, C.W. Lim
- ARC DP Project, 2014-2016, \$286,000, Material properties and mechanical behaviours of carbon nanotube-reinforced composite structures, Y. Xiang, Q.H. Zeng
- ARC DP Project, 2006-2008, \$249,525, Development of a local spectral method for the computations of thin-walled structures, Y. Xiang



## RESEARCH PROFILE

**Associate Professor  
Olivia Mirza  
Associate Dean Engagement**



**Career profile:**

After graduating with a Bachelor Engineering (Hons) degree at UNSW, Olivia started her career as structural engineer involved in designing buildings globally. After 10 years of experience, she returned to university to undertake her PhD before joining the academic staff of Western Sydney University in 2010. She is currently a qualified forensic bridge engineer. She teaches Concrete Structures, Specialised Software Applications and Advanced Highway Infrastructures in engineering at undergraduate and postgraduate levels.

**Key Skills/  
Expertise:**

Olivia is expert in design and forensic bridge work involve in rehabilitation and strengthening of existing bridge failures. She is working as external bridge consultant globally. One of her experience is replacing conventional material with sustainability material to reduce cost. She is also using innovative technique to rehabilitate and strengthening existing bridges. When she was a practice engineer, some of the award-winning projects she led are award winning 6-star Green Star One Shelley Street, King Street Wharf, Sydney where the external structural support system supported by diagrid for sustainable purposes. She is also involved in the Tower 5 of the New York World Trade Center. Her research expertise is in the fields of structural engineering for both buildings and bridges. She has collaboration and consulting works with industry partners. They include Transport NSW, Barchip, Rondo, Fire Rescue NSW, Wagners, Premier Steel and many more.

**Professional Experience:**

Olivia has carried out the consultant works and externally funded research projects below worth more than AUD 4 million. The current consultancy projects: (1) Feasibility of study on transoms for Sydney Harbour Bridge with innovative and sustainable material. (2) Bridge rehabilitation and forensic works. (3) The development of TruDek for composite steel and concrete slab. The ARC funded projects: (1) ARC ITTC-Rail on feasibility study on addition of macro synthetic fibres on concrete sleeper for Australian railways network system. (2) ARC DP funding for the use of innovative anchors for the achievement of composite action for rehabilitating existing and deployment in demountable steel structures.



## RESEARCH PROFILE

### Professor Gu Fang Associate Dean, International



**Career profile:** Gu Fang has been working with a number of industry partners in robotic automation in many areas. In particular, his work is in the areas of vision guided robotic automation, which includes autonomous robotic welding and robot sealant application in aircraft manufacturing. He has taught in the robotic automation area for more than 20 years and has been awarded many teaching awards that include a national teaching award by the Office of Learning and Teaching.

**Key Skills/Expertise:** Gu Fang has been involved in many funded research grants in these areas with funding sources from Australian Research Council, and Natural Science Foundation of China. His research interest including:

- Robotics and automation in industrial applications
- Autonomous robotic welding
- Neural networks and fuzzy logic and their applications in robotics.
- Computer vision and its applications in robotics.
- Particle swam optimisation and its applications in robotics.
- Artificial intelligence and control

His teaching covers areas of Robotics, Automatic Control, Microcontrollers, Computer Programming Languages, etc.

**Professional Experience:** Professor Fang has worked with many companies in developing robotic automation solutions. He has received many external funding. The following is a selected list of these:

- Study on the dynamic process and defect characteristics of pulsed MIG welding based on auditory attention mechanism. National Natural Science Foundation of China.
- A Vision Controlled Autonomous Multi-Robot Welding System – ARC Linkage.
- Autonomous Systems for Road Bridge Maintenance - Stage 1 – jointly funded by Roads and Traffic Authority (NSW) and University of Technology, Sydney.
- Adaptable Low-Cost, Low-Volume Automation – funded by Hawker de Havilland Pty Ltd.
- Vector Display System – funded by AusIndustry R&D Start Graduate Placement Grant.



## RESEARCH PROFILE

**Associate Professor  
Surendra Shrestha**

**Associate Dean, Learning &  
Teaching**

**Associate Professor, Civil &  
Environmental Engineering**

**School of Engineering**



**Career profile:** An engineering hydrologist with field experience in both ground and surface water sectors spanning three continents, Surendra's academic interest is in the management of water resources in a sustainable manner. He is an Associate Professor in the Civil & Environmental Engineering team and concurrently holds the position of the Associate Dean, Learning & Teaching in the School of Engineering.

Dr Shrestha is a Fellow of the College of Engineers Australia and a Senior Fellow of the UK Higher Education Academy. He is also a member of the American Society of Civil Engineers and American Geophysical Union.

**Key Skills/Expertise:**

**Research:** urban stormwater planning and management, sub-surface flow modelling, erosion modelling, variable source area simulation, engineering education research

**Teaching:** subjects in the general area of water engineering, professional practice, research methodology

**Professional Experience:**

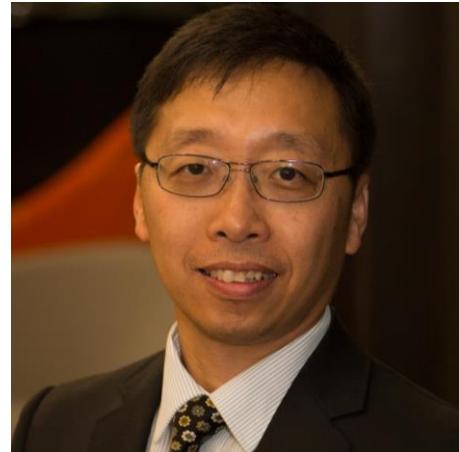
- Development of remediation strategies for a contaminated site in the National Priority List (USEPA funded)
- Modelling effectiveness of various stormwater management strategies (ARC Linkage funded)
- Development of limnological model for lake Burragorang (Funded by Sydney Catchment Authority)
- Development of the water management model for the 2000 Olympic rowing lakes (Penrith Lakes Development Corporation funded)
- Evaluation and adoption of improved farming practices on soil and water resources in the Philippines (Funding agency: Australian Centre for International Agricultural Research)



## RESEARCH PROFILE

### Professor Richard (Chunhui) Yang

Associate Dean Research  
and HDR; Discipline Leader  
Mechanical, Mechatronic and  
Robotics



**Career profile:** Prof Richard Yang joined the School of Computing, Engineering and Mathematics in January 2012 as Associate Professor of Mechanical Engineering and Smart Structures and he was promoted as Professor in 2018. In research, he has been mainly working in engineering analysis and computational mechanics more than 20 years with focusing on characterisation and evaluation of material properties and mechanical behaviours via numerical modelling and simulations as well as experimental analyses.

**Key Skills/Expertise:**

**Research:**

- Advanced manufacturing and Industry 4.0
- Additive Manufacturing (3-D Printing)
- Advanced Sensor Technologies
- Digital Representation, Fabrication and Characterisation of Materials
- Metal Sheet Forming
- Metal Surface Treatment and Coating
- Multi-scale Modelling and Simulations of Advanced Engineering Materials and Structures
- Structural Health Monitoring, Machine Condition Monitoring and Smart Structures

**Teaching:**

- Automated Manufacturing
- Mechanical Design
- Mechatronics Design
- Computer Aided Engineering

**Professional Experience:** As for external service, he is serving as assessor for ARC, editor board member, conference committee member, reviewers of international journals and conferences, and examiner for Master and PhD thesis, etc.



## RESEARCH PROFILE

**Dr. Bob Abtahi**  
Lecturer/Senior Research  
Fellow



**Career profile:**

Bob is a Material scientist with more than 15 years' experience in material research and development. He has been as a consultant in different sectors from composite production/polymer processing to construction and pavement industry. Some selected industry experiences are:

- Kagaku Scientific (Technical Manager)
- Global Road Technology (Head of Research and Development)

**Teaching experience:**

- Material Science and Engineering, Workshops and training courses for industry and university students (From 2004)

**Key**

**Skills/Expertise:**

His research interests include:

- Sustainable designs and formulations
- Geopolymer/Green concrete
- Soil stabilization and dust suppression
- Novel products for construction/Mining
- Nanocomposites
- Bio- mimicking and Bio- inspiration

**Professional  
Experience:**

**Selected external funding (WSU projects in period of 3 years):**

- CRC- SmartCrete
- James Hardie Construction Materials - Lightweight Backfill
- ARC NanoComm Research Hub - Structural Performance of CSR/AFS Panels with Permanent Formwork
- Mine projects Australia (MPA)-Developing Water Retaining Bulkhead/Wall from Paste Backfill in Coal Mining
- Platinum Timber- Termite and Fungi Test of Hevea Lvl Boards



## RESEARCH PROFILE

### Dr. Ragbir Bhathal Lecturer



**Career profile:** Did my PhD with a British Commonwealth Scholarship at the University of Queensland. Was an academic at the National University of Singapore before being pulled out of the University by the Deputy Prime Minister/Minister for Science to head and be the project director of \$30 million Singapore Science Centre a new statutory body for the promotion of science. Served as a UNESCO consultant on science policy for the ASEAN group of nations.

**Key Skills/Expertise:** Research: Engineering Physics Education, Astrophysics and more recently environmental engineering (light and noise). Citations: 2177, (among the top 7 academics in the School of Engineering with citations over 2000). Teaching: Engineering Physics, Radio & Satellite Communications, Sustainable Energy Systems & Advanced Engineering Project 1. Distinguished Teaching Fellow WSU, one of three Australian academics who were Awarded the Federal Government's Excellence in Teaching Engineering Education. Awarded the Australian Institution of Physicists award for the promotion of physics. Awarded the Nancy Keesing Fellowship by the State Library for research and my book on Australia's most famous 19th century astronomer John Tebbutt. The CJ Dennis Award for my book Under the Southern Cross – a brief history of astronomy in Australia.

**Professional Experience:** When working in Singapore I raised \$10 million from industry/business for the Singapore Science Centre which was recognized as one of the four science centres of influence in the 20th century. Raised funds (cash & kind) from the private sector and the Rotary Club of Campbelltown for the international project on the search for nanosecond laser pulses from ETI. Featured in Forbes magazine. Raised funds from the Rotary Club for the Science Playground at Campbelltown City Council. Funds were also provided by the Council.



## RESEARCH PROFILE

**Dr. Qi Cheng**  
Lecturer



**Career profile:** Dr Cheng has been conducting teaching and research since 1996. He has teaching units in electronics, electrical fundamentals, telecommunication and embedded processors. He has published over 40 technical papers in reputed international journals and conferences.

**Key Skills/Expertise:** **Research:** Target identification using radars, synchronization of OFDM systems.

**Teaching:**  
Circuit theory, electronics, digital systems, microprocessor systems, microcontrollers, speech and image processing, communication systems.

**Professional Experience:** He is working on parameter estimation for problems in telecommunications, radar processing and harmonic retrieval. He has developed algorithms and conducted performance analysis on frequency synchronization of OFDM systems, detection and estimation of DOAs using less sensors than targets and frequency estimation.



## RESEARCH PROFILE

### Dr. Mariam Darestani

#### Senior Lecturer

Academic Course Advisor, Postgrad  
Engineering Industry Experience  
Fellow of the Higher Education Academy  
(FHEA)  
Fellow of 21C project at WSU



**Career profile:** Dr Darestani is a material engineer passionate about the environment and focused on developing new materials and products for sustainable use of resources, especially water. She has worked as more than 10 years of working experience both in research and industry in Australia as academic and R&D Engineer. She has experience working with various industry partners and has several current and completed projects in collaboration with industry.  
For Teaching, Dr. Darestani is a fellow of Higher Education Academy (HEA). At school of Engineering is a Work Integrated Learning (WIL) lecturer and Academic Course Advisor for Postgraduate Engineering Industry Experience.

**Key Skills/Expertise:**  
**Research:** Advance materials, Sustainable engineering , polymers , membranes and coatings , water treatment and desalination  
**Teaching:** Work Integrated Learning Industry experience, Online learning, Teaching research, Curriculum design

**Professional Experience:**

**Projects in progress:**

1. Innovation connection grant : Development of a cost effective mineral based water treatment for agriculture application
2. WSU partnership Grant : Membrane technology for producing potable water
3. The SmartCrete CRC
4. AMP Tomorrow fund: developing bioinspired sensor for detection of soil nutrients

**Selected Completed projects:**

5. Evaluation of anti-corrosion and antibacterial properties of Zeolite coating
6. Water purification pipes for irrigation using poor quality water resources
7. Development of High Performance Polymeric Soil Stabilisers
8. Characterising the performance and fouling of hollow fibre membranes



## RESEARCH PROFILE

**Dr. Kejun Dong**  
**Senior Lecturer in**  
**Infrastructure Computations**



**Career profile:** Dr Kejun Dong joined the Centre for Infrastructure Engineering, School of Engineering, Western Sydney University (WSU), as a Senior Lecturer in Infrastructure Computations in 2014. He received his PhD from School of Materials Science and Engineering, University of New South Wales (UNSW) in 2007. He then worked as a research fellow and Lecturer/ARC DECRA fellow in the world-renowned Laboratory for Simulation and Modelling for Particulate Systems (SIMPAS) at UNSW prior to joining WSU.

**Key Skills/Expertise:** Dr Dong's main research interests and technical expertise are simulation and modelling of particulate systems, which are widely encountered in various engineering fields, including civil, environmental, chemical and mechanical engineering, etc. He has authored/co-authored over 100 peer-reviewed journal publications, with most of them in Q1 journals, and several in the most prestigious journals, such as Physical Review Letters. Dr Dong now is teaching Hydraulics and Structural and coordinating the Honors thesis for UG students.

**Professional Experience:** Dr Dong has attracted several research grants from Australian Research Council (ARC) and industry. He has been awarded with ARC DECRA fellowship in 2014. He has developed a software package for modelling particulate systems based on Discrete Element Method (DEM) and has provided computer aided process simulation, design and optimization to various industrial processes, including: (i) Particle packing and flow: packing, slope formation/deformation, hopper flow, screw conveying, etc. (ii) Dust separation and suppression: membrane filtration, electrostatic precipitators, etc. (iii) Particle classification and mixing: sieving and screening, ribbon-blade mixing, etc.



## RESEARCH PROFILE

### Dr. Ahmad Firouzianhaji Lecturer



**Career profile:** Dr. Ahmad Firouzianhaji is a lecturer in the Centre for Infrastructure Engineering. He completed his PhD in Structural Engineering at the University of Technology, Sydney, in 2016. He has been working as professional engineer on a vast array of projects with focus on light weight structural systems and earthquake engineering since 2012 and was involved in several engineering projects in Australia, NZ, South East Asia and North America from design to construction. Dr. Firouzianhaji has also worked with different industry partners with their R&D projects.

**Key Skills/Expertise:** Participating in Industrial and Research projects in the Centre of Infrastructure and supervising HDR projects in the following topics:

- Optimization of Cold Formed Steel Structure Design
- Earthquake Engineering for Complicated Light Weight Steel Frames
- Advanced Concrete Technology and Material Engineering for Construction Industry (Translucent / Eco Friendly and Air Purifying)

**Professional Experience:** Dr. Firouzianhaji is working as professional engineer working on design of light weight steel systems and has been awarded following grants from his industry partners:

- Optimization of cold formed steel storage rack systems (2016-2019)
- Improving the performance of cold formed steel beams and uprights (2019-2020)



## RESEARCH PROFILE

**Dr. Gaetano D. Gargiulo**  
**Associate Research  
Professor Electrical &  
Electronic Discipline Leader**



**Career profile:**

Gaetano D. Gargiulo is an electronic engineer with a specialization (PhD) in biomedical instrumentation and physiological data analysis. He is listed as inventor on seven patents and currently works as research associate professor where he is contributing to the R&D of wearable sensors, medical devices as well as to the establishment of a new degree in biomedical engineering at both undergraduate and post-graduate levels. His main research interest is in the development of novel biomedical devices for advanced early diagnosis of diseases and 'inverse modelling'. Although Gaetano has primarily worked into the industry until 2014, he authored >100 peer reviewed papers and edited three scholarly textbooks.

**Key  
Skills/Expertise:**

Gaetano expertise is in the fields of Applied Biomedical Engineering specializing in the analogue design of electronic front-ends and sensor design. He holds patents for electrodes design, signal conditioning front-ends and targeted biomedical signal processing. He is an expert electronic circuit designer with design for manufacture expertise from circuit inception (schematic and libraries) to Printed Circuit Board routing, to fabrication and testing.

**Professional  
Experience:**

Gaetano has contributed to spun-out five startups that have managed to raise capitals in excess of \$4.5M, he has carried out the consultant works and externally funded research projects in biomedical fields for a number of projects with a total budget in excess of \$12M.



## RESEARCH PROFILE

**Dr. Upul Gunawardana**  
ACA, PG Projects



**Career profile:** Upul was a staff Engineer at Motorola PCS research labs and a Senior R & D Engineer at Bell Labs prior to joining the Western Sydney University.

**Key Skills/Expertise:** Research: Presently main research areas are ambient assisted living and bio-medical engineering also works on mobile communications, renewable energy and mobile app development.

Teaching: Engineering Computing, Signals and Systems, Control Systems, Advanced Control Systems, and Communication Systems

**Professional Experience:**

External Consultancy Projects:

1. 2003 - Bell Labs Australia (Lucent Technologies), Consultant on 3G mobile simulation platform (\$30,000).
2. 2010 – FreeTV Australia, Study on Interference from LTE on DTV as a result of Digital Dividend (\$52,000)
3. 2014 – Department of Industries and Demand Manager (Ltd), Development of Light meter and Energy efficient lighting certification platform (\$100,000)
4. 2015 – Department of Industries and Demand Manager (Pvt) Ltd, Development of Light meter and Energy efficient lighting certification platform – Phase 2 (\$100,000)
5. 2016 – Department of Industries and Demand Manager (Pvt) Ltd, Lighting Industry Optimisation Tool, (\$100,000)
6. 2019 - Transport for New South Wales, Consultancy report on TDM Planning for Parramatta CBD



## RESEARCH PROFILE

### Dr. Dharma Hagare

Senior Lecturer  
Water, Waste and  
Sustainability Engineering



**Career profile:** I have over 20 years of academic and 5 years of industrial experience in water and waste engineering. I have published over 160 journal and conference papers, technical reports and book chapters. My main areas of research include water, nutrients and materials recycling. I am currently leading research in the areas of recycled water for irrigation, reuse of water and nutrients within dairy industries and urban stormwater management. I have so far graduated 12 PhD and 5 MPhil students. I have successfully managed several projects related to design, construction and operation of water and wastewater treatment plants. Also, I have successfully completed several risk assessment and management projects for mines and use of recycled water. I have received over \$1.8 million in research funding.

**Key Skills/Expertise:** I am currently leading 3 research areas with several national and international collaborators: (i) Sustainable water management for improved liveability within urban centres and rural communities; (ii) Increasing agricultural farm productivity through water and nutrient recovery and recycling; and (iii) Recovery and reuse of domestic wastewater. I have strong collaborations with several researchers/ Universities in India and Africa. Currently, I have collaborative projects with Food Recycle Ltd and MARVI.

**Professional Experience:** Some of my current/recent projects include:

- Production of chicken feed and liquid fertilizer from food waste. Supported by Food Recycle Ltd. Funding: \$80 k.
- Recharge processes of springs and its management to mitigate anthropogenic and climate change impact for water Security. Supported by SPARC, MHRD, India. Funding: \$155 k.
- Increasing dairy farm productivity through stormwater harvesting, resource recovery and recycling. Supported by Dairy Australia, Water NSW and WSU. Funding: \$420 k.



## RESEARCH PROFILE

**Md Kamrul Hassan**  
**Postdoctoral Research**  
**Fellow**



**Career profile:**

Md Kamrul Hassam is working as Postdoctoral Research Fellow at Centre for Infrastructure Engineering, Western Sydney University, since 2016. Prior to that, he worked as a Research Assistant at the same institution from July 2015 to June 2016. He completed his PhD in Structural Engineering from the same institution. He achieved his MSc degree in Civil & Structural Engineering, and BSc degree in Civil Engineering.

**Key Skills/Expertise:**

Kamrul has outstanding research experience in the fields of Steel-concrete composite technology, prefabricated composite structure, fire engineering, fire-retardant materials, recycled materials, solar roof tiles. He has outstanding knowledge and experience for the supervision of 10 PhD, 21 Master and 14 BSc students, as either principal supervisor or co-supervisor. He has 58 cutting edge research publications (1 Patent, 3 Books, 18 Journal and 4 Keynote and 32 International Conference papers. He has skilled to work on three ARC projects (2 DP, 1 ACRG) and three Industrial Partnership projects (Nu-Rock, RMS and Transport NSW).

*Skills on Experimental Work and Numerical Analysis:*

- Static and cyclic tests for materials and structures
- Fire tests for materials and structures
- Nonlinear finite element analysis using ABAQUS
- Structural analysis and design using SAP2000 & SPACE GASS.

**Professional Experience:**

Kamrul has received three Industrial Consultancy Projects (\$15,000 in 2016, \$11,000 in 2017 & \$12,000 in 2018), during his postdoctoral research fellowship position; which were funded by Stairform Pty Ltd. One of the projects was the New Clinical Building, Cabrini Hospital Malvern, VIC. He has also been working as co-investigator for one ARC Research Hub project (AUD \$243,000; awarded to Prof Zhong Tao in 2017). He received the outstanding reviewer award from Elsevier for the journal of Thin-Walled Structures in 2017 and Engineering Structures in 2019.



## RESEARCH PROFILE

**Dr. Ali Hellany**  
**Senior Lecturer**



**Career profile:** Dr. Ali Hellany received his ME (Hons) and a Ph.D. in Electrical Engineering, from University of Western Sydney, Australia in 1997 and 2001. Ali Joined University of Western Sydney as a postdoctoral researcher in University of Western Sydney, School of Engineering in 2001 and became a lecturer in 2002. In December 2008, Ali became a Senior lecturer in the School of Computing, Engineering, and Mathematics at Western Sydney University.

**Key Skills/Expertise:** Ali teaches at both undergraduate and postgraduate levels in electrical and electronic engineering. He has received numerous awards for her contributions to student learning including VC Excellence award (Sustainability-Highly commended) 2012, VC Excellence Award (Excellence in Teaching) 2013, and University of Western Sydney Learning and Teaching Award (excellence in teaching) 2013. Ali Taught the following units: 300018 Digital Systems 1, 300022 Electromagnetics, 300024 Electronic Systems Design, 300025 Electronics, 300053 Professional Practice, 300666 Advanced Engineering Topic 1, 300667 Advanced Engineering Topic 2, 300995 Power Quality, 301025 Advanced Power Quality, 301089 Special Technical Project.

Ali is the founder and academic supervisor of Western Sydney U Solar car project, The sustainable house project, and the Hybrid Renewable Energy station. Ali's research interests and publication areas include project based learning (multidisciplinary and student led), sustainability-teaching sustainability and implementing sustainable approaches in the design of sustainable house, renewable energy –system optimizations - power quality - and power management. Ali is a member of IEEE, IEEE Educational society and Engineers Australia.



## RESEARCH PROFILE

**Dr. Pan Hu**  
Lecturer



**Career profile:**

Dr Hu is a Lecturer in Geomechanics at the Western Sydney University. His research experience includes physical modelling, numerical modelling and offshore geotechnical engineering. His research work focuses on providing reliable and economic foundation solutions for engineering developments. Pan's work resulted in the development of analytical methods and in-house software to support safe installation of the offshore jack-up platforms.

**Key Skills/Expertise:**

**Research:**  
His research employs physical, numerical and analytical tools to generate practical solutions to industrial problems. Each of these tools provides a particular utility in his research: physical investigations are used to explore mechanisms and general patterns of behaviour; validated numerical simulations are used to extrapolate from the physical results to explore the wider parametric space; finally physically meaningful and experimentally validated analytical solutions are developed that can be applied by engineers in practice. His research interests include:

- jack-up foundation;
- centrifuge modelling;
- combined loading of foundations;
- large deformation numerical analysis;
- offshore wind turbine foundation

**Teaching:**

300985 Soil Mechanics;  
300984 Pavement Materials and Design

**Professional Experience:**

External research projects include:

- Jack-up leg penetration assessment
- Offshore Wind Consultants



## RESEARCH PROFILE

### Dr. Won Hee Kang



**Career profile:** Dr. Won Hee Kang is a Senior Lecturer at Centre for Infrastructure Engineering, School of Engineering, Western Sydney University. He obtained his PhD and MS degrees from the University of Illinois Urbana-Champaign, USA. He is involved in the teaching of 300738 Surveying for Engineers, 300717 Egress and Risk Assessment, and 301048 Fire Engineering Science.

**Key Skills/Expertise:** Dr. Won Hee Kang's main areas of research include structural system reliability, reliability based structural design code calibration, machine-learning/data-driven probabilistic prediction model development, stochastic damage detection, lifeline system risk analysis, probabilistic strength models, and systematic treatment of uncertainties. He is a member of the Standards Australia committees BD-032 on Composite Structures and ME-043 on Bulk Handling Equipment and significantly contributed to AS/NZS 2327:2017 and AS4324.1:2017.

**Professional Experience:** Selected current and previous industry funded projects are as follows:

- Estimating corrosion rate of steel elements in transmission towers, Endeavour Energy, (Saeed N, Samali B, Kang W-H)
- Evaluation of capacity factors for API 5L columns and minimum number of tensile tests from limited test data, Heavy Engineering Research Association, (Kang W-H)
- Reliability based factor-of-safety calibration for tensile element systems according to AS 4324.1:2017 and AS 4324.1:1995, Structural Integrity Engineering Pty Ltd, (Kang W-H)
- HERA Steel and Structural Materials Review, Heavy Engineering Research Association (HERA) New Zealand, Consultancy Research Project, (Kang W-H)
- Development of novel viscoelastic sprayed material for the effective blast resistance of critical and resource infrastructure, Australian Research Council - Linkage Project (LP), (Zhang C, Uy B, Kang W-H, Huang W, and Lv P) LP140100030 with Shandong Zhihua Construction Group Co. Ltd., China.



## RESEARCH PROFILE

### Dr. George Kastl



Career profile:

**Work:**

- WSU Research fellow 2019- Present
- PhD WSU 2014-2018
- MWH Principal Process Engineer 2008-2012
- WorleyParson & JW&P 2006-2008
- Sydney Water Corporation
- ICI Research scientist 1988-1990
- CSIRO experimental scientist

**Teaching WSU:**

- Specialised Software Applications Aquasim (lecturing & tutorials)
- Water and Wastewater Treatment (lecturing & tutorials)
- Environmental engineering
- Sustainable systems

Key

Skills/Expertise:

**Research:**

- Water Treatment
- Modelling
- Disinfection
- DBP
- Wastewater Treatment and Wastewater collection network
- H2S control

**Teaching:**

- Specialised Software Aquasim (lecturing & tutorials)
- Water and Wastewater Treatment (lecturing & tutorials)
- Environmental engineering
- Sustainable systems

Professional  
Experience:

ARC Chloramine project (approx. 3 years 2 M\$), Consulting for water companies in NSW and QLD, disinfection and water treatment



## RESEARCH PROFILE

### Associate Professor Alireza Keshavarzy



**Career profile:** Alireza Keshavarzy joined CIE in 2017 and appointed for Water and Bridge Engineering group. He designed and established a unique lab at CIE. Prior join WSU, he worked at UTS and as a professor at Shiraz University. Alireza Keshavarzy received B.Eng. from Shiraz University, MS and PhD in Civil Engineering from UNSW in 1993 and 1998, respectively. He joined Shiraz University in 1998 as an academic staff. He was Head of Water Engineering Department (7 years) and Deputy Head for Research (3 years). At the same time, he was Director and Core Member of Centre of Excellence in Water Use Management. During work at Shiraz University he established some research grounds in Water Engineering include a very large Research Lab. for sedimentation Eng., Very Large Lysimeter to measure ETO for water use and develop Automation of gates in a large dam.

**Key Skills/Expertise:**

**Research Expertise:** Keshavarzy's research interests include Bridge Engineering Scouring and Protection, Water Resource Management, Flow structure Interaction, Hydraulics, River and Environmental Engineering, Sediment transport and Computational Fluid Dynamics. He developed innovative techniques in area of water engineering include image processing for sediment motion and water quality in Rivers. Recently he developed a unique research lab. with large flume at WSU for bridge study and innovative ways to prevent bridge scour.

**Teaching:** His teaching experience is over 20 years in Hydraulics, Fluid Mechanics, Sediment transport, Hydraulic and physical modeling, Hydraulic Structure, River Engineering and Hydrology.

**Research Students Supervised:**

PhD and MS students: 41 students, BE projects: 38 students,  
Co supervision of PhD and Master students: 47 students

**Professional Experience:**

1-Windang Bridge Pier Protection Design (RMS, 2019, \$45,500)  
2-Flow resistance in NCL& Expanda pipe (Interflow, 2020, \$63,000)  
3-Prior join WSU, Alireza Keshvarzy finished 7 large projects with industry i.e. automation of water delivery in a very large dam.



## RESEARCH PROFILE

### Associate Professor Khoa N. Le



#### Career profile:

Dr. Khoa N. Le received his Ph.D. in October 2002 from Monash University, Melbourne, Australia. From April 2003 to June 2009, He was a Lecturer at Griffith University, Gold Coast campus, Griffith School of Engineering. From January to July 2008, he was a visiting professor at Intelligence Signal Processing Laboratory, Korea University, Seoul, Korea. From January 2009 to February 2009, he was a visiting professor at the Wireless Communication Centre, University Technology Malaysia, Johor Bahru, Malaysia. He is currently Associate Professor at School of Engineering, Kingswood, Western Sydney University. His research interests are in wireless communications with applications to structural, construction management problems, image processing and wavelet theory. Since 2003, Prof. Le has been an Editor of Journal on Computer Networks and Communications, Hindawi Publishing. Prof. Le was also a Guest Editor of a Special Issue on “polarization in wireless communications” for Physical Communication, Elsevier, 2012. Since 2018, Prof. Le has been an Editor for IEEE Transactions on Vehicular Technology and IET Signal Processing. Prof. Le is Bayu Chair Professor, Chongqing University of Science and Technology, 2020-2022.

#### Key Skills/Expertise:

Research: theory and applications of wireless applications,  
Teaching: communication systems, wireless networks.

#### Professional Experience:

Blue Mountains, Blacktown city councils.  
Two Australian Research Council (ARC) Discovery Projects (DPs), two ARC Linkage Projects (LPs), one ARC Hub on Nanomaterial.



## RESEARCH PROFILE

### Professor Chin Leo



**Career profile:** After graduating with a civil engineering degree, Chin Leo started his career in infrastructure and geotechnical engineering. He returned to university to complete postgraduate studies and worked as a postdoctoral research fellow before joining the academic staff of WSU. He teaches geotechnical, infrastructure engineering and numerical methods in engineering at undergraduate and postgraduate levels.

**Key Skills/Expertise:** His research covers the areas of soft soils and poromechanics, soil dynamics, foundations and earth retaining structures. He has also studied and characterized soils and geomaterials including geofoam, red mud and chemically stabilized soils in interdisciplinary research using a combination of lab and field testing, and computational modelling. This experience has enabled him to develop expertise in experimental design as well as in analytical-numerical analysis. On the experimental side, he has developed novel microtremor techniques to characterize compacted ground up to 12m in depth and large-scale physical models aimed at achieving similarity with the prototype in study of soil-abutment interactions. On the computational side, he developed expertise in integral transform techniques, BEM and FEM applied to problems in viscoelasticity, poro-viscoelasticity and contaminant transport with pseudo-static and time dependent loadings and environmental actions. For problems in poro-elasto-plasticity, poro-viscoelasto-plasticity and coupled problems he has developed solutions mostly in commercial software such as Abaqus, in collaboration with other expert users.

**Professional Experience:** Examples of externally funded research projects:

- Effects of impact loading on retaining wall design (Phase I, IIa, IIb)
- Implications of deep excavations in Sydney sandstone on adjacent structures
- Stabilisation of residual Bringelly shale (Phase I)



## RESEARCH PROFILE

**Dr. Ranjith  
Liyanapathirana**



**Career profile:** Ranjith Liyanapathirana is senior lecturer in telecommunications in the School of Engineering. His experience in higher education spans more than 30 years, where he has served as a full time faculty member at University of Moratuwa, University of Western Australia and Western Sydney University. Ranjith received PhD in electrical engineering from Memorial University of Newfoundland, Canada in 1995. He has primarily contributed to telecommunications through the formulation of novel algorithms, modulation techniques, and performance evaluation via computer simulation. In the area of radio frequency (RF) communication, he has expertise in relay networks, wireless sensor networks for structural health monitoring, and antenna design for biomedical applications. He has published over 150 articles in peer-reviewed international conferences and IEEE/IET Journals. He is a Senior Member of the IEEE (USA) and Senior Member of ACS. He is the IEEE student branch counselor at WSU.

**Key Skills/Expertise:** As the manager of the Infrastructure Health Monitoring (IHM) Lab Ranjith does research in Instrumentation Engineering, Biomedical Engineering and Communication Engineering. He has successfully supervised to completion more than 10 PhD and numerous Masters and Honours student projects. He teaches Wireless Communication, Data Communications, Advanced Data Networks and Personal Communication Systems.

**Professional Experience:** He has worked as an Engineer at Saudi Telecom and as Research Fellow at CRC for Broadband Telecommunications, Western Australia. In the recent past Ranjith has completed consultancy projects for Free TV Australia on interference to digital television transmission and worked closely with academic colleagues in developing an application for Demand Manager Pty Ltd.



## RESEARCH PROFILE

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**Associate Professor  
Samanthika  
Liyanapathirana**



**Career profile:** I have been working in the Australian university sector as a full-time academic since 1999. My career spans over Universities of Sydney, Wollongong and Western Sydney. I am a recipient of a university teaching award and have extensive experience in curriculum development, HDR supervision and delivering industry based research projects. My contribution to Engineering education and research has been acknowledged by a Fellowship from the Engineers Australia in 2019.

**Key Skills/Expertise:** I work in the area of Computational Geomechanics. I develop advanced numerical modelling procedures to solve complex geotechnical engineering problems, which include column-supported embankments, pile driving dynamics, and interpretation of in situ deep penetration problems. Recently I developed a large deformation finite element modelling approach which has the ability to give new insights into the field test interpretation in geotechnical site investigations. My research has been recognized by national and international awards and I have acted as an assessor for a number of international agencies providing research funding for universities.

**Professional Experience:** I received funding for following Industry projects at WSU (2015-2020):  
2018 – 2021, EIC Activities, Alkaline activated treatment of residual Bringelly Shale, Leo, Liyanapathirana and Zhu (\$350,000).  
2020 - Offshore Wind Consultants Ltd, UK, Jack-up leg penetration assessment, Hu, Liyanapathirana and Leo, (\$19,250)  
2020-2021, Transport NSW, An asset management system for Retaining Walls, Leo, Liyanapathirana and Hu (\$90,000)  
2018, Cardno Pty Ltd, NSW, Implications of deep excavations in Sydney sandstone on adjacent structures, Liyanapathirana and Leo (\$22,00)  
2015 - 2018, Road and Maritime Services, NSW, Effects of impact loading on integral barrier retaining wall design, Leo and Liyanapathirana (\$95,000)



## RESEARCH PROFILE

**Associate Professor  
Fidelis Mashiri  
Director of Academic  
Programs (Civil and  
Construction Engineering)**



**Career profile:** Fidelis holds a Bachelor of Science in Engineering (Honours) from the University of Zimbabwe, a Master of Engineering Honours from the University of Wollongong, Australia and Doctor of Philosophy in structural Engineering from Monash University, Australia. Fidelis has worked as a site engineer in Zimbabwe and as a consulting engineer in Chile and Australia. Fidelis teaches Steel Structures, Composite Structures and Timber Structures to both the undergraduate and postgraduate courses.

**Key Skills/  
Expertise:** Fidelis is an expert in steel, composite and timber structures. He specializes in fatigue of welded structures. He also has a research interest in residual stresses. For 5 years he worked at the Maintenance Technology Institute of Monash University and was involved in the research and rehabilitation of dragline boom structures and ship-loaders. He has also been a consultant on the rehabilitation design of steel truss bridges, design of footbridges and design of multistory residential buildings.

**Professional Experience:** Fidelis has been a Chief Investigator on nationally competitive grants such as the Australian Research Council Discovery Project Grant (2012-2015), Office of Learning and Teaching Grant (2013-2015) and Australian Research Council Linkage Infrastructure, Equipment and Facilities Grant (2014-2015). In 2007, Fidelis was awarded the Dean's Early Career Researcher Award at the University of Tasmania. He is currently a member of the Australian Standard Committees on Steel Structures, BD-001, Cold-Formed Steel Structures, BD-082 and member of the Australian Standard Sub-Committee on Bridge Design BD-090. Fidelis is a member of The Institution of Engineers, Australia (IEAust) and the Australian Steel Institute (ASI). He is also a Board Member of the Global Circle for Scientific, Technological and Management Research (GCSTM), a Board Member, International Association for Experimental Structural Engineering and an Editor of the International Journal of Engineering, Construction and Computing (IJECC).



## RESEARCH PROFILE

**Associate Professor  
Mahmood Hussain  
Nagrial**



**Career profile:**

Mahmood Nagrial obtained his Ph.D. from University of Leeds, UK. He has been a leading researcher in the area of permanent magnet & variable reluctance machines & drive systems. He has supervised many Ph.D. and /M.Phil. Research theses and postdoctoral fellows in his areas of expertise. He has also worked as Principal Research Scientist at CSIRO, where he has been responsible for developing new devices using rare-earth magnets, such as high speed dc brushless motors, slotless machines, torque couplers etc. He has been Head, Electrical & Computer Engineering. He has also been Chair, School of Mechatronic, Computer & Electrical Engineering.

**Key Skills/Expertise:**

**Research Interests:** Analysis and design optimization of Smart grids and micro grids, Permanent magnet and variable reluctance machines. Wind energy electric conversion systems, smart and sustainable energy systems, Electrical Drives for HEV/EV, Fast and Wireless charging of vehicles.

**Teaching interests:** Power & Machines, Electrical Machines, Power Systems, Smart Grids and Distributed generation,

He is Group Leader of Research Group "Intelligent & Sustainable Electrical Systems". He has conducted many short courses and contributed to many conferences as invited keynote speaker. He organized a successful IEEE International conference on Electrical Engineering: Research and Practice at WSU in Nov 2019. He has conducted many short courses and published extensively in International Journals and International conferences. He has held industry grant of \$ 500,000 and various other internal and external grants including ARC linkage grant of around \$215000.

**Professional Experience:**

Dr Nagrial is Fellow of IET (UK), Fellow IE (Aust) and Sen. Mem IEEE(USA).



## RESEARCH PROFILE

### Dr. Zhu Pan



**Career profile:**

Dr. Pan worked as a structural engineer and materials specialist (in Guiyang Urban Planning and Design Institute, China) with concrete design, investigation, forensics, and repairs experience. He has obtained his Ph.D. in Civil Engineering from Monash University, in 2011. He joined Western Sydney University in 2014 and delivered the units of Highway Infrastructure, Advanced Highway Infrastructure and Soil Mechanics. He has supervised 1 PhD students and 2 Masters by Research students to successful completion. Currently, he is co-supervising 5 PhD students.

**Key Skills/Expertise:**

Since 2006, he has been actively researching on alkali-activated materials (geopolymer concrete) and has developed ability to provide the specific geopolymer product formulations that are best suited to the particular applications. Dr. Pan has also been researching on the nano-cement composites for 6 years. He is the first inventor for a US patent for novel cement-graphene composites. His paper on this novel composite has been recognised a highly cited paper in the field of civil engineering, with 287 citations within 5 years. He is the author or co-author of over 50 scholarly publications (including 30 journal publications) in the area of cementitious materials. He currently has an H-index of 19 (Google scholar), with a total citation more than 1600 from Google Scholar.

He is an active assessor of the ARC and a technical reviewer of many international journals. He has received Outstanding Reviewer Award from Cement and Concrete Composites, Construction and Building Materials, Journal of Cleanner Production in 2018.

**Professional Experience:**

2017 – 2020, ARC LP160101484, Development of Next Generation Fire-Resistant Composite Columns, Prof Zhong Tao, Prof Brian Uy and Dr Zhu Pan (\$353,069).

2018 – 2021, EIC Activities Pty Ltd, Alkaline activated treatment of residual Bringelly Shale – Phases I, II, III and IV, Prof Leo Chin, A/Prof Samanthika Liyanapathirana and Dr Zhu Pan (\$350,000).

2020-2021, Australian Coal Association Research Program, Value-added Products from Coal Tailings, Prof Zhong Tao , Prof Zhonghua Chen and Dr Zhu Pan (\$592,360).



## RESEARCH PROFILE

### Professor Ataur Rahman



Career profile:	Prof Ataur Rahman worked in Sinclair Knight Merz and CRC for Catchment Hydrology before joining Western Sydney University. He is one of the authors of Australian Rainfall and Runoff (national guide). He is co-developer of RFFE software, which has been used over 10,000 times in the last three years for flood risk assessment. He served as Co-Chair of Water Education and Research Committee of Australian Water Association. He made key contribution to the intensity-frequency-duration project of Australian Bureau of Meteorology. He supervised 36 PhD and Masters students. He has over 20 years of teaching experience in water and environmental engineering.
Key Skills/Expertise:	Prof Ataur Rahman has expertise in flood hydrology, rainfall runoff modelling, rainwater harvesting and water sensitive urban design. He has authored 440 scholarly publications. He received the G. N. Alexander Medal from Engineers Australia for his outstanding research paper on flood modelling. He is serving in the editorial board of three ISI listed journals (Journal of Hydrologic Engineering, Water and Australasian Journal of Water Resources). He is the founder Chair of Global Circle for Scientific, Technological and Management Research (GCSTMR), which has organised over 20 international conferences. He has served as external peer reviewer to many industry projects. He teaches fluid mechanics, statistical hydrology and hydrogeology.
Professional Experience:	Prof Rahman has completed 12 funded research projects in water and hydrology area (worth over \$1 million). His current funded projects are: (1) Field evaluation of storm water quality improvement devices; (2) Production of drinking water from roof harvested rainwater; and (3) Field testing of purple (green) roof for storm water management.



## RESEARCH PROFILE

**Dr. Maria Rashidi**  
**Lecturer**



**Career profile:** I have been involved in several design, construction and asset management projects for over 10 years. My recent research has been focused on feasibility study of using Remotely Piloted Aircraft (RPA) systems for bridge monitoring. I have also carried out extensive research on life cycle management of bridges which led to development of a Decision Support System for bridge remediation.

**Key Skills/Expertise:** My current area of research is within the scope of Infrastructure Engineering and Asset Management. Moreover, I have been pioneering the application of drones for bridge inspection and also utilisation of AI and laser scanning for health monitoring of bridges.

**Professional Experience:** I am currently the team leader of Structural Assessment and Health Monitoring (SAHM) team at the Centre for Infrastructure Engineering and have been the chief investigator of several research and consulting projects valued around \$800,000. The main projects are as follows:

- Developing a Low-cost Accurate Bridge Weigh in Motion System for Estimation of Gross and Axle Vehicle Weights (Data 61).
- Feasibility study of using Remotely Piloted Aircraft (RPA) systems for bridge inspection (TfNSW).
- Utilisation of Remotely Piloted Aircraft (RPA) Systems and Artificial Intelligence (AI) for Bridge Health Monitoring (TfNSW).
- Digitisation and conservation of Prince Alfred Bridge through Utilisation of RPAs (Gundagai Historic Bridges).
- Design and investigation works for the upgrade and replacement of Cedar Point Bridge (Kyogle Council).
- Photogrammetry and digitisation of the old Windsor Bridge (TfNSW).Design and investigation works for the upgrade and replacement of Cedar Point Bridge (Kyogle Council).



## RESEARCH PROFILE

### Dr. Jamal Rizk



#### Career profile:

Dr Jamal Rizk is a member of the Research Group: Intelligent and Sustainable Electrical Systems (ISES).

Since 1997, Dr. Rizk has been a lecturer in the school of Engineering and Industrial Design, University of Western Sydney and a senior lecturer from 2004 at the same university. He got his Master of Electrical Engineering (Hons) from Kharkov Polytechnic Institute, Ukraine in 1985 and Ph. D in Electrical Engineering from the University of Western Sydney in 2001.

Dr Jamal Rizk was the academic course advisor (ACA) for Electrical Engineering (2015-2019) and the director of academic program (DAP) for undergraduate Electrical Engineering.

#### Key

#### Skills/Expertise:

#### Research:

Dr. Rizk has extensive experience in Electromagnetic devices, Power Electronics, Drive Systems and Renewable Energy. He has been involved in the design and development of permanent magnet and variable reluctance drive systems over a period of more than 15 years. Dr Rizk has developed special expertise in the analysis of magnetic analysis of different types of permanent magnet machines, synchronous reluctance machines and permanent magnet assisted synchronous reluctance machines. He has been involved in design, fabrication and testing of electrical machines and drives. He has also developed research interests in integrated renewable energy systems. Dr Rizk has acted as reviewer for papers for many National and International conferences and journals

#### Teaching:

Dr Jamal Rizk is coordinating and teaching few undergraduate and postgraduate units:  
Electrical Fundamentals, Circuit Theory, Power Electronics, Electrical Drives and Advanced Electrical Machines and Drives.



## RESEARCH PROFILE

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### Professor Hamid R. Ronagh



Career profile:	Teaching Experience: <ul style="list-style-type: none"><li>• Structural Analysis,</li><li>• Solid Mechanics,</li><li>• Dynamic of Structure,</li><li>• Finite Element Method,</li><li>• Advanced Structural Analysis,</li><li>• Advanced Structural Design,</li><li>• Earthquake Engineering</li></ul>
Key Skills/Expertise:	Research: Cold-Formed Steel Structures, Rehabilitation of Infrastructure. Teaching: All structural analysis and design courses.
Professional Experience:	(2019) Blast Resistant Wall Panels Sponsor: Tyre Stewardship Australia \$140,000 (2019) Investigating the Ultimate Capacity of Mining Ribs Sponsor: Minova Pty Ltd \$88,000 (2019) Composite Design of Gypsum Clad Cold-Formed Steel Walls Sponsor: Knauf Australia Pty Ltd \$60,000 (2020) Testing of Group Welded Shear Studs on Historic Steel Sponsor: Road and Maritime Services NSW \$112,000



## RESEARCH PROFILE

**Dr. Nariman Saeed**

Lecturer

BEng, MSc, PhD (UQ),  
MIEAust, CPEng, NER



**Career profile:**

- Lecturer in Structural Engineering
- Chartered Professional Engineer (CPEng), Australia
- Registered Structural Engineer, Iran
- More than 12 years of experience as a professional Structural/Geotechnical Engineer in different roles

**Key Skills/Expertise:**

**Research:**

- Rehabilitation and retrofitting of steel structures and pipelines with FRP composite overwraps.
- Application of FRP composites in prefabricated construction
- Reliability of structures
- Investigating into corrosion of different construction materials
- Non-linear FE modelling
- Running experimental studies and testing on structural engineering topics.

**Teaching:**

- Statics
- Mechanics of structures
- Structural Analysis
- Design of Reinforced concrete structures
- Design of Steel structures
- Composite structures

**Professional Experience:**

- CI for more than 35 research-based consultancy projects with the total revenue of higher than \$850K.



## RESEARCH PROFILE

### Professor Bijan Samali



Career profile:	After graduating from George Washington University in February 1984 with a PhD degree, Bijan Samali migrated to Australia and joined Maunsell and Partners Consulting Engineers in Sydney as a Senior Structural Engineer. He has been involved with nearly 180 major projects in a consulting capacity over the past 33 years, responsible for dynamic analysis of structures, particularly bridges and tall buildings under the effects of wind/earthquake, new green concrete such as geopolymers and self-compacting concrete.
Key Skills/Expertise:	Main research interests of Prof Bijan Samali lie in the general area of structural engineering and materials, particularly concrete structures and cementitious materials including new and innovative, and green materials for engineering applications, as well as general Structural Engineering including Structural Health Monitoring, Structural Vibration Control using active, passive and semi-active control systems, Wind engineering, Earthquake Engineering under the umbrella of Structural Dynamics. He also enjoys thirty years of teaching experience in USA and Australia (both delivery and development) static and dynamic areas.
Professional Experience:	Prof Samali has been engaged in several funded projects and a few are mentioned below as examples. A \$211,000 ARC Linkage grant (in collaboration with the Universities of Melbourne and Traffic Authority (RTA) of NSW as the Industry Partner) to study innovative retrofitting techniques for the protection of anchorage zones in cable-stayed bridges subjected to blast and wind loads; a \$526,000 ARC Linkage grant (in collaboration with the Universities of Melbourne and New South Wales and Permasteelisa Pty Ltd as the Industry Partner); a \$280,000 ARC Linkage grant (with Sydney Electricity as the Industry Partner) to investigate the embedment length and structural health of timber utility poles; a \$225,500 ARC Discovery grant in collaboration with UTS to Develop a Novel Motion Sensory system for Bridge Health Monitoring; a \$535,000 grant under ARC Research Hub scheme with CSR Building Materials as the Industry partner.



## RESEARCH PROFILE

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**Professor (Sathaa)  
Arumugam Sathasivan  
Professor of Environmental  
Engineering and  
Sustainability**



**Career profile:** Prof Sathasivan joined Western Sydney University in 2012. He brings a nice mixture of 30 years long industrial and academic experience in environmental/sustainable engineering from around the world. He obtained his PhD from The University of Tokyo in Environmental Engineering and then was a Research Fellow. He was an Assistant Professor of sustainability in urban environmental management program in Asian Institute of Technology, Bangkok for two years. In Sydney Water Corporation, he was a Water Quality Scientist for six years on several operational and research and development projects including CRC. He was a consulting engineer in Bangkok, Thailand for two years.

**Key Skills/Expertise:** His main research interest is in drinking/recycled water distribution systems and water treatment processes in a changing climate and population to deliver safe water at a minimal cost. He works on wastewater treatment and sewer corrosion. He uses biotechnology/chemistry/modelling as appropriate in water/wastewater research. He loves the challenges the sustainable development present and the opportunities life cycle assessment tool and other tools offer. He teaches Environmental Engineering, Water Treatment, Wastewater Treatment and Sustainable Systems.

**Professional Experience:** He has been involved in many consulting projects totaling approximately \$0.5 million for many water utilities across Australia. Major consulting project was in modelling water quality in Brisbane water supply system to evaluate future infrastructure needs and disinfectant choice. In total Sathasivan has attracted more than \$4.5 million from ARC and water industries.



## RESEARCH PROFILE

### Pejman Sharafi Senior Lecturer



**Career profile:** Pejman is the head of Modular Prefab Design Lab (MPD-Lab) at the Centre for Infrastructure Engineering. He is an Australian Research Council's senior research fellow, and a Senior lecturer in structural systems. He obtained his PhD from the University of Wollongong, and his Master and Bachelor from Tehran University. He has also been involved in several major oil and gas infrastructure projects as a consultant for the National Iranian Gas Company.

**Key Skills/Expertise:** Pejman has been carrying out extensive research in the area of optimum design of structures for manufacture and assembly, modularisation, and prefabrication. In MPD-Lab, Pejman works in collaboration with other partners from academia, industry and government. MPD-Lab conducts leading-edge research that focuses on design of modular and prefab construction technologies/systems, and provides advanced numerical, analytical and experimental services. As well as being available for advanced research work, MPD-Lab is also available for consulting and teaching activities and services relating to the area of modular prefab construction. Further information on the projects, expertise, and capabilities are available on the MPD-Lab website (<https://www.westernsydney.edu.au/cie/mpd-lab>).

**Professional Experience:** Pejman has been the chief investigator of several research and consulting projects; Some of the major projects are as follows:

- Interactions between volumetric units in modular buildings - \$421,000; Australian Research council; 2019.
- Next generation of protective wall and flooring panels - \$123,000; Tyre Stewardship Australia, 2019.
- Blast and ballistic resistant wall panels - \$64,000; Flexiroc Australia and Stone Security USA, 2018.
- Automation of the construction profile handling and storage systems - \$440,000; Alspec, 2017
- Design of CFS composite wall panels for lightweight construction- \$180,000; Knauf Australia, 2016.
- Development of vacuum testing facility for structural panels" - \$96,000; Knauf Australia, 2015.



## RESEARCH PROFILE

### Dr. Leigh Sheppard

Director of Academic  
Program (WSU – UNSW  
Joint Program)



**Career profile:** Dr Sheppard was a 1998 UNSW Co-op Industry Scholar and completed internships at BHP and CSR Wunderlich whilst completing a B. Eng. (Ceramic) in 2003. In 2007 he completed a PhD in Materials Science and Engineering from UNSW with a thesis targeting novel solar materials for hydrogen generation from water splitting. He was appointed as a Research Associate in 2006 and Senior Research Associate in 2007, and joined WSU in mid-2008. In 2009 he was awarded an ARC Australian Research Fellowship which was held until 2013. In 2018 he was appointed as Academic Course Advisor (Industrial Design, and in 2020 was appointed Director of Academic Program (WSU-UNSW Joint Program).

Dr Sheppard's research interests are focussed on the processing and development of advanced materials for solar-hydrogen production, orthopaedic implant coatings, and metallic composites for aerospace. To date, Dr Sheppard has been awarded 2x ARC Discovery Projects, participated in 6x successful ARC LIEF Projects, has authored/co-authored 69 refereed journal publications and has a H-index of 21.

**Key  
Skills/Expertise:**

**Research:**  
Materials for solar-hydrogen production  
Processing of thin film and coating materials  
High temperature processing of materials under controlled gas phase

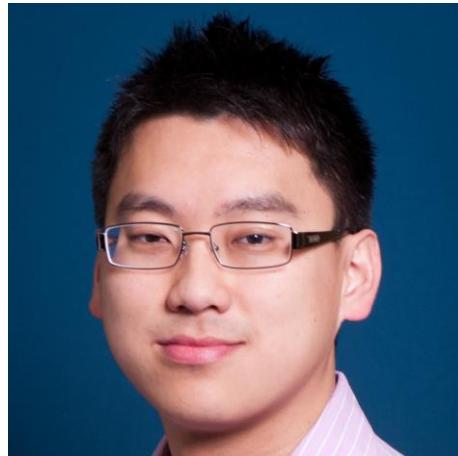
**Teaching:**

Design Science, Engineering Physics, Introduction to Engineering Practice, Sustainable Design 1: Materials Technology, Fundamentals of Mechanics



## RESEARCH PROFILE

### Dr. Ee Loon Tan



**Career profile:**

Dr. Tan is a member in the School Research Group – Advance Materials and Smart Structures (AMSS) and the Deputy Director for the Western Sydney University Chapter for the Australian Association for Steel-Concrete Structures (AASCCS). His research portfolio covers sustainable and green concrete such as recycled and geopolymers concretes, voided concrete systems such as BubbleDeck slab system, high performance concretes such as ultra-high strength concrete and floatable concrete, composite steel-concrete structures design, steel structures especially new grade stainless steel, demountable building systems for bridge and residential structures.

**Key Skills/Expertise:**

Research: Finite Element Modelling, Green Concrete, High Performance Concrete, Composite Steel-Concrete Structures, New Grade Stainless Steel and Demountable System

Teaching: Steel Structures, Concrete Structures, Project Units, Introduction to Engineering Practice and Industrial Experience

**Professional Experience:**

Companies involved include Metwest Engineering Pty Ltd, Engineers without Borders, Professional Australia, Mageba (Australia), Tsing Tuo (China) etc.



## RESEARCH PROFILE

### Professor Zhong Tao Professor in Infrastructure Materials



**Career profile:** Professor Tao received his PhD from Harbin Institute of Technology in 2001. He was previously an inaugural Australian Research Council (ARC) Future Fellow awarded by the Federal Government. Before joining WSU, Professor Tao held a position of Professor at Fuzhou University, China. Professor Tao is a member of Centre for Infrastructure Engineering.

**Key Skills/Expertise:** Professor Tao has a strong background in the research of construction materials, composite structures and structural fire engineering. He has extensive experience in conducting experimental research and numerical analysis. His recent research interests include: steel-concrete composite construction, prefabricated construction, stainless steel structures, advanced analysis of steel-concrete composite frames, high strength steel and concrete, geopolymers concrete, strain-hardening cementitious composites, phase-change materials, the use of recycled solid waste materials, and solar energy collection.

**Professional Experience:** Professor Tao has over 340 technical publications with a Scopus h-index of 37 and a Google Scholar h-index of 43. He has been invited 10 times to deliver keynote lectures on various international conferences. He has also served as a member of International Scientific Committees for 30 international conferences. Professor Tao is on the editorial board of two prestigious journals, and has acted as a referee for grants applied for from different funding bodies. He is currently serving on the College of Experts of the Australian Research Council. In his academic career, Professor Tao has won 19 competitive research grants (total valued more than AU\$3.3 million), including 7 ARC projects and 1 ACRAP project. Most of these projects have been co-funded by industry partners.



## RESEARCH PROFILE

### Dr. Baolin Wang



**Career profile:** Baolin graduated with his Bachelor degree and Master degree in Solid Mechanics. Before obtaining his PhD in Composite Materials, he worked as a structural engineer at Harbin Aircraft Company (China) for eight years. Since 2000, he has been a JSPS postdoctoral fellow in Shizuoka University, Japan, ARC research fellow in the University of Sydney and ARC Future Fellow in the University of New South Wales. He joined Western Sydney University in May 2014. He is on the editorial board of four international journals. He teaches Advanced Applied Mechanics for postgraduates and Mechanics of Materials and Applied Mechanics for undergraduate students.

**Key Skills/Expertise:** Research background is in the strength and reliability issues of advanced materials under extreme environments such as high temperatures, coupled thermal, electrical and magnetic fields. He has solid research/teaching experience in fatigue and fracture of engineering materials and structures, structural dynamics, heat conduction, and micro/nanoscale mechanics. He has authored and co-authored 3 books, 4 book chapters and more than 300 referred journal papers. He delivered 4 invited plenary/ keynote lectures in major international conferences in the field. His publications have gained more than 3200 SCI citations and an h-index 32.

**Professional Experience:** Baolin has carried out the externally funded research projects below:

- ARC Research Fellowship Project: "Coupled Thermoelectromechanical fracture mechanics of functionally graded materials" funded by Australian Research Council (DP0346037; \$449,000; 2003-2007).
- ARC Discovery Project: "Some Outstanding Mechanics Problems in Layered Ferroelectromagnetic Composites with Enhanced Magnetoelectric Effect" funded by Australian Research Council (DP0665856; \$490,000; 2006-2009).
- ARC Future Fellowship Project: "Mechanics of Micro/Nanoscale Multi- layers: Theories and Applications" funded by Australian Research Council (FT100100211; \$684,292; 2011-2014).



## RESEARCH PROFILE

**Dr. Helen Wu**  
**Academic Course Advisor,**  
**Undergraduate First Year**  
**Engineering Programs**



**Career profile:** Dr. Helen Wu is a senior lecturer at the School of Engineering, Western Sydney University. Helen has over twenty years' experience in teaching, research and consulting relating to the dynamic response of materials, machines and structures including vibration and condition monitoring.

Before joining WSU, Helen worked at UTS, ECU and Hyder Consulting, a multi-national consultancy, where she has been involved in conceptual, detailed design and implementation of tests on many projects related to vibration and noise control. She has expertise in conducting full scale measurements and analyses of civil engineering structures such as bridges, railway tracks, tunnels, and buildings.

An interesting project in which Helen was a project manager was to conduct full scale vibration measurements of 'Burj Khalifa Dubai' (the tallest building in the world) during various stages of the construction. She participated in the design of a vibration monitoring system to monitor the building movement induced by wind and possible future earthquake attacks. Helen was also involved in the project of Epping to Chatswood Rail Link during design and construction stages.

**Key  
Skills/Expertise:**

**Research Area:**

Vibration and noise control of machines and structures.  
Vibration diagnostics of machine malfunctions.  
Static and dynamic tests of materials, machines, and structures.  
Health monitoring of large civil engineering infrastructures.

**Teaching Area:**

300035 Kinematics and kinetics of machines.  
300480 Dynamics of mechanical systems.  
301019 Advanced dynamic systems.  
300974 Engineering honours thesis.



## RESEARCH PROFILE

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**Dr. Hui Xie**  
Lecturer in Robotics and  
Mechatronics



**Career profile:** Dr Xie has more than eleven years' experience in developing many robotic platforms for various applications, such as automatic unmanned aerial vehicle for power line inspection, light-weight manipulator for space station, and drone energy autonomy. He also developed an educational lab system for the control theory. This work saves 7000 CAD per set for University of Alberta, Canada.

**Key Skills/Expertise:** **Research:** Flying Robotics, Automation, and Perception  
**Teaching:** Mechatronic Design, Advanced Dynamics, Microcontroller and PLCs

**Professional Experience:** External Research Funding:  
• 2016 NSERC Engage Grant in Canada  
• 2018 NTU Wallenberg Presidential Postdoctoral Fellowship Singapore  
2019 State Key Laboratory of Robotics and Systems Research Grant HIT, China



## RESEARCH PROFILE

**Dr. Chunwei Zhang**  
**Senior Lecturer**



**Career profile:** Senior Lecturer of Structural Control at Western Sydney University (WSU), Australia. He received his PhD degree in 2005 from Harbin Institute of Technology (HIT), which is one of the top nine universities in China (the Civil Engineering discipline of HIT was founded in 1920 and currently ranked "A" nationally).

**Key Skills/Expertise:** Dr Zhang's research is multi-disciplinary and inter-disciplinary nature. His research interests include structural dynamics, vibration control, health monitoring, functional materials, smart structures, prefabricated structures, composite materials, composite structures, structural anti-blast, anti-impact, protective structures, offshore structures, numerical modeling, analysis of materials and structural behavior subjected to extreme loading, new material synthesis and characterization.

**Professional Experience:** He invented an innovative type of structural active control system, named as the electromagnetic-driving mass driver (EMD) system. He has developed the EMD control system, from theory to practice, and successfully implemented the EMD control system to the Canton Tower, which was the world tallest free-standing structure (600 meters) at the time of completion, for wind and earthquake induced vibration control.



## RESEARCH PROFILE

**Dr. Leo Zhang**

Lecturer



Career profile:

I am currently working as a lecturer in mechanical engineering at School of Engineering, in which I am involved in a teaching and research program on “advanced manufacturing”, focusing on design for additive manufacturing with metallic, composite and ceramic materials through the recent institutional development of additive manufacturing facility at Western Sydney University (WSU). Before starting at WSU in Nov 2018, I was a postdoctoral research assistant in the School of Aerospace, Mechanical and Mechatronic Engineering at the University of Sydney (USYD). I am an early career academic and completed all my degrees (PhD, MPhil and BE(Hons)) from USYD.

Key  
Skills/Expertise:

Research: I have focused on (1) **Design for additive manufacturing** in ceramics through collaboration with the USYD team at the ARC Training Centre on Innovative BioEngineering and a biomedical industry company, Allegra Pty Ltd, in which I play a leading role to analyse and optimise tissue scaffolds for a range of load-bearing applications in femur, mandible and neck. (2) **Multiscale modelling and mechanical characterisation** of human tissues through collaboration with research collaborators and a global dental equipment company Sirona in Germany, in which I play a critical role to acquire/process nano-/micro-scale images for developing multiscale models. (3) **Thermal induced fracture modelling** of ceramic structures was modelled through a coupled framework of heat transfer and computational modelling techniques through collaboration with a global biotechnological company, Cochlear Pty Ltd.

Teaching: I am mostly involved in Year 2/3/4 undergraduate (U/G) program in Mechanical Engineering at WSU, by coordinating and lecturing U/G units of (1) Automated Manufacturing (CNC and additive manufacturing), (2) Mechanical Design (Solid modelling and design optimisation), (3) Computer Aided Engineering (finite element analysis).



## RESEARCH PROFILE

**Associate Professor  
Yixia (Sarah) Zhang**

**Discipline Leader (Civil and Environmental Engineering)  
Director, Grand Challenges Scholars Program**



**Career profile:** Associate Professor Zhang has strong expertise in Civil and Structural Engineering. She is the Western Sydney University Research Theme Champion on Environment and Sustainability, and university wide Discipline Leader for Civil and Environmental Engineering. She is the director of Grand Challenges Scholars Program. Before that she joined the WSU in Jan. 2019, she worked in the University of New South Wales for 15 years staying 11 years in UNSW, Canberra since 2007 as a Lecturer, Senior Lecturer and then Associate Professor. She received her PhD on Structural Engineering from the University of Hong Kong in 2001.

**Key Skills/Expertise:** Research: A/Prof. Sarah Zhang has strong expertise on advanced composite materials including construction and building materials in Civil Engineering and composites in Mechanical and Aeronautical Engineering. She has been working on novel and green cement, green cementitious composites by using industry wastes and high-performance fibre reinforced cementitious composite aiming to achieve durable, resilient and sustainable infrastructures. She has a strong expertise on numerical modelling and analysis. In addition to using the experimental technique she also uses advanced numerical modelling technique to calibrate the mechanical behaviour of materials and model the structural behaviour including under extreme loading conditions such as impact/blast/fatigue/fire loadings. Since 1998, she has published over 230 peer-reviewed scholarly research papers including more than 90 research papers in top international journals in her research areas.  
Teaching: A/Prof. Sarah Zhang has over 16 years teaching experience in Australian universities. She has experience in delivering over 15 engineering units on engineering Mechanics, Structural analyses, Engineering Computation, Vibration, Soil Mechanics, etc.

**Professional Experience:** External funding: She was awarded research grant of over \$3 million from various schemes including Australian Research Council (ARC), Australia Defence and government.



## RESEARCH PROFILE

### Associate Professor Ming Zhao



Career profile:	Industry experience: Consultation for Fugro Advanced Geomechanics on offshore oil and gas engineering before 2011. Collaborate with offshore oil and gas companies in an ARC ITRH project including Woodside Energy Ltd. Bureau Veritas Marine (Singapore), et al.
Key Skills/Expertise:	Research: Computational Fluid Mechanics; Fluid-structure interaction; renewable energy; offshore wave dynamics; subsea engineering.
Teaching:	The units includes: Computational Fluid Dynamics, Thermodynamics and Heat Transfer, Thermal and fluid Engineering, Advanced Thermal and Fluid Engineering, Advanced Computational Fluid Dynamics, Hydraulics, Dynamics of Mechanical System, Fluid Mechanics.
Professional Experience:	<ul style="list-style-type: none"><li>• ARC Industrial Transformation Hub (IH140100012);</li><li>• Four ARC Discovery grants (DP150104644, DP130104535, DP110105171, DP0988706);</li><li>• ARC Linkage (LP150100249);</li><li>• ARC LIEF grant (LE140100002);</li><li>• Two Research grants funded by The National Natural Science Foundation of China (Grant no. 41176072 (2011) and Grant No. 51628901(2016)).</li><li>• Research funding founded by (CSIRO-2014) (2014010079).</li><li>• Research grant funded by Ministry of Science and Technology China, Enabling Technology for Deep Sea Resources, 2017.</li></ul>



## RESEARCH PROFILE

**Dr Qinghua Zeng**  
**Senior lecturer in**  
**Engineering Materials**  
**DAP in Postgraduate**  
**Engineering**



**Career profile:** Dr Qinghua Zeng joined the School of Engineering in January 2010 as a lecturer in Engineering Materials. He is currently a senior lecturer and director of academic programs in postgraduate engineering. Prior to that, Qinghua is a research associate, ARC postdoctoral and then lecturer in the School of Materials Science and Engineering at UNSW for 6 years. Before his Ph D study at UNSW, he was a metallurgical engineer with his work focus on mineral processing and separation techniques. He teaches Engineering Materials, Pavement Materials and Design, Engineering Geology and Concrete Materials, Environmental Engineering among others.

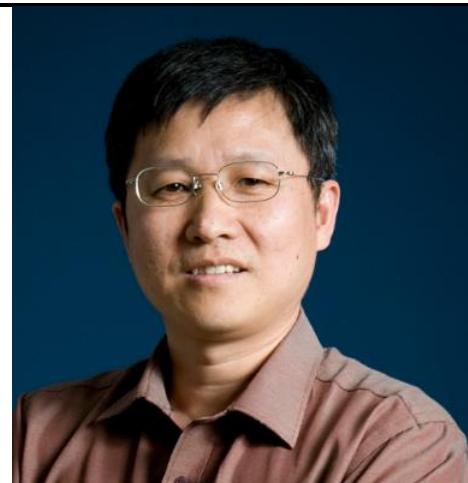
**Key Skills/Expertise:** Qinghua conducts research across a broad range of engineering and science fields. Specifically, his research areas and expertise are molecular modeling and simulation, surface and physical chemistry, recycling of solid waste, fly-ash polymer composites, nanoparticle-reinforced polymer nanocomposites, interaction forces of nanoparticles and their assembly, advanced porous materials and wastewater treatment. His research is funded from various sources including government agencies and industry sectors. Over the past years, he has received 2 ARC Discovery grants plus ARC Postdoctoral fellow in polymer nanocomposites, 1 ARC Linkage grant in fly-ash polymer composites, 2 ARC LIEF grants, 1 project from ARC Centre of Excellence for Functional Nanomaterials in molecular modelling, nanoparticle forces, 3 projects from ARC Research Hub for Computational Particle Technology and self-assembly in nanoparticles, particle flow and screening processes.

**Professional Experience:** Qinghua has also carried out the consultant works in his fields of expertise and research for industry and agents, such as Cement Australia, BHP-Billiton Mitsubishi Alliance, Gameday Mouthguards.

## RESEARCH PROFILE



## Associate Professor Haiping Zhu



**Career profile:** Dr Haiping Zhu is an Associate Professor in the School of Engineering at WSU. He joined WSU as a Senior Lecturer in 2009. Previously, he was a Research Fellow at UNSW. From 1995 to 2001, Dr Zhu was a Lecturer and then an Associate Professor at Peking University in China.

**Key Skills/Expertise:** Research: Dr.Zhu has devoted to the study of particulate systems, mechanical systems and related processes for over twenty years, and has made various contributions in both the fundamental and applied aspects of these fields. His current specific research areas/interests include dynamics of granular material, powder and particle technology, modelling of particulate and multiphase processes, solid flow and segregation, fluid flow, heat and mass transfer in packed and fluidised beds, processing and handling of bulk/particulate materials, theoretical mechanics and industrial application.  
Teaching: Structural Analysis, Numerical Methods in Engineering, Advanced Structural Analysis

**Professional Experience:** Dr. Zhu has acquired over ten research grants. The ongoing external projects are:

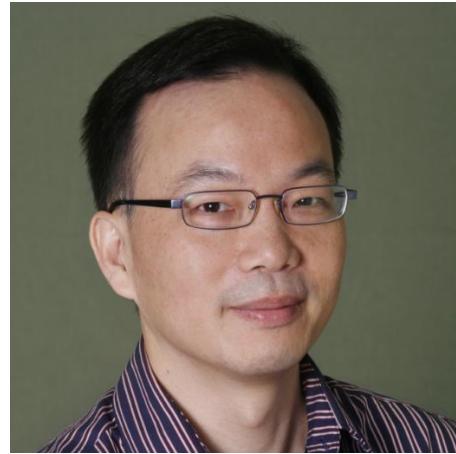
- Averaging method of particulate systems, ARC Research Hub for Computational Particle Technology, 2019 – 2021
- Multiscale investigation of the dynamical behaviour of particle flow in rotating drums. ARC Research Hub for Computational Particle Technology, 2017– 2020
- Particle-scale numerical study on screening processes. ARC Research Hub for Computational Particle Technology, 2017– 2020
- Interaction forces and self-assembly of nanoparticles. ARC Research Hub for Computational Particle Technology, 2017– 2020



## RESEARCH PROFILE

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**Dr. Jeffrey Zou**  
Senior Lecturer



**Career Profile:** Jeffrey received a PhD degree in digital image processing from the University of Sydney in 2001. He was a Research Associate and then an Australian Postdoctoral Fellow at the University of Sydney from 2000 to 2003. He has been with Western Sydney University since 2003, teaching undergraduate and postgraduate programs in electrical engineering and supervising research students.

**Key Skills/Expertise:** Jeffrey's research interests include image processing, pattern recognition, computer vision and their applications. He teaches signal processing, engineering visualization and circuit theory.

**Professional Experience:** Research projects that Jeffrey has undertaken include vision controlled autonomous robotic welding systems, geotechnical characterization of compacted ground based on passive ambient noise, computer-assisted cartooning, skeleton representation of ribbon-like shapes, lane detection for driver assistance, DNA microarray image processing, digital image processing for structural health monitoring, fire detection based on visual information, etc. Some of these projects have been funded by the Australian Research Council and the industry.

Jeffrey is an Associate Editor of IET Image Processing.