

Staff Member	Discipline	Email	Category	Research Areas
Dr Alireza Abbasi	Information Technology / Project Management	a.abbasi	IT/Project Management	Social Computing; Network Science (Social Network Analysis), Network Dynamics and Evolution, Link Prediction; Collaboration and Coordination Management, Disaster and Emergency Management; Information Systems Management; Recommendation Systems; Social Media Analytics, Data Analytics, Machine Learning, Topic Modelling; Future Technology Prediction; Business Process Management; Smart Cities; Transportation Management; Research Evaluation, Informetrics, Scientometrics; Health Informatics; Project Management, Program and Portfolio Management, Benefit Realisation, Risk modelling; Operations Research; Decision Making, Decision Analytics, Sustainability, Performance Management and Evaluation; Knowledge Management / Information Systems; Informetrics and Scientometrics.
Prof Hussein Abbass	Information Technology	h.abbass	Trusted autonomy	Trusted Autonomous Systems (Artificial Intelligence for Human Machine Teaming, Biometrics and Trustworthiness in Autonomous Systems, Fusion of Human Data, Natural and Brain-Machine Interfaces, Swarm Intelligence and Swarm Robotics), Computational Intelligence (Classifier Systems, Deep Learning, Ensemble Learning)
Dr Neda Aboutorab	Information Technology	n.aboutorab	IT/STEM Education	Information theory, network coding, and wireless communications.
Dr Safat Al-Deen	Civil Engineering	s.al-deen	Civil	Composite Steel-Concrete Structures; Non-linear and time dependent behaviour of reinforced and prestressed concrete structures; Experimental methods in structural engineering; Image based measurement of the structures
Dr Sreenatha Anavatti	Aero/Mech Engineering	a.sreenatha	Trusted autonomy	Application of Fuzzy Logic and Neural Network for Aerospace Applications; Attitude Control; Control of Flexible Robotic Arms ; Design and Analysis of Robust Autopilots for Aircraft and Missiles
Dr Nalin Asanka Gamagedara Arachchilage	Cyber Security	nalin.asanka	Cyber	Usable Security and Privacy; Cyber-Security; Human-Factor in Security; Trust; Cybercrime; Economics of Security & Privacy; HCI; Information Systems; Serious Games; E-Learning
Professor Greg Austin	Cyber Security	g.austin	Cyber	Defence Studies, Government and Politics of Asia and the Pacific, International Relations , Emerging Defence Technologies, Technological and Organisational Innovation
Dr Sudantha Balage	Space	s.balage	88142	Orbital mechanics; Weakly ionised plasmas; Machine intelligence; Machine/human hybrid systems; Computational fluid mechanics; hypersonic flows.
Dr Michael Barlow	Information Technology	m.barlow	Trusted autonomy	Serious Games & Games Technology ; AI & Multi-Agent Systems ; Simulation & Virtual Environments ; Machine Learning ; Human Computer Interaction ; Speech Science and Technology.
Dr Craig Benson	Electrical Engineering	c.benson	Space	Space Radar; Satellite Communications; Guided Weapons; Electronic Warfare; Radar; GPS & Navigation Warfare

Prof Russell Boyce	Space	r.boyce	Space	Hypersonics, space situational awareness, space transport, aerospace.
Dr Toby Boyson	Electrical Engineering	t.boyson	Hypersonics, STEM Education	Chemical Spectroscopy, Signal Processing, Photonics, Optoelectronics and Optical Communications, Control Engineering
Dr Melrose Brown	Space	Melrose.Brown	Space	Direct Simulation Monte Carlo (DSMC) and Particle-in-Cell (PIC) simulations of space vehicles in Low Earth Orbit (LEO); Orbit propagation and determination techniques ; High fidelity drag modelling of LEO satellites ; Physics-based atmosphere modelling and approximation ; Hypersonic computational fluid dynamics
Dr Bianca Capra	Aero Engineering	b.capra	Hypersonics	Hypersonic flow ; aerothermodynamics ; supersonic wind tunnel testing ; fluid-structural interaction ; porous material use in hypersonic flow ; re-entry heating
Dr Ripon Chakraborty	System Engineering, Project Management	r.chakraborty	Optimisation, Project Management	Project Management and Sustainable Smart Scheduling, Uncertainty and Disruption Management in Project Scheduling, System Engineering and Data Modelling, Logistics & Supply Chain Management, Optimization Algorithms and Applications (focus: Industry 4.0), Operations Research and Operations Management Techniques (focus: Cyber-Physical System, Neutrosophic Logic etc.)
Dr Ilhan Chang	Civil Engineering	ilhan.chang	Civil	Soil characterization and ground improvements through multi-disciplinary convergence such as, geophysical characterization using elastic waves, DCM (Deep Cement Mixing), scouring monitoring and preservation, and microbial soil treatment.
A/Prof Frank den Hartog	Cyber Security	frank.den.hartog@unsw.edu.au	Cyber	Security, reliability, and interoperability of Internet of Things and Cyber-Physical Systems; Communication network diagnostics and management; Communication network technology standardisation; Computer system security; Data security.
A/Prof Daoyi Dong	Electrical Engineering	d.dong	Control	Systems Theory and Control Theory; Quantum Information; Quantum Control; System identification; Reinforcement learning; Machine Learning
Dr Sondoss El Sawah	Capability System	s.elsawah	Capability Systems	Large complex problems and systemic risks, decision making tools, life cycle assessment, system dynamics.
Dr Saber Elsayed		s.elsayed	Optimisation	Evolutionary algorithms, constrained and unconstrained optimisation, scheduling, multi-objective optimisation, big data and cyber-security using computational intelligence.
Dr J. Pablo Escobedo-Diaz	Mechanical Engineering	j.escobedo-diaz	Advanced Materials/ Impact Dynamics	Dynamic behaviour of materials under extreme conditions, in particular high pressure and high strain rate.
Dr Daryl Essam	Information Technology	d.essam	Optimisation & Design	Fractal Image Generation and Compression ; Artificial Intelligence, particularly Genetic Programming ; Game Playing ; Complex Adaptive Systems ; Operations Research & Optimisation

Prof Michael Frater	Electrical Engineering	m.frater	Imaging	Video communications and Underwater Networks
Dr Jai Galliot	Cyber Security	j.galliot	Trusted Autonomy, Cyber	Ethical, legal and political issues associated with the employment of emerging technologies, including autonomous vehicles, cyber systems and soldier augmentation technologies
A/Prof Matt Garratt	Aero/Mech Engineering	m.garratt	Trusted autonomy, control, imaging	Sensing and control for autonomous systems. Visual flight control. Unmanned Aerial Vehicles. Unmanned Ground Vehicles. Computational Intelligence including fuzzy logic and neural networks. Cognitive Autonomy.
Dr C.T. (Rajah) Gnanendran	Civil Engineering	r.gnanendran	Civil	Reinforced soil systems (geosynthetics, fibre, etc.) ; Embankments on soft soils ; Pavement material characterization (resilient modulus, fatigue, permanent deformation, etc.) ; Stabilisation of pavement materials ; Numerical modeling using the finite element method (FEM) and finite difference method (FDM) ; Soft soil engineering (visco-plastic modeling, stabilization with PVDs, vacuum preloading, etc.)
Dr Haroldo Hattori	Electrical Engineering	h.hattori	Advanced Electromagnetics, Advanced Materials	Micro and nano-photonics ; Semiconductor and fibre lasers ; Nano-materials ; Terahertz devices.
Prof. Paul Hazell	Aero/Mech Engineering	p.hazell	Impact Dynamics	Dynamic behaviour of materials and structures that have been subjected to impact / shock loading.
Erandi Lakshika Hene Kankanamge	Information Technology	e.henekankanamge	Trusted autonomy	Machine Learning, Games for Health, Human Computer Interaction, AI and Multi-agent Systems, Computational Intelligence, Simulation
Prof Jiankun Hu	Cybersecurity	j.hu	Cyber	Computer networking and computer security, especially biometric security.
Dr Xiuping Jia	Electrical Engineering	x.jia	Imaging, Space	Image processing, data analysis and remote sensing applications.
Dr Keith Joiner	Aero Engineering, Project Management	k.joiner	Test and Evaluation, cyber	First use of Design Of Experiments (DOE) techniques (orthogonal multi-factor, multi-response regression analysis) in test and evaluation (T&E) fields; Efficacy and processes for early preview T&E (try-before-buy) planning and conduct so projects are de-risked early; Organisational structuring of T&E within Portfolio, Program and Project Management Office (P3O) constructs to achieve more robust use of T&E metrics at gate reviews; Cyber-security T&E and policy.
A/Prof Kathryn Kasmarik	Information Technology	k.merrick	Trusted Autonomy, STEM Education	Artificial intelligence and virtual worlds.
Dr Amar Khennane	Civil Engineering	a.khennane	Civil	Behaviour of structures under fire ; Durability of composite materials ; Numerical methods ; Optimisation ; Retrofitting of structurally deficient structures.

A/Prof Harald Kleine	Aero/Mech Engineering	h.kleine	Hypersonics, Impact Dynamics	Development of improved time-resolved visualisation techniques and associated applications in shock wave research such as fully unsteady shock wave reflection/focusing/interaction phenomena as well as studies of the physics of blast waves and exterior ballistics.
Dr Matthias Kramer	Civil Engineering	m.kramer	Fluids	Physical modelling of gas-liquid multiphase flows; Measurement techniques; Signal processing; Remote sensing; Hydraulic structures; Energy dissipation; Mass-transfer
A/Prof Andrew Lambert	Electrical Engineering	a.lambert	Space, Imaging	Imaging through Turbulence ; Adaptive Optics; Space Engineering; Space Debris Tracking; Surveillance Imaging; Vision Science & Ophthalmology; Optical Image Processing ; Digital Image Processing and Restoration ; Digital Signal Processing
Prof Chi King Lee	Civil Engineering	c.lee	Civil	High strength steel structures; Composite steel structures; Fatigue performance of tubular and crane structures; Integrated design procedure for optimal sustainable building structural system; Use of emerging and green materials in structural engineering Protective structure and infrastructure resilience; Progressive collapse of buildings; Combined blast and fragment effects on structures; Explosion safety of ammunition magazines computational mechanics and numerical methods; Automatic mesh generations; Meshless methods (RKPM/EFGM) and Generalized and eXtended finite element methods
Dr Jong-Leng Liow	Aero/Mech Engineering	j.liow	Fluids	Bath smelting and metallurgical processes ; Gas-liquid and liquid-liquid multiphase flows, splash ; Micro-end milling ; Microfluidics and microdevices ; Particle image velocimetry (PIV) ; Volume of fluid CFD
Dr Alan McLucas	Engineering Management	a.mclucas	Systems Engineering	Integration of soft and hard variables as applicable to modelling of complex, dynamic systems in the fields of requirements engineering, systems engineering, project management, risk management and strategy development.
Dr Greg Milford	Electrical Engineering	g.milford	Advanced Electromagnetics	High frequency circuit design ; Antenna analysis, design and measurement ; Asymptotic methods in electromagnetics, with applications to antennas and radar cross section ; Quantum Electronics
A/Prof Andrey Miroshnichenko	Electrical Engineering	a.miroshnichenko	Advanced Electromagnetics	Optical Metamaterials ;Optical nano-antennas.
Dr Huadong Mo	System Engineering, Project Management	huadong.mo	Systems Engineering	real-time power management of energy system with communication network; vulnerability analysis and resilience increase of cyber-physical-social systems; time-series models for various applications, e.g. residential energy use, renewable energy resource and lifetime data; online diagnosis and prognosis of critical systems;

Prof Evgeny Morozov	Aero/Mech Engineering	e.morozov	Advanced Materials	Applied and Structural Mechanics ; Design, Analysis and Manufacture of Composite Materials and Structures ; Mechanics of Composite Materials and Structures ; Modelling, Design and Optimization of Advanced Materials, Processes and Structural Components.
Prof Andrew Neely	Aero/Mech Engineering	a.neely	Hypersonics, STEM Education	Hypersonic Flow - Aerothermodynamics, Thermal paints for hypersonic flight tests, Thermal-structural modelling, Free flight testing in shock tunnels, Separated flows ; Supersonic Flow - Compressible ground effect, Cavity flows, Application of surface-coating diagnostics ; Gas Turbines and Propulsion- Fluidic thrust vectoring, Fatigue interaction on engine blading, Engine models for simulation ; High Temperature structures & materials- Nano-particulate reinforced metal matrix composites, Thermal properties and fire resistance of composite materials ; Bio-mechanics and materials - Chiasmal compression, Corrugated wire mesh laminates.
A/Prof Robert Niven	Civil Engineering	r.niven	Optimization and Design	Probabilistic inference of thermodynamic systems, fluid flow systems and flow networks, using the maximum entropy method and/or Bayesian inference. Environmental contaminants in air, soil, groundwater and surface waters. Environmental systems and impacts. Biofuel impacts and biofuel policy.
A/Prof Sean O'Byrne	Aero/Mech Engineering	s.obyrne	Space	Hypersonics and re-entry physics ; Sensors for hypersonic flight testing ; Laser spectroscopy ; Tuneable diode laser absorption spectroscopy ; Laser-induced fluorescence ; Laser-enhanced ignition in high-speed diffusive flames Laser-based sensors for emissions monitoring, engine diagnostics ; Thermal and chemical nonequilibrium in hypersonic flows ; Aviation safety - laser pointer attacks on pilots .
Prof Valeri Ougrinovski	Electrical Engineering	v.ougrinovski	Control	Control theory and control engineering; Large-scale interconnected systems, decentralized and distributed control ; Hidden Markov models ; Stochastic Systems, Stochastic Stability and Control ; Robust Stability and Robust Control ; Robust Estimation and Filtering.
Prof Mark Pickering	Electrical Engineering	m.pickering	Imaging	Digital Signal Processing ; Image Processing ; Medical Image Registration ; Video and Image Compression ; Remote Sensing
A/Prof Himanshu Pota	Electrical Engineering	h.pota	Control	Power Systems Dynamics and Control; Smart grids; Microgrids; Nonlinear control; Control Theory & Control Applications ; Control for atomic force microscopes; Control for small helicopters and quadrotors; Control for mechanical systems.
Dr David Powell	Electrical Engineering	david.powell	Metamaterials	Microwave and millimeter wave metasurfaces ; Acoustic and elastic wave metamaterials, including experimental design and characterisation ; Modelling of fundamental physical phenomena in open electromagnetic and acoustic resonators (known as quasi-normal modes, resonant state expansion, or singularity expansion method) ; Tunable, reconfigurable, nonlinear and time-varying metamaterials

Dr Sridhar Ravi	Aero/Mech Engineering	sridhar.ravi	Fluids, Mechanical	Flapping wing aerodynamics, micro air vehicles, swimming robots, biomechanics and neuroethology
Prof Tapabrata Ray	Aero/Mech Engineering	t.ray	Optimisation	Neural, Evolutionary and Fuzzy Computation, Interdisciplinary Engineering, Decision Support and Group Support Systems, Mechanical Engineering.
A/Prof Mike Ryan	Capability Systems	m.ryan	Systems Engineering	Requirements Engineering ; Systems Engineering ; Capability Development ; Communications Theory and Systems ; Remote Sensing ; Underwater Communications.
Prof Ruhul Sarker	Information Technology	r.sarker	Optimisation	decision analytics, operations research, applied optimization, and evolutionary optimization. Applications include supply chain (design, bottleneck, shipping, and disruption recovery), mining (mine scheduling, coal mining and petroleum production planning), manufacturing (layout and location, production planning, and scheduling), agriculture (crop planning, and land allocation), power generation planning, resource constrained project scheduling, and defence (planning, and performance evaluation).
Dr Krishna Shankar	Aero/Mech Engineering	k.shankar	Structures	Applied and Structural Mechanics ; Design, Analysis and Manufacture of Composite Materials and Structures ; Mechanics of Composite Materials and Structures ; Modelling, Design and Optimization of Advanced Materials, Processes and Structural Components.
Dr Hemant Kumar Singh	Mechanical Engineering	h.singh	Optimisation	Evolutionary computation; Engineering design optimization; Artificial Intelligence; Information Sciences; Evolutionary multi-objective optimization; Computationally expensive optimization; Bilevel optimization;
Dr Warren Smith	Mechanical Engineering	w.smith	Mechanical	Complex Systems ; Systems Modelling ; Decision-Based Design ; Optimisation Methods ; Mechanical Design ; Vehicle Design (Formula SAE) ; Naval Architecture ; Ship Design and Safety ; Engineering Design Education ; Authentic and Immersive Experiential Learning.
Dr Elena Sitnikova	Cybersecurity	e.sitnikova	Cyber	Critical infrastructure protection and cyber security, quality assurance and enterprise process capability improvement.
Dr Ahmed Swidan	Mechanical Engineering	a.swidan	Maritime	Aspects of advanced marine vehicles design, Fluid Structure Interaction, Diagnostic maintenance systems, Ship propulsion systems, Maritime human factors, Learning advances in maritime education & training, Numerical simulations - Computational Fluid Dynamics, Full Scale measurements, and Model testing.
Dr Murat Tahtali	Aero/Mech Engineering	m.tahtali	Imaging, structures	Adaptive optics, medical imaging, computer aided design, finite elements, vibration analysis, software development.
Dr Fangbao Tian	Aero/Mech Engineering	f.tian	Fluids	CFD tools for complex flows and fluid-structure interaction, modelling of laryngeal aerodynamics and vocal-fold vibration, fluid-structure interaction of a plate or multiple plates in a viscous fluid, fish swimming and insect flight, blood flow and blood cells, and non-Newtonian flow.

Dr Ben Turnbull	Cybersecurity	b.turnbull	IT	Securing computers and networks, automated learning from large datasets, forensic analysis of non-traditional devices, cyber security, cyber situation awareness, knowledge management, network analysis and visual analytics.
Professor Scott Tyo	Electrical Engineering	s.tyo	Imaging	Optimization of polarimetric sensors for remote sensing applications ; Integration of polarimetric and spectral sensors and information ; Processing of high-dimensional spectropolarimetric data ; Investigation of statistical properties of hyperspectral imagery ; Use of spectropolarimetry to improve imaging in scattering media ; Fusion of multi-dimensional data into intelligible images ; Design of UWB antennas and antenna arrays ; Development of sensors, measurement techniques and processing strategies for UWB EM measurements ; Generation and radiation of electromagnetic transients.
Dr Kate Wilson	Engineering Education	k.wilson	Education	Gender differences in STEM education, student learning, pedagogy and curriculum development.
Dr Matt Woolley	Electrical Engineering	m.woolley	Control	Quantum optomechanics, Superconducting circuits, Quantum control.
Dr Jianfeng Xue	Civil Engineering	jianfeng.xue	Civil	Reliability analysis of soil structures, behaviour of reinforced soils, landfill waste behaviour, pile foundations, geogrid reinforced pavement systems, tunnel interaction in soft soils, soil structure interaction.
Dr Hidehiro Yonezawa	Electrical Engineering	h.yonezawa	Quantum Physics	Experimental quantum optics, quantum information and quantum control
A/Prof John Young	Aero/Mech Engineering	j.young	Fluids	Computational Fluid Dynamics, Insect Aerodynamics, Wind power generation,