



UNIVERSITY OF
TECHNOLOGY SYDNEY

UNIVERSITY OF TECHNOLOGY, SYDNEY

GLOBAL PARTNERSHIPS
FOR GLOBAL CHALLENGES



PRACTICAL. INNOVATIVE. COLLABORATIVE.



“Our purpose as a university is to advance knowledge and learning to progress the professions, industry and communities of the world.”

PROFESSOR ROSS MILBOURNE,
VICE-CHANCELLOR AND PRESIDENT

Message from the Deputy Vice-Chancellor – International and Development



The University of Technology, Sydney aspires to be a truly internationalised university, building our research strength and capacity through partnership with institutions of excellence around the world. UTS is characterised by a culture of discovery, creativity and engagement. Our research reflects our philosophy and vision to be a world-leading university of technology, consistently breaking new ground and producing world-class outcomes with the capacity to change lives.

With six key research themes focusing on Health Futures, Sustainability and the Built Environment, Communication and Intelligent Systems, Future Services and Industries, Business Innovation, and Creative and Civil Societies, UTS has earned a reputation nationally and internationally for its inspired approach to providing high impact and innovative solutions to problems of global significance.

UTS is proud of its partnerships with universities, industry and government across Australia and the world, and utilises these relationships as the foundation for developing cutting-edge solutions to global challenges.

Among the many substantial outcomes of our partnerships is Australia's first plug-in hybrid electric vehicle, engineered by UTS researchers and being trialled as a fleet vehicle by staff at the NSW Department of Environment, Climate Change and Water. Our long lasting relationship with mobile communication multinational Motorola has impacted the company's choice modelling and product design, and our partnerships with Agilent Technologies and Alcatel have resulted in the development of cutting-edge teaching and collaborative research facilities.

With a vision to transform our world-class facilities into a campus of the future, UTS is investing a further A\$1 billion dollars in campus development over the next five years. In conjunction with our innovative research outcomes and strong international partnerships, UTS's campus of the future will bolster the university's impressive research capabilities.

The future presents diverse and exciting challenges. Alongside these challenges come opportunities to expand and strengthen our partnerships in pursuit of creative solutions to global issues.

A handwritten signature in black ink that reads "William R. Purcell". The signature is fluid and cursive.

Professor William R. Purcell



UTS AT A GLANCE

Times Higher Education QS-World University ranking 2010	257
Research income 2009	A\$26 million
Academic and support staff 2010	2750
Undergraduate programs	100
Postgraduate programs	150

STUDENTS IN 2010

Total student enrolments	34 167
Local	25 492
International	8675
Higher Degree Research	1164
Postgraduate Coursework	11 531
Undergraduate	21 472

“Our courses are designed to prepare students for the global marketplace and academics visit from all corners of the globe to share their expertise. We enjoy close partnerships with universities worldwide and the benefits of a diverse multicultural student body.”

PROFESSOR WILLIAM PURCELL,
DEPUTY VICE-CHANCELLOR (INTERNATIONAL AND DEVELOPMENT)



THE UNIVERSITY OF TECHNOLOGY, SYDNEY

UTS embraces knowledge and learning beyond political and cultural boundaries. We situate our research, teaching and learning in an international context and engage with people and countries from around the world to advance our academic, educational and wider social objectives.

UTS is an international institution. More than 20 per cent of our 34 167 undergraduate and postgraduate students come from overseas, originating from more than 120 countries around the world.

These international students share their knowledge and culture with local students, further preparing them for careers in the global marketplace.

In addition, internationalisation brings significant benefits to the broader community. Students from across the world introduce us to new viewpoints and bring different approaches to problem-solving.

UTS has forged strong international ties and is active in developing mutually productive alliances worldwide, delivering:

- > double degree programs
- > sponsored exchange of researchers
- > joint research programs
- > exchange opportunities

Our international partners include UCLA, MIT, Johns Hopkins University, Kings College London, Shanghai Jiao Tong University, Hong Kong Polytechnic University and Universität Mannheim.

Campus and facilities

UTS's world-leading learning and research facilities include:


- > the world's first dedicated bio-imaging lab, enabling staff and students to obtain and view images of metal elements such as iron and zinc in brain and heart tissue
- > the only OMX light microscope in the southern hemisphere, opening up new possibilities in the detection, treatment and understanding of diseases in humans, animals and plants
- > an Engineering Remote Access lab, a world-first facility allowing students to conduct experiments on-line in communication with students or academics around the world.
- > advanced simulation labs in the Faculty of Nursing, Midwifery and Health allowing students to practise their clinical skills on "SimMan", who can be programmed to display medical symptoms. The faculty is also a leader in the design of medical simulation equipment in Australia.

Over the next five years, the UTS City Campus Master Plan will revitalise the university campus with a billion dollar vision to deliver an iconic and pedestrian-friendly campus where innovation and creativity meet technology. Comprising four new buildings and a number of major refurbishments, relocations and new social hubs, it aims to ensure the university's future in cutting-edge education and research.

The new Engineering and Information Technology building on Broadway is designed to represent a new gateway into the city. The design consists of angled, semi-transparent binary screens providing a dramatic urban presence. In keeping with the university's commitment to sustainability, the building will have a 5 Green Star Rating, designed to deliver a 30 to 45 per cent energy saving over the benchmarked tertiary institutions.

UTS has engaged world-renowned architect, Frank Gehry – responsible for such famous architecture as the Guggenheim Museum – to design the new UTS: Business building.

"Frank Gehry's concept encapsulates the spirit of UTS. His proposal is bold, innovative and synthesises creativity and technology to create unique learning and research environments for the future," UTS Chancellor, Professor Vicki Sara said of the project which is due for completion in 2013.



The new UTS Faculty of Engineering and IT building designed by Denton Corker Marshall began construction mid-2010.

Committed to supporting researchers, research students and industry partners, UTS aims to be a leader in collaborative research and a preferred research partner for industry, business, government and the professions.

RESEARCH AT UTS

UTS research is focused on driving change and finding practical solutions to current national and international problems – what we call ‘practical innovation’. Our 28 research strengths are recognised as national leaders covering disciplines ranging from traditional areas – such as physical, biological and engineering sciences – to fast-moving contemporary fields including design, nanotechnology and sustainability. We work closely with industry and leading research organisations on projects that tackle real-world issues.

UTS is committed to fostering and investing in an innovative research culture. Our recent Strategic Investment Plan allocated an additional A\$70million over the next six years to enhance our research capabilities. This extra funding will help attract top talent from around the world, drive innovation and build the development and competitiveness of our researchers.

UTS research is focused around six key themes:

Health futures

UTS researchers are improving the quality and safety of health care with specific strengths in developing biotechnology and medical devices, evaluating health systems and services to improve practice and generating meaningful economic analyses to take health into the future.

Sustainability and built environment

UTS research in this theme spans areas including climate, water, energy, health and built environment enabling us to provide holistic research approaches to environmental issues and policies.

Creative and civil societies

Research in this area draws together researchers from the arts and social sciences, design and sciences to give a unique perspective on cultures and cultural change, the impact of technology on society and the characteristics affecting social cohesion and cultural change.

Business innovation

This theme draws together world-leading research in fundamental

discipline areas such as finance, economics, marketing and management with innovative cross-disciplinary approaches to the role of business and public policy in addressing key economic, social and environmental problems.

Communication and intelligent systems

UTS brings together a range of disciplines to tackle issues that are fundamental to society, how we communicate and share information. This diverse theme examines new ways to draw insight from oceans of data, understanding and leveraging the communication potential of new media and technologies, and designing real-time intelligent systems.

Future services and industries

Services make up a critical component of the Australian economy. Technology allows a revolutionary approach both to the delivery of services and to traditional industries such as manufacturing. UTS researchers in areas such as robotics, IT and nano-materials are defining and supporting the next generation of Australian industry and services.



“UTS produces research that is underpinned by technology and innovation. As a result we can assist business, government, industry and communities to develop technologies, services and outcomes that provide real benefits.”

**PROFESSOR ATTILA BRUNGS,
DEPUTY VICE-CHANCELLOR (RESEARCH)**

UTS Research Strengths

Our 28 research strengths are grouped within the six theme areas:

Health futures

- > Health Economics Research and Evaluation
- > Health Technologies
- > Health Services and Practice
- > Infection, Immunity and Innovation

Sustainability and the built environment

- > Sustainable Futures
- > Built Infrastructure
- > Plant Functional Biology and Climate Change Cluster
- > Environmental Sustainability
- > Technology in Water and Wastewater

Creative and Civil Societies

- > Forensic Science
- > Law Research
- > Contemporary Design Practices
- > Cosmopolitan Civil Societies
- > Research in Learning and Change
- > Transforming Cultures
- > Strengthening Indigenous Communities
- > China Research Centre
- > Creative Practices and Cultural Economy

Business Innovation

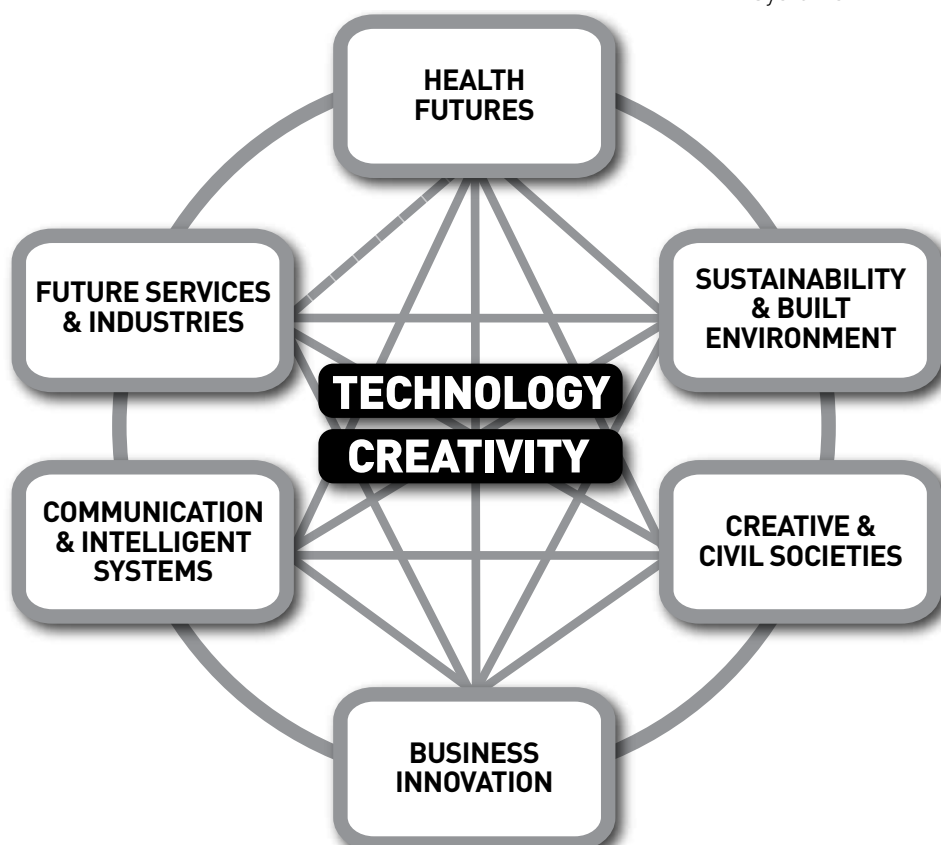
- > Corporate Governance
- > Management and Organisation Studies
- > Quantitative Finance Research
- > Study of Choice

Future services and industries

- > Nanoscale Technology
- > Intelligent Mechatronic Systems
- > Innovation in IT Services and Applications

Communication and Intelligent Systems

- > Human Centred Technology Design
- > Real-time Information Networks
- > Quantum Computation and Intelligent Systems



UTS is proud of its track record in effective research collaboration with other universities nationally and internationally, and with partners in industry, business and the professions.

RESEARCH COLLABORATION

UTS works in partnership with universities across Australia through six Collaborative Research Centres:

- > Australasian CRC for Interaction Design Pty Ltd
- > Contamination Assessment and Remediation of Environments
- > Cotton Catchment Communities
- > Sustainable Tourism
- > Technology Enabled Capital Markets
- > Water Quality and Treatment

These centres bring together researchers from universities, government laboratories and industry to achieve outcomes of national economic and social significance.

The university is also a member of two Australian Research Council Centres for Excellence in:

- > Autonomous Systems
- > Ultrahigh-bandwidth Devices for Optical Systems

These highly innovative centres focus on maintaining and improving Australia's international standing in these priority areas.

In 2009 UTS was also chosen to lead two significant newly formed national centres sponsored by the Australian government:

- > Creative Industries Innovation Centre
- > Australian Centre of Excellence for Local Government

Australia-China NanoNetwork

As a member of the Australian Technology Network (ATN) of universities, UTS has a strong relationship with ISTA, the International Strategic Technology Alliance. Co-ordinated from Hong Kong, ISTA includes more than 20 universities in the USA, UK, Israel, China and Australia, all interested in sharing intellectual property and technology transfer.

From the ATN/ISTA alliance, the Australia-China NanoNetwork was formed in early 2009 to promote collaborative research projects and research training; addressing key contemporary research challenges through nanoscience. UTS is a leading contributor to the NanoNetwork's research into energy efficient lighting solutions.

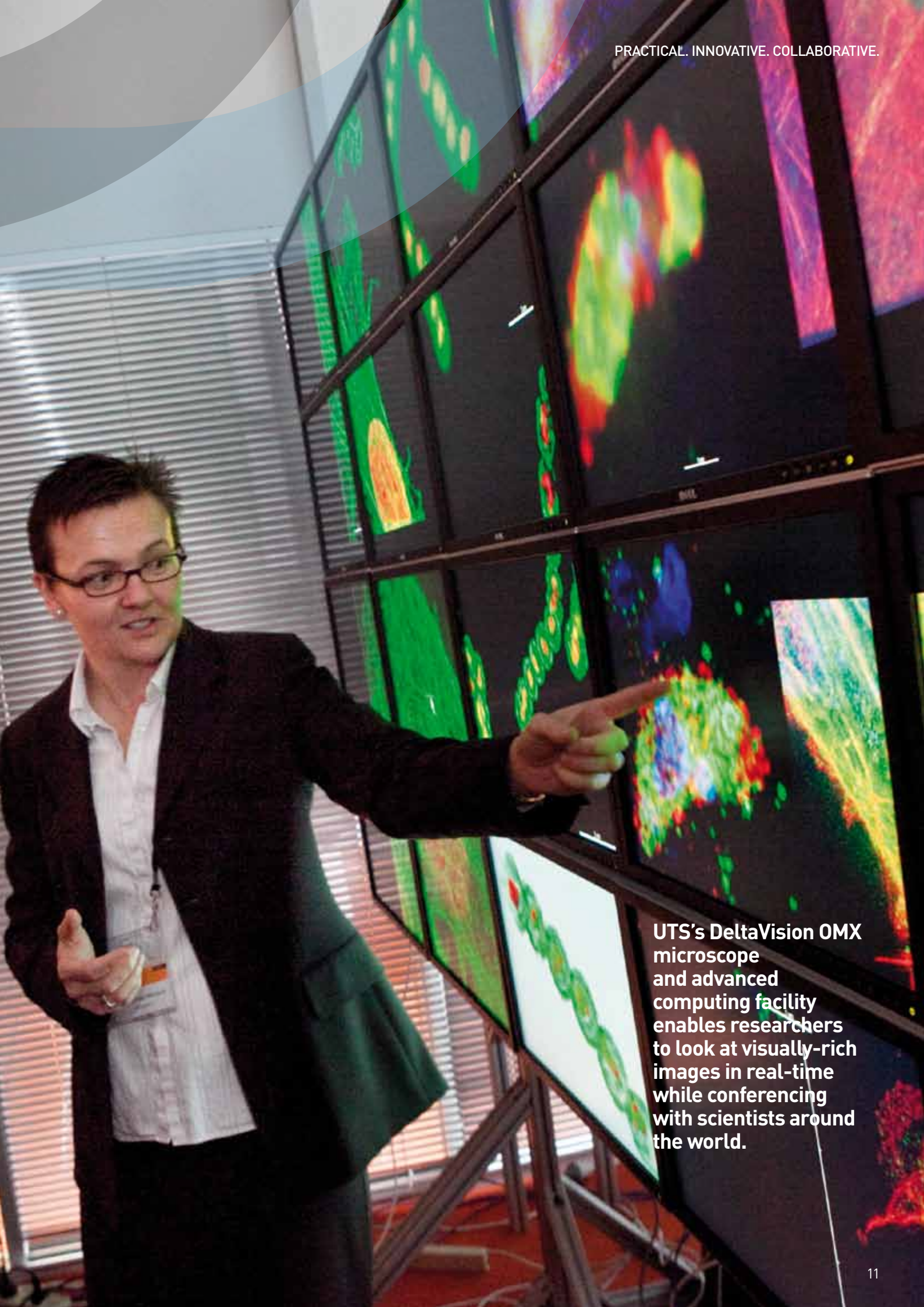
Key Technology Partnerships

As part of our vision to be a world-leading university of technology, UTS is developing strategic partnerships with leading technology institutions worldwide. These Key Technology Partnerships enable collaborative research, teaching and mobility opportunities for academics and students of UTS and its partners.



“The research we’re doing on energy efficient materials connects in to the Australia-China NanoNetwork which we’re involved in. The theme is energy efficient, green lighting, which fits perfectly with us. That’s what we would consider our major activity.”

PROFESSOR MATTHEW PHILLIPS,
DIRECTOR, MICROSTRUCTURAL ANALYSIS UNIT



UTS's DeltaVision OMX microscope and advanced computing facility enables researchers to look at visually-rich images in real-time while conferencing with scientists around the world.

INDUSTRY PARTNERSHIPS

There are many ways industry partners work with us on research, including:

- > contract research – discrete research projects delivering specific value to the industry partner
- > collaborative research projects – UTS and the partner work together on a research project with each providing intellectual input and resources
- > consulting services – accessUTS, our wholly-owned commercial arm, provides a range of services such as laboratory testing and analysis, training programs and study tours

Industry Advisory Board

In 2010, UTS formed the Vice-Chancellor's Industry Advisory Board. Representing the broad spectrum of industries integral to the university, the main function of the board is to feed thinking at UTS.

Comprised of 10 members – all CEOs or powerhouses in their sectors – the board represents companies including IT giants IBM, Deloitte and Microsoft Australia; Kimberley-Clark Australia; medical technology company, Cochlear; digital effects company, Animal Logic;

Australia's national broadcaster, the ABC; one of Australia's major banks, Westpac; and the country's leading telecommunication provider, Telstra.

Board members' knowledge will inform UTS research and education programs to guarantee industry relevance within coursework and research.

In turn, this knowledge will assist UTS in continuing to develop relevant industry connections and improve the quality of our research outcomes.

“Both Alcatel-Lucent and UTS are driven by innovation and technology and we share the mutual goal of equipping a new generation of students with the skills needed in a broadband-enabled Australia.”

**ANDREW BUTTERWORTH,
MANAGING DIRECTOR, ALCATEL-LUCENT AUSTRALIA**

“UTS is an excellent strategic partner for industry – easy to work with and good to do business with. The partnership helps us drive innovation, accelerate research and shape our future workforce.”

**GLEN BOREHAM,
MANAGING DIRECTOR, IBM AUSTRALIA AND NEW ZEALAND**

Partnership outcomes

Equipping our scientists

Global provider of analytical instrumentation, Agilent Technologies has made UTS: Science's Bio-Imaging Facility their Asia Pacific demonstration site, furnishing it with more than \$A1 million dollars worth of equipment. According to Agilent's Australia and New Zealand Operations Manager, Rod Minett, "the bio-imaging lab – the culmination of an eight-year partnership between UTS and Agilent – is a success in both the project work it has produced and as a demonstration site for new applications of Agilent instruments."

Switching on the future

Researchers from UTS's Institute for Sustainable Futures and UTS: Engineering have developed Australia's first plug-in hybrid electric vehicles (PHEVs). Dubbed 'SWITCH', the cars are currently being trialled as fleet vehicles by staff at the NSW Department of Environment and Climate Change.

PHEVs combine the best attributes of electric cars with the efficiency of hybrid vehicles. They are able to charge directly from a normal household powerpoint and feed surplus power back into the grid on days of high demand. PHEVs may be the next big development in the evolution of the automobile, with GM and Toyota both announcing plans to have PHEVs in their showrooms in the near future.

Demystifying consumer behaviour

Mobile communication multinational Motorola has a longstanding relationship with UTS's Centre for the Study of Choice which has impacted the company's product design. Based on choice modelling research produced by UTS researchers, Motorola recently halted development on a particular product, a decision they estimate saved them tens of millions of dollars.

Cultivating digital technology leaders

UTS's newly established partnership with Alcatel-Lucent, equips students with the cutting-edge knowledge to build, manage and utilise new networks. Alcatel-Lucent is the strategic supplier for the rollout of the largest single infrastructure investment in Australian history – the National Broadband Network. As part of the agreement with UTS, Alcatel-Lucent will establish a facility for learning and professional development on campus.

UTS students and academics will have access to Alcatel-Lucent facilities and infrastructure. Undergraduate and postgraduate courses will be shaped by Alcatel-Lucent training materials, with elements delivered in conjunction with Alcatel-Lucent staff.



Infection, Immunity and Innovation (i3)

www.ithreeinstitute.uts.edu.au

i3 aims to deliver the highest quality research on the biology and control of infectious diseases in humans and animals. The institute's projects tackle health issues of global significance such as obesity, diabetes, and the spread and mutation of pathogens.

i3's areas of research hold the keys to interrupting the lifecycle of pathogens: diagnosis and identification (detection); transmission; survival and development (infection); immunity; and control methods (treatment). Its research is internationally competitive in the field, with proven application to the treatment and prevention of infectious diseases.

Led by Professor Ian Charles, the centre has five main research areas: bacterial pathogenesis and drug resistance; gastro-intestinal infections; high-throughput drug screening; immuno-regulatory pathways in infectious diseases; molecular biology, bioinformatics and genomics.

One current project is investigating treatment for chronic (non-healing) wounds. In Australia, one quarter of institutionalised aged people have pressure ulcers, a statistic that is likely to hold true for many other countries and which has the potential to worsen as the population ages.

The difficulty in treating these wounds is that most contain communities of bacteria, called biofilms, which cannot be killed by conventional antibiotics. Special honeys from Australia and New Zealand can eradicate these biofilms. The project aims to identify the components in honey that do this and determine how they do it, in order to develop more effective treatment for chronic wounds.



“Super resolution has enabled us to see the protein structures inside bacterial cells clearly in 3D: this is a world first. And it’s happening right here at UTS.”

PROFESSOR ELIZABETH HARRY TALKING ABOUT HOW UTS'S SUPER-RESOLUTION 3D OMX MICROSCOPE IS IMPACTING HER RESEARCH

PROFESSOR ELIZABETH HARRY

Professor Liz Harry has been working at UTS for 15 years, having come from Harvard as a Postdoctoral Fellow in 1994. She retains close professional links with Harvard, and is in the forefront of research into biofilms. Her research in microbiology began at a time when, as she says “the processes that told a bacterial cell when and how to divide were essentially unknown.”

Professor Harry was the first person to identify and reveal cell-division genes in a harmless strain of bacteria closely related to anthrax – *Bacillus subtilis*. Later she pioneered immunofluorescence, a new way of seeing the proteins inside bacteria under the microscope by making them glow. The organisation of proteins is fundamental to cell division and DNA replication – the mechanism by which bacteria grow and spread.

Professor Harry is an Australian Museum Eureka Prize winner “for leading-edge research into how bacterial cells regulate where and when division will take place to ensure accurate partitioning of chromosomes between newborn cells, thus facilitating the design of novel antibiotics.”

In 2008 she was honoured with a Frank Fenner Award from the Australian Society of Microbiology for distinguished contribution to Australian microbiology research.

Professor Harry is currently working to conquer the antibiotic-resistant “superbug”, *Staphylococcus aureus*, and *Acinetobacter* – both major sources of infection in hospital patients.

Plant Functional Biology and Climate Change Cluster (C3)

www.c3.uts.edu.au

The Plant Functional Biology and Climate Change Cluster harnesses more than a decade of extensive UTS research, forming a high-impact, internationally-competitive research program in climate change.

Formed in 2008, C3 has five major research areas: tree function and impacts of climate change; coral bleaching; climatic influences on biodiversity; vulnerability of Antarctic ecosystems to climate change; and measuring and monitoring water fluxes from leaf to canopy scales.

Led by Professor Peter Ralph, C3 has a cross-disciplinary approach that attracts researchers with backgrounds in physics, atmospheric modelling and oceanography. Cluster members work collaboratively with Australian institutes and overseas organisations in Europe and North America.

Ongoing projects include investigations into ocean health, such as satellite sensing to detect levels of algae and suspended or dissolved material in the water; and intensive research on phytoplankton in the Southern Ocean, investigating the response of these organisms to temperature change and their ability to absorb excess carbon dioxide.

A recent project of huge importance to Australia developed more accurate modelling of water evaporation from landscapes, which will enable water, forestry and landscape managers to predict how current and future climate and land-use management practices will impact water fluxes. This research has particular relevance to carbon offsetting proposals to plant trees to absorb carbon dioxide which, inevitably, will also increase pressure on water resources.



“Only when we fully understand transpiration will we be able to manage landscapes and water resources optimally. UTS’s Terrestrial Ecohydrology Research Group is at the forefront of improving understanding of the rates and controls of water loss through vegetation and the interaction of current and future climate on this process.”

PROFESSOR DEREK EAMUS

EXECUTIVE MEMBER PLANT FUNCTIONAL BIOLOGY AND CLIMATE CHANGE CLUSTER (C3)

PROFESSOR DEREK EAMUS

Derek Eamus is a plant physiologist and ecophysiological who has worked predominantly on tree species for the past 15 years. He leads the Terrestrial Ecohydrology Research Group within C3. Previously, he was the inaugural director of the world-renowned UTS Institute for Water and Environmental Resource Management (IWERM).

As one of Australia's leading researchers in natural resource management, Professor Eamus' work is of enormous significance for Australia's future sustainability and stability, and has global relevance. With four other UTS researchers, he recently participated in a nationally-broadcast television program aired on the Australian Broadcasting Corporation (ABC) on the impact of future population growth.

While much of the current global concern with climate change focuses on rising water levels, Professor Eamus has raised additional reasons to be concerned about water. He believes finding enough drinkable water will pose serious challenges in the near future, and argues reducing domestic use – the current focus of Australia's drive to conserve its water supply – will not improve availability.

Professor Eamus teaches at undergraduate and postgraduate level, and was the principal author of *Ecohydrology: vegetation function, water and resource management*, a textbook published by CSIRO (2006). He was also a co-editor and major contributor to the award-winning textbook *Plants in Action* (Macmillan).



Designing Out Crime Research Centre (DOC)

www.designingoutcrime.com

The prevention of crime is an ongoing challenge in every society. The Designing Out Crime Research Centre, led by Professor Kees Dorst, aims to use design practice to meet this challenge with initiatives that actively discourage criminal activity by reducing its appeal, removing opportunities and making it more difficult, risky and inexcusable.

Established in late 2008, with annual funding provided jointly by UTS and the New South Wales Department of Justice and Attorney General, the Centre now has some 23 projects underway.

DOC is targeting retail theft through three projects: using innovative, colour-changing barcodes to enable consumers to recognise and avoid black-market products; redesigning the humble coat hanger to make it more difficult to steal clothing; and using interior design to make petty theft from supermarkets harder to conceal.

Sydney's famous Circular Quay is about to undergo a major redevelopment and the centre is engaged in research that will make the rail, bus and ferry interchange more user-friendly, help pedestrians move easily between the area's many attractions, and improve safety and security.

At the other end of town, a notorious district for alcohol-related crime has already benefitted from a simple design intervention. The many dark lanes of Kings Cross have been lit with animated, colourful figures, increasing their use by pedestrians, reducing congestion in the main streets and discouraging crime in the lanes themselves.

PROFESSOR KEES DORST

Professor Kees Dorst is a highly recognised design professional and educator. As well as leading the Designing Out Crime Research Centre, he is a core member of the UTS Centre for Contemporary Design Practices. He teaches widely in The Netherlands and is a senior researcher in the department of Industrial Design at Eindhoven University of Technology.

Professor Dorst has been outspoken in calling for broader, more inclusive analysis in design research. He emphasises the importance of researchers engaging with industry rather than working in separate spheres.

Professor Dorst believes that Australia has the potential to lead design research and sees "real opportunities for Australian design to jump ahead of the field" and hopes to continue to introduce new methods of design education.

"While design can't always be the direct answer to the hard reality of crime," he says, "it can reduce the incidence of many crimes through addressing the underlying causes, as well as the behaviours that turn into the scenarios that lead to crime occurring."

Professor Dorst is on the board of Young Designers and Industry, and is a co-founder of the Amsterdam Creativity Exchange. He offers consulting in product design and development, and has published widely in his field.



“The Designing Out Crime Research Centre is an exciting project, bringing together an internationally recognised team of leading design and criminology researchers with a unique design-led approach.”

**PROFESSOR KEES DORST,
DIRECTOR, DESIGNING OUT CRIME RESEARCH CENTRE**

China Research Centre (CRC)

www.china.uts.edu.au

The China Research Centre (CRC) is an interdisciplinary research institute producing world-leading research on contemporary China. The CRC looks at China as a rapidly developing superpower and examines its context in the modern world. UTS's long established interest in China-focused research was formalised with the opening of the CRC in 2008.

The CRC is unique among research institutions dedicated to the study of China within Australia and internationally, as its researchers dissect the notion of China as a monolithic entity and instead examine it from provincial and locality-based perspectives.

The centre is staffed by a range of high profile China experts including CRC Director, Professor Maurizio Marinelli, an international expert on contemporary China's social, political and intellectual history; Australia's first ambassador to China, Dr Stephen Fitzgerald; Professor Carolyn Cartier, a published specialist in urbanisation and regional development in contemporary China; Professor Wanning Sun, an established commentator on Chinese Media and Cultural Studies; Professor Anita Chan,

a bilingually published researcher into Chinese industrial policy and labour issues and Australian Research Council Future Fellow, Associate Professor Elaine Jeffreys, well known for her work on Chinese popular culture and gender studies.

As well as producing cutting-edge research, the CRC organises a range of high profile public lectures, roundtables and international workshops. Chief among these is the Provincial China Workshop, which brings together leading international scholars for an annual discussion on local and regional China research.

Future projects for the CRC include potential collaborations on cultural heritage preservation and urban sustainability, creating the potential for collaboration between Australian and Chinese museums and other cultural institutions. Another project on urban China will study Chinese cities in relationship to Sydney, with a Sydney/Shanghai project currently in the works.

PROFESSOR MAURIZIO MARINELLI

Professor Maurizio Marinelli is the director of the China Research Centre. With a background as a China linguist and historian, Professor Marinelli is an internationally acclaimed scholar and speaker on contemporary China.

Having held positions at the University of Bristol, Brown University and the University of Bologna, Professor Marinelli is the author of two books and his publications include articles written in three languages (English, Chinese and Italian).

Among his many professional affiliations, Professor Marinelli is an invited member of the Economic and Social Research Council College, a special advisor for the UK's Research Assessment Exercise's Asian Studies Panel and was the Principal Investigator in Bristol for the Worldwide University Network Contemporary China Centre.

Professor Marinelli's research interests include Chinese intellectual discourses, urban China, east and west encounters and colonialism and post-colonialism. He is currently furthering his research on the Chinese port city of Tianjin, the methodology surrounding colonial and post-colonial subjects and their relationship with the colonial power. This research interest won him a £810 000 (A\$1.3 million) research grant from the UK Economic and Social Research Council in 2008.



“UTS has a tradition of engagement with disciplinary expertise in the sciences and technology, so an interdisciplinary research centre like the China Research Centre is very relevant in terms of global partnership opportunities.”

**PROFESSOR MAURIZIO MARINELLI,
DIRECTOR, CHINA RESEARCH CENTRE**

Centre for the Study of Choice (CenSoC)

www.censoc.uts.edu.au

Led by internationally renowned Professors Jordan Louviere, Michael Keane and John Geweke, CenSoC uses theory, tools, processes and insights from econometrics, mathematics, statistics, marketing and psychology to build models to accurately predict how groups and individuals are likely to respond to choices.

Research at the CenSoC is aimed at better understanding individual and group decision-making, including the decision and choice processes of managers, organisations and consumers.

One of Australia's most pressing issues today is the ageing population and the provision of adequate retirement funds. CenSoC is currently engaged in research to discover how people make decisions regarding their superannuation. This research will help governments and superannuation providers to communicate financial information better, enabling people to make more informed, positive choices to improve their future financial security.

Recently, Sydney's transport system was the subject of an independent inquiry, and CenSoC was commissioned to conduct and analyse the inquiry's market research into Sydney resident's attitudes to the present and future of the system. The research provided concrete data to guide future investment and planning.

CenSoC has national and global affiliates, and is a cross-disciplinary initiative of the School of Marketing with the Department of Mathematical Sciences and the School of Finance and Economics. This multi-disciplinary approach has secured CenSoC's place as a groundbreaking research centre, which recently developed a technique to model the choices of individuals.

The Centre has five major research areas: theories of choice behaviour; instrumentation; statistical modelling; social policy and economic valuation; and validation and applications.



“CenSoC has some of the top people in the world in labour economics, statistics and environmental economics, and we continue to build on those skills with people who are at the very top of their discipline internationally”

**PROFESSOR JORDAN LOUVIERE,
EXECUTIVE DIRECTOR, CENTRE FOR THE STUDY OF CHOICE**

PROFESSOR JORDAN LOUVIERE

Professor Jordan Louviere is the founder of CenSoC, and a leader in the design and analysis of choice experiments. He has taught the annual summer short course in choice modelling at the Massachusetts Institute of Technology alongside such luminaries as Dan McFadden, who shared the 2000 Nobel Prize in Economics for his pioneering work in choice modelling theory and applications.

Professor Louviere consults for private and public sector organisations. He is the co-founder and director of Decision Intelligence Pty Ltd, through which he has worked with Boeing on their Dreamliner product, and developed a long-lasting relationship with Motorola to use choice modelling to guide product design.

Professor Louviere's work has been applied to projects as diverse as helping Kellogg Australia gauge the effectiveness of its advertising, employing behavioural choice modelling to predict ticket purchases for destinations on Qantas Airways' UK, US and South-East Asian routes, indicating how businesses respond to sales and market trends, and how people respond to government policy changes.

Quantum Computation and Intelligent Systems (QCIS)

www.qcis.uts.edu.au

Led by Professor Chengqi Zhang, QCIS's research covers quantum computation, knowledge discovery, decision support, innovation, and infrastructure enhancement.

QCIS works with major national and international partners, including Bell Labs (Alcatel-Lucent), the Capital Markets Cooperative Research Centre, the private health insurance provider HCF, Australian banking giant, Westpac, and Australian telecommunications provider, Optus. Successful QCIS projects include a partnership with Australia's national social security body, Centrelink, to reduce incorrect benefit payments and detect fraud.

As well as producing the theoretical foundations of quantum programming that will one day enable quantum computers as the technology becomes available, the centre is also developing intelligent systems technology, including data mining research and applications that solve current problems.

Launched by NSW Chief Scientist and Scientific Engineer, Professor Mary O'Kane in 2009, QCIS is housed in state-of-the-art facilities at the UTS City campus.

These include five research laboratories: Data Science and Knowledge Discovery Laboratory, Decision Systems and e-Service Intelligence Laboratory, Innovation and Enterprise Research Laboratory (the Magic Lab), Knowledge Infrastructure Laboratory, and the Quantum Computation Laboratory.

QCIS research is practical and innovative, and has applications in a wide range of businesses, including finance, marketing, security, health, government and engineering. Both industry and government stand to make huge savings with innovative data-mining algorithms with applications in areas as diverse as market surveillance, fraud detection and debt prevention.



“The new territory that this area of computing is opening up is very broad and we look forward to the range and diversity of our research partnerships increasing.”

**PROFESSOR CHENGQI ZHANG,
DIRECTOR, CENTRE FOR QUANTUM COMPUTATION AND
INTELLIGENT SYSTEMS**

PROFESSOR CHENGQI ZHANG

Professor Chengqi Zhang is a research professor in computer science, and is one of the world's leading researchers in data mining and intelligent systems.

One of his current projects tackles online payment fraud, rated as the most critical threat to online businesses and the cause of massive losses every year. The project aims to develop effective approaches to discovering patterns related to fraudulent online payments that will filter e-payment transactions as they happen and estimate their risk of fraud. The project will contribute to the instant detection and prevention of risky e-payments, and improve the confidence of e-payment acquirers and card associations.

Professor Zhang is Chair of the Australian Computer Society National Committee for Artificial Intelligence. He also chairs the steering committee for the International Conference on Knowledge Science, Engineering and Management, and is a member of the steering committees for two other major conferences: the Pacific Rim International Conference on Artificial Intelligence and the Pacific-Asia Conference on Knowledge Discovery and Data Mining.

He is widely published, with over 200 research papers published in renowned international journals in the field. Professor Zhang has also co-edited nine books, and is currently an associate editor of *IEEE Transactions on Knowledge and Data Engineering*, and the editor of *Web Intelligence and Agent Systems: an International Journal*.

Institute for Nanoscale Technology (INT)

www.nano.uts.edu.au

INT is dedicated to the study of nanoscience and nanotechnology. Founded by high profile physicists Associate Professor Mike Ford and Professor Michael Cortie, the INT is acclaimed across Australia for its innovative research and for its broad approach to the possibilities created by the interaction of light and matter.

INT is staffed by researchers from a range of science backgrounds, including maths, physics, computational science, chemistry, microscopy, biology, materials science and engineering. These researchers share a fascination with the rapidly-growing field of nanotechnology and the vast range of practical applications that this sort of science lends itself to.

Current INT projects look at energy-efficient lighting through the use of gallium nitride LEDs; the use of nanoscale window coatings that block infrared light, reducing the need for airconditioners; nanoscale coatings that emit heat and can be used to lower a building's ambient temperature by radiating heat into the atmosphere; and the use of gold nanoparticles to destroy toxoplasma gondi, a common parasitic infection affecting humans.

Researchers and students within INT have unlimited access to a huge range of facilities, including UTS's world-class Microstructural Analysis Unit and its electron microscopes, atomic force microscopes and scan probe technology.

To date, the INT has had successful relationships with a range of industry partners, including LED and solar cell manufacturer, BluGlass, Pilkington Group Limited and leading chemical company, BASF. As the use of nanoscale products becomes more prominent in everyday objects and the field of nanotechnology continues to grow, so too do the opportunities for the INT to partner with industry and continue leading the way for nanoscale sciences in Australia.



“The Institute for Nanoscale Technology offers researchers access to some really world class facilities and to research projects that are really cutting edge and internationally relevant.”

**ASSOCIATE PROFESSOR MIKE FORD,
DEPARTMENT HEAD, PHYSICS AND ADVANCED MATERIALS**

ASSOCIATE PROFESSOR MIKE FORD

Associate Professor Mike Ford is a pioneer of nanotechnology education in Australia. Having co-founded the country's first nanotechnology undergraduate degree, he joined UTS in 2002 and helped found the Institute for Nanoscale Technology.

Associate Professor Ford is Department Head of Physics and Advanced Materials and Associate Director of INT. In his role within INT, his primary responsibility is the development of nanotechnology education initiatives at UTS.

At the University of Maryland, Associate Professor Ford developed a new electron impact coincidence technique to study electron correlation in atoms and molecules. His current research interests are fundamental electronic properties of materials and nano-scale systems, electron motion and bonding in van der Waals clusters as a route to understanding solvation chemistry, and synthesising scanning tunnelling microscope images using quantum chemical methods.

Along with two other UTS researchers, Associate Professor Ford is currently working on green lighting research in collaboration with Chinese partners through the Australia-China NanoNetwork. This project aims to pave the way for lighting technology that promises dramatic improvements in energy efficiency.

Associate Professor Ford has made significant contributions to science in the field of computational materials physics in Density Functional Theory and the simulation of large numbers of atoms. He has published over 90 peer reviewed articles with recent articles appearing in the *Journal of Physics: Condensed Matter* and *Chemical Physics Letters*.



UTS faculties and schools

Faculty of Arts and Social Sciences

- > Communication
- > Education
- > International Studies

UTS Business School

- > Postgraduate Programs
- > Accounting
- > Finance
- > Economics
- > Management
- > Marketing

Faculty of Design, Architecture and Building

- > Design
- > Architecture
- > Built Environment

Faculty of Engineering and Information Technology

Faculty of Law

Faculty of Nursing, Midwifery and Health

Faculty of Science

- > Chemistry and Forensic Science
- > Environmental Sciences
- > Mathematical Sciences
- > Medical and Molecular Biosciences
- > Physics and Advanced Materials

UTS: Arts and Social Sciences

www.fass.uts.edu.au

UTS: Arts and Social Sciences combines the individual and collective strengths of teaching and research in communication, education and international studies. In the areas of humanities, arts and education, it was recently top-rated in the Australian federal government's Learning and Teaching Performance Fund.

UTS: Communication's specialist areas, reflected in both teaching and research, are journalism, public communication, media arts and production, information and media, writing and cultural studies, social inquiry, and sound and music design.

UTS: Education provides courses in primary, secondary, adult and organisational learning, as well as TESOL (teaching English to speakers of other languages) and applied linguistics.

UTS: International Studies offers coursework programs and research degrees in language and culture, and has 70 partner universities in 12 countries. Students spend at least one semester studying and living in a non-English speaking environment as part of their degree.

UTS: Arts and Social Sciences has research strengths focused in 15 interdisciplinary research centres. Several centres offer professional development courses, including AdSchool, the only academically recognised industry education program accredited by the Advertising Federation of Australia.

Research centres

- > Australian Centre for Independent Journalism
- > Australian Centre for Public Communication
- > Australian Centre for Public History
- > Centre for Health Communication
- > Centre for Information and Knowledge Management
- > Centre for Media Arts Innovation
- > Centre for New Writing
- > China Research Centre
- > Communications Law Centre
- > Cosmopolitan Civil Societies
- > Creative Practice and Cultural Economy
- > Creative Industries Innovation Centre
- > Centre for Research in Learning and Change
- > Transforming Cultures



UTS Business School

www.business.uts.edu.au

With accreditation from the Association to Advance Collegiate Schools of Business (AACSB) International, UTS Business School is part of an elite group that represents the top six per cent of business schools worldwide. The faculty has been consistently top-rated in the Australian federal government's Learning and Teaching Performance Fund for the last three years (2007-2009), winning substantial government funding.

UTS Business School Postgraduate Programs offers a single portal for all graduate programs, and also runs

executive short courses to update and advance the skills and knowledge of business professionals.

Many UTS Business School staff are leaders in their fields both academically and in industry, working as senior staff or consultants, or with strong links into major corporations. The faculty's Executive Council includes highly respected and experienced professionals, including CEOs, directors and chairs of boards in sectors as varied as finance, tourism, biotechnology and media.

Research centres

- > Centre for Corporate Governance
- > Centre for Health Economics Research and Evaluation
- > Centre for Management and Organisation Studies
- > Centre for the Study of Choice
- > Cosmopolitan Civil Societies Research Centre
- > Quantitative Finance Research Centre
- > Sustainable Tourism Cooperative Research Centre
- > Capital Markets Cooperative Research Centre
- > Australian Centre for Event Management
- > Australian Centre for Olympic Studies
- > Centre for Australian Community Organisations and Management
- > Centre for e-Business and Knowledge Management
- > Centre for Health Services Management
- > Paul Woolley Centre for Capital Market Dysfunctionality



UTS: Design, Architecture and Building

www.dab.uts.edu.au

UTS: Design, Architecture and Building (UTS: DAB) offers progressive, vocational education in design, architecture, property economics and construction project management. Its close association with industry generates thinking and research that is both highly advanced and relevant to current global concerns.

UTS: DAB has three schools offering education in visual communication, fashion and textiles, interior design, industrial design, photography and situated media, design management and animation, architecture, planning, development, construction, investment appraisal, project and urban estate management, and property economics.

UTS: DAB has research strengths aligned with five centres, including the Designing Out Crime Research Centre, and the multi-disciplinary Group for Health, Architecture and Planning, which aims to create healthy and sustainable facilities in the health architecture and building industry.

UTS is also home to the Australian government's new Creative Industries Innovation Centre, which aims to increase the competitiveness, profitability, productivity and innovation of Australia's creative industries.

Research centres

- > Asia-Pacific Centre for Complex Real Property Rights
- > Built Environment and Design Management
- > Centre for Contemporary Design Practices
- > Creative Industries Innovation Centre
- > Designing Out Crime Research Centre
- > Group for Health, Architecture and Planning



UTS: Engineering and Information Technology

www.feit.uts.edu.au

UTS: Engineering and Information Technology (FEIT) offers progressive teaching programs and practice-based education. It was top-ranked in the Australian government's 2008 Learning and Teaching Performance Fund, and its Women in Engineering program was the first in Australia to encourage and support women engineers.

Many FEIT courses are developed in direct response to expressed industry needs. All are kept current through consultation with industry partners, ensuring that they are relevant industry-leading programs.

FEIT maintains close links with leading global companies such as Bishop Technology, Alcatel-Lucent, CSIRO, Thales Australia, Raytheon and Yokagawa, as well as national private and public sector organisations. Researchers are recognised leaders in their fields, and their work is driven by the needs of industry and often performed in collaboration with industry partners.

UTS: Engineering offers programs outside Australia through The Hong Kong Management Association and the Air Transport Training College (Singapore).

Research centres

- > Australian Research Council Centre of Excellence for Autonomous Systems
- > Centre for Electrical Machines and Power Electronics
- > Centre for Built Infrastructure Research
- > Centre for Health Technologies
- > Centre for Human-Centred Technology Design
- > Centre for Innovation in IT Services and Applications (iNEXT)
- > Centre for Intelligent Mechatronic Systems
- > Centre for Quantum Computation and Intelligent Systems
- > Centre for Real-Time Information Networks
- > Centre for Technology in Water and Wastewater



UTS: Law

www.law.uts.edu.au

UTS: Law offers distinctive courses that develop expert disciplinary knowledge and ethics in a global context, and have a strong focus on the development of professional skills. Education is focused on intellectual, professional and personal attributes that include critical thinking, analysis and evaluation, spoken and written communication, legal research and technological literacy, lifelong learning, self and cooperative work management, cultural awareness and social justice.

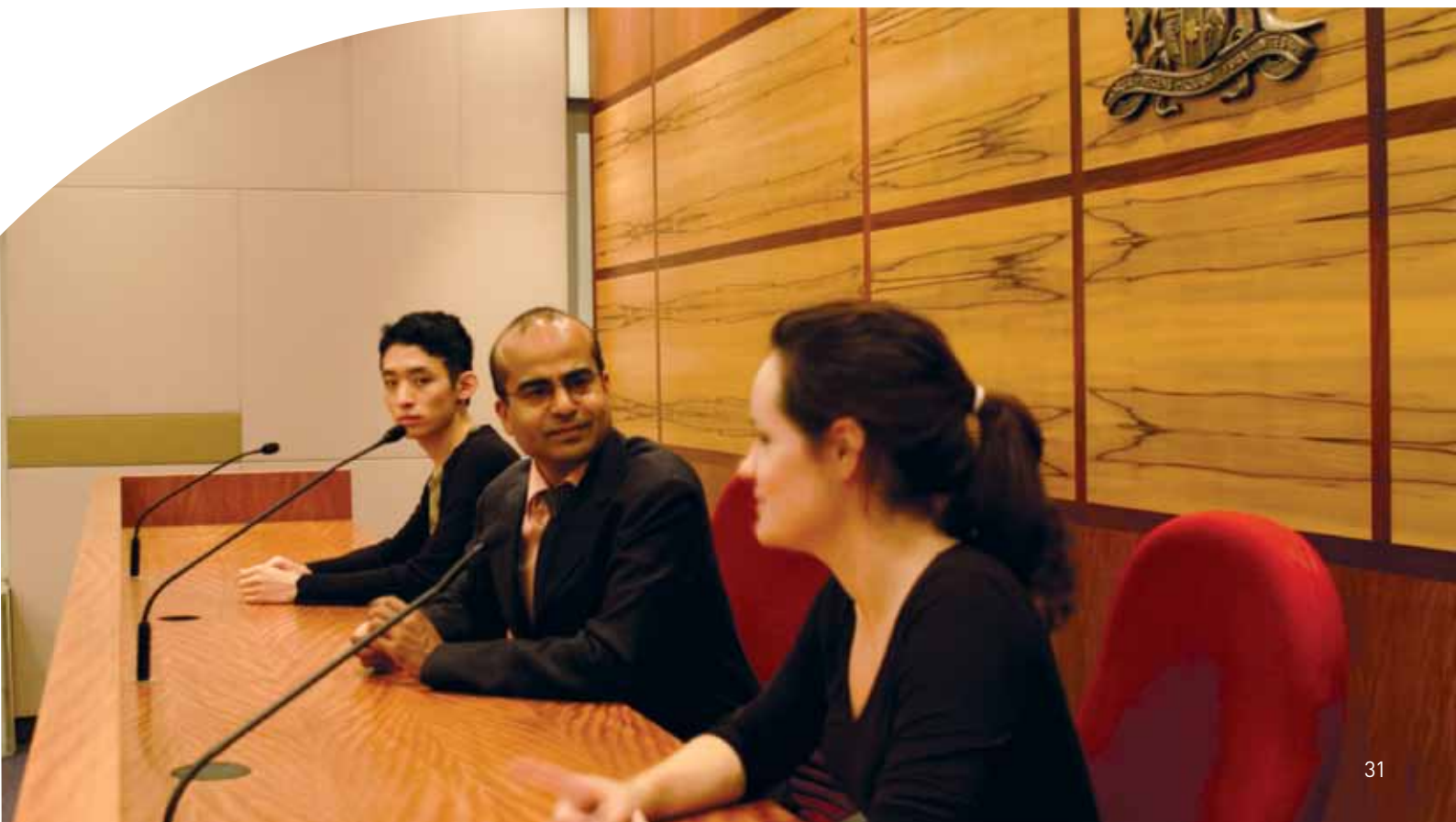
Postgraduate study includes coursework programs in dispute resolution, international law, industrial property, trade mark law and practice; tertiary teaching experience and research

training at a doctorate level; and professional development courses, including preparation for the NSW Bar Examination.

UTS: Law is the home of the Communications Law Centre and the Anti-Slavery Project, both of which offer students research and community engagement opportunities, as well as the Australasian Legal Information Institute (AustLII). UTS: Law has established five research networks which represent the key areas of research strength, and is active in many other UTS research centres.

Research centres

- > Health, Family and Communities
- > Intellectual Property, Media and Communications
- > Corporate, Commercial and Tax
- > International Law, Human Rights and the Environment
- > Criminal Justice and Criminology



UTS: Nursing, Midwifery and Health

www.nmh.uts.edu.au

UTS: Nursing, Midwifery and Health (UTS: NMH) offers innovative and practice-oriented programs in nursing, midwifery, health and health services management. UTS is a leader in integrating simulation into nursing and midwifery curriculum in Australia, with advanced simulation laboratories and hi-tech mannequins designed to help students experience real life clinical scenarios before delivering care to real patients.

Academic staff have professional experience as registered nurses and midwives, are specialists in their fields and are actively involved in research.

UTS: NMH has 10 clinical professors based in hospitals around Sydney who conduct research designed to improve practice and policy in fields such as acute care, aged and extended care, mental health and women's health nursing, child and family health, clinical practice development and midwifery.

UTS: NMH was designated a World Health Organization (WHO) Collaborating Centre for Nursing, Midwifery and Health Development in 2008, forming part of an international network supporting WHO objectives for global public health. Research is focused through this and four other centres, including joint initiatives with UTS: Business (Centre for Health Economics Research and Evaluation) and UTS: Communication (Centre for Health Communication).

Research centres

- > Centre for Midwifery, Child and Family Health
- > Centre for Health Services Management
- > Centre for Health Communication
- > Centre for Health Economics Research and Evaluation
- > WHO Collaborating Centre for Nursing, Midwifery and Health Development



UTS: Science

www.science.uts.edu.au

UTS: Science offers interdisciplinary courses designed to teach relevant, innovative and comprehensive science with practical skills. The university recently invested over A\$110 million to refurbish its science facilities, resulting in one of the finest state-of-the-art science buildings in the southern hemisphere.

Through five centres of expertise, UTS: Science offers technology hubs staffed with expert research scientists, experienced technical staff and world-class instrumentations in state-of-the-art facilities. In these centres, UTS: Science facilitates informal access to researchers, links with State and Federal research and development schemes, and access to world-class infrastructure.

UTS: Science pursues research that advances innovation and technology, and provides solutions to the most significant issues facing the world. Researchers are active in areas such as climate change, forensic science and biology, nanotechnology, health technology, mathematical modelling of complex systems, infectious and parasitic diseases, imaging and marine biology. Key research is focused in seven research centres, including two UTS Strategic Investment Areas: Institute for the Biotechnology of Infectious Diseases and the Plant Functional Biology and Climate Change Cluster. UTS: Science also interacts with other UTS research centres, such as the Quantitative Finance Research Group, Centre for the Study of Choice and the Centre for Health Technologies.

Research centres

- > Infection, Immunity and Innovation
- > The Plant Functional Biology and Climate Change Cluster
- > Institute for Nanoscale Technology
- > Centre for Forensic Science
- > Centre for Environmental Sustainability
- > College of Traditional Chinese Medicine
- > Health Psychology Unit



English Language Programs

www.insearch.edu.au
www.elssa.uts.edu.au

UTS provides academic and English language preparatory programs through its college UTS: INSEARCH, as well as English language testing and ongoing academic English support through centres on campus.

INSEARCH caters for international students who do not meet degree program entry requirements because of English language proficiency or level of academic attainment. INSEARCH offers a range of English and preparatory courses, UTS Foundation Studies, a UTS program delivered by INSEARCH on behalf of the university, and the Direct Entry English Program (DEEP).

INSEARCH is a registered higher education institution and major pathway provider to UTS.

UTS also hosts the major International English Language Testing System (IELTS) Centre in Sydney.

Conveniently located on the UTS City campus, the centre administers the internationally recognised English proficiency test preferred for entry into Australian universities.

UTS also offers academic and professional language support to students on campus through the ELSSA Centre. Providing academic English programs and study skills support to UTS students and staff, the ELSSA Centre enhances teaching and learning at UTS through a focus on academic literacy, which involves reading, writing, listening, speaking and critical thinking.

The ELSSA Centre's excellent contribution to student learning has been recognised by Australia's most significant teaching awards. In 2008, Centre Director Alex Barthel received a citation from the Australian Learning and Teaching Council for "outstanding leadership in the provision of sustainable academic language and learning support".

“Outstanding leadership in the provision of sustainable academic language and learning support.”

AUSTRALIAN LEARNING AND TEACHING COUNCIL 2008



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