Communication underpins everything we do as human beings in society. We need effective ways to communicate and share knowledge, information and experiences.

UTS researchers are examining new ways to draw insight from oceans of data, increasing our understanding of the communication potential of new media and technologies and designing real-time intelligent systems. Our research is shaping how organisations manage, load and innovate in a digital age and also investigating how regulation can promote the free and ethical flow of information.

Our researchers work in partnership with software and networking leaders like Alcatel-Lucent and Cisco as well as innovators in the creative arts, developing new ways for performers to communicate with their audiences and new ways for audiences to interact with art, sound and music. Since data and communication are central to every business, research centres within this group work with organisations across a wide range of industries, from technology manufacturers and service providers, to government bodies and financial institutions, to name a few. UTS is also a member of the Capital Markets Cooperative Research Centre Limited.

### WHY UTS?

**CUTTING-EDGE TECHNOLOGY**

The new Faculty of Engineering and IT building is home to world-leading facilities including the UTS Data Arena, an immersive and interactive 3D visualisation facility. The arena, a 15-metre round "drum", features one, continuous screen around the perimeter, while live projectors create 360-degree visuals and 3D glasses worn by viewers, add to the immersive nature of the presentations. The UTS Data Arena helps researchers to visualise and interact with complete data sets and 3D spatial models.

Researchers within our Advanced Analytics Institute (AAi) are developing edge technologies, theories and practices to solve real-life industry analytical problems. AAi has developed a range of proprietary data mining platforms for data exploration, modelling, risk scoring and data visualisation, as well as adopted bespoke systems depending on customer requirements. UTS is home to Outly, the first-second-generation personal robot (PR2) in Australia. As well as exploring how robots can co-exist safely and usefully with humans, researchers use Outly to examine robot-to-robot interaction and to teach robots to learn from their personal experience, rather than relying on human instructions.

As a G20 Regional Academy our fully resourced networking labs are equipped with the latest hardware and these resources can be accessed via Netlab and packet tracer. UTS has also been a partner of Alcatel-Lucent since 2011 and offers the Alcatel-Lucent Industry Certifications Networking Routing Specialist 1 and 2. UTS was the first university in the world to offer this program in collaboration with Alcatel-Lucent.

The Centre for Real-time Information Networks Lab contains a range of advanced networking and embedded systems infrastructure, including equipment such as advanced FPGA boards, OpenFlow devices, WiMax and MIMO hardware, and a rich collection of environmental and biometric sensors.

### WORLD-LEADING RESEARCH

**The Australian Research Council's 2012 Excellence in Research for Australia (ERA) ratings** for UTS range from "outstanding" to "world-leading" for the broad range of disciplines we cover.

UTS has been ranked "above world standard" in almost all fields of our research, with a world-standard rating in a wide range of areas. Research in almost all fields of our research has been ranked "world standard" or "above world standard" by ERA, including fields such as business and management, computer science, mathematics, engineering, and the creative arts.

**Wearable computing**

UTS has been ranked "world standard" or "above world standard" in almost all fields of our research, including fields such as computer science, mathematics, engineering, and the creative arts.

**Web and cloud computing**

UTS has been ranked "world standard" or "above world standard" in almost all fields of our research, including fields such as computer science, mathematics, engineering, and the creative arts.

**Data mining**

UTS has been ranked "world standard" or "above world standard" in almost all fields of our research, including fields such as computer science, mathematics, engineering, and the creative arts.

**Decision support systems and multi-criteria decision making**

UTS has been ranked "world standard" or "above world standard" in almost all fields of our research, including fields such as computer science, mathematics, engineering, and the creative arts.

**Digital media and the arts**

UTS has been ranked "world standard" or "above world standard" in almost all fields of our research, including fields such as computer science, mathematics, engineering, and the creative arts.

### ADVANCED ANALYTICS INSTITUTE

**HUMAN CENTRED TECHNOLOGY DESIGN**

**QUANTUM COMPUTATION AND INTELLIGENT SYSTEMS**

**CENTRE FOR REAL-TIME INFORMATION NETWORKS**

**RESEARCH WITH IMPACT**

Online banking increasingly suffers from criminal activities such as identification takeover, malware and phishing. These challenges seriously affect the ability to maintain secure online banking services. The AAi developed a risk management platform for a major Australian financial organisation to tackle this, developing a tool which provides an overall ‘real-time’ score for online banking transaction instantly and highlights the top 5% transactions for further investigation.

The research team in the Games Studio have developed an expression recognition game for tablet computers which uses facial recognition technology to help teach children about emotions, with special applications for children on the autism spectrum who can have difficulty recognising emotions in others. Children are presented with images of simple emotions which they need to mimic in order to progress through the game. Research has shown that repetition and mimicking of expressions can improve a child’s ability to recognise this emotion in real life, and trials have positive results.

Object-oriented programming ideas developed by UTS researchers have been used by such companies as Dow Jones in Sydney, Israel Electricity Company, StorageTalk in the United States, as well as being adopted as the standard methodology approach by many consulting companies worldwide.

UTS researchers are working in partnership with a leading Australian railway engineering company on technology equipped to scan pedestrian movements, and help relieve congestion areas in real-time. This system is currently under technology licence.

UTS is ranked in the top 500 research universities in the Academic Ranking of World Universities.

UTS was ranked 10th in Australia at 272 in the QS World University Rankings 2013-2014 index. UTS ranks first in Australia and 20th in the world for universities under 50 years old according to the 2014 edition of the QS Top 50 Under 50 index. The rankings are based on research, teaching, employability and internationalisation.

UTS was ranked 43rd in the Times Higher Education World University Rankings 2013–2014, powered by Thomson Reuters, and ranked 50th in Australia. For universities under 50 years old, UTS was ranked 3rd globally.

### GLOBALLY RECOGNISED

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A research partnership allows you and your organisation to access the skills and knowledge of UTS’s talented people and our leading facilities. We have opportunities for organisations of all sizes to engage with our research solutions.

There is a collaborative research model to suit whatever organisational outcomes you are seeking, regardless of the type of problem you’re looking to address.

**CONTRACT RESEARCH**

If you have a particular problem in mind and a sense of the research area that is relevant to your needs, UTS can work with you to develop a research contract to solve the problem.

**COLLABORATIVE RESEARCH**

You can contribute intellectual input and resources including staff, funding, materials and facilities to collaborate with UTS researchers and gain access to our researchers’ expertise.

**INDUSTRY SPONSORED PHD SCHOLARSHIPS**

Enhance the professional capacity of your staff or bring in a UTS Phd student to undertake targeted research for your business. An industry-funded PhD can provide unique benefits and cost-saving research solutions and position you as a global leader in your field.

**AUSTRALIAN COMPETITIVE GRANTS**

You may choose to leverage your research investment by aligning with UTS applications under the Australian Competitive Grants Register. Relevant schemes include ARC Linkage Grants and NHMRC Development Grants.

**COMMERCIALISATION OPPORTUNITIES**

UTS has many innovations and technologies that are under commercial development. You can support their further development by licensing the technologies for commercial use.

**GOVERNMENT SUPPORTED RESEARCH**

Our industry partners have achieved exciting successes working with UTS through government schemes such as Tech Vouchers and Researchers in Business. As a UTS industry partner, you may also be eligible for R&D tax credits.

Find out how you can engage with collaborative research opportunities in one of UTS’s other research theme areas:

**Health Futures**

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

**Sustainability and the Built Environment**

Across areas from climate, water, energy, health to the built environment, UTS researchers are working to provide holistic research approaches to environmental issues and policies.

**Creative Industries and Civil Societies**

UTS researchers from the arts and social sciences, design and the sciences give a unique perspective on cultures, creative practice, knowledge and the drivers of social cohesion and cultural change. This ranges from the impact of technology upon society and the characteristics that affect social cohesion and cultural change to the opportunities for creativity and creative industries.

**Business Innovation**

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

**Future Services, Industries and Productivity**

UTS researchers in areas such as robotics, IT and nanomaterials are defining and supporting the next generation of Australian industry and services.