



THE UNIVERSITY OF  
**SYDNEY**

Faculty of  
Engineering

**Partner with us**  
Research, education  
and consultancy



“Airbus recognises the rich research expertise and capability possessed by the University of Sydney, which is why we are collaborating together on the exciting SmartSat CRC to enhance Australia’s space capabilities and push boundaries together.”

**Sascha Hapke**  
Head of Australasia  
Airbus Defence and Space

## Key facts

- Ranked 61st in the world engineering and information technology  
QS World University Rankings by Subject, 2020
- Highest rating of 5 (“Well above world standard”) for Aerospace Engineering, Artificial Intelligence and Image Processing, Chemical Engineering, Communications Technologies, Computation Theory and Mathematics, Distributed Computing, Electrical and Electronic Engineering and Materials Engineering  
Excellence in Research for Australia ratings, 2018
- Rating of 4 (“Above world standard”) for Biomedical Engineering, Civil Engineering, Information Systems, Mechanical Engineering and Nanotechnology  
Excellence in Research for Australia ratings, 2018
- 16 research centres and institutes, as well as four multidisciplinary initiatives
- Our researchers include:
  - 3 ARC Laureate Fellows
  - 4 ARC Future Fellows
  - 15 ARC DECRA Research Fellows
  - 1 NHMRC Research Fellow
- Ranked first in Australia and fourth in the world for graduate employability  
QS Graduate Employability Rankings, 2020
- Double the national average of female engineering, computing and project management undergraduate students  
Australian Government Department of Education and Training Selected Higher Education Statistics, 2019

Source: <https://www.universityrankings.com.au/gender-balance/>

Source: <https://www.sydney.edu.au/engineering/industry-and-community/women-in-engineering.html>

# Engineering solutions for a digital future

We are in the midst of the digital century, which is why we aim to build a world-class capability that delivers research, engagement and education across the span of digital sciences and technologies.

We are actively seeking new opportunities for collaboration with industry and government organisations who share our vision and want to help make it reality.

Our multidisciplinary research focuses on the areas of data science and computer engineering; robotics and intelligent systems; telecommunications and the Internet of Things.

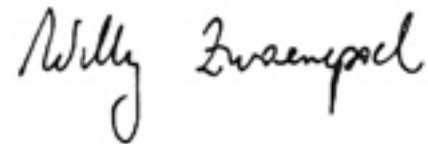
We also research the themes of complex systems; food engineering (products, process and supply chain); energy, resources and the environment; healthcare engineering; and infrastructure and transport.

We unite with partners of all sizes and offer a comprehensive engagement service which starts by listening to your needs.

Engagement opportunities include:

- research and industry partnerships,
- consultancy and analytical services,
- student engagement, education and recruitment opportunities, and
- programs for your staff.

We look forward to exploring the diverse range of opportunities with you.



**Professor Willy Zwaenepoel**  
Dean, Faculty of Engineering



# Research collaboration

We are developing a digital, sustainable and healthier future through human inspired engineering and technologies.

Our digital sciences research into robotics and intelligent systems is world leading, and we're breaking new ground in the realm of artificial intelligence.

We harness data to transform critical infrastructure into smart systems and revolutionise healthcare. Our food processing advances are reimagining waste.

Our expertise also encompasses the areas of advanced manufacturing, materials, infrastructure, transport, complex systems, energy, resources, and the environment.

## Let's work together

There are several ways we can work with you to deliver your research and innovation solutions.

These include direct industry-funded research, collaborative government-funded projects, and helping you access our equipment and students.

The Commonwealth and New South Wales Governments support industry

and university collaboration through a range of initiatives including Australian Research Council Linkage Projects, tax incentives and matched funding. Schemes are also open to international industry participants.

**We welcome the opportunity to start discussions with your company to identify the best scheme to deliver your outcomes.**



“Through my research we have developed new materials with properties similar to natural bone that the body won't reject in transplant. The materials can be 3D printed, and have the potential to improve quality of life for countless people.”

**Professor Hala Zreiqat AM**  
Biomaterials and tissue engineering, Member of the Order of Australia, The King Abdullah II Order of Distinction of the Second Class, NHMRC Senior Research Fellow and 2018 NSW Premier's Woman of the Year

## Our multidisciplinary strengths

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### Robotics and intelligent systems

Our interdisciplinary research focuses on the development and application of autonomous and intelligent robots and systems, and the design of new technologies to benefit industries that use and interact with them.

The Sydney Institute for Robotics and Intelligent Systems, incorporating the Australian Centre for Field Robotics, is one of the largest multidisciplinary robotics institutes in the world.

### Data science and computer engineering

We are making technology smarter by designing, engineering and evaluating new technologies, and conducting fundamental interdisciplinary research that provides an explanation for both their technical application and social impact.

In partnership with a world-leading robotics company, our UBTECH Sydney Artificial Intelligence Centre brings together a multidisciplinary team of dedicated researchers dedicated to exploring new horizons in artificial intelligence.

### Telecommunications and the Internet of Things (IoT)

Our IoT research focuses on next-generation wireless communications and networking, microwave photonics and advanced optical techniques for information systems.

Our industry-supported Centre for IoT and Telecommunications is pioneering advanced research in the fields of 5G mobile, signal processing, advanced coding and quantum imaging.

### Food products, process and supply chain

We are redesigning food production for smarter and healthier living by reshaping the way food is farmed and produced, optimising its nutritional value and strengthening Australia's agricultural sector.

Our Centre for Advanced Food Engineering comprises a cross-disciplinary cluster of industry-focused research specialists in engineering, agriculture, business, chemistry, molecular biology and medicine.

Photo: Our RIPPA™ (Robot for Intelligent Perception and Precision Application) prototype robot promises to make farm management easier.

### Healthcare engineering

Our biomedical engineering program is the largest of its kind in the southern hemisphere.

We work with clinical and industry partners to conduct transformational interdisciplinary research in broad fields including biomaterials, stem cells, biosensors, surgical devices, signal and image processing, biomedical instrumentation, bionics and implantable neuroprosthesis.



# Our industry research partnerships

We are committed to improving our world through research and industry collaboration.

That is why we are deepening and broadening our partnerships with key engineering and technology educational institutions worldwide and with leading international companies.

Our industry partnerships span the globe, with particular strengths in our own region.

## Our partnerships include:

- AB Mauri
- Airbus
- Cochlear
- GE Additive
- Hazer Group
- IQ Renew
- POSCO
- Qantas
- ResMed
- Rio TintoSuez
- Stryker
- Telstra
- Thales Group



## Industry Postgraduate Research Scholarship

This collaborative scholarship program supports the development of your organisation's engineering capacity.

It enables your company to sponsor a PhD student or one of your employees to complete a PhD in engineering and computer science and contribute to the development of new knowledge in your field.

“By using UBTECH’s state-of-the-art technology and outstanding creativity, we will be able to thoroughly develop, analyse and evaluate AI algorithms and theories for humanoid robots, which will bridge the gap between AI studies in universities and real-world AI utilisation.”

### Professor Dacheng Tao

Director of UBTECH Sydney Artificial Intelligence Centre,  
ARC Laureate Fellow

# Consultancy and analytical services

Access extensive analytical laboratory facilities with advanced equipment, in-depth knowledge and insight from experts with proven experience in a wide range of work.

Whether you require technical solutions to a problem, standard or specialised testing, or independent consultancy or investigation, our researchers are well placed to answer your project needs.

## Our areas of specialist services include:

- chemical engineering analytical services
- fluids and the environmental consultancy
- geotechnical testing and consultancy
- sustainable energy development consultancy
- structural engineering testing and consultancy
- telecommunications consultancy.



“Arup’s collaboration with the University’s Centre of Advanced Structural Engineering (CASE) on post-tensioned composite floors led to useful insights into the serviceability and ultimate strength behaviours of this popular form of construction. Arup would be pleased to collaborate again with the CASE research team on suitable future projects.”

**Peter Macdonald**  
Principal, Arup

# Student engagement, education and recruitment

We are creating tomorrow's highly sought-after engineers, project managers and computer scientists by shaping them into industry leaders: fostering their passion and motivation and giving them hands-on experience as well as technical skills.

We are also preparing them to be excellent communicators, able to work effectively within teams and with clients.

As our industry or government partner, you are an essential part of their educational experience. In return, your organisation benefits through access to our brightest students, who bring new ideas and approaches to your business's specific needs.

There are numerous ways to engage with our students and we can be flexible to suit your business needs.

## Professional Engagement Program

Access a pool of talented engineering students through our innovative sector-leading program and gain an additional resource for key projects.

## Engineering Sydney Industry Placement Scholarship

This research scholarship is tailored to provide your organisation with a dedicated full-time resource for six-months who undertakes a high-level investigative project that addresses the needs of your business.

## Jacaranda Flame Consulting

Let our students become your organisation's external consulting team, working to solve your business challenges. This student-led simulated engineering consultancy operates both on campus and remotely.





# Community engagement

We share your commitment to provide working environments that value diversity and inclusion, and support all employees to reach their full potential.

By partnering with us, we can assist you with your inclusion strategies and initiatives, helping you to reach your engagement and outreach goals.

“Our two placement students have proved to be valuable members of the Abergeldie team, not only working and learning on site but fully embracing our company spirit. Both will continue working with us during their final year, with the view to moving to full-time roles after graduation.”

**Robin Craig**  
Corporate Social Responsibility Manager,  
Abergeldie Complex Infrastructure

## Indigenous Community Engagement

We are dedicated to developing key skills and opportunities for Aboriginal and Torres Strait Islander students in engineering, computing and project management.

With your support, we can provide academic and financial assistance to foster talent.

There are many ways you can engage with us, including:

- educational programs
- industry site visits
- internships
- mentorship
- scholarships.

## Women in Engineering and Technology

More women than ever are choosing to study engineering and computing at the University of Sydney, currently representing one in three students – double the national average.

We recognise the need to provide further opportunities for women throughout their engineering and computing careers. You can help by partnering with us through:

- research collaborations with our female academics
- educational programs
- industry site visits
- internships
- mentorship
- scholarships.



# Our programs

Explore the many postgraduate qualifications in engineering, project management and computer science we offer.

Most of our qualifications are recognised by Engineers Australia, the Australian Computer Society or the Project Management Institute.

Our innovative programs cover a range of areas including cybersecurity, telecommunications engineering and sustainability and environmental engineering.

Flexible study options including block mode, evening classes and online delivery are available in some instances.

- [sydney.edu.au/engineering/study](https://sydney.edu.au/engineering/study)



## Engineering

- Master of Engineering
- Master of Professional Engineering
- Master of Professional Engineering (Accelerated)

## Computer science

- Master of Data Science
- Master of Health Technology Innovation
- Master of Information Technology
- Master of Information Technology Management
- Graduate Diploma in Computing

## Project management

- Master of Project Leadership
- Master of Project Management
- Master of Project and Program Management

## Transport

- Master of Transport

## Complex systems

- Master of Complex Systems

# Key events



Engage with us and discover the many face-to-face networking opportunities our industry partners enjoy.

Our flagship events enable you and your staff to meet and network with our talented researchers, high-achieving students and business colleagues.

Stay up to date with all our upcoming events by visiting

- [sydney.edu.au/engineering/events](https://sydney.edu.au/engineering/events)

## Engineering Sydney Annual Careers Fair

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This unique forum gives our valued industry partners the opportunity to engage with our high-quality students on graduate employment, vacation placements and scholarship opportunities.

## Innovation Week

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Join us as we celebrate how our academic cohort are changing the world through their groundbreaking discoveries and transformative inventions.

## Sydney Engineering Innovation Series

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Discover how our researchers and students are using their knowledge and skills to impact lives in Australia and around the world.

## Dean's Lecture Series

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Hear from key national and international guest speakers in the fields of engineering and computer science.

# Ignite

Subscribe to *Ignite*, our e-newsletter, to stay up to date with the latest industry partnerships and research breakthroughs from across the Faculty of Engineering – conveniently delivered to your inbox.

[sydney.edu.au/engineering/ignite](https://sydney.edu.au/engineering/ignite)

## For more information

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