Australia's University of Enterprise for Defence

Transforming knowledge into world-class innovation.

Innovation & outcomes that support defence capability

Defence research at UniSA is underpinned by innovation and excellence. Our researchers are passionate and dedicated to bridging the gap between knowledge and real-world solutions. We are committed to successful engagement with government, industry, the professions and other groups to build and support the defence capability of Australia. This is demonstrated by our numerous partnerships with government and industry, including the Defence Science and Technology Group (DSTG), Lockheed Martin, BAE Systems, Saab, ASC, Raytheon, Boeing, Babcock Australasia, Airbus, Nova Systems, Accenture and many Australian defence industry SMEs.

UniSA supports the Department of Defence and the wider defence industry through a broad range of undergraduate and postgraduate study options, preparing graduates to meet the demands of industry.

Why partner with UniSA?

UniSA is a globally connected university that partners with more than 2,500 companies and industries worldwide. We are also South Australia's largest university with more than 37,000 students located across six campuses and online. Our teaching is industry-informed and our research is inventive and adventurous. We create knowledge that is central to global, economic and social prosperity.

UniSA is a member of the Defence Industry Security Program (DISP), allowing our us to undertake sensitive research with Defence and the Defence industry.

We are a foundation member of the Defence Innovation Partnership, allowing for industry-wide collaboration for defence-relevant research and development in South Australia.

UniSA also has one of the longest running university partnerships with the Australian Defence Science and Technology Group (DSTG).
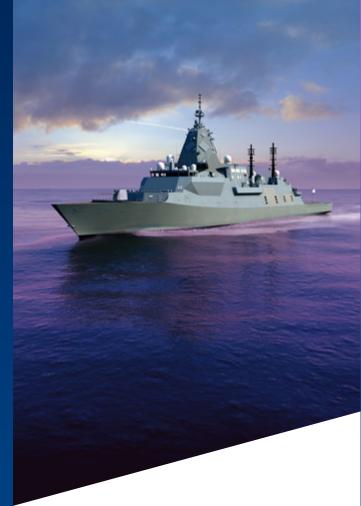
DEFENCE INNOVATION PARTNERSHIP

Connect and collaborate

Discuss opportunities to partner on student placements, grants, workshops, infrastructure and testing, research, joint R&D, sponsorships, scholarships, adjuncts, staff exchange, internships, co-chairs and PhDs.

Ryan McClenaghan
Director, Defence & Space,
defence@unisa.edu.au
+61 (0) 8 8302 1638

Visit unisa.edu.au/defence or scan the QR code to learn more.

#1 in Australia for research impact and engagement
2018 ARC Engagement and Impact Assessment (EI), Combined Impact – Approach to Impact and Engagement on Assessed Fields.

#1 Young University in Australia for industry collaborations
2024 The Young University Rankings – Industry Income Indicator.

100% of our assessed research rated at or above world-class
2018 Excellence in Research for Australia (ERA), 4-digit Fields of Research.

#1 Young University in Australia for industry income
2024 The Young University Rankings.

Our defence research capabilities

Artificial Intelligence & Complex Systems
Knowledge-based systems, system integration and interoperability

Autonomous systems
Robotics, mechatronics and advanced controls

Data Analytics and Machine Learning
Data visualisation, data fusion and network modelling

Augmented and virtual reality
Display technologies, narrative visualisation and remote collaboration

Wearable and empathetic computing
Human-machine interface and teaming

Material and surface engineering
Thin film coating and microfabrication

Advanced manufacturing
Industry 4.0, 3D printing, digital twinning and interoperability

Sensors and laser engineering
Higher energy laser and materials, spatial and spectral sensing

Telecommunications and signal processing
Wireless communications and signal processing and analysis

Space science
Satellite communications, planetary science and earth observation

Cyber defence
Cyber security and space cyber

Industrial design
Ergonomics and human-technology interaction

Human-centred design
Human performance, habitability and fatigue management

Human sciences
Exercise physiology, nutrition and biomechanics

Organisational psychology
Organisational learning, culture, creativity and climate

Systems engineering
Model-based systems engineering, verification and validation, test and evaluation and modelling

Defence executive education
Executive development, project management, quality assurance and Six Sigma

Industry engaged research for defence

UniSA's research strengths and partnerships in defence are largely focused in the following groups:

- The Future Industries Institute (FII)
- Industrial AI Research Centre
- Australian Research Centre for Interactive and Virtual Environments (IVE)
- Behaviour-Brain-Body Research Centre (BBB)
- Laser Physics and Photonics Devices Laboratories
- Industry 4.0 Testlab.

Forging thinking on defence AI

In partnership with the Department of Defence, UniSA manages DAIRNet (Defence Artificial Intelligence Research Network) which aims to bring together AI researchers across Australia to work together to stimulate new ideas and knowledge and to evaluate, test and integrate novel AI technologies for Defence. **To find out more, visit unisa.edu.au/research/dairnet.**

Future-proofing advanced manufacturing in defence

UniSA researchers are collaborating with BAE Systems to deliver manufacturing data intelligence to the $35 billion Hunter Class Frigate program. Our narrative and data visualisation expertise has enabled BAE Systems to visualise the current and future state of the shipbuild, shipyard and the supply chain. This has revealed hidden factors that help to assist in maintenance and support.

The second phase of the project uses Augmented and Virtual Reality (AR/VR) to overlay the data from each zone of construction to produce a 3D tabletop version of the build. This research will refine the highly complex manufacturing environment while at the same time improving shipyard planning, the construction process and problem-solving capacity.

As a result, the development of the Australian Hunter Class Frigate Program has a more agile approach to manufacturing and can respond to technological advancements as they happen, saving significant time and money. It will ensure Australia has the most advanced, up-to-date and efficient frigates in the world.

Learn at UniSA

UniSA offers a range of defence-related degrees at undergraduate and postgraduate level. Our programs have been designed with input from industry to ensure students graduate with in-demand knowledge and skills, prepared to transform our nation's future defence workforce.

Job opportunities in defence are broad. From cybersecurity to aviation, systems engineering or industrial design, students can follow their passion to pursue a dynamic and rewarding career in defence.

Global Executive MBA (Defence and Space)

As part of a unique collaboration, this MBA meets the workforce development needs of an expanding industry. Designed for senior leaders, personnel and public servants who are shaping the future of defence and space, the 18-month program is delivered across three countries: Australia, the US and the UK. Comprising intensive face-to-face teaching periods interspersed with high-quality online learning, the tailored curriculum features internationally recognised industry speakers and case studies. The program will cover topics such as cybersecurity, space systems and complex defence project management, plus core business topics in leadership, strategy and finance.

Veterans' Engagement and Education Program

UniSA believes that Australian Defence Force (ADF) personnel and our nation's first responders deserve every chance to forge successful civilian lives when they leave service. Through the UniSA Veterans' Engagement & Education Program (VEEP), we are working to improve access to higher education for current and ex-service personnel and create a welcoming and inclusive university environment. In partnership with industry, VEEP is providing a range of support to aid our veterans as they transition into a new career.

Study options for a career in defence

Postgraduate

International Master of Business Administration specialising in Business Analytics, Finance or Human Resource Management

Master of Business Administration

Master of Cybersecurity

Master of Data Science

Master of Design specialising in Industrial Design or Design and Construct

Master of Systems Engineering

Master of Engineering specialising in Civil and Infrastructure, Cyber Engineering and Telecommunications, Electrical Power or Engineering Management

Master of Management specialising in Business Analytics, or Human Resource Management

Master of Project and Program Management

Global Executive Master of Business Administration (Defence and Space)

Undergraduate

Bachelor of Aviation (Pilot)

Bachelor of Business (Logistics and Supply Chain Management)

Bachelor of Data Analytics

Bachelor of Design (Product Design)

Bachelor of Engineering (Honours) Specialising in Civil, Civil & Structural, Electrical and Electronic, Electronic and Mechatronics, Mechanical, Mechanical and Advanced Manufacturing, or Mechanical and Mechatronic

Bachelor of Information Technology Specialising in Networking and Cybersecurity or Software Development

Bachelor of Mathematics (Data Science)

Bachelor of Software Engineering (Honours)

Bachelor of Science

Software Engineering Degree Apprenticeship

Software Engineering Degree Apprenticeship

UniSA and the Ai Group, along with industry partners and the South Australian Government have partnered to create a degree apprenticeship to meet the fast growing demand for Software Engineers in local industry.

This unique combination of paid work and study is co-delivered by UniSA and a host employer. It allows for immersive, on-the-job training. This ensures students graduate with the knowledge and skills required of a software engineer. Students can earn while they learn and graduate as an experienced software engineer having already worked for one of our industry partners.

Learn more by visiting **unisa.edu.au/software-engineering-industry-program**

Employers interested in taking part in the program can also contact **stemdegreeapprenticeship@unisa.edu.au**

UniSA ranks at or above world-class research in artificial intelligence and software engineering

Results in Artificial Intelligence and Image Processing – 2018 Excellence in Research for Australia (ERA).