

Space Domain Awareness Object Characterisation

Up for a challenge? Join us to work on a Defence-led research project with Silentium Defence

Who can apply?

- Australian Citizens & Permanent Residents
- New Zealand Citizens **Start date**
- PhD - by June 2024
- Masters - by January 2025

Industry partner and funding body

- [Silentium Defence](#)
- [Defence Trailblazer](#)

Total annual stipend amount

- \$40,000pa base scholarship

- Plus \$10,000pa top-up scholarship

Program of study available

- Doctor of Philosophy (PhD)
- Master of Philosophy (MPhil) with the University of Adelaide

About the project

Over the past several decades, near earth orbits have become increasingly congested as the number of space borne applications grow. There are strong national security and commercial imperatives to develop capabilities for obtaining situational awareness in space. Radar is a mature sensing techniques that can be used in the space domain. Passive radars exploit emitters of opportunity, such as terrestrial broadcasts, to provide the transmitted signals. The subsequent low probability of discovery is particularly attractive for surveillance. However, the lack of control over transmit waveform raises technical challenges for detection and classification. This project will explore novel signal processing approaches to address these challenges. Silentium Defence's passive radar infrastructure is capable of capturing vast quantities of real data, which will serve as a critical ingredient in the research.

Eligibility criteria

- Australian citizens and defence industry professionals are encouraged to apply. It is expected that this project will require the candidate to have a security clearance which will likely limit applicants to Australian Citizens or citizens of countries within the Five Eyes Alliance (FVEY).
- Applicants with strong background in signal processing, radio frequency (RF) engineering, and electromagnetics.
- Excellent students who hold a Bachelor degree in Electrical or Electronic Engineering or a related discipline would be suitable and encouraged to apply.
- Applicants with well-developed written and verbal communication skills will be considered favourably
- Be willing to provide your personal details by way of a Student Deed Poll.

Benefits

- Work closely with experts on defence industry led projects
- Translate research into a tangible solution
- \$50,000 p.a. tax-free* stipend (pro-rated for eligible part-time students)
- No tuition fees apply
- Acquire a unique set of skills and expertise
- Enhance your employability skills sought after by industry; graduates are highly regarded by employers
- Opportunities for local and international travel
- Work alongside world-leading researchers
- Gain industry experience and grow your networks
- Solve real life problems through industry engaged projects
- Publish your contributions
- Become an expert and make a real impact
- Access paid annual, parental and personal leave.

* Conditions apply

How to apply

- Complete an [expression of interest](#)
- The primary supervisor will assess your eligibility, and if successful, will prompt your application for admission via the University of Adelaide.

More about Defence Trailblazer

The Defence Trailblazer for Concept to Sovereign Capability is a once in a generation opportunity to strengthen the collaboration between defence, academia and industry whilst accelerating research and commercialisation.

In partnership with the University of Adelaide (UoA), the University of New South Wales (UNSW), industry partners and supported by the Australian Government, the initiative will skill the workforce of the future, support defence-focussed innovation, and play a leading role in accelerating the delivery of sovereign capabilities for the nation's security and prosperity...at-speed and at-scale.

Learn more: <https://dtb.solutions/>

Industry Research Program

All students supported under the Defence Trailblazer initiative will participate in the Industry Research Program (IRP).

Candidates are located on-site at university and industry offices for at least 60 FTE days (pro-rated for eligible Masters candidates), to enable real-life professional development opportunities in an industry setting.

Defence Research Capability

Academics participating in Defence Trailblazer are leaders in their fields.

UNSW adds a critical dimension to preparing defence forces across areas as diverse as Autonomous Systems, Hypersonics, Sensors and Space. The UNSW Defence Capability Portfolio showcases UNSW's excellence in defence research and technology and highlights work across academia, government and industry, as well as with global policy makers, to create a hub of defence-related knowledge. The vision is to translate this knowledge into impact which can transform Australian and global societies.

There's no greater reassurance for our community than knowing we're well prepared to prevent or avert threats to our security. UofA researchers support this in every domain: on land and online; in space, the air and at sea, working extensively with the [Department of Defence](#) and defence-related organisations in a variety of ways—as an advisor, research partner and producer of high-quality, career-ready graduates equipped to make our world a better and more secure place.

[Find out more](#) about defence research at the University of Adelaide.

Further information

For a confidential discussion contact:

Associate Professor Brian Ng
School of Electrical and Mechanical Engineering
The University of Adelaide

E: brian.ng@adelaide.edu.au

T: 08 8313 5054

Defence Trailblazer, together with UoA and UNSW, are actively working to support equity groups. We strongly encourage applications from people with a disability, veterans and women interested in working in non-traditional work settings
University of Adelaide CRICOS Number 00123M

