

## Multistatic and bi-static localisation of underwater targets

### Up for a challenge?

Join us to work on an industry-led research project with Saab Australia.

#### Who can apply?

- Australian Citizens & Permanent Residents

#### Industry partner and funding body

- [Saab Australia](#)
- [Defence Trailblazer](#)

#### Program of study available

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

#### Total annual stipend amount

- A base scholarship of \$40,000pa plus \$10,000 top-up scholarship

#### Start date

- PhD - by June 2024
- Masters by January 2025

### About the project

Bi-static and Multi-static localisation use time differences of arrival between multiple receivers to localise objects being tracked by active sonar. The aim of this project is to develop a multi-static deinterleave algorithm that consistently assigns detection events to real-world tracks, in order to execute bi-static and multi-static geometric calculations. Solving this problem is expected to require a combination of tracker development, statistical methods, machine learning and hardware-accelerated brute-force computation.

Multistatic active localisation will contribute to the anti-submarine warfare capability of RAN surface combatants, particularly in the face of rapidly decreasing submarine noise levels that may soon make passive acoustic surveillance less effective.

### Eligibility criteria

- Australian citizens and defence industry professionals are encouraged to apply. It is desirable for candidates to be able to obtain a baseline security clearance after enrolment.
- Applicants with skills in some or all of: data science, mathematical modelling trackers and geometry will be considered favourably.
- Excellent students who hold an Honours degree in Mathematics, Computer Science, Engineering or equivalent would be especially 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 Defence Trailblazer Industry Research Program (IRP).

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

## Defence Research Capability

Academics participating in the Defence Trailblazer IRP 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. UoA researchers support this in very 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:

**Dr. John Maclean**

School of Computer and Mathematical Sciences  
The University of Adelaide | Adelaide SA 5005

E: [john.maclean@adelaide.edu.au](mailto:john.maclean@adelaide.edu.au)  
T: 08 8313 4792

*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

