



POSITION DESCRIPTION

Position Title:	Passive Sonar Signal Processing Researcher
Position Reference Number:	ECRMD013b
Division	MD
Position Classification:	S&T 3-4 Above
Position Location:	Rockingham, WA
Security Level:	NV1
Enquiries:	Damien.Killeen@dst.defence.gov.au

Academic Disciplines

<input type="checkbox"/> Aerospace/ Aeronautical Engineering, Naval Architecture	<input type="checkbox"/> Chemical, Radiological, Biological, Food sciences	<input type="checkbox"/> Materials Science
<input type="checkbox"/> Computer Sciences, IT, Software Engineering, Telecommunications	<input checked="" type="checkbox"/> Mathematics and physics	<input type="checkbox"/> Psychology and Social Sciences
<input type="checkbox"/> Mechanical and Mechatronic Engineering (including robotics)	<input checked="" type="checkbox"/> Electronic/ Electrical Engineering	<input type="checkbox"/> Other

Position Overview

As a member of the Passive Sonar Group’s Signal Processing team, the Passive Sonar Signal Processing Researcher will work under guidance in a small team developing advanced sonar signal processing algorithms that deliver a capability edge to the Royal Australian Navy submarine fleet.

This work will involve: mathematical derivation of new and/or improved signal processing algorithms; laboratory based sonar data analysis; modelling and measurement of sonar processing performance; and physical modelling of acoustic interaction with sensor and hull structures.

This position will require you to work in small teams and be personally responsible for the delivery of client (Navy) and internal outcomes. You will be accountable for the quality and timeliness of outputs in the form of reports and advice to the Navy client.

Position Duties

The major responsibilities of the S&T4 Passive Sonar Signal Processing Researcher are to make substantial contributions to: derivation of passive sonar signal processing algorithms that improve detection performance with reduced computational loads; implementation of algorithms in Matlab; analysis of algorithm performance on recorded data sets; analysis of the causes of signal processing loss from recorded data sets; and provide advice that enables the implementation of algorithms in real-time environments.

The successful applicant will have demonstrable experience and qualifications in the application of advanced mathematical methods to the solution of real-world problems.

Additionally, a background, understanding and proficiency in one or more of the following domains will be viewed favourably:

- Signal processing algorithm development, especially for passive sensor arrays
- Sensor array data analysis
- Underwater acoustics
- Sonar signal processing
- Linear algebra
- Algorithm implementation in real-time systems

Other Requirements

Appointees will be initially be engaged on a BASELINE security clearance with an upgrade to a Negative Vetting 1 (SECRET) Security Clearance required upon commencement.