



<b>Position Title:</b>	<b>Detection and Tracking Researcher</b>
<b>Position Reference Number:</b>	ECRNSDI0012b
<b>Division</b>	Intelligence, Surveillance & Space Division (ISSD)
<b>Position Classification:</b>	S&T3-4 (APS4/5-6)
<b>Position Location:</b>	Edinburgh (SA)
<b>Security Level:</b>	Negative Vetting 1
<b>Enquiries:</b>	<a href="mailto:Hugh.Kennedy@dst.defence.gov.au">Hugh.Kennedy@dst.defence.gov.au</a> , 08 738 97670

## Academic Disciplines

* Aerospace/ Aeronautical Engineering, Naval Architecture	* Chemical, Radiological, Biological, Food sciences	* Materials Science
* Computer Sciences, IT, Software Engineering, Telecommunications	* Mathematics and physics	* Psychology and Social Sciences
* Mechanical and Mechatronic Engineering (including robotics)	* Electronic/ Electrical Engineering	* Other

## Position Overview

The detection and tracking researcher will:

- Use mathematics and computers to solve challenging problems and build unprecedented systems
- Design and implement algorithms to automate the analysis and understanding of images and video
- Analyse and process real data from advanced sensors
- Work collaboratively in a multidisciplinary team of engineers and scientists
- Engage with Academia and Industry

**We are looking for a self-motivated research engineer who:**

- Enjoys a challenge and learning new skills that are highly sought after in the age of artificial intelligence
- Has an interest and aptitude in mathematics (e.g. linear algebra, calculus, transforms, probability and statistics)
- Is comfortable reading textbooks and journal papers to advance their knowledge as required
- Can apply and adapt abstract mathematics to real-world problems
- Knows how to write computer code

## Position Duties

Under the guidance of more senior research staff, this position involves the design/development of:

- Multi-dimensional digital filters for the detection of targets in data streams from imaging sensors
- Multi-target tracking algorithms for state estimation (e.g. Kalman filtering) and data association
- Computer-vision, image-processing, pattern-recognition, and machine-learning techniques

And their implementation/integration using (for example):

- Matlab, Python, C++, CUDA

## Other Requirements

The successful candidate is expected to apply for PV clearance.  
Occasional interstate and international travel may be required.