MD002: Postdoc Maritime Autonomy

Location: Australia Technology Park, Eveleigh (Sydney)

Overview:
The Maritime Autonomy branch focuses on autonomous and unmanned technologies to support RAN operational capability. Within the branch, a small group concentrates on unique technologies, especially hyperspectral and multispectral imaging sensors, that enable sensing and analysis in the shallow water littoral environment, and that can be integrated on small and tactical unmanned aerial systems. Unmanned systems operated by the RAN will be the test platforms on which these sensing capabilities will be integrated. Smaller COTS UAVs will also be used for rapid integration testing and analysis.

As member of this group, you will conduct research into hyperspectral systems, their integration onto small unmanned aerial systems to be used by the Navy, and onboard processing of the data, to provide real-time bathymetry, bottom type, beach characterisation and mine detection data to the Navy.

There is flexibility to tailor this role to the skillset of the successful applicant; that is, the role could be biased towards hardware integration, development of onboard processing, or applications of novel algorithms including machine learning approaches to hyperspectral and multispectral image exploitation.

Academic Requirement:

A PhD in one of the following areas:

- Physics
- Electronic engineering
- Computer Science
- Mathematics

Other Role Specific Requirements:

Demonstrated experience, or ability, in any or all of the following areas:

- Hyperspectral and other (e.g. lidar) sensing systems;
- Sensor physics, robotic sensing, mapping and localisation;
- Use and development of hardware, algorithms and libraries used for robotics, computer vision, and machine learning;
- Control software used to implement sensor integration;
- Programming for rapid research prototyping and embedded implementation (e.g., MATLAB, C or C++);
- Linux and other operating systems;
- Mission planning and/or operation of militarily relevant autonomous systems;
- Planning and leading trials for system validation.

Notes:
Appointees will be initially engaged on a **BASELINE** security clearance with an upgrade to a **Secret/ Negative Vetting 1 Security Clearance** required upon commencement.

Written Application Position Specific Question: (400 words max)

Describe the technical details and the process you followed in developing a piece of hardware or software that you particularly designed in your academic or work experience?