



Australian Government
Department of Defence
Defence Science and
Technology Organisation



**\$30,000 Sponsored Masters Scholarship
through the
Graduate Industry Linked Entrepreneurial Scheme – GILES**

G06/08 – Maritime Experimentation Infrastructure Improvement

Objective of Project

The primary aim of this project is to improve the simulations used for maritime tactical experiments.

The DSTO's Maritime Operations Division (MOD) provides scientific and technical support to the Royal Australian Navy. As part of this support, the Combat Systems Operations group has an ambitious program of experimentation focusing on requirements and potential technologies for surface ships. The successful execution of this program requires access to reliable, tested simulation infrastructure. Although the current simulation system is a flexible architecture that can be configured according to experimental requirements, the individual simulation components are frequently developed and modified for different uses. This adds an element of uncertainty to experimental configurations that may impact on the subsequent analysis. We need someone to gain an awareness of the state of the simulation infrastructure; identify ways it can be improved; and develop an appropriate solution. Such a solution may, for example, include establishing a standard simulation baseline, developing a verification and validation process, or developing key simulation components. By project end, a good understanding of the current software configuration, verification processes and stakeholder requirements will have been formed, and a way forward will have been identified that clearly articulates the pre-cursors required to obtain a reliable experimentation infrastructure. The project will thus contribute to improving the credibility of experimental analysis.

Project Specification and Timetable

The task requires the following activities to be conducted:

- Liaise with stakeholders to determine existing practices, goals, and tools.
- Identify constraints (e.g., ongoing software development, various applications and functional requirements for software)
- Determine the requirements of experimental simulations (e.g., what are the system boundaries/scope, what needs to be done, what do we need to test, and how can we test it?)
- Develop a plan to meet the above simulation requirements.
- If time allows, begin to execute the plan through targeted pilot cases, capturing issues and refining the methods used.
- Document the work and maintain a file of "lessons learnt".

This project has strong elements of Research and process development.

Personal Requirements

Good communication, negotiation, critical thinking and analysis skills will be required to achieve a robust methodology that meets stakeholders' needs. Familiarity with software development processes will be required; and software programming skills may also be needed for testing.

Australian citizenship and good English communication skills (both oral and written); as well as the ability to gain and hold a security clearance will be required. The project will be located at DSTO Edinburgh, SA.

Academic Qualifications

Graduate level or equivalent skills in computer science, software development, or modeling and simulation.

Other Requirements

Knowledge of evaluation frameworks and methodology development would be beneficial.

Division and Contact Person

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