STUDENT-INDUSTRY PARTNERSHIPS

INFORMATION FOR STUDENTS

GRADUATE INDUSTRY PLACEMENT SCHOLARSHIP

The Program

The **Postgraduate Industry Placement** program is coordinated through the Community Engagement Office. It offers a structured workplace experience for graduate students. Students are placed with an industry under a collaborative sponsored agreement for 12 months to undertake and complete a project(s) as directed by the industry supervisor while continuing to study for an appropriate University of Adelaide Masters Degree.

Benefits for Students

- Stipend scholarship payments for project activities of up to **$30,000.**
- Links with a company to gain valuable industry experience.
- Enhancement of skills through relevant real-world project.
- Development of links with industries/organisations for future employment

Collaborating Industry/Organisation

The Defence Science and Technology Organisation (DSTO) is part of Australia's Department of Defence. DSTO is the Australian Government's lead agency charged with applying science and technology to protect and defend Australia and its national interests.

Project Title – G03/10

Control of a complex logistics system

Objective of Project

The Land Operations Division (LOD) of Defence Science and Technology Organisation (DSTO) is currently supporting Defence Project Land121. Land121 provides the ADF with field vehicles, trailers and modules to replace current assets. The effectiveness of the replacement system depends on the effectiveness of its support systems.

The project is part of a wider task, informing Capability Development Group on strategic issues concerning the large logistic fleet replacement which will soon begin. The major issue concerns the management of vehicle failures in order to improve Operational Availability and extend of the life of the fleet.

Failure in any vehicle will be treated by replacement of the faulty modular subunit if any replacements are available, allowing the vehicle to remain operational while the subunit is sent for repair. This has the potential to improve Operational Availability as long as confounding factors are controlled. The use of modular subunits also has the potential to extend the life of the fleet.

The fleet manager is supported by some resources, including reserves of operations-ready vehicles and reserves of operations-ready subunits, however there is disagreement over the way these resources should be used and the numbers of each that are required. The quantities of resources required are highly sensitive to vehicle failure rates and cannot be estimated by averaging methods.

The overall objective for this project is to identify and estimate the advantages and disadvantages of each of the proposed strategies for use of reserves.

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This objective relies on two sub-objectives:

- identification of some of the factors which lead to system failure, and
- determination of the gains that can be made by controlling each factor.

The different strategies will affect these gains. The system fails when either Operational Availability or the life of the fleet falls below some threshold level.

Project Specification and Timetable

The work program will be conducted over a twelve month period and will include:

- familiarisation with project and software
- review of relevant simulation literature
- build a simulation model of the fleet support system
- as part of a team, design a set of numerical experiments
- perform the numerical experiments to isolate factors which lead to system failure
- adapt the simulation model to control the values of the factors
- derive the advantages and disadvantages of each strategy for use of reserves
- report on the results of investigations conducted
- contribute to a DSTO report

Personal Requirements

The graduate needs to be:

- Highly motivated and able to work with minimum supervision as a member of a small team
- Skilled in computing and in analysis
- Able to present study findings in written and verbal reports

Academic Qualifications

Graduates would be expected to have qualifications in **Applied Mathematics** or equivalent degrees with a strong mathematical content

Other Requirements

The graduate will need to be an Australian citizen and will require a security classification at the Restricted level in order to access relevant information sources.

Division and Contact Person

The graduate would be expected to work in the DSTO Land Operations Division in the Land121 under guidance from Dr Adrian Pincombe and Dr Greg Sherman and from team leader Dr Axel Bender.

Applications

Applications to be submitted by email to maito:tania.johnson@adelaide.edu.au
Please include project title, resume and academic transcripts.

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