



POSITION DESCRIPTION

Position Title:	Computational Intelligence and Control Scientist
Position Reference Number:	PDL006b
Division	LD
Position Classification:	S&T 3-4 (Above)
Position Location:	DST-FMB
Security Level:	NV1
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Position Overview

The Land Vehicles and Systems (LV&S) Major Science and Technology Capability (MSTC) within DST Group's Land Division (LD) drives science and technology innovation for the Australian land force. It develops and demonstrates novel concepts through computer simulations, robotic prototypes and field trials, creating solutions that enhance the resilience, survivability and adaptability of Australia's deployed military systems in challenging land environments.

Within LV&S, the Advanced Vehicle Systems (AVS) Science and Technology Capability (STC) conducts research and innovates in the multi-disciplinary field of self-managing vehicle-hosted mission systems. The STC's focus is on contextually aware distributed autonomic control of land vehicle fleets and their networked components; that is, the coordination of the behaviours of multiple vehicles and their networked systems which are adaptive to changes in the environment.

The Computational Intelligence and Control Scientist will have demonstrated experience in optimisation and/or AI within multi agent dynamical systems. S/he will conduct outcome focused research towards the STC's projects in support of the Australian Army's modernisation efforts. Research will be realized in physical demonstrators and, as such, familiarity with ROS, and implementation in physical testbeds are desirable.

Position Duties

Under broad direction of Group Leader AVS and Discipline Leader AVS Development, conduct and apply research in optimisation and computational intelligence towards the STC projects, which involves the following duties:

- Research and maintain awareness of state of the art computational intelligence / control techniques applied to multi agent system control,
- Apply appropriate techniques to research problems and applications within the STC through software implementation within extant software applications,
- Be creative / innovative and devise new applications for the STC's distributed autonomic control system, and demonstrate these concepts in software prototypes and/or simulations,
- Publish research in reputable domestic and international conferences and journals,
- Communicate project and research results to a wide range of stakeholders, including to LD Executive, Army, industry and at national and international conferences,
- Collaborate with academia, industry and international defence S&T organisations to advance the goals of the STC's projects and research,
- Liaise with ADF and other stakeholders to ensure alignment of the research with the evolving requirements of vehicle hosted autonomic control systems.

Academic Requirement

- Postgraduate degree (or equivalent) in applied mathematics, computer science/engineering, mechatronics/robotics, software engineering, or a related field with demonstrable knowledge and experience in one or more of the following areas:
 - computational intelligence / machine learning,
 - optimisation,
 - distributed systems, sensing, decision making and/or control,
 - Multi agent system control
 - autonomic computing and/or control,

Job Element Percentages

- Research leadership - 0%
- Research - 40%
- Professional - 40%
- Technical - 10%
- S&T management - 10%



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- Agile software design and development,
- Python and/or C/C++ and/or Java and/or similar programming languages.

Other Requirements

- A demonstrated understanding of the scientific method.
- Ability to encapsulate research outputs in software simulations / prototypes.
- Willingness to undertake interstate and overseas travel.
- Ability to work well independently and in a team.
- Ability to present complex scientific and technical concepts to varying audiences.