



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

G01/08 - Use of low fidelity desktop simulators for Close Air Support Training

Objective of Project

To determine the utility of low fidelity desk top simulators for training Close Air Support (CAS)

Background

Close Air Support is an important activity conducted by the Australian Defence Force (ADF) and coalition partners during military operations. CAS involves “air action by fixed- and rotary-wing aircraft against hostile targets that are in close proximity to friendly forces and that require detailed integration of each air mission with the fire and movement of those forces”. The effective conduct of CAS relies on highly trained Joint Terminal Attack Controllers (JTACs) and aircrew (pilots) working together to prosecute targets of interest and deliver requisite terminal effects.¹

The high cost of using live aircraft when conducting CAS training means that the use of simulation is highly attractive. However, to date, there has been only limited evaluation of the utility of simulation for training CAS. This project would look at the benefits (or otherwise) of using desk top simulators for part-task training of CAS. Two candidate simulation systems will be investigated; one which looks at co-located training (pilot and JTAC in same location) and a second, looking at distributed training (pilot and JTAC in different locations; one in Australia, the other in the US).

Project Specification and Timetable

1. Project Introduction and Overview including discussion with staff and DSTO familiarisation (2 weeks)
2. Establish CAS capability of desk-top simulation (4 weeks)
 - a. Determine requirements of simulation for CAS training
 - b. Implement necessary changes (includes liaison with US scientific agency)
3. Establish network connectivity between CAS personnel (JTAC and pilot) (2 weeks)
 - a. maintain connectivity between sites for suitable duration
 - b. confirm simulation requirements implemented
4. Develop Notional CAS scenario for technical demonstration, including measures for evaluation (3 weeks)
5. Conduct technical demonstration, record outcomes and evaluate using developed measures (2 weeks)
6. Determine any changes required to simulation, scenario and/or measures (2 weeks)
7. Implement changes and re-evaluate (4 weeks)

¹ A Joint Terminal Attack Controller (JTAC) is “a qualified (certified) Service member who, from a forward position, directs the action of combat aircraft engaged in CAS and other offensive air operations”.

8. Analyse CAS tasks for JTAC and pilot and select appropriate sub-tasks. Determine key variables for subsequent experimentation (3 weeks)
9. Design series of experiments investigating whether learning occurs in the simulator: includes design of scenarios and measures (3 weeks)
10. Conduct experiments (9 weeks)
11. Analyse results (6 weeks)
12. Write report and present results (8 weeks)

Personal Requirements

- Good data analysis skills
- Experience in research design
- Highly motivated
- Ability to work unsupervised and show initiative
- Good interpersonal and communications skills (will need to liaise with US scientific agencies)
- Familiarity with desktop PCs and associated software

Academic Qualifications

Studying for either of the following degrees (Masters Level):

- Cognitive Science
- Computer Science
- Experimental Psychology

Division and Contact Person

Work will be carried out within DSTO Land Operations Division, under the Training and Preparedness Task ARM 07/163. POC is Dr Ashley Stephens, L75 Land Operations Division
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