

Project Title: Framework for the effective integration of simulations in training

Background

University: The University of Melbourne
Research Group: Visual-Haptic and 3D Immersive Simulation Research Group
Lead Researchers: P. Harris, S. O’Leary, L. Wise, J. Quealy, E. Kazmeierczak, L. Sonenberg, A. Smith, B. Pyman, R. Buyya, E. Reynolds, A. Goodwin, N. Eizenberg, C. Briggs, L. Irving, R. Dowell, G. Kennedy
Other organisations collaborating with work: DSTO
Background to work:
 Our research capability is based on use of simulations and synthetic training environments (STEs) in the training of highly skilled professionals in high risk, high cost environments such as medicine, aviation and dentistry. We are currently exploring the use of technologies for immersive virtual environments using 3D visual and haptic feedback in surgical training, and developing a framework for evaluating the role of synthetic training environments within curricula involving highly skilled professionals.

Technology

Basic description of technology relevant to proposal:
 Our research program provides direction on the appropriate use of simulations and synthetic environments in training, and provides input on how best to incorporate new technologies for collaboration into training and production systems.
Current stage of development:
 We have strong skills in the development of sustainable training systems aligned with organisational and professional requirements. We also have extensive experience in development and evaluation of technology across a range of professional environments and we have special expertise in the use of educational technology and development of synthetic training environments for a range of highly demanding situations that are encountered in medicine.
Assessment of TRL STE integration and evaluation framework is under development in 2006-07
What is required to improve maturity level: validation in a range of different curricula and organisational settings

Application to JSF

Description of proposed application to JSF
 Our research program draws on expertise in medicine, computer science, engineering, image processing, cognitive and behavioural psychology and educational technology and will also examine the role of collaborative tools to support information exchange and situational awareness in advanced, networked environments.
Development path / Requirement to reach concept demonstration: A general framework for evaluating the role of STEs in training systems will be developed for application to specific curricula and organisational contexts.

Programmatics

Milestones
 Our framework for evaluation and integration of STEs into curricula is being developed during 2006-2007.
Schedule
 The block upgrade system for developing JSF capabilities will require a responsive, efficient, effective and accountable training system which will need to be highly adaptable to accommodate these new capabilities. New STEs will need to be evaluated and their effect on the training system as a whole will need to be rapidly understood for effective integration.
Budget: \$300,000 / year