Workshop 1: Virtual Environment Usability Engineering

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Abstract

Applications using virtual environment (VE) technology have grown tremendously over the past decade, yet users of such systems often encounter difficult interaction techniques, navigational challenges, and adverse effects such as sickness and aftereffects. Such issues have led to the need for new usability engineering techniques, which are uniquely suited to the characteristics of VE systems. Toward this objective and with the support of the Naval Air Warfare Center Training Systems Division, a new automated approach to VE usability assessment has been developed called MAUVE, Multi-Criteria Assessment of Usability for Virtual Environments.

This workshop will present the latest in VE usability engineering approaches, including the MAUVE evaluation approach. Attendees will learn key characteristics that drive VE usability and how to perform VE usability evaluations using an automated heuristic evaluation tool and multi-criteria decision-making techniques. Attendees will learn how these techniques can be used at various stages in the usability engineering lifecycle, from initial storyboard design to final evaluation and testing. They will learn how to compare system design alternatives and how to use the results of their evaluation to remedy critical usability problems, as well as enhance the design-for-usability of subsequent system development efforts.

The course lessons include hands-on exercises. The workshop will enable attendees to better specify design and implementation requirements for their VE applications and prepare them to use this advancing technology in a manner that minimizes health and safety concerns.

Interactive Activities: The primary objective of the workshop is to involve participants in hands-on activities through which they will develop a body of working knowledge required to conduct VE usability evaluations. The resulting end-products of these interactive activities will include development of:

- User profile
- Task analysis
- Usability attribute table
- Usability goals specification
- Heuristic evaluation (including usability scores and opinion survey results)
- Problem solution table.