Human Factors

research and technology division

Intelligent Spacecraft Interface Systems (ISIS) Lab

Overview

The ISIS Lab contains a reconfigurable cockpit simulator for current and future spacecraft. Presently, the simulator represents many of the displays and switches in the Space Shuttle. We are measuring crew-member's workload, situation awareness, and performance during normal and off-nominal conditions. In the future, we will implement proposed modifications to the shuttle displays and determine whether and how much the crew's performance is affected. Participants in ISIS studies include astronauts and former commercial airline pilots.

ISIS Lab Photo

Objectives

1. Implement methods for analyzing cockpits.
   - Obtain objective metrics such as eye movement recordings.
   - Obtain subjective metrics such as workload and situation awareness.

2. Develop a crew-systems concept for the next-generation spacecraft.
   - Improve fault diagnosis and management.
   - Examine effects of different automation levels on crew performance.

Equipment

- Head-mounted eye tracker (by ISCAN)
- Flat panel monitors for showing displays
- Touch screens to allow interaction with a simulated keyboard and switches

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