

**Aeronautics Technical Seminar Series**  
**Wednesday, October 24, 2007**  
**2:00 PM N245 Auditorium**



**Augmented Reality Tool Design and Evaluation for Air Traffic Control Towers.**

The National Aeronautics and Space Administration (NASA) and the Federal Aviation Administration (FAA) are exploring concepts for Augmented Reality Tower Tools (ARTTs) that employ head-tracking, head-worn, see-through display systems for use by air traffic tower controllers to increase situation awareness and mitigate the impact of visibility impairments (e.g., weather) on airport operations. The ARTT engineering models developed and assessed at Moffett Field Air Traffic Control Tower display 3-D computer generated imagery of real-time air traffic data (e.g., aircraft location, identity, speed), and terrain, runways, hangars, and other obstructions rendered from the tower controller's point of view. In addition to traditional evaluation methods, a machine-vision facial-expression recognition system developed by the MIT Media Lab Affective Communication Group is being tested as a new tool for objectively measuring the effect of these experimental automation and display models on controllers' internal cognitive states.

**Ron Reisman** was one of the members of the original Center-TRACON Automation System (CTAS) and Surface Movement Advisor (SMA) development teams. The FAA currently uses both systems operationally. He has also worked on traffic flow management R&D, development of NASA's air traffic data infrastructure, and other duties supporting NASA's NexGen mission. He has a BA in Philosophy and Classical Greek, and an MS in Computer Science. Before joining NASA he conducted cognitive experiments with apes and dolphins, and also worked for Singer-Link Flight Simulation at ARC.