

Agenda
Human Factors of UAVs Workshop
May 24, 25, & 26, 2006
Arizona Golf Resort and Conference Center, Mesa, AZ

All talks will be held at the Arizona Golf Resort, in the Fairway Conference Center (FCC) 6 & 7. Each speaker will have 20 minutes to present, plus 5 minutes for Q & A.

Wednesday, May 24, 2005

4:00 -7:00 Registration & Poster/Demo Reception.....
.....Fairway Conference Center 3 & 4

Demo: User Interface for Video Exploitation: The TerraSight™ Approach. *Channin, D. J., Pope, A., Gagvani, N., & Yang, D.; Sarnoff Corp.*

Poster: Team Operation of UAVs: Some Recent CERTT Findings on Retention and Team Composition. *Cooke, N. J.¹, Andrews, D.², Amazeen, N.³, Connor, O.¹, Duran, J.¹, Gorman, J.¹, Pedersen, H.¹, Rowe, L.¹, Taylor, A.¹, & Winner, J.¹; CERl, AFRL², ASU³.*

Demo: A Simulation Environment to Investigate Robotic Operator Training. *Durlach, P. J.¹, Neumann, J. L.², Martin, G.², Thurston, C.², & Cope, D.³; U.S. Army Research Institute¹, University of Central Florida², AVT Simulation³.*

Demo: Plan Understanding and Mission Assessment (PUMA): An Interactive Decision Support System for Autonomous Unmanned Vehicle Mission Management. *Guerlain, S.¹, Goldman, R. P.², Funk, H. B.², & Allen, S.³; University of Virginia¹, SIFT², Emiror Inc.³*

Demo: Design CoPilot: A Decision Support Tool for Flight Deck Human Factors. *Lyall, B., Harron, G., & Johnson, D.; Research Integrations Inc.*

Demo: Synergy Between Software Architectures and User Interface Design in a Multiple Uninhabited Air Vehicle Control System. *Marshak, W., Collier, J., Bartek, D., Hudson, J., Porter, B., Miles, J., & LaDue, N.; SYTRONICS Inc.*

Poster: An Initial Look at the Impact of Training and Retention in a Predator UAS Simulator. *McDermott, P. L., Clamann, M., Fisher, A., & Archer, R.; Micro Analysis & Design (MA&D).*

Poster: Evaluating C2 Systems for Unmanned Vehicles: Lessons Learned. *Zaychik Moffitt, V.¹, Franke, J. L.¹, Clark, J. G.², Harper, K. A.³, & Hopkins, C.³; Lockheed Martin ATL¹, Lockheed Martin ADP², Charles River Analytics Inc.³*

Poster: Dynamic Contextual Decision Tree (DCDT). *Nehme, C. & Cummings, M.; MIT.*

Demo: Multi-modal Virtual Reality-Based Interface for Control of UAVs. *Oliver, J., Parkhurst, D., Winer, E., Knutzon, J., Batkeiwicz, T., & Dohse, K. C.; Virtual Reality Applications Center, Iowa State University.*

Poster: An Approach for Multimodal Display Development for UAV Systems. *Pfautz, J.¹, Fouse, A.¹, von Wiegrand, T.², Roth, E.³, & Fichtl, T.¹; Charles River Analytics¹, Sensimetrics Corp.², Roth Cognitive Engineering³.*

Poster: Using Cognitive Work Analysis in Developing User-Centered Unmanned Vehicles Displays. *Stoner, H. A., Alexander, A. L., Linegang, M., & Patterson, M.; Aptima Inc.*

Thursday, May 25, 2005

7:30 -8:30 Registration & Breakfast.....Foyer of the West Ballroom

8:30 - 10:15 Opening Remarks.....Fairway Conference Center 6 & 7

8:30-8:45 Welcome and Logistics. *Cooke, N.J.; Cognitive Engineering Research Institute (CERI).*

8:45-8:50 Research Integrations Perspective. *Beth Lyall; Research Integrations Inc.*

8:50-8:55 AFRL/AFOSR Perspective. *Lt. Col. Jeff Wharton; USAF.*

8:55-9:35 Keynote address #1: Unmanned Vehicles for the Rest of Us: UVs for Homeland Security vs. Homeland Defense. *Robin Murphy; University of South Florida.*

9:35-10:15 Keynote address #2: FAA Status and the Way Ahead. *Steve Swartz; FAA.*

10:15 - 10:35 Break.....Foyer of the West Ballroom

10:35 - 12:15 Session 1: "FAA Perspectives"Fairway Conference Center 6 & 7

Overview of UAS Human Factors at the FAA: Aircraft Certification Service. *Kaliardos, B.; Federal Aviation Administration.*

Overview of UAS Human Factors at the FAA: Flight Standards Service. *Adams, R.; Federal Aviation Administration.*

Overview of UAS Human Factors at the FAA: Civil Aerospace Medical Institute.
Williams, K.; Federal Aviation Administration.

A Summary of Human Factors Research and Its Use in Certifying and Operating Unmanned Aerial Systems in the National Airspace System. *Lyall, B., Johnson, D., & Harron, G.; Research Integrations Inc.*

12:15 - 1:40 Lunch: “Human-Machine Interface (HMI) for Unmanned Aviation” Presentation and Q&A session with Jeff Goldfinger, Brandes Associates.....Fairway Conference Center 3 & 4

1:40 - 3:20 Session 2: “Diverse Perspectives”Fairway Conference Center 6 & 7

Human Factors in the Maintenance of UAVs. *Hobbs, A. & Herwitz, S.; NASA.*

Unmanned Aircraft System (UAS) Operations Tempo and Human Factors Accident Rates. *Hunn, B.; U. S. Army Research Laboratory.*

Simulation and Tele-operation of Unmanned Vehicle Missions within an Immersive Virtual Environment. *Newendorp, B. ¹ & Duncan, J. ²; Iowa State University¹, John Deere Technology Center-Moline².*

Unmanned Aircraft System (UAS) Human System Integration: The U. S. Air Force Experience. *Tvaryanas, A. P.; Performance Enhancement Directorate.*

3:20 - 3:40 Break..... Foyer of the West Ballroom

3:40 - 5:20 Session 3: “SA in UVs”Fairway Conference Center 6 & 7

Comparing Situation Awareness for Two UAV Interface Approaches. *Drury, J. L. & Richer, J.; MITRE Corp.*

An Investigation of Situational Awareness in Real World Control of Robotic Assets with Communication Latency. *Luck J. ¹, McDermott, P. ¹, & Allender, L. ²; MA&D¹, U. S. Army Research Laboratory-HRED².*

Spatial Disorientation in Uninhabited Aerial Vehicles – A Preliminary Empirical Study. *Olson, W. A., DeLauer, E. H., & Fale, C. A.; United States Air Force Academy.*

Assessing Effects of Robot Control Mode on Performance and Situation Awareness in a Maze Navigation Task. *Riley, J. M. & Strater, L. D.; SA Technologies, Inc.*

Bus departs AZ Golf Resort at 6:00

6:30 - 7:30 Reception at Las Sendas Trailhead Members Club

**7:30 Dinner: “Predator UAV Briefing” Presentation and Q&A session with
Maj. Matt Martin, USAF.....
.....Las Sendas Trailhead Members Club**

Friday, May 26, 2005

7:30 - 8:30 BreakfastFoyer of the West Ballroom

**8:30 - 10:10 Session 4: “Multiple UAV Control”
.....Fairway Conference Center 6 & 7**

**Decision Support for Workload Mitigation in Supervisory Control of Multiple UAVs.
Brzezinski, A., & Cummings, M. L.; MIT.**

**On Predicting System Performance, Operator Workload, and Wait Times for
Human-UV Teams. Crandall, J. W.¹, Cummings, M. L.¹, Goodrich, M. A.², & Nielsen,
C. W.³; MIT¹, BYU², Idaho National Laboratory³.**

**Operator Vehicle Interface Technology & Studies for Cooperative Control of Small
Heterogeneous Systems. Petkosek, M. A., Patzek, M. J., Warfield, L., Gonzalez-Garcia,
A., & Carretta, T. R.; United States Air Force Research Laboratory.**

**Determination of Mental Workload During Operation of Multiple Unmanned
Systems. Pomranky, R. A.¹ & Wojciechowski, J. Q.²; U. S. Army Research Laboratory,
Ft. Hood, TX¹, U. S. Army Research Laboratory, Aberdeen Proving Grounds, MD².**

10:10 - 10:40 Break.....Foyer of the West Ballroom

10:40 - 12:20 Session 5: Break-out Session: Human Factors Issues and UAVs

“Automation Issues in UVs” FCC 5 A

“Human Factors Implications of Armed UAV Employment”FCC 5 B

“Human Factors in Operator Selection and Training” FCC 6

“Decluttering of UAV Displays” FCC 7

“TBD” FCC 1

“TBD”FCC 2

12:20 - 1:45 Lunch: Operator Perspectives Panel Q & A.....
..... Fairway Conference Center 3 & 4

1:45 - 3:25 Session 6: “Interface Issues”.....
.....Fairway Conference Center 6 & 7

Mini-UAV User Interface Elements: Trade-offs and Validation. *Goodrich, M. & Cooper, J.; BYU*

Plan Understanding and Mission Assessment (PUMA): An Interactive Decision Support System for Autonomous Unmanned Vehicle Mission Management. *Guerlain, S.¹, Goldman, R. P.², Funk, H. B.², & Allen, S.³; University of Virginia¹, SIFT², Emiror Inc.³*

Delegation in a Changeable World: Supporting Playbook™ Interactions for Unpredictable Tasks. *Miller, C. A., Goldman, R. P., & Funk, H. B.; SIFT.*

Cognitive engineering and HMI design of a UAV Ground Control Station. *Richards, D. & Howitt, S.; QinetiQ.*

3:25 – 3:45 BreakFoyer of the West Ballroom

3:45 – 5:15 Wrap-up/Break/Closing Comments.....
.....Fairway Conference Center 6 & 7

Spokespersons from the breakout groups will present five-minute summaries.

“Manning the Unmanned”

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