

**Agenda**  
**Human Factors of UAVs Workshop**  
**May 21, 22, & 23, 2007**  
**Crowne Plaza San Marcos Golf Resort, Chandler, AZ**

**Monday, May 21, 2007**

**4:00 - 7:00 Registration & Poster/Demo Reception.....Cibolas**

**Welcoming Address.** *Shope, S.; Cognitive Engineering Research Institute (CERI).*

**Poster: Dissecting Random and Nonrandom Visual Search Strategies in a UAV Task with Highly Reliable Automation.** *Clayton, K., Trafimow, D., Dixon, S., & Wells, A.; New Mexico State University (NMSU).*

**Poster: Team Operation of UAVs: Some Recent CERTT Findings on Retention and Team Training.** *Cooke, N. J.<sup>1,3</sup>, Amazeen, N.<sup>3</sup>, Andrews, D.<sup>2</sup>, Duran, J.<sup>1</sup>, Gorman, J.<sup>1</sup>, Pedersen, H.<sup>1,4</sup>, Rowe, L.<sup>1</sup>, Taylor, A.<sup>1</sup>, & Winner, J.<sup>1</sup>; CERI<sup>1</sup>, AFRL<sup>2</sup>, ASU<sup>3</sup>, NMSU<sup>4</sup>.*

**Poster: Consumer Perception of the Automated Cockpit: Are We Ready for Commercial UAVs?** *Hughes, J., Dixon, S., Trafimow, D., & Wells, A.; NMSU.*

**Poster: Dependencies in Human Control of Cooperating Robot Teams.** *Wang, J.<sup>1</sup>, Lewis, M.<sup>1</sup>, & Scerri, P.<sup>2</sup>; University of Pittsburgh<sup>1</sup>, Carnegie Mellon University<sup>2</sup>.*

**Demo: The Design Co-Pilot: Harnessing Human Factors for Design and Certification.** *Lyall, B., & Johnson, D.; Research Integrations Inc.*

**Demo: Demo of Predator UAS Trainer.** *Bryan, E.; SDS International.*

**Demo: Network-Centric Human-Computer Interface Distributed UAV Access System (HCI DUAS).** *Getzlaff, J.; Kutta Consulting.*

**Demo: Unified Ground Control Station (UGCS).** *Limbaugh, D., & Bona, J.; Kutta Consulting.*

**Tuesday, May 22, 2007**

All talks will be held at the San Marcos Golf Resort, in the San Marcos Ball Room. Each speaker will have 20 minutes to present (Keynote speakers have 30 minutes), plus 5 minutes for Q & A.

**7:30 -8:30 Registration & Breakfast.....**  
**.....Foyer of San Marcos Ballroom**

**8:30 - 10:45 Opening Remarks..... San Marcos Ballroom**

**8:30-8:45 Welcome and Logistics.** *Cooke, N.J.; CERI, ASU.*

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

**8:50-8:55 AFRL/AFOSR Perspective.** *Dee Andrews; AFRL.*

**8:55-9:30 Opening Address: The Value of High Fidelity Training for UAS Crewmen.** *Jeff Goldfinger; L-3 Communications.*

**9:30 – 9:45 Break.....Foyer of San Marcos Ballroom**

**9:45-10:20 Keynote Address #1: Specialized Visual Tools for Border Security Unmanned Aircraft System’s Operations.** *Bruce P. Hunn; ARL, Ft. Huachuca, AZ.*

**10:20-10:55 Keynote Address #2: Predator Combat Operations in CENTAF AOR: Lines of Communication and Border Patrol.** *Maj. Matt Martin; USAF.*

**10:55 - 11:15 Break.....Foyer of San Marcos Ballroom**

**11:15 - 12:15 Session 1: Operator Perspectives Panel.....  
.....San Marcos Ballroom**

**12:15 - 1:40 Lunch.....Cibolas**

**1:40 - 3:20 Session 2: “Automation in UAVs”.....  
.....San Marcos Ballroom**

**Appropriate Delegation to Automation: Control to Fit the Context.** *Funk, H.<sup>1</sup>, Miller, C.<sup>1</sup>, Shively, J.<sup>2</sup>, & Flaherty, S.<sup>2</sup>; Smart Information Flow Technologies<sup>1</sup>, U.S. Army AFDD<sup>2</sup>.*

**Eliminating the Speed-Accuracy Tradeoff with Highly Reliable Automation.** *Dixon, S.<sup>1</sup>, Trafimow, D.<sup>1</sup>, Hughes, J.<sup>1</sup>, & McCarley, J.<sup>2</sup>; NMSU<sup>1</sup>, University of Illinois at Urbana-Champaign<sup>2</sup>.*

**Impaired Pilot/Operator Detection and Response System.** *Matos, J. & Milde, K.; M & M Technologies.*

**The Role of Automation in the Operation of UASs: How it Differs from Manned Aircraft.** *Lyall, B., Johnson, D. & Harron, G.; Research Integrations Inc.*

**3:20 - 3:40 Break..... Foyer of San Marcos Ballroom**

**3:40 – 4:55 Session 3: “Coordination and Communication”**.....  
.....**San Marcos Ballroom**

**Lessons from Designing Controller-Pilot Data Link Communication for UAVs.**  
*Berglund, A., Andersson, R., & Ekström, H.; Saab Aerosystems.*

**Acquisition and Retention of Team UAV Coordination Skill.** *Cooke, N. J.<sup>1,3</sup>,  
Amazeen, N.<sup>3</sup>, Andrews, D.<sup>2</sup>, Duran, J.<sup>1</sup>, Gorman, J.<sup>1</sup>, Pedersen, H.<sup>1,4</sup>, Rowe., L.<sup>1</sup>,  
Taylor, A.<sup>1</sup>, & Winner, J.<sup>1</sup>; CERI<sup>1</sup>, AFRL<sup>2</sup>, ASU<sup>3</sup>, NMSU<sup>4</sup>.*

**PACERS: Platoon Aid for Collective Employment of Robotic Systems.** *Durlach, P.;*  
*U.S. Army Research Institute.*

**6:30 Dinner** ..... **Kokopelli Winery and Bistro**  
**Doors Open at 6:00**

**Wednesday, May 23, 2007**

**7:30 - 8:30 Breakfast**.....**Foyer of San Marcos Ballroom**

**8:30 - 10:35 Session 4: “Selection and Training”**.....  
.....**San Marcos Ballroom**

**Effect of Fatigue and Type of Training Strategy on UAV Simulator Performance.**  
*Andre, T.<sup>1</sup>, Hunt, J.<sup>1</sup>, Crews, A.<sup>1</sup>, & Gluck, K.<sup>2</sup>; USAF Academy<sup>1</sup>, Air Force Research  
Laboratory<sup>2</sup>.*

**Cognitive Ability and the Prediction of UAV Team Members’ Performance.** *Hinsz,  
V.<sup>1</sup>, Ladbury, J.<sup>1</sup>, & Park, E.<sup>2</sup>; North Dakota State University<sup>1</sup>, Cleveland State  
University<sup>2</sup>.*

**Decision Making and Human Error for Predator: the 21st Century Warriors.**  
*Herz, R., & Nullmeyer, B.; United States Air Force Research Laboratory.*

**An Empirical Approach to UAS Crewmember Medical Certification.** *Tvaryanas, A.;*  
*USAF Performance Enhancement Directorate.*

**Human Factors Issues in Unmanned Aerial System Training.** *Pedersen, H.<sup>1,3</sup>, Cooke,  
N.<sup>1,2</sup>, Gesell, L.<sup>2</sup>, Hartman, J.<sup>2</sup>, Skinner, M.<sup>2</sup>, & Pack, W.<sup>2</sup>; CERI<sup>1</sup>, ASU<sup>2</sup>, NMSU<sup>3</sup>.*

**10:35 - 11:05 Break**.....**Foyer of San Marcos Ballroom**

**11:05 - 12:20 Session 5: “Multiple UAV Control”**.....  
.....**San Marcos Ballroom**

**Multi-UAV Supervisory Control Interface Technology (MUSCIT).** *Patzek, M., Draper, M., Feitshans, G., Liggett, K., & Calhoun, G.; Air Force Research Laboratory.*

**Designing Multiple UAV Displays Based on the Human Capacity to Process Information.** *Marshak, W. & Collier, J.; SYTRONICS Inc.*

**Adjustable Autonomy in Swarms of UAVs.** *Legras, F. & Coppin, G.; ENST Bretagne-LUSSI.*

**12:20 - 1:40 Lunch.** ..... **Cibolas**

**1:40 - 3:20 Session 6: “Simulator Use and Interface Development”**.....  
.....**San Marcos Ballroom**

**Appropriate Spatiotemporal Scope of Automation and Interface Elements in UAV-Assisted Wilderness Search and Rescue.** *Cooper, J., Goodrich, M., Gerhardt, D., & Morse, B.; Brigham Young University.*

**UAVs in Civil Airspace: Toward a Human-Centered Concept of Autonomous Flight Operations.** *Berglund, A.<sup>1</sup>, Tyseng, M.<sup>1</sup>, Westin, C.<sup>2</sup>, Nisser, T.<sup>2</sup>, & Hilburn, B.<sup>2</sup>; Saab Aerosystems<sup>1</sup>, Lund University of Aviation<sup>2</sup>.*

**Effect of Input Control Device on Performance During Training To Operate a Simulated Micro Aerial Vehicle.** *Durlach, P.<sup>1</sup> & Neumann, J.<sup>2</sup>; U.S. Army Research Institute<sup>1</sup>, Dell Inc<sup>2</sup>.*

**Determining the Impact of Auditory Peripheral Displays for UAV Operators.** *Graham, H.<sup>1</sup>, Fouse, A.<sup>2</sup>, Cummings, M.<sup>1</sup>, & Pfautz, J.<sup>2</sup>; MIT<sup>1</sup>, Charles River Analytics Inc<sup>2</sup>.*

**3:20 – 3:40 Break** .....**Foyer of San Marcos Ballroom**

**3:40 – 4:40 Session 7: Operator Perspectives Panel**.....  
.....**San Marcos Ballroom**

**4:40 – 5:00 Break/Closing Comments**.....**San Marcos Ballroom**