

Department of Defense  
Human Factors Engineering  
Technical Advisory Group  
Meeting 63



3-6 May 2010

Host:

Air Force Research Laboratory  
Warfighter Readiness  
Mesa, AZ

## Meeting Theme

### Readiness for the Future

It is imperative that our nation be ready to respond to the future, whether it's planned or unexpected, special activities or major events. Human performance is vital to maintaining readiness and overall system performance. Ensuring our nation's responders are provided systems and equipment optimized for their use is the main purpose of HFE and HSI practitioners. Most all of us, in one way or another, are involved in the acquisition of systems with the purpose of making the systems better for the operator, maintainer, and system support personnel. Attending the TAG is a great way to learn and participate with working groups that are making these positive impacts. What have you or your organization done to prepare for the future, whether your efforts are for influencing current projects in acquisition, research, and development efforts, or assisting future projects through defining requirements? What can we do to prepare ourselves for what lies ahead concerning future technology, and leverage that technology to accommodate the operators and maintainers? Are you ready for the challenges? Are you ready for the future?

# PROGRAM SUMMARY

**Department of Defense  
Human Factors Engineering Technical Advisory Group  
Meeting 63: 3-6 May 2010 Tempe, AZ**

## ***Monday, 3 May***

0800 – 0930 Executive Committee Meeting  
0930 – 1000 New Member Orientation  
1000 – 1130 Unmanned Systems Interest Group  
1130 – 1300 Luncheon break  
1300 – 1700 Plenary Session  
1500 – 1530 Networking, Coffee  
1800 – 2000 Mixer

## ***Tuesday, 4 May***

0730 – 0830 Technical Society/Industry  
0730 – 0830 Cognitive Readiness Interest Group  
0730 – 0830 Mission Centric Human Performance Interest Group  
0830 – 1100 Human Factors Test and Evaluation  
0830 – 1100 Workload and Stress  
0930 – 1000 Networking, Coffee  
1100 – 1230 Luncheon Break  
1230 – 1430 Human Factors Standardization  
1230 – 1430 User-Computer Interaction  
1430 – 1500 Networking, Coffee  
1500 – 1700 Controls and Displays  
1500 – 1700 Human Factors in Training  
1500 – 1700 Human Factors Engineering/Human Systems Integration: Management and Applications  
1715 – 1830 Service Caucuses

## ***Wednesday, 5 May***

0745 – 1100 Tour of Mesa Labs/AFRL  
1100 – 1230 Luncheon Break  
1230 – 1430 Design: Tools and Techniques  
1230 – 1430 Personnel Selection  
1430 – 1500 Networking, Coffee  
1500 – 1700 Human Modeling and Simulation  
1500 – 1700 Sustained/Continuous Operations  
1500 – 1700 Unmanned Systems Interest Group  
1830 – 2100 Social  
1900 – 2000 Local HFES Chapter Meeting

## ***Thursday, 6 May***

0830 – 1000 Operating Board  
1000 Adjourn

\* The Human Factors in Extreme Environments and System Safety/Health Hazards/Survivability subTAGs are not meeting at TAG-63.

# SESSIONS

**MONDAY, 3 MAY** *(meeting rooms are subject to change)*

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**Executive Committee – 0800 – 0930 – Dolores**

Executive Committee members only. Others by invitation of the Chair, Mr. Darren Cole.

**New Member Orientation – 0930 – 1000 – Dolores**

**Unmanned Systems Interest Group – 1000 – 1130 – Xavier**

- Setup/Welcome
- Air Force Predator Mishaps and Implications for Training
  - Dr. Bob Nullmeyer  
Operator Readiness Research Division  
Human Effectiveness Directorate, 711th Human Performance Wing (711 HPW/RHAS)
- Unmanned Systems Business Meeting
  - Ajoy Muralidhar, Chair

**Luncheon Break – 1130 – 1300**

**Plenary – 1300 – 1700 – Palm E&F**

- Welcome to TAG-63
  - Mr. Darren Cole  
TAG Chair
- Welcome address from Host
  - LtCol Joel Boswell  
Commander  
AFRL Mesa Research Site
- Key note Address
  - Dr. Herbert Bell  
Technical Advisor  
Warfighter Readiness Research Division
- Human Factors Challenges for New Air Traffic Management
  - Dr. Cynthia Null  
Technical Fellow for Human Factors  
NASA Engineering and Safety Center
- Human Robotic Interaction: Preparing Ourselves for What Lies Ahead
  - Dr. Ellen Haas  
Chief, Translational Neuroscience Branch  
Human Research and Engineering Challenges of Human Behavior Representation: How Neuroscience Can Solve It
- The Future of Naval Aviation Personnel Selection
  - LCDR Henry Phillips, Ph.D., MSC, USN  
Department Head, Operational Psychology  
Naval Aerospace Medical Institute
- Human Performance, Training, and BioSystems: Ensuring Focused, Relevant and Quality Efforts Capable of Satisfying Defense Needs
  - CAPT Dylan Schmorrow, MSC, USN, Ph.D.  
Acting Director, BioSystems Research Directorate  
Office of the Director, Defense Research and Engineering, Office of the Secretary of Defense

**TAG Mixer – 1800 – 2000 – Poolside**

Technical Society/Industry – **0730 – 0830 – Xavier**

Time to “Re-Set” the TS/I Sub-TAG?

Group will discuss our perspectives on the purpose of the TS/I Sub-TAG. What are we here for? Are briefings by individuals about their specific work projects useful? Are we here to advise and/or inform? With a variable population making up each meeting, how can we standardize our mission and establish an identity? How can we best serve and support the TAG?

Cognitive Readiness Interest Group – **0730 – 0830 – Palm E**

- The Cognitive Edge: Enabling Cognitive Readiness in Dynamic Warfighting Environments
  - Katrina May  
Army Research Lab, Human Research and Engineering Directorate
- SBIR 101
  - CAPT Dylan Schmorrow, MSC, USN, Ph.D.  
BioSystems Research Directorate, Office of the Director, Defense Research and Engineering, Office of the Secretary of Defense

Mission Centric Human Performance – **0730 – 0830 – Palm F**

- Capturing, Measuring and Visualizing Distributed Team Collaboration using the Collaborative Visualization Environment (CoVE)
  - Sylvain Bruni  
Aptima, Inc.

## Human Factors Test and Evaluation – **0830 – 1100 - Xavier**

- Human Factors Engineering (HFE) Survey and Risk Assessment for Operational Test and Evaluation of the USCG Response Boat, Medium (RB-M)
  - Christopher W. Parker  
BMT Designers & Planners, Inc.
- Investigations of HSI in Air Force Test and Evaluation
  - Adrian O. Salinas and Steven Deal  
Air Force Research Laboratory; SURVIAC
- Using Situation Awareness Requirements to Evaluate Systems Impact and Specify Systems Requirements
  - Laura Strater  
SA Technologies, Inc.
- NAVAIR Human Systems Digital Human Modeling Program
  - Lori Brattin  
NAVAIR Human Systems
- Automated Knowledge Capture for Human Factors Engineering
  - Robert Abbott, Ph.D.  
Sandia National Labs

## Workload and Stress – **0830 – 1100 – Palm E**

- Physiological Indicators of Skill Acquisition
  - Dr. Chris Forsythe  
Sandia National Labs
- SA-oriented Training in Virtual Reality and Games: Improving Cognitive Readiness Through SA measurement and Feedback on Results
  - Dr. Jennifer M. Riley  
SA Technologies, Inc.
- Internal Process Strategies for Stress Mitigation
  - LT Antonio Anglero  
Naval Aerospace Medical Institute
- TITLE PENDING
  - Dr. Robert S. McCann  
NASA Ames Research Center
- Multitasking Performance and the Prediction of Flight Training Success Process Strategies for Stress Mitigation
  - LT Jefferson Grubb  
Naval Aerospace Medical Institute

## Networking/Coffee – **0930 – 1000**

## Luncheon Break – **1100 – 1230**

## Human Factors Standardization – 1230 – 1430 – Palm E

- Introduction of Attendees
- Status Reports
  - MIL-STD-1472, Human Engineering
  - An Approach to Integrate Human Computer Interface (HCI) Design Criteria into MIL-STD-1472
    - Brian Shaw
  - MIL-STD-2525, Common Warfighting Symbology
  - Military Symbology - A Human Factors Perspective
    - Tina Brown
  - NASA-STD-3001, NASA Space Flight Human Systems Standard
  - FAA Human Factors Design Standard
  - Flight Symbology Working Group
  - MIL-STD-1787, Aircraft Display Symbology
  - Reinstating MIL-STD-46855
- Presentations
  - DID for Human-Systems Integration Report
    - Steve Merriman
  - Translating English to English: Converting the UK Human Factors Integration Defence Standard for U.S. Air Force HSI Use
    - Dr. Bill Kosnik and Ms. Becky Singer
  - Impact of Acquisition Reform on Human Factors Standardization
    - Alan Poston
- Other Business
- Update of the Index of Government Standards

## User-Computer Interaction – 1230 – 1430 – Xavier

- Minimizing the Learning Curve: Making C2 Systems User Friendly
  - Cadet Joseph Grimm  
US Military Academy, Department of Electrical Engineering and Computer Science
- Navy SBIR NO93-193, Leveraging Changes in Human Situational Awareness for Decision Making in Distributed, Networked Operations: A Work in Progress
  - Paul Abney  
DDL Omni Engineering
- Human Computer Interface Standard-An Alternative Approach to Mil Std 1472
  - Brian E. Shaw  
The Aerospace Corporation, Systems and Software Engineering Directorate, Space Missile Command

## Networking/Coffee – 1430 – 1500

## Controls and Displays – 1500 – 1700 – Xavier

- Next Generation Neuroadaptive Controls and Displays; Achieving Human-System Synergy
  - Roberto Champney, Ph.D.  
Design Interactive Inc.
- Determining Character Dimensions for Integrated Bridge System Displays to Support Multiple Work Contexts
  - Andrew Mikutel  
Naval Air Warfare Center Training Systems Division
- Wearable Eye and Head-Tracking Technology for Studying User-Computer Interaction, Measuring Operator Performance, and for use as a Field-Deployable Neuro-Diagnostic System
  - Dr. Bill Torch  
Med. Director, Neurodevelop. Neurodiagnostic Ctr & Washoe Sleep Disorders Ctr.;  
Chairman, Eye-Com Corp.
- Back to Basics: A Human Centric Hovercraft Design
  - John Taylor  
Naval Surface Warfare Center
- A Research Based Approach to the Development of a Human Factors Disaster Management Modeling and Simulation Tool to Support National Preparation
  - Dr. Pamela Bush  
Tech Solutions, Inc.
- Next Generation Threat System
  - John Dicola  
Naval Air Warfare Center

## Human Factors in Training – 1500 – 1700 – Palm E

### *Panel Presentation: Human Factors Issues in Training for UAV Operators*

- Lessons Learned from Air Force Predator Training and Operations
  - Dr. Bob Nullmeyer  
Air Force Research Laboratory
- Can System-Wide Automation Aids be Trained Out in UAV Operators
  - David Keller  
Naval Surface Warfare Center
- US Army UAS Training Issues: Case of the RQ-B7 Shadow
  - Dr. John Stewart  
US Army Research Institute

### *Individual Presentations: Papers on Human Factors Issues in Training*

- Enhanced Training Effectiveness Using Automated Student Assessment
  - Chris Forsythe  
Sandia National Laboratories
- Retention and Re-training of Complex Skill
  - Wallace Wulfeck  
Space and Naval Warfare Systems Center
- FoCuS Windows: Evaluating the Impact of Dynamic Fidelity on Performance.
  - Dr. Lisa Scott Holt  
Lumir Research Institute (Air Force Research Lab, Mesa, AZ)

(1500-1700 sessions continued on next page)

## Human Factors Engineering/Human Systems Integration: Management and Applications – **1500 – 1700 – Palm F**

- Enabling Best Practices in Systems Engineering: An Inter-Agency Approach
  - Gerardo Garcia, Ph.D.  
The MITRE Corporation
- Department of Homeland Security Human Systems Integration Applied to US Coast Guard Surface Asset Acquisitions
  - Bonnie B. Novak and Christian A. Kijora  
BMT Designers & Planners, Inc.; U.S. Coast Guard, Human Systems Integration for Acquisitions Division
- Human Systems Integration in the Systems Engineering Plan (SEP) and in the Life Cycle Management Plan (LCMP)
  - Adrian Salinas, Sarah Orr, and Steven Deal  
Air Force Research Lab; SURVIAC; SURVIAC

## Technical Society/Industry – **1715 – 1830 – Palm E**

Continuation of morning's discussion: culminate in action items and consideration of presenting during the next TAG's plenary session

John Rice, our newest member, will brief the organization of which he is the liaison to the TAG: Society for Simulation In Healthcare

Army Caucus – **1715 – 1830 – Sand Lotus (2<sup>nd</sup> Floor)**

Air Force Caucus – **1715 – 1830 – Palm F**

Navy Caucus – **1715 – 1830 – Xavier**

NASA/DHS/FAA Caucus – **1715 – 1830 as needed – Wind Flower (2<sup>nd</sup> Floor)**

Tour of the Air Force Research Lab – **0745 – 1100**

The Air Force Research Lab, Mesa Research site will host a tour and demonstration for TAG attendees. Visitors will divide into four groups and disperse to four areas: F-16 Distributed Mission Operations testbed, Distributed Brief-Debrief, Joint Tactical Air Control dome (JTAC) simulator, and the Gaming Research for Integrated Learning Lab.

Luncheon Break – **1100 – 1230**

Design: Tools and Techniques – **1230 – 1430 – Abbey North**

- Welcome, Sign-in, and Introductions
- Presentations
  - Rapid Prototyping Tools to Design Next Generation Military Rotorcraft Cockpit Displays and Controls
    - Bob Faerber  
Boeing
  - Apache Longbow Lighting
    - Dennis Schmickley and Gretchen Anderson  
Boeing
  - Human Modeling in Support of Maintainer Workspace Design
    - Christian Rossi and Steve Merriman  
Boeing
- Business Meeting
  - Open discussion
  - New business
  - Suggested topics for next meeting

Personnel Selection and Classification – **1230 – 1430 – Abbey South**

- Time-Sharing: A Critical Component of Pilot Situation Awareness (SA)
  - Dr. Cheryl A. Bolstad  
SA Technologies
- Validity of a Performance-Based Test Battery for the Selection of Naval Aviators and Flight Officers
  - Jeffrey B. Phillips  
Naval Aerospace Medical Research Laboratory
- Prior Flight and Simulator Gaming Experience as Predictors of Naval Aviation Selection Test and Training Performance
  - LT Brennan Cox  
Naval Aerospace Medicine Institute.

Networking/Coffee – **1430 – 1500**

## Human Modeling and Simulation – 1500 – 1700 – Abbey North

- Examination of Several Candidate Physiological Metrics for Adaptive Training in an Unmanned Aerial Vehicle Simulation
  - \*Ciara Sibley<sup>1,3</sup>, Gregory O. Gibson<sup>1</sup>, Anna Cole<sup>1,3</sup>, Daniel Roberts<sup>2</sup>, Jane Barrow<sup>2</sup>, Brian Taylor<sup>2</sup>, Carryl Baldwin<sup>2</sup>, & Joseph Coyne<sup>1</sup>  
<sup>1</sup>Warfighter Human System Integration Laboratory, Naval Research Laboratory;  
<sup>2</sup>Department of Psychology, George Mason University; <sup>3</sup>Strategic Analysis
- A Belief Network Simulation for Sensemaking
  - \*Celestine A. Ntuen  
Department of Industrial and Systems Engineering, North Carolina A&T State University
- Psychophysiology & Adaptive Systems Performance: Considerations for Human-Centered Design
  - Anil Raj<sup>1</sup>, \*Margery Doyle<sup>2</sup>, & Joshua Cameron<sup>1</sup>  
<sup>1</sup>Florida Institute of Human & Machine Cognition; <sup>2</sup>Cognitive Architects and Engineers, LLC
- Modeling Self-Interruption in a Dual-Task Setting
  - \*Brian McClimens, Derek Brock, & Malcolm McCurry  
Naval Center for Applied Research in Artificial Intelligence, Naval Research Laboratory
- Modeling and Analysis of Context-based Human-System Interaction
  - \*Clifton Forlines  
Human-Systems Collaboration Engineer, Draper Laboratory

\*Denotes Presenting Author

## Sustained/Continuous Operations – 1500 – 1700 – Dolores

- Longitudinal Evaluation of Sleep-Disordered Breathing and Sleep Symptoms with Change in Quality of Life: The Sleep Heart Health Study (SHHS)
  - Graciela E. Silva, Ph.D.  
College of Nursing & Health Innovation, Arizona State University
- Fatigue Research at the FAA Civil Aerospace Medical Institute
  - Thomas Nesthus, Ph.D.  
Civil Aerospace Medical Institute, Federal Aviation Administration
- Sustained Operations with Commercial Motor Vehicle Drivers: An Industry Perspective
  - Brett Sant  
Knight Transportation, Inc.
- Field Assessment of Stress and Fatigue in a Highly Intensive Field Environment
  - Wayne Ensign, Ph.D.  
Space and Naval Warfare Systems Center, Pacific
- FLYAWAKE and AMMO Software Updates
  - Captain Lynn Lee  
Air Force Special Operations Command, United States Air Force

## Unmanned Systems Interest Group – 1500 – 1700 – Abbey South

- Setup and Welcome
- Logistics Support Challenges for EOD Unmanned Systems
  - David Frye  
Navy Explosive Ordnance Disposal Technology Division,
- Mixed-Initiative Machine for Instructed Computing (MIMIC)
  - Sylvain Bruni  
Aptima, Inc.(sponsored by the Office of Naval Research)
- 711th Human Performance Wing Research, Analysis, and Consultation for UAS
  - John A. Plaga  
Human Performance Integration Directorate; AF 711th Human Performance Wing
- Wrap up, Closing
  - Ajoy Muralidhar, Chair

## HFES Local Chapter – 1900 – 2000 – Dolores

### Social – 1830 – 2100

Please join us at La Bocca Pizzeria and Wine Bar for a fabulous wine tasting! This will be a Spanish wine tasting just for our group that will include two red wines, two white wines, Spanish cheese and olives. Other hors d'oeuvres such as a Goat Cheese and Pear salad, Caprese salad, Bruschetta, and Specialty Pizzas will also be available for your sampling pleasure. For those of you who are not wine drinkers, soda, tea, and coffee will also be available!



La Bocca Urban Pizzeria and Wine Bar is located just a couple of blocks from the Tempe Mission Palms in Downtown Tempe, AZ. Just look for the green umbrellas!

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THURSDAY, 6 MAY

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Operating Board – **0830 – 1000 – Xavier**

- TAG Survey Results
  - TAG Coordinator

Adjourn – **1000**

## EXECUTIVE COMMITTEE

Chair (Air Force)	Mr. Darren Cole	(661) 275-3994 darren.cole@edwards.af.mil
Vice Chair (Army)	Dr. Pamela Savage-Knepshield	(732) 427-3854 DSN 987 pam.savageknepshield@us.army.mil
Immediate Past Chair (Navy)	Mr. Brad Collie	(850) 234-4744 bradley.collie@navy.mil
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TAG Coordinator	Ms. Sheryl Cosing Ms. Janet Malone	(703) 925-9791 cosing_sheryl@bah.com (937)781-2826 malone_janet@bah.com

## SUBTAG CHAIRS

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Design: Tools and Techniques	Mr. Stephen Merriman	(972) 344-2017 stephen.c.merriman@boeing.com
Human Factors Engineering / Human Systems Integration: Management and Applications	Dr. John Warner Dr. Janae Lockett-Reynolds	(703) 695-5820 DSN 225 john.warner1@us.army.mil (202) 254-6611 janae.lockett-reynolds@dhs.gov
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