



# TRAINING

## Newsletter of the Training Technical Group

### FROM THE CHAIR

*Amy E Bolton, Ph.D.*

Welcome to the early summer Training TG newsletter! As a reminder, if you have anything that you'd like to share with the community including job announcements, opportunities, questions, etc. please send it to the Training TG (HFES) group on LinkedIn or to our listserv at [hfes-ttg@hfes.org](mailto:hfes-ttg@hfes.org). I posted a recent discussion item on our LinkedIn group concerning the use of social media for training applications. If you have a chance, please log in and let us know your thoughts on the topic. I'm sure by now that you have your calendars marked for the HFES 54th Annual Meeting at the Hyatt Regency San Francisco from September 27-Oct 1, 2010. We have a great set of training related contributions to the program and don't miss the keynote speaker Chester "Sully" Sullenberger! See you there!

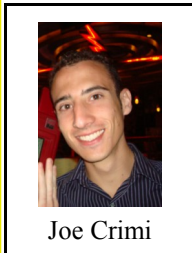
### MESSAGE FROM THE EDITORS

*Beth Blickensderfer, Ph.D. and Joseph Crimi*

We are your new TTG newsletter editors. Beth is an Associate Professor ([blick488@erau.edu](mailto:blick488@erau.edu)) and Joe is a Master degree student ([joseph.crimi@gmail.com](mailto:joseph.crimi@gmail.com)) in the Human Factors and Systems department at Embry-Riddle Aeronautical University, Daytona Beach, FL. Our goals for this newsletter are to inform members about news and upcoming events pertaining to the TTG and its members. We would like to hear from you! Please use this newsletter as a tool for you to communicate announcements, conferences, or updates on your work/projects. We hope that you take advantage of the opportunity to share information amongst your colleagues. Feel free to email either of us with your comments.



Beth  
Blickensderfer



Joe Crimi

We look forward to hearing from you!

### IN THIS EDITION

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## INCREASING LEARNING EFFECTIVENESS AND EFFICIENCY THROUGH ADAPTIVE TRAINING

*Meredith Carroll, Kelly Hale, Kay Stanney*  
Design Interactive, Inc.



Meredith  
Carroll



Kelly Hale



Kay Stanney

The war the US is currently fighting in the Middle East includes enemy forces that use Irregular Warfare (IW) techniques, which aim to target weaknesses associated with US military tactics and techniques. With this less predictable and more varied enemy tactics, more strenuous training requirements are being levied at a time when the military is faced with the need to get troops up to speed and out the door more quickly. Design Interactive, Inc., is incorporating advanced neuro-physiological measures with traditional performance measures to develop innovative training technology that can diagnose trainee deficiencies and inefficiencies, adapt training in near real-time and provide effective After Action Review (AAR) tools to enhance effectiveness and efficiency of training.

Currently, training instructors base their assessments solely on performance outcomes and observation. While traditional performance measures provide some process measures, advanced behavioral and neuro-physiological measures that capture eye gaze and cognitive processing can provide more detailed understanding of trainee performance and state throughout a training scenario. For

example, eye tracking captures visual attention, and can be used to assess appropriate allocation of attention based on task segments and scan techniques. Further insights into cognitive state (e.g., workload, engagement, arousal) can be captured using a variety of sensing technology (e.g., electroencephalography [EEG], fMRI, fNIR, heart rate, GSV, etc.) measures, which can be used to identify times where learning may be negatively impacted by overload or stress, for example. Processing a more comprehensive set of data compared to traditional performance metrics alone allows a more detailed understanding of training progression and performance deficiencies, and provides opportunities to improve the training experience both during a scenario and for future training opportunities.

Design Interactive's Auto-Diagnostic Adaptive Precision Training (ADAPT) framework aims to increase training effectiveness and efficiency by incorporating these advanced technologies. The ADAPT framework is comprised of three components necessary to ensure precision training: Measurement, Diagnosis and Adaptation. The Measurement component allows the incorporation of a broad range of data collection tools, such as system collected, self report, instructor assessment and behavioral, physiological and neurophysiological measurement. This allows the system to gain a comprehensive understanding of trainee performance and state. The Diagnosis component then analyzes this very granular data to evaluate combinations of metrics relevant to current training goals and objectives, reducing the data to facilitate real time training. By incorporating diagnosis methods such as Root Cause Analysis, Expert Comparison and Error Pattern Analysis, the diagnosis engine allows the identification of key perform-



This framework has been successfully implemented in DI's ADAPT-AAR tool, a comprehensive perceptual performance assessment tool designed to aid students and instructors in improving search and detection performance.

The goal of ADAPT is to individualize training experience and accelerate development of trainee skills. ADAPT will grant instructors and trainees access to a consolidated synopsis of trainees through a granular assessment, allowing them to capture "unobservable" behaviors such as cognitive state and eye gaze patterns. Through innovative scenario adaptations and AAR, instructors and students are provided targeted performance outcome data, performance error patterns and guided next steps to advance training. The use of such adaptive training systems is expected to improve the efficiency and effectiveness of simulation-based training, thereby reducing the need for on-the-job instruction, and ultimately reducing training time and cost.

### UPCOMING CONFERENCES

- THE AMERICAN SOCIETY FOR TRAINING AND DEVELOPMENT (ASTD) VIRTUAL CONFERENCE  
*MAY 26-JUNE 26, 2010*  
<http://www.astdconference.org/Virtual.html>
- 118TH ANNUAL CONVENTION OF THE AMERICAN PSYCHOLOGICAL ASSOCIATION  
*SAN DIEGO, CA*  
*AUGUST 12-15, 2010*  
<http://apa.org/convention/index.aspx>
- WASHINGTON INTERACTIVE TECHNOLOGIES CONFERENCE FOR THE SOCIETY FOR APPLIED LEARNING TECHNOLOGY (SALT)  
*ARLINGTON, VA*  
*AUGUST 18-20, 2010*  
<http://www.salt.org/dc/washingtonP.asp>
- INTERSERVICE/INDUSTRY TRAINING, SIMULATION AND EDUCATION CONFERENCE (IITSEC) 2010  
*ORLANDO, FL*  
*NOV. 29-DEC. 2, 2010*  
<http://www.iitsec.org/Pages/default.aspx>

If you are part of a conference and would like it to be included in future newsletters, please e-mail the conference information to Joe Crimi at [joseph.crimi@gmail.com](mailto:joseph.crimi@gmail.com).



### HFES 2010 54TH ANNUAL MEETING

Don't forget to begin making your travel arrangements to the HFES 2010 54th Annual Meeting in San Francisco, CA. Registration will begin in late June. The discounted registration fee for members and nonmembers will end on August 16, 2010. For more information about the conference please visit <http://www.hfes.org/web/HFESMeetings/2010annualmeeting.html>.



### HFES 2010 TRAINING TECHNICAL GROUP PROGRAM

Emily Wiese



Thank you to everyone who submitted papers and posters for inclusion at this year's annual HFES conference. Thank you also to the 52 of you who took valuable time out of your schedule to review the submissions. I was overwhelmed with the response to my call for reviewers this year. Many of you reviewed complete symposium submissions and/or reviewed for other TGs, as well – my hat goes off to you, as this is a lot of work to fit into our busy schedules.

The number and quality of submissions this year were outstanding. So outstanding, in fact, that we had to increase our cut-off value for acceptance. (As did many other TGs this year.) I sincerely hope that those papers that were not accepted incorporate the reviewers' feedback and resubmit next year. The TTG has a total of two Symposium sessions and four Lecture Sessions this year. Additionally, we have five posters in the poster sessions. The schedule below is correct as of June 14, but please check the official HFES program as changes may yet occur.

Thanks again to both reviewers and authors. See you all in San Francisco!

#### T1: Tuesday 1:30 – 3:00 (Symposium)

##### Title: Making the Implicit Explicit: Operationalizing Tacit Facets of Scenario-Based Training

	Title	Author(s)
1	Making the Implicit Explicit: Two-Page Symposium Abstract	Denise Nicholson, Sae Schatz
2	Higher Order Cognitive Skills Training to Support Contemporary Military Operations	William Becker, Sae Schatz
3	Domain Ontology for Advanced Skills Training	Jennifer Fowlkes, Sae Schatz, Kevin Stagl, Joseph Normam
4	Making Metacognition Explicit: Developing a Theoretical Foundation for Metacognitive Prompting During Scenario-based Training	Stephen Fiore, Jennifer Vogel-Walcutt
5	Scenario-Based Training: Scenario Complexity	Robb Dunn, Sae Schatz, Stephen Fiore, Glenn Martin, Denise Nicholson
6	Design Specifications for the Scenario-Based Training Automated Collection and Evaluation System (SBT-ACES)	Kevin Stagl, Sae Schatz, Jennifer Fowlkes, Thomas Santarelli, Wayne Zachary



**T2: Tuesday 3:30 – 5:00 (Lecture)**

**Title: Training Vigilance, Stress, and Multi-tasking**

	<b>Title</b>	<b>Author(s)</b>
1	The Effects of Alarm System Reliability and Reaction Training Strategy on Alarm Responses	James Bliss, Eric Chancey
2	Individually Adaptive Discrimination Training for Improved Explosive Detection	David Schuster, Javier Rivera, Brittany Sellers, Stephen Fiore, Florian Jentsch
3	Field Evaluation of Advanced Training Technologies in Terminal Air Traffic Control	Monica Weiland, Monica Weiland
4	Stress Training Enhances Pilot Performance During a Stressful Flying Task	Christopher McClernon, Michael McCauley, Paul O'Connor, Joel Warm
5	Resource Training Using Alternating Tasks	David Boles, Caryn Penn

**T3: Wednesday 1:30 – 3:00 (Symposium)**

**Title: Training Issues in Military and Defense**

	<b>Title</b>	<b>Author(s)</b>
1	A Game-Based Training Application to Support the Development of Commanders' Skills in Counterinsurgency Operations	Randall Spain
2	Tutoring Ship Handling Skills: Intelligent Tutor and Expert Model in a Simulation	Susan Kirschenbaum, Jason Wong, Stanley Peters
3	Training Leaders on Emotion Management Skills: Challenges in Designing a Blended Learning Program	Kara Orvis, Gregory Ruark, Krista Ratwani, Kathryn Engel
4	The Current Bottleneck for Computer-based Culture Training - Who Cares about Etiquette?	Peggy Wu, Christopher Miller
5	Training Issues in Military and Defense	Poornima Madhavan

**T4: Thursday 8:30 – 10:00 (Lecture)**

**Title: Methods for Improving Training**

	<b>Title</b>	<b>Author(s)</b>
1	Identifying Guidelines for Training Adaptive Expertise	Elizabeth Lazzara, Aaron Dietz, Sallie Weaver, Davin Pavlas, Kyle Heyne, Eduardo Salas, Sowmya Ramachandran
2	Capturing Insights From Firefights to Improve Training	Tristan Plank, Scott Scheff
3	Does Feedback Type Matter? Investigating the Effectiveness of Feedback Content on Performance Outcomes	Carla Landsberg, Wendi Van Buskirk, Randy Astwood
4	Using After-Action Review Based on Automated Performance Assessment to Enhance Training Effectiveness	Susan Stevens (Corresponding Author, Presenting Author), Justin Basilico, Robert Abbott, Charlie Gieseler, Chris Forsythe
5	Distributed Team Training: Effective Team Feedback	Kevin Oden (Corresponding Author, Presenting Author)



**T5: Thursday 1:30 – 3:30 Lecture)**

**Title: Training Theory and Application**

	Title	Author(s)
1	Instance-based Learning Models of Training	Cleotilde (Coty) Gonzalez, Varun Dutt
2	The Anchoring Heuristic in Intelligence Integration: A Bias in Need of De-biasing	Christopher Wickens, Shaw Ketels, Alice Healy, Carolyn Buck-Gengler, Lyle Bourne
3	The Influences of Automation and Trainee Aptitude on Training Effectiveness	Benjamin Clegg, Eric Heggstad, Lisa Blalock
4	Individual Differences in Complex Task Performance: Interaction Effects of Risk-Taking Behavior and Cognitive Variables	Dina Burkolter, Annette Kluge, Matthias Brand
5	A Framework to Develop Task Complexity	Elizabeth Lazzara, Davin Pavlas, Stephen Fiore, Eduardo Salas

**T6: Friday 10:30 – 12:00 (Lecture)**

**Title: Training in the Wild: Studies of application and transfer**

	Title	Author(s)
1	Training Requirements of a Video Game-Based Cognitive Intervention for Older Adults: Lessons Learned	Laura Whitlock, Anne McLaughlin, Jason Allaire
2	Pictorial Mnemonic-Based Tools for Procedural Training: Application to the Battlefield First-Aid Domain	Ryan Kilgore, J. Godwin
3	Distance Estimation Training: A Proposed Model of Transfer	Allyson Hall, Keith Jones
4	Training Transfer of Wearable and Desktop Simulator Interfaces	Grant Taylor, John Barnett
5	A Preliminary Evaluation of a Burr Hole Drilling Simulator for Craniotomy	Mark Scerbo, T. Turner, Elizabeth Newlin-Canzone, Dwight Meglan, Dan King, Robert Waddington, Howard Champion

**ON THE WEB**

**GET LINKEDIN**

Connect with other TTG members through postings and discussions.

[http://www.linkedin.com/groupRegistration?gid=2564704&goback=.gdr\\_1273618065030\\_1.anb\\_2564704\\_\\*2](http://www.linkedin.com/groupRegistration?gid=2564704&goback=.gdr_1273618065030_1.anb_2564704_*2)

**TTG Website**

Browse the TTG web site for information about the group as well as newsletters and listserv access.

[www.hfes.org/ttg](http://www.hfes.org/ttg)

**HFES Website**

The HFES website is the resource for membership, publications, and meeting information.

[www.hfes.org](http://www.hfes.org)

*If you would like to include events, news, updates, or other articles in future TTG Newsletters, please send the information to Joe Crimi at [joseph.crimi@gmail.com](mailto:joseph.crimi@gmail.com).*