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# THE Interface

NEWSLETTER OF THE  
HUMAN FACTORS &  
ERGONOMICS SOCIETY  
SOUTH JERSEY  
CHAPTER

MARCH 2008

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*President's column, electronic flight data concepts, summary of talks, students visit RDHFL, meeting minutes*

## President's Column

**By Ferne Friedman-Berg**

Well, it's the first newsletter of the year and it seems I have to write something profound or at least entertaining for my first column of the year. Seeing as I'm not particularly profound and (much to my dismay) not that entertaining, I'll try simply to be informative.

First let me take the time to review some of the exciting things that the chapter has accomplished in the past year. We sponsored our first annual World Usability Day essay contest in Egg Harbor Township High School and our goal this year is to expand this community outreach effort. If you would like to get involved in this project, please contact me at [president@sjhfes.org](mailto:president@sjhfes.org).

Many of our members once again volunteered at the science fair and the SITE competition, and we sponsored awards for the winners of those events. This is great activity and I encourage you to volunteer if you have not done so before. As always, we held a number of technical meetings. We are currently looking for speakers, so please contact us if you have something you would like to present.

Members of our chapter went to a very cold and windy Atlantic City Surf baseball game this past August. Although

most of us did not make it through the whole game, it was still a fun outing. Next time, I'm sure we'll all remember to bring sweatshirts. The culmination of the year was our holiday party where we all got to chow down on Famous Dave's barbecue.

We could not have accomplished these things without the help of our esteemed executive council. Our appreciation goes out to all of our current council members including Ben Willems, Ken Schulz, Kate McDevitt, Robert Muldoon, Jennifer Librizzi, and Shantanu Pai. A special thanks goes to all of our outgoing members, including Kenneth Alledoerfer, Todd Truitt, Karen Peio, and Alissa Golden.

I'm going to echo what our past president, Kenneth Alledoerfer, said in his final column. My goal this year is to reach out to current chapter members who have become inactive and to former chapter members. With such a large community of researchers who have a vested interest in human factors, we should have a much greater level of participation in our local chapter. Although attendance at our meetings is good, it could always be better. I know people are busy, but if you have not been to a meeting recently you should make the commitment to attend at least one chapter meeting this year.

I believe we could increase involvement by presenting a greater variety of topics at chapter meetings. Therefore, I would

like to schedule presentations by people who have not spoken recently. This means YOU! If you have research you've been involved in and would like to share it with us, by all means, send me an e-mail. I'd be happy to put you on the calendar. If you know of someone you'd like to suggest as a speaker, let me know. If a researcher is visiting the Tech Center who might be willing to speak, give me advance notice and I will try to book them. We can only grow as a chapter with your involvement. If you have suggestions on topics or activities, drop me a note. We are always looking for fresh ideas.

Now that I've had a chance to proselytize, let me talk about the latest gadget in my life, my LG Voyager cell phone. Voyager is Verizon's answer to the iPhone. Although I, like many others, coveted the iPhone, I was unwilling to give up my Verizon service to switch to AT & T. Many of my friends and family use Verizon, and so calls to these people are "free" (after a hefty monthly fee). So when my old phone fell into a public toilet (Usability tip #1: NEVER put your cell phone in your jeans pocket when using the restroom), I was forced to choose from one of Verizon's phones. Luckily for me, Verizon had recently started selling the LG Voyager.

Let me start by saying that I generally love my Voyager. It has a touchscreen that vibrates, giving the user tactile feedback. It has good voice recognition, so that a user can place a call without having

to use the touchscreen. It also comes with fairly good internal speakers, which allows users to listen to calls without holding the phone. These two features are extremely useful for placing hands-free calls. The internal keyboard is great for text messaging. The large internal screen and even larger external screen allows users to surf the web, play games, use Verizon's built in GPS navigation system, and watch prerecorded video shorts and even "live" TV. Of course all these additional features require costly subscriptions or additional data service fees, but it's nice to know they are available if you want them.

Verizon has even issued a software upgrade which corrects at least one glaring error with the first software release. In the earlier version of the software, once users placed a call the dialpad disappeared. If you needed to press a number during a call, you had to flip the cell phone open to access the internal keyboard. The newer version of the software leaves the dialpad accessible on the external screen even after a user places a call. Unfortunately, early adopters must visit a local Verizon store to obtain this upgrade.

However, like all good gadgets, there are features on my new cell phone I could live without. I discovered one glitch recently when I changed the settings for turning the phone off. You can set the **End Call Options** on the phone for **Flip Close**, which ends a call when you flip the phone closed. A second option is the **End Key Only**, which only ends a call when you use the end key. Because I wanted to be able to switch off the speakerphone to make a call private by flipping the phone closed, I changed to the **End Key Only** mode after having used the **Flip Close** mode for the first couple of months. It was only after a friend heard ten minutes of private conversation between me and my husband that I realized I was closing the phone and not pressing the end button. I had gotten so used to turning the phone off by flipping it closed, I hadn't remembered to press the off button after chang-

ing the settings. Luckily we hadn't said anything too embarrassing, but I can only imagine what would have happened if we had. Needless to say, I recently switched back to the **Flip Close** mode.

Another problem with the phone is the touchscreen itself. Although the phone comes with a lock that allows the user to disable the touchscreen, you can turn off the lock by pressing a particular spot on the touchscreen. It just seems logical to me that you should not be able to activate a disabled touchscreen by simply pressing the touchscreen. I often find I have inadvertently activated the phone by putting it in my coat pocket or purse. One time the phone connected to the internet while sitting in my purse. Luckily it was the weekend, so I didn't use up minutes, but I have no idea how long the phone was connected before I found it. There should be a sliding locking mechanism that allows the user to more permanently lock the touchscreen or the user should have to make a more complex series of button presses to unlock the phone to prevent it from activating at the slightest touch.

The bottom line is that there are good features and bad features on my new phone. I'm sure LG had a usability team that looked at the Voyager phone before it went to market. As human factors experts, we should all realize that no matter how much we evaluate a product, we are certain to miss obvious problems. A problem that one person thinks is a show-stopper may not even register on someone else's radar. But in the spirit of learning something new every day, when you find a problem with a new piece of technology, file it away somewhere in your memory because someday you might be called upon to evaluate a piece of software or hardware that repeats the same error. If you can look at problems as opportunities for learning something new about human factors, they won't be quite so annoying. Human factors evaluations, although comprehensive, will likely never find all of the glitches with any system. However, the more we exercise any system and the more users we

have exercise that system, the more likely we will be to find the really big ones.

## Dr. Todd Truitt Introduces Electronic Flight Data Concept at World's Best Technologies Showcase

By Deborah Germak



Dr. Todd Truitt gave an inventive presentation on electronic flight data concepts at the dazzling World's Best Technologies Showcase, last spring, in Arlington, Texas.

Truitt, an engineering research psychologist with the Federal Aviation Administration's (FAA) William J. Hughes Technical Center in Atlantic City, and member of the Human Factors and Ergonomics Society, South Jersey Chapter, presented his "Concept Development and Design Description of Electronic Flight Data Interfaces for Airport Traffic Control Towers" to a sophisticated, hi-tech international audience, May 15-16, 2007, at the Arlington Convention Center.

Dramatic, projected increases in air traffic and focused modernization efforts have led the FAA to consider replacing

paper flight progress strips with an electronic alternative. Electronic flight data (EFD) interfaces can potentially increase a controller's ability to acquire, track and record information, as well as communicate and coordinate that information with others. More importantly, EFD can improve controller efficiency by providing new methods of flight data management that integrate information into a single source, enhancing safety.

The first prototype interface, the Integrated EFDI, combines textual EFD with an airport surface situation display provided by Airport Surface Detection Equipment - Model X (ASDE-X) radar. The second prototype interface, the Perceptual-Spatial (P-S) EFDI, combines textual EFD with an airport surface map, without using ASDE-X radar. This interface also functions as a backup flight data management system to the Integrated EFDI, if ASDE-X capabilities were to fail.

World's Best Technologies is the premier event showcasing the largest collection of undiscovered technologies developed at top universities, labs and research institutions from across the country and around the globe. Participating technologies are selected by and presented to seasoned venture investors and Fortune 500 licensing scouts representing many varied industries. This highly visible forum serves as a catalyst between university and lab-based technologies, the investment community and ultimately, the marketplace.

"We were excited to demonstrate the effectiveness of electronic flight data interfaces to such an influential target audience," said Deborah Germak, the FAA's Technology Transfer Program Manager. "This new design and technology has the potential to enhance the performance of air traffic controllers and the National Airspace System, overall."

## Intermodal Benefits of Magnetic Levitation Trains

**By Ferne Friedman-Berg**  
**Photos by: Kate McDevitt**



Ferne Friedman-Berg greets Philip Holmer

On January 22, 2008, Philip Holmer, Program Manager at Engility Corporation, spoke to the Human Factors and Ergonomics Society - South Jersey Chapter about magnetic levitation trains and the role they might play in realizing intermodal transportation benefits. He discussed how Japan, China, and Germany currently use or plan to use maglev trains as part of their ground transportation systems, connecting distant locales in major metropolitan areas while also cutting the transit time between cities and distant airports.



Attendees at Philips' Talk

Philip discussed the potential of using maglev trains. For example, they might be used to transfer passengers between two airports if severe weather were to shut one down. The airline industry might also use maglev trains to help passengers make greater use of satellite airports. This could help ease conges-

tion at some of our nation's busiest airports. On a trip to Germany as a representative of IEEE, Phillip took a ride on a maglev train and found it to be an extremely smooth, exciting, and quiet ride. The talk was very interesting and informative and I know it made me want to take a ride on one of these high-speed trains someday.

## Malicious Intent

**By Ken Schulz**  
**Photo by: Kate McDevitt**



Michael Snyder presenting his research

The Transportation Security Administration is investigating technologies that would identify persons who intend to do harm, in order to keep them from flying. Persons might be identified by noting inherently suspicious behavior or activities, such as loitering near checkpoints while closely observing security procedures. A distinctly different approach is to infer malicious intent from behavior that is not obviously suspicious, or from psychophysiological data.

For the February Meeting of the Chapter, Michael Snyder of the Transportation Security Laboratory reported on a field assessment of a malicious-intent detection kiosk at McGhee Tyson Airport in Knoxville, Tennessee. The prototype kiosk incorporated a Galvanic Skin Response (GSR) sensor, measuring the electrical conductance between the fingers on a subject's hand. An inflatable cuff kept the fingers in contact with the electrodes, to prevent the subject moving

his or her hand, inadvertently or as a countermeasure. Probe sentences were displayed on a computer screen and spoken over headphones in a version of the Guilty Knowledge Test (GKT). The GSR is a measure of arousal, and can be expected to show a significant change when a critical stimulus is presented within a list of neutral stimuli. Research indicates that it is the subject's concealed knowledge of the critical stimulus that leads to the arousal response. The "innocent" subject doesn't know which item is critical, and therefore is no more likely to show the arousal response to it than to any of the neutral items.

Participants consisted of "meeters and greeters", who served as "innocent" subjects, and police officers who were led to believe that they were going to conduct a covert "Red Team" exercise. The 126 persons in the first group were questioned to be sure they were not flying within 24 hours of the test session. The 33 police officers, from 4 jurisdictions, were given a thorough training session in which they were told of the supposed "Red Team exercise" and introduced to the "mission commander". They were to attempt to get through the checkpoint with components of an Improvised Explosive Device (IED) in a carry-on bag, and leave the bag behind an ATM inside the sterile area for another operative to pick up. They were told that only they and the "commander" knew of the exercise, and that they were legally bound to keep the exercise a secret. They were given a cover story to tell to anyone else, including airport security and police personnel, and warned that they might be detained and questioned, to increase their incentive to avoid detection.

At the checkpoint each officer was "randomly" selected out for screening and directed to the kiosk. The "mission commander" intercepted each officer as soon as he/she left the kiosk and told him/her that the mission was scrubbed. The officer was then brought back to the training room.

The test itself used four sets of six questions each. Five were irrelevant, for example: "Are you smuggling a hand grenade?" and one was relevant, for example: "Are you smuggling improvised explosives?"

Probability of Detection, Probability of False Alarm, and throughput times were recorded. Overall, the proportion of correct decisions was nearly three-quarters. Interestingly, almost half the False Alarms were due to significant GSR's to the question, "Are you carrying a pistol?". As police officers that would normally be the case.

Michael related several interesting incidental findings: When the system was tested in Israel, repeating a question set improved its sensitivity, as participants showed even larger responses to the critical item. Americans simply became annoyed when a set was repeated. Also, Israelis responded much more quickly relative to Americans, whose GSR's were relatively delayed.

A few human-factors and usability issues were noted.

## Villanova University Students Visit RDHFL

By Kate McDevitt

Clare McGrory contacted us for her group for a tour of the Research Development and Human Factors Laboratory (RDHFL) at the William J. Hughes Technical Center. Ms. McGrory is in the Villanova University Master's program with an interest in the future happenings in the world of Air Traffic Control, Airplanes and Airports.



Villanova University Master's student group

"We are in the final semester of a course in designing business systems architecture. The group has chosen the United States air traffic [control] system as a platform for completing the capstone project in their course" Ms. McGrory said. Dr. Earl Stein greeted the group and explained the importance of the lab and those who run it, the staff. Dr. Stein also updated the students on the latest studies being conducted.



Looking at Tech Notes: Clare McGrory and Linda Hibbs

This is the second time the group has come to the site for tours. In addition to RDHFL, they were able to see several other areas at the Tech Center including but not limited to Airport Facilities Terminal Integration Laboratory and the Transportation Security Laboratory.

# Highlights of Recent Executive Council Meetings

By Ken Schulz

January/February/March 2008

The SJHFES Executive Council has held three monthly meetings this year. A full schedule of activities and programs is well underway. All members are invited to participate, and especially to volunteer as presenters and contributors.

## Professional Activities and Community Outreach

- March: Members served as judges for exhibits in the South Jersey Science Fair.
- TBD: Career Day at Richard Stockton College, essay contest for high school students.
- TBD: Human Factors outreach event at one of the neighboring high schools.
- August will be the month for the Family Outing.
- We plan to participate in World Usability Day activities again this year.

# Annual Membership Drive

Please renew your membership in the South Jersey Chapter of the Human Factors and Ergonomics Society (HFES). Membership fee is just \$15 per year.

Membership is open to anyone with an interest in human factors. You do not need to be a member of the national HFES to join. The benefits include a newsletter, hearing guest speakers, touring facilities with human factors programs or issues, sharing information

and networking with colleagues, video presentations...and, of course, the good company.

If you've never joined or are new to the area, please join us. To join or renew your dues for 2008, please complete the form in this newsletter and/or contact Ben Willems, Membership Chair.

# Treasury Report for March 2008

By Kate McDevitt, Treasurer

Checking and Savings:	\$747.89
Petty Cash:	\$100.00

## Expenditures:

Science Fair Prizes	\$150.00
Balance:	\$697.89

# Job Announcement

AST, Human / Machine System, Research General Engineer, GS-0801-11, 12 and 13, Promotion Potential GS-13, LA08D0137

Announcement No. LA08D0137

**POSITION:** AST, Human / Machine System, Research General Engineer, GS-0801-11, 12 and 13, Promotion Potential GS-13

**LOCATION:** Research and Technology Directorate, Crew Systems and Aviation Operations

**OPENING DATE:** March 20, 2008

**CLOSING DATE:** April 17, 2008

## AREA OF CONSIDERATION:

This announcement is open to all qualified U.S citizens.

The incumbent will serve as a Research Engineer supporting the Integrated In-

telligent Flight Deck (IIFD) project.

<http://www.aeronautics.nasa.gov/avsafe/iifd/>

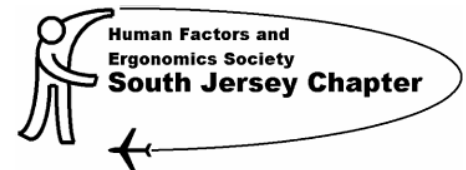
Particular foci are human performance evaluations and human/automation integration with respect to NexGen Airspace.

**NOTE:** The link(s) below are only valid while the job is open.

<http://jobsearch.usajobs.opm.gov/ftva.asp?opmcontrol=1168872>

For more information on our application process, go to NASA Jobs:

<http://nasajobs.nasa.gov/howtoapply/default.htm>



# South Jersey HFES Chapter Membership and Renewal Application

**For the Year 2008**

Applicant Name: \_\_\_\_\_

New Member (*complete all fields*)

Renewal (*complete this section only*)

I am (a Fellow / a Full Member / an Associate Member / Not a Member) of the National HFES (*circle one*)

Organization/Company: \_\_\_\_\_

Mailing address: \_\_\_\_\_

Daytime phone: (    )    -

Evening phone: (    )    -

Fax number:        (    )    -

E-mail address: \_\_\_\_\_

Endorsing SJC-HFES Member: \_\_\_\_\_

SJC HFES dues for 2008 are \$15. Make checks payable to the "Human Factors Society." Submit applications and checks to:

**Ben Willems**  
ACB-220, RDHFL Bldg 28  
William. J. Hughes Technical Center  
Atlantic City Int'l Airport, NJ 08405