
THE Interface

NEWSLETTER OF THE
HUMAN FACTORS &
ERGONOMICS SOCIETY
SOUTH JERSEY
CHAPTER

NOVEMBER 2009

President's Column, Secretary LaHood visit, upcoming events

President's Column

By Ben Willems

This is the first newsletter of the year. We may try to get another one in before year's end. Although I tend to be quite talkative using the orifice located just below my nose, I am less wordy when putting things on paper. My wife tells me otherwise, but given the frequency of the newsletter this year you know better. This year has flown by. Although part of that is just a subjective perception of time that seems to come with coming of age, the amount of activities at the Research, Development, and Human Factors Laboratory (RDHFL) and within the Federal Aviation Administration in general may have something to do with it as well.

The Chapter has had its share of activities that we do on an annual basis. Several of us participated as judges in the Jersey Shore Science Fair and had the opportunity to witness some exceptionally bright students show off their abilities. If my memory is correct, I was busy participating in extracurricular activities that were not science related at that age. I admire the dedications of these students and their courage to defend their work in front of a series of adults scrutinizing their presentations. We provided the winners of the Behav-

ioral and Social Science categories with a letter and a gift card.

Ferne Friedman-Berg continues her outreach on World Usability Day this year and recently visited Egg Harbor Township High School to get the students started on their projects. This year the World Usability Day theme is "Designing for a Sustainable World." If the students are as creative as they were last year, judging will be quite entertaining.

At the RDHFL we have been busier than usual it seems and the amount of work is increasing. Although I will mention the Primary Investigators, many of us were involved in one fashion or another in several studies that we have conducted or are conducting. Mark Hale has become our eye guy, often working with Kevin Hallman and Bob Muldoon. You may have seen Atul Deshmukh and others applying sticky stuff to participants' foreheads over the summer. We were working with Drexel University and they provided us with functional near infrared (fNIR) equipment to monitor oxygenation of the controller brain. As many of you can attest, yours truly thinks this is all really "cool stuff" that makes it "lots of fun" to work in our lab.

Carolina Zingale with the help of several others completed data collection on the Future En route Workstation Study in March. Carolina exposed en route controllers to traffic levels that were at least twice as high as those currently experienced in the field. She

briefed her initial results at headquarters and is still crunching data as we speak.

Sehchang Hah ran the en route data communications study over the summer. He ran two experiments in one. The first experiment tried to answer several operational questions that the Data Communications Program Office has related to for example equipment levels, flight management system capabilities, and Data Communication system failures. To answer these questions the RDHFL built an en route data communications environment on top of our en route automation modernization (ERAM) emulation. The second experiment was a part-task that we conducted with Drexel University. We used that task to calibrate the fNIR measure I mentioned earlier. We just delivered a draft interim report to our sponsors. We are still crunching data and will update the report as results become available.

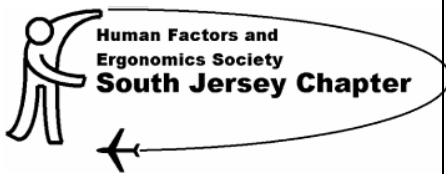
Ferne Friedman-Berg slipped in a study on target symbology for good measure. She collected data at the RDHFL as well as in the field. That provided her with the opportunity to take several of our folks to field facilities. Whenever you get a chance I highly recommend visiting some of the facilities. There is no better place to observe aviation (air traffic and technical operations) human factors in the wild than in our own facilities.

As soon as the en route data communications experiment was up and running, the RDHFL continued devel-

opment for a Separation Management study that Randy Sollenberger ran in September. In the Separation Management study, Randy introduced an en route environment where controllers are confronted with several separation standards instead of the one standard that most facilities currently use. He then tested how controllers worked traffic with and without automation support.

As you all know, we conduct research most of the FAA domains. Kenneth Allendoerfer and Ferne Friedman-Berg just finished data collection the Future Terminal Workstation (FTWS). Kenneth just recently briefed headquarters on his findings. In FTWS, TRACON controllers started to see some of the integration of automation functions that have existed or that we are currently introducing in the en route environment.

Given the success of the implementation of en route data communications in our simulation platform, the data communications program office asked us to conduct a study in the TRACON and the Tower environment as well. The RDHFL Tower that Todd Truitt has been using is of course an excellent place to start to look at data communications in the Tower. Todd is in the middle of data collection while Kenneth and Ferne are just starting FTWS-II. FTWS-II will focus on data communications in the TRACON environment.

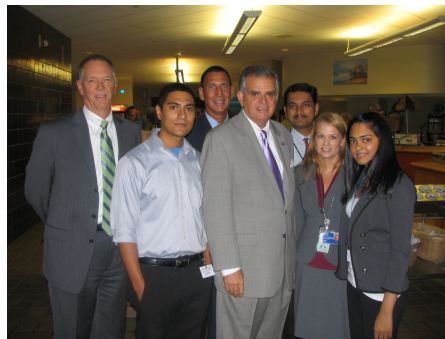


2009 Program Preview

- November 18th Dr. Jennifer Ross, Hi-Tec Systems, Inc.
- December 17th? Holiday party

DOT and FAA Leaders visit the Human Factors Laboratory

By Mike McNulty



Bina, Liesl, Atul, and Mike from RDHFL pose with Secretary LaHood, Congressman Lobiondo, and Administrator Babbitt.

On August 13th, personnel from the Human Factors Team – Atlantic City and the Concepts and Systems Integration team conducted demonstrations of the Research, Development, and Human Factors Laboratory (RDHFL) capabilities and recent projects for the Secretary of Transportation, Ray LaHood, and new Federal Aviation Administration Administrator, Randy Babbitt, and members of their staffs. Dr. Wilson Felder, Director of the William J. Hughes Technical Center, and 2nd District New Jersey Congressman, Frank LoBiondo, accompanied the Secretary and Administrator during their demonstrations. Michael Greco, Manager of the Test and Evaluation Services Group, accompanied the staff members during their tour.

The first stop for the principal visitors was Experiment Room 3, where they saw the En Route Data Communication (DataComm) interfaces and the Future En Route Workstation (FEWS) interface. They met the four controllers participating in the ongoing DataComm

simulation and saw the oculometer and the functional near Infrared (fNIR) spectrometer equipment in use. Next they moved to Experiment Room 2, where they saw a replay of one of the FEWS scenarios and the associated eye tracker display, showing how the participants eyes moved in close conjunction with the cursor. We explained how we have used the eye tracker to identify when a system addition (e.g., Traffic Management Advisor lists) disrupts the normal controller scan and design changes we implemented that address the disruption and actually enable better time metering.

Next, we conducted a demonstration of the RDHFL's new, 270 degree field of view, tower simulator and the Tower Operations Digital Data System (TODDS), including the Standard Terminal Automation Replacement System radar display. Although we had a carefully scripted demonstration of all the "gee-whiz" capabilities of the tower simulator, the Secretary became very interested in the patenting and commercialization process that TODDS is undergoing, in which the inventor is eligible for royalty payments under Technology Transfer legislation. He thought the financial aspects could serve to motivate researchers to develop innovative ideas that would support the Next Generation Air Transportation (NextGen) system.

Finally, the group moved to Experiment Room 1 where we demonstrated the Future Terminal Workstation simulation just completed with discussion of the next set of terminal simulations intended to support DataComm. This demonstration concluded with a discussion of air traffic controller reactions to all the system and procedural changes coming to the field in the next few years. At that point, the Secretary asked to walk around the lab so that he could meet some of the other researchers, engineers, computer scientists, and administrative personnel.

After the staff group returned from a riding tour of the Technical Center, we conducted a second round of briefings (overview of the work we do here and demonstration of our Virtual Reality capability) and demonstrations. The latter were similar to the first group except we did not go into Experiment Room 3, where the DataComm simulation was in progress.

Chapter Member is Featured Speaker at USAF Conference

By Mike McAnulty

In May, the South Jersey Chapter President-Elect, Mike McAnulty, gave an invited address entitled Human Factors in the Federal Aviation Administration at the US Air Force 2009 Airfield Operations MultiCommand Conference and Workshop in Orlando, FL. Approximately 160 airfield operations officers and senior enlisted personnel from four major Air Force commands attended the conference. Mike began the 50-minute presentation with a brief history of human factors (HF) work in the FAA, the objectives of the HF program, and the HF work done at the Civil Aerospace Medical Institute and within the Aviation Safety organization. He then described the prototyping, simulation, and performance measurement capabilities of the Research, Development, and Human Factors Laboratory. At the request of Col Malec and LtCol Koepsell (Airspace and Airfield Operations Division, Headquarters, Air Mobility Command), Mike then discussed several past projects that are of particular relevance in the terminal environment: HF evaluation and redesign of the Standard Terminal Automation Replacement System, visual specifications

for the Airport Surveillance Detection Equipment Model X, Flight Service Station ergonomics and computer-human interface evaluations, use of Automatic Dependent Surveillance-Broadcast and Cockpit Displays of Traffic Information in the terminal area (the Safe Flight 21 Operational Evaluations and integrating ADS-B into the radar display, and the Safety Alerts analyses in terminal and en route environments. Finally, he summarized current operations concept and system development projects, with a focus on the Tower Operations Digital Data System, which was of great interest to the attendees. After Mike answered a number of questions from the floor, Col Malec presented him a Division "Coin of Appreciation."

Annual Membership Drive

By Karen Buondonno

Please renew your membership in the South Jersey Chapter of the Human Factors and Ergonomics Society (HFES). Membership fee is still 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. The program committee is already working on an interesting set of activities for this year.

If you've never joined or are new to the area, please join us. To join or renew your dues for 2010, please complete the form in this newsletter and/or contact Karen Buondonno, Membership Chair.

Meet Brian Hilburn

By Mark Hale

Brian Hilburn has been active in transport human factors for over 25 years. He earned his PhD in Applied Experimental Psychology from the Catholic University of America. His areas of interest are automation and psychophysiology. He is just repatriating after 16 years in Europe. Whilst there he was Head of the HF department for the Netherlands Aerospace Lab (NLR), and later formed a small human factors consulting firm (CHPR BV) that works primarily with Eurocontrol. He remains an adjunct professor (now pro bono) at the Lund University School of Aviation in Ljungbyhed, Sweden. Brian is an avid pilot and aims to have his commercial rating by 2010. He also enjoys squash, racquetball, travel, reading, bicycling, motorcycling, cooking spicy Asian food, politics, playing drums, watching minor league baseball, scuba diving and a cold beer. He is married to a recovering international lawyer (who worked with the UN International Criminal Tribunal for the Former Yugoslavia, located in The Hague) and together they have an 11 year old daughter. Brian has a combined bike-rail-car commute from Haddonfield, NJ. Brian can be reached at 609.485.4018 or by e-mail at Brian.CTR.Hilburn@faa.gov, where he leads the Northrop Grumman team.

Highlights of Recent Executive Council Meetings

Activities report

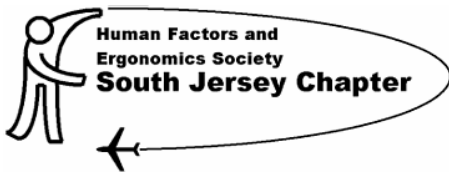
November – Dr. Jennifer Ross will give a presentation based on her dissertation “An Empirical Examination of Trust and Reliance Across Human and Machine Teams” at noon Wednesday the 18th in the RDHFL Briefing Room.

December holiday party social event – stay tuned for further information.

Treasurer's report

By Atul Deshmukh

Our savings account has \$242.47, checking has \$304.08. In addition there's \$203.00 in petty cash. The World Series Fundraiser netted \$97.00 (included in petty cash, above). Total is \$749.55



South Jersey HFES Chapter Membership and Renewal Application

For the Year 2010

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 2010 are \$15. Make checks payable to the "Human Factors Society." Submit applications and checks to:

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