
THE Interface

NEWSLETTER OF THE
HUMAN FACTORS &
ERGONOMICS SOCIETY
SOUTH JERSEY
CHAPTER

JUNE 2005

Mini-conference report, upcoming events, job postings

Mini-Conference report

By Carolina Zingale

The Chapter hosted its first conference on April 28 and 29 at the Technical Center. The event brought together nearly 60 human factors researchers from within the FAA community, as well as participants from businesses and universities in the region. Attendees participated in tours of the Transportation Security Lab, Human Factors Lab, AFTIL, and Free Flight lab and heard talks and saw poster presentations on topics in aviation and weather, air traffic control, safety, risk and security, and usability and design.

Bonnie Kudrick, Mini-Conference Committee Chair, kicked off the event and introduced Technical Center Director, Anne Harlan, who provided welcoming remarks and an overview of the Tech Center's research activities. The poster presentations included a description of methods for writing human factors requirements presented by Kenneth Allendoerfer, an evaluation of modified phraseology for departure clearances presented by Jerry Hadley, preliminary results of a study investigating aircraft ice detection presented by Eddie Sierra, the design of a weather

display for Traffic Flow Management presented by Tanya Yuditsky, and a demonstration of advanced display systems for security operations organized by Mike Barrientos.

In the Aviation and Weather paper session, Liza Tam of Booz Allen Hamilton discussed cultural issues in aviation and the need to address human factors from non-Western perspectives as global air traffic grows. Starr McGettigan of the FAA presented work evaluating graphical depictions of weather information for flight service specialists, and Cynthia Grzywinski of Raytheon reported on work conducted by the FAA Weather Sensors and Processors Group that examined ceiling and visibility issues for pilots in Alaska.

**Lunch Time Event:
Talk on "Ter-Mite, Ter-Mite Not" by Michael Nail,
winner of the South Jersey
Science Fair award in the in-
termediate category
Noon, July 20th at
RDHFL
FREE PIZZA!**

Elaine Pfleiderer of CAMI began the Air Traffic Control session with a report about the use of en route host data as an alternative to communications data for evaluating controller workload. Mike McAnulty and Carolina Zingale

reported on a simulation they conducted at the RDHFL evaluating alternative formats for presenting Traffic Management Advisor data to controllers, and Anton Koros discussed the simulation he conducted at the Northern California TRACON evaluating a procedure for converging aircraft approaches to San Francisco International Airport (SFO). Ben Willems concluded the session by inviting the speakers to participate in a panel discussion to talk about their work and its relationship to future air traffic control issues.

John Ruffner of DCS Corporation began the Safety, Risk and Security session with a discussion of human factors issues of shipboard helicopter operations. His presentation highlighted the complex issues facing personnel responsible for coordinating the safe operation of these systems and the opportunities for human factors to enhance training and system operation. Josh Rubinstein of the TSA discussed several of the research projects sponsored by the TSA and conducted by academic institutions that address critical issues in threat detection, including the role of attention in visual search, techniques for improving search, and the role of fatigue in target detection. Steve Hall of Galaxy Scientific Corporation closed out the session with a discussion of the development of methods for assessing risk in the evaluation of agriculture flight operations.

The final paper session on Usability

and Design included a presentation on web-searching techniques presented by Cynthia Sikora of Lucent Technologies, who described the search trends of users engaged in different tasks and discussed how specific cues may be incorporated to assist users in finding needed information. Vicki Ahlstrom described work conducted at the RDHFL to assess the usability of a prototype portal for Technical Center employees and managers. The work yielded suggestions for improving the content and organization of site information to enhance search. Kathleen Stibler of Lockheed Martin discussed the results of a study investigating techniques for maximizing the cognitive resources of operators performing complex command and control tasks. David Burdick of Stockton College closed the session with a presentation on the importance of addressing the needs of an aging population when conducting human factors research and developing technologies.

The chapter was fortunate to have noted researcher, Raja Parasuraman, of George Mason University, serve as keynote speaker. Dr. Parasuraman summarized work on "Humans and Automation: Benefits of a Delegation Approach" (see related article in this edition). Tanya Yuditsky, Chapter President, introduced Dr. Parasuraman and addressed the conference attendees in a closing summary.

Papers presented at the mini-conference are available in an electronic format. Those interested in electronic copies of papers may contact Gulshan Panjwani via email at gpanjwani@z-techcorp.com.

Thanks to the participants, the hard work of the planning committee, and the generous support of a number of sponsors including the WJHTC, Z-Tech Corporation, Barco, Northrup-Grumman and Titan Corporation, as well as contributions from Wilson Industries, the Atlantic City Tourism Council and Cape May County Department of Tourism the Mini-

Conference was an enormous success.

Summary of Raja Parasuraman's Talk

By Gulshan Panjwani

Dr. Raja Parasuraman was the keynote speaker at the South Jersey Human Factors and Ergonomics Chapter's Mini-Conference on April 27 – 28. In his address, Dr. Parasuraman talked about his ongoing research on Humans and Automation. Dr. Parasuraman is considered an authority in the subject area and has authored several books about research on how humans and automation can work together for efficient performance. He believes and also presented evidence that the human-machine synergy is possible with elements of adaptive machinery and not just a good computer human interface as contended by many HCI researchers.

Dr. Parasuraman first outlined the benefits of automation as have been realized by various industries. He then pointed out that it is a double edged sword with potential efficiency benefits but human performance costs. Some examples of human error were presented to emphasize the point. The problems attributed to the presence of automation included lack of feedback, over-reliance on automation, unbalanced mental workload, cognitive skill degradation, mode error/confusion, loss of situation awareness, and degraded teamwork. Dr. Parasuraman claims that automation and humans are often at odds with one another. He contends that deciding the adaptability of automation involves a workload-unpredictability tradeoff. When a user decides to automate, there is less unpredictability but increased workload and vice versa when the system decides to automate. The delegation approach proposed by Dr. Parasuraman affords user flexibility to task automation at

various points along the spectrum of control. In this accord, he has attempted to research the idea building on the success factors of successful human teams. He presented a recent research effort that experimented with a delegation interface in the Robotics domain. The delegation interface, named Playbook, makes humans in charge of instructing automation, has a shared vocabulary to allow humans to flexibly pose tasks to automation, and affords real-time supervisory control with multiple levels of automation. The experiment emulated a typical unmanned vehicle mission with a single operator sending a team of 4-8 robots into hazardous territory to locate a specific target and return home as quickly as possible. The operator had a Playbook of several automated tools to supervise and direct the robots. Sufficient knowledge was built into the robots to enable intelligent choices within the instructions provided by the user. In addition, the behavior of the opposite robots was unpredictable. The results showed that flexible delegation enhanced overall system performance but increased workload slightly. The operator was able to effectively supervise multiple, semi-autonomous robots. They used manual control and automated plays flexibly to enhance probability of mission success and reduce completion time. The system performance benefits were the greatest against unpredictable opponent tactics and as a form of adaptable automation, the flexible delegation interface is superior to static automation and manual control. Thus he proposed that the avenue is promising and needs further research.

Dr. Parasuraman, aided by his research findings and an adaptive presentation, made a strong case for treating automation as a human subordinate and making it adaptable to better serve the humans in their goals.

Upcoming Events

By Shantanu Pai

Our next lunch time event will be held on July 20th noon at the RDHFL. Michael Nail, South Jersey Science Fair winner in the intermediate category will give a talk on "Ter-Mite, Ter-Mite Not". Free pizza will be served during this talk. This will be a good opportunity for membership renewals and sign-ups.

Annual Membership Drive

By Anton Koros

Please renew your membership in the South Jersey Chapter of the Human Factors and Ergonomics Society (HFES). Membership fee is still just \$10 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 2005, please complete the form in this newsletter and/or contact Anton Koros, Membership Chair.

Job Openings

Human Factors Specialist at Hi-Tec Systems

Location: Southern New Jersey

Job Description

Candidate will assist in the evaluation of aviation security human performance concerns and issues by conducting R&D to evaluate potential solutions changing equipment design, procedures, manpower, personnel, and training. Conducts tests, collects test data, witnesses test performance, and prepares test/program assessment reports. Experienced in data collection, analysis, and presentation. Must be able to develop project documents, project plans, test plans and procedures, data analysis reports, and final project reports. Knowledge of FAA and TSA commercial software programs and a Secret Clearance or higher within the past two years is a plus.

Qualifications

- Bachelor's degree from accredited college or university.
- Two years human factors related experience.

Closing date

July 31, 2005

Contact information

Interested candidates can fax their resumes to 609-272-1021 or send them via email to hr@hitechsystems.com. The reference number for this posting is HT 05-201.

Highlights of Recent Executive Council Meetings

By Bonnie Kudrick

Members present: Tanya Yuditsky, Anton Koros, Bonnie Kudrick, Pam DellaRocca, Eddie Sierra, Carolina Zingale, and Shantanu Pai. Tanya opened the meeting at 12:10

Interface

Next issue will feature 2 articles on the Mini-Conf. One will summarize general aspects of the meeting (action item – Carolina). The second will summarize Raja's presentation (action item – Gulshan). Information about July's meeting will also be included.

Deadline for articles is Friday June 17, Interface will be sent out on June 24

Membership report

One new member since last report. Total membership is now 17. July's general membership meeting will include free lunch for all who attend (pizza and soda) in order to entice them to renew their membership.

Treasurer's report

Edmundo Sierra – Our savings account has \$326.40, checking has \$736.78, and \$507.66 in the Pay Pal account.

Plan for upcoming events

July – One of the Jersey Shore Science Fair Winners will present. Pizza will be provided to all at no charge. Anton will also discuss the benefits and value of renewing membership. Science Fair winner will also get a tour of our lab.

August – Movie to be decided

Sept. – Chapter Picnic. Date – to be decided at next meeting. Gulshan will coordinate with Eddie to reserve location at Atlantic County Park, Estell Manor.

October – to be decided

November. – Panel discussion on metrics, measures, or methodology (e.g., ERAM, TFM). Specifics TBD at next meeting

Elections

Nothing to be done until September/ October for elections.

Carolina and Tanya discussed looking into changing the bylaws. The change will result in having all council positions being for 2-year term and that ½ of the positions expire every other year. Carolina volunteered to research this.

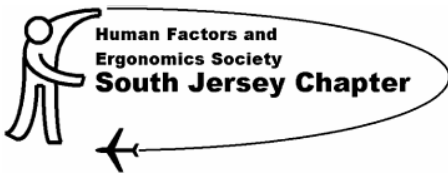
Mini-conference

Pam congratulated the organizing committee for a successful event.

Bonnie created a survey for all conference attendees which should be posted on the SJHFES website. Once it is posted, Bonnie will send out an email to all conference attendees to get feedback. Bonnie also volunteered to look for an interesting movie to be presented at August's meeting.

Closing

The next meeting of the EC will take place on July 12th at noon.



South Jersey HFES Chapter Membership and Renewal Application

For the Year 2005

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 2005 are \$10. Make checks payable to the "Human Factors Society." Submit applications and checks to:

Anton Koros
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William. J. Hughes Technical Center
Atlantic City Int'l Airport, NJ 08405