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# THE Interface

NEWSLETTER OF THE  
HUMAN FACTORS &  
ERGONOMICS SOCIETY  
SOUTH JERSEY  
CHAPTER

MAY 2003

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## Drexel University Professor to address chapter

*How does the design community think about design?*



### Summer Social, Anyone?

By Mike McAnulty

So far this year, the Chapter activities have been focused on professional presentations, and the next three meetings will also involve professional presentations. At our last two Executive Council meetings, we have discussed having a purely social activity to provide our members, and their families if interested, an opportunity to get together and just have some fun. The Chapter has attempted to have these activities in the past, but with varying degrees of success. Several years ago, we had a Saturday picnic at Kennedy Park in Somers Point that turned out great: Virtually the whole chapter came with their families, the weather was beautiful, the food and drink were plentiful, and we had fun playing volleyball, horseshoes, etc. Then, there was the planned picnic at the Cape May Zoo, where only one member made it (actually, I think it was canceled, but he didn't receive the message). Last year, we tried to have a night out at an Atlantic City Surf baseball game. Only a few members attended and some of us couldn't find each other, but the few that

went had a great time enjoying the ball game, the between-innings entertainment, and the fireworks display at the end.

We are uncertain about what the best plan would be to serve the members. There are concerns about doing a social after work versus on the weekend, what to do if the weather is bad, what most people are interested in doing, how far members would travel to participate, etc. Therefore, we'd like to hear from you, and then we'll execute the plan! The options aren't limited to just either a picnic or a ballgame; those are just options we have discussed. If it is a picnic, there are also several different locations we could consider. Please contact me or any member of the Executive Council before June 10, so we can start working on the plan. Members can also provide input on the summer social by responding to the polls on our website at <http://groups.yahoo.com/group/hfessouthjersey/>.

### Program Events

By Edmundo A. Sierra, Jr.

Our next chapter meeting will feature a presentation by **Dr. Michael E. Atwood** of Drexel University. The title of his presentation is "*How Does the Design Community Think About Design?*" Here is the abstract...

Design is a term that brings many people together. Collectively, we distinguish ourselves from others by the fact that we are designers and members of a design community. But, design is also a term that pushes people apart. The design that some value in the new fashions in the boutiques in Milan is not seen by everyone as design. While some are impressed with the design of a new telephone, not everyone sees this as design. As a community, we believe design is important. But, as a community, we do not have a common definition of what it is. Many views of design have been proposed. Several classifications of design have been proposed. In this paper, we also seek to classify views on design. Unlike earlier efforts, however, we want to find the classification that the global community of designers uses. To this end, we examine the patterns of citations to key authors' works (Author Cocitation Analysis) to uncover this classification and identify several key author clusters representing identifiable theory groups or schools of thought/practice in design.

Dr. Atwood is a Professor and the Associate Dean at the College of Information Science and Technology, Drexel University.

On April 16th, Dennis Filler (Chief Scientist for Technology) gave an interactive discussion about knowledge management at the WJHTC. The smaller audience because of all of the talks that day

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## Events

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 allowed much discussion. A number of important questions about how we share information with each other were raised. Dennis brought to light how changes in our attitudes about what we know and how we share information through organizations like HFES would benefit everyone.

### Upcoming events:

Postponed – FAMS by Jerry Hadley & Sherri Magyarits

JUNE – How does the design community think about design? by Dr. Michael Atwood, Drexel University

JULY – Science Fair winner & Brownbag Movie

JULY SOCIAL

AUGUST – Tour: New FAA Labs

OCTOBER - Brownbag Movie: Topics in Human Factors

DECEMBER - Panel Discussion: Statistics in Applied Research

# Tactile Situation Awareness System

By Shantanu Pai

TSAS is novel avionics/information data display being developed by the Institute for Human and Machine Cognition (IHMC) at the University of West Florida. It utilizes the sense of touch, rather than vision or hearing, as feedback to the users thereby reducing workload while maintaining or even enhancing task performance. Researchers at IHMC claim that TSAS can improve situation awareness in a variety of applications such as aviation, undersea operations, space flight, and extravehicular activity (EVA).

Principal investigator Anil Raj at IHMC, in collaboration with the U.S. Navy, has been working on a wearable interface that lets pilots use their sense of touch to complement audiovisual navigation used in today's highly complex airplane cock-

pits, where pilots can have trouble keeping up with information flow, especially if they become disoriented in an emergency.

A network of tiny vibrators that may be strapped to a pilot's torso communicate with the navigation sensors and signal-processing software, and is activated by streams of pressurized air. If an aircraft is turning left, its pilot feels a buzz on his or her left side. The system can also warn pilots about deviations from course or approaching threats, intense buzzing against the pilot's back could signify, for instance, an enemy plane behind the aircraft.

The prototype has proved effective in flight tests. The Navy will use the technology in helicopter missions by special-operations troops as early as this spring. For the pilots, the bottom line is heightened spatial awareness and fewer accidents.

Any implications for use of tactile feedback in air traffic control interfaces or aviation security? Merits exploration...

Further reading: Gregory T. Huang (2003). I feel your plane. (Innovation: Interfaces). Technology Review (Cambridge, Mass.), 106, 28(1).

Weblink:

<http://www.coginst.uwf.edu/projects/tsas/description.html>

## Book Review

By Kenneth Allendoerfer

*The Unfinished Revolution: Human-Centered Computers and What They Can Do for Us* by Michael Dertouzos, HarperCollins.

As the director of the computer science laboratory at MIT and one of the brains behind the web, Michael Dertouzos is obviously enthusiastic about computers. But his last book (he passed away in late 2001) begins with a decidedly unenthusi-

astic account of the current state of computers as they relate to their human users. He rails against the bugs, crashes, and incompatibilities that continue to frustrate people. He complains about the arcane commands and unhelpful error messages that still exist. He worries about the two-headed monster of too little and too much information. He is concerned that the distance between the digital haves and have-nots is increasing. This rant is humorous, thorough, and dead on. But the ambitious six-part plan that consumes the remainder of the book is less so. In his view, the future will bring us computers that are so simple, ubiquitous, and invisible that they achieve a "natural fusion with our lives." To me, this prediction seems deeply unrealistic and, in many cases, undesirable.

First, Dertouzos is a fan of natural language user interfaces. In his view, we will eventually interact with computers primarily via speech because "when speech is possible, it invariably takes over as the preferred mode." Keyboards and mice will be relegated to only those applications where "accuracy or quiet are at a premium." He acknowledges that speech technology is currently a long way from being truly useful but he believes that it's only a matter of time. He doesn't seem to recognize that speech is slow, inherently (and sometimes intentionally) ambiguous, and often not the primary method of human communication. For example, have you ever tried to make a plane reservation over the phone using an automated speech-based interface? It's not just annoying and error prone (though it's certainly both of those), it also takes forever because speech is serial. I can't simultaneously compare fares from several travel agents because speech is fleeting. And can you imagine an artist trying to edit a photo using speech? Speech may be an effective interface for some applications, especially when the hands and eyes are otherwise occupied, but it's unlikely to ever become the primary method for most things.

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## Book Review

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Second, Dertouzos believes that computers will eventually automate all the jobs that “are repetitive and require little human common sense” and thereby give us all time to “do everything else we’ve wanted to do but couldn’t—for lack of time.” Frankly, this strikes me as utter nonsense. There are no recent examples where people were able to *keep* the time they saved resulting from a technological advance. In fact, the average number of hours worked by Americans has been rising since the 1960s, despite the introduction of computers, fax machines, PDAs, and other office automation. Technology has not (and probably will not) give workers more free time unless you count being laid off as free time. Instead, recent technological advances have simply raised the bar. People keep working just as hard (or harder) but the expectations for the amount and speed of production are higher. Dertouzos’ dream that computers will let us “do a year’s worth of office tasks in just 4 months” and take the rest of the year off is just utopian thinking.

The second problem with Dertouzos’ discussion of automation is that it smacks of elitism. He proposes automating an entire class of office jobs not for the usual business reasons but because he finds jobs like secretaries, travel agents, and hotel desk clerks to be “drudgery.” He proposes that the eliminated jobs will be replaced by tons of new jobs offered by new technology (he wrote the book before the DotCom flameout). But he offers no explanation why the new jobs will be any less drudgery than the old ones. Nor does he seem to question the assumption that everyone can (or wants to) be an artist, physician, or university professor. Is it even ethical to specifically target low-paying jobs for elimination? What does the travel agent think of all this automation?

Third, Dertouzos discusses the need for better semantics. That is, systems must

be better able to discern the meaning of information. For example, how often have you searched for something on the web only to be sent to a completely irrelevant page? This happens because search engines, despite appearances, aren’t very smart. They match words, phrases, and occasionally citations but they have no real understanding of the query or the returned content. Dertouzos believes that by including and inferring better metadata, we can achieve huge gains in search technology and thereby make it much easier to locate what we want. This sounds good, but he doesn’t fully appreciate a key point: Metadata is only useful if all interested parties agree on its meaning. If two parties use different keywords to mean the same thing or use the same keywords to mean different things, we’re back where we started. As it stands, there is no standard dictionary of keywords that exist across domains, industries, and countries. Even fields that have tried to standardize metadata terms, such as medicine, they have found that it is extremely difficult to develop a complete and accurate set that is constant over time and that people use consistently and correctly. In addition, metadata standardization requires cooperation between competing parties. Why would Amazon.com agree on standardized metadata terms if, by doing so, they were helping Buy.com compete? Ultimately, truly useful metadata would require an authority to maintain and administer it. This, however, would go against many of the social and legal traditions of the web. At present, there is no governing authority over the web only advisory consortiums. To have metadata work how Dertouzos wants, the consortiums would need to get into the regulatory and enforcement business, something that they, business, and government have been very reluctant to allow.

Fourth, and most compellingly, Dertouzos discusses how professional collaboration will eventually be conducted through computers that connect offices all over the world. He envisions the super telecon of the future where whole

teams can be remotely connected and working together on projects. Of all his predictions, this is the only one that seems remotely in reach. I have seen teams collaborate over NetMeeting and use internal websites to coordinate schedules, document versions, and so on. Advances in networking and video technology should make these super telecons possible in near future. Unfortunately, his sound arguments degrade, again, into a his personal utopia where everyone lives in an nineteenth century farm house (with broadband) and no one, except those unfortunate enough to have a drudgery job, ever works in an office again.

His fifth, and least tenable, recommendation for human-centric computing is that computers need to provide more customization. In Dertouzos’ view, software will finally become easy once people can adapt it to their own needs. In response, I’d ask: has he ever used Microsoft Word? Every element of the application can be customized. Users can create macros to automate tasks, build their own toolbars, reorder the menus, change all the defaults, and on and on. But when was the last time anyone did any of that? Dertouzos envisions a world where we will use one specialized word processor for writing letters, another for writing legal documents, and a third for writing screenplays. Each will be specialized to include only functions that apply to the task at hand and eliminate the extraneous stuff. Dertouzos forgets that we’ve already tried this and it was a disaster. In the 1980s, there were five or more major word processors for the PC. Each used its own commands, user interface, file formats, drivers, and so on. Some were designed originally for business, some were designed for computer geeks, some for home use, and some for specific domains. Turns out, people wanted to share documents with each other and they didn’t want to learn one set of commands at home and another at work.

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## Book Review

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So the market settled on two major players and each covers the full spectrum of what might be considered writing. This says to me that rather than chasing single-purpose specialized software, we need to work harder on the usability of the multi-purpose systems. Improving the usability of a huge piece of software like Word doesn't require dropping features. How could you know which to drop? Rather, it requires serious research and observation of how people actually use the software, documenting the problems they encounter, trying out different solutions, and then constant, small changes.

The future that Dertouzos imagines could be wonderful. It's a future where everyone values simplicity over complexity, quality over speed, and truth over hype. In his future, the computer is a tool that only helps us move toward fulfillment, productivity, and happiness. But, sadly, my computer doesn't live in Dertouzos' world nor, truthfully, do any of us.

## Highlights of Recent Executive Council Meetings

By **Gulshan Panjwani**

**April 11:** Mike McAnulty, Todd Truitt, Tanya Yuditsky, and Edmundo Sierra were present.

On a motion of the president, the Executive Council (EC) agreed to move the monthly EC meetings to the second Tuesday of each month. We changed the meeting date to accommodate work schedules.

The science fair winners have not contacted us yet. If they do, we will invite

them to present their research at a Chapter event.

Jerry Hadley may be ready to present in the middle of May. Sherry Magyarits may also present. Todd Truitt will summarize his trip to the 12<sup>th</sup> International Symposium on Aviation Psychology.

The EC requested that this month's presentation announcement inform members that food is not allowed in the auditorium. However, we will meet in the far corner of the cafeteria 1 hour before the presentation for (BYO) lunch. We discussed equipment needs for the presentation and procedures for acquisition.

Chapter social events came up for discussion. The EC is planning a picnic at Estelle Manor, Kennedy, or Canale Parks. Date to be announced soon. The program committee will also consider plans for an outing to the baseball game.

The Publications Chair noted that the Interface would be published in May to announce the talks by Hadley and Atwood. He also requested newsletter items from the other EC members.

The Treasurer reported a balance of \$434.13 in checking and \$566.20 in savings. We have paid for all of the Jersey Shore Science Fair prizes.

**May 9:** Mike McAnulty, Pam Della Rocco, Tanya Yuditsky, Edmundo Sierra, Todd Truitt, and Gulshan Panjwani were present.

The EC discussed the presentation by Jerry Hadley. It was decided that the talk would be held on May 29<sup>th</sup> at 12:00 pm. After the talk, Todd Truitt will talk about ISAP. Dr. Atwood's presentation is scheduled for June 25<sup>th</sup> at 5:00 pm. Pizza and soda will be served at a cost of \$3 per member. A lunchtime video event for the month of July was discussed and was tentatively scheduled for July 15<sup>th</sup>. The EC also decided to invite the intermediate category winner at the Jersey Shore Science Fair to present on

that day. The Program Committee will organize these events and announcements will appear in the Interface.

On the topic of invited speakers, the EC discussed how, or if, to remunerate those who volunteer to give presentations to the Chapter.

The EC discussed potential social events for July including a picnic or a baseball game on a Friday night when there are fireworks. Mike will poll members at the May 29 presentation to see what they prefer.

The Publications Chair, Todd Truitt, requested materials from the EC members. The Interface will be published in late May in time to announce upcoming events.

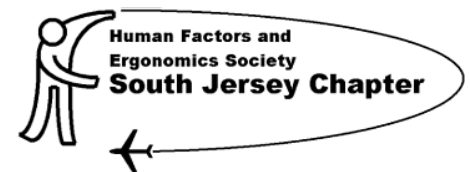
The Membership Chair, Pam Della Rocco, reported that there were 25 paid members so far this year. That is compared to 35-40 in previous years. All current members should be encouraged to pay their dues.

The EC scheduled their next meeting for Tuesday, June 10, 2003.

## Treasurer's Report

By **Jerry Hadley**

As of the last Executive Council meeting on May 9, 2003, there was \$566.67 in savings and \$424.13 in checking.



# South Jersey HFES Chapter Membership and Renewal Application

**For the Year 2003**

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 2003 are \$10. Make checks payable to the "Human Factors Society." Submit applications and checks to:

Pam Della Rocco  
ACB-220, RDHFL Bldg 28  
Wm. J. Hughes Technical Center  
Atlantic City Int'l Airport, NJ 08405