

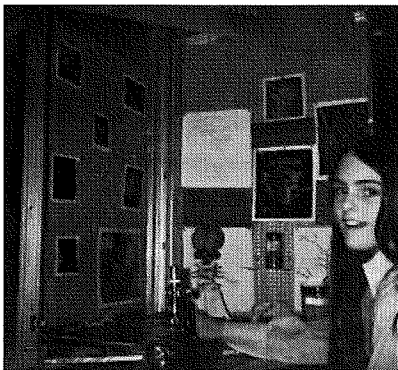


## INSIDE HFES

### Making Change

By Francis T. Durso, HFES President

It was 2:00 in the morning at the Hilton near George Mason University. A young woman from the university was working as the cashier. Whenever she needed to make change, she had to turn her back on customers and on the open doorway just beyond. That night, as she turned away from the open doorway, from nowhere she felt a tap on her shoulder: "Do you mind making change?"



Nancy in front of her seventh-grade Science Fair entry.

This setup seemed like a safety issue to 21-year-old Nancy Jaworski. Nancy was taking a human factors class and recognized several human factors issues. Maybe she should just complain to her boss about the danger. So, as many young girls Nancy's age would do, she conducted a task analysis, designed a prototype of safer, more efficient workstation, and sent the sketch to the Hilton management. She didn't hear back. (The Hiltons had just had their daughter, Paris. Maybe they had their hands full?)

During the previous years at GMU, Nancy had become more and more intrigued with people and technology. She had switched from her major in Spanish and Latin to psychology.

Then, as a psych major, she took computer science and, just as the disciplines themselves were wondering, she wondered about what would happen if she combined psychology and computer science. But still something was missing.

During her last year of undergrad, Nancy wrote to Mike Strub at a local human factors group. She wrote to Mike because of her recent discovery of the class on human factors. We can all resonate to the unfortunate fact that human factors is often something that has to be discovered, even today. To her surprise, Nancy came to realize that Mike had been the judge of her eighth-grade science fair project on noise pollution. The experimental group of mice was exposed to rock songs, power tools, and her brother's drums. Those mice became obese and ate their young. (YOU try listening to '80s rock.)

From college, Nancy—now Nancy Cooke—went to New Mexico State University to study under Roger Schvaneveldt (priming, Pathfinder, aviation). During this transition, she had her first contact with Bill Howell, a figure who would come to influence her throughout her career. This first contact was when Bill called Nancy to tell her that going to NMSU (and not Rice) was the worst mistake of her life. Well, it wasn't too bad, because when Nancy graduated from NMSU, Howell, chair of the department at Rice, called to offer Dr. Cooke her first tenure-track position.

Today Nancy is a leader in our discipline. She is internationally known for her work on teams and uninhabited aerial vehicles. She is one of 28 women Fellows in HFES. She sits as the first female chair of the National Research Council's Board on Human-Systems Integration. Inspired by the events of 9/11, she founded a nonprofit aimed at developing and promoting human

factors. At the annual meeting in Chicago, she will become the second woman ever to receive the Arnold M. Small President's Distinguished Service Award for a career of making change, big change.

Nancy joins the other women in this series—the first female member, first female Fellow, first female president—as the first woman to serve as editor in chief of the Society's flagship journal, *Human Factors*. The journal was founded in 1958, but it would wait 47 years before being directed by a woman. During her tenure as editor, Nancy virtually doubled the journal's Impact Factor, which hit a high of over 1.5, the highest it has been before or since.

Indeed, women are an equal part of our Society and its annual meeting as well as partners in the leadership of the discipline. Women lead our discipline through research, practice, and service. Currently, all three HFES journals are edited by women. Four of the five divisions in the Society are chaired by women. Any scan through the research literature shows women have an equal part of our discipline. Equal in all ways except perhaps one.

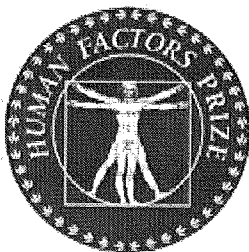
The one exception is recognition of accomplishments. Women seem less likely to be nominated for, and therefore to win, awards and designations than their male counterparts. For example, the Society has almost three times as many male Fellows as female ones.

I spoke with Nancy about women and awards, and she suggested that women do not view awards in the same way that men do. Because of that, they are less likely to self-promote, relying instead on "coming to mind" when nominations go forward. As much as I admire the Zen of this position, I would also argue that such recognition serves a purpose for the next generation of women. A friend much smarter than I (actually that covers all my friends) once told me he seeks awards not because they matter to him but because they matter to others. I think he's right, and I think it is time for all of us—men and women—to encourage women to seek the recognition they deserve.

The day after I put together Nancy's story, I heard Emma Watson speak to the United Nations about gender equality and the launching of the "He For She" initiative. Ms. Watson spoke eloquently and passionately about the role of men in achieving gender equality. She reminded us that no country has gender equality. I encourage you to listen to her speech. I also encourage you to take up the banner not only here in our professional Society and in our discipline but elsewhere. Let us all be proactive in helping women gain the recognition they have earned.

By the way, if you happened to visit that Hilton near George Mason University in the 1980s and 1990s, you would have seen Nancy's prototype actually implemented. When I asked her how she felt that her idea was implemented without any credit, she told me that making change is what matters. And now you know that she was the woman who made that change.

## **Paper on Haptic Steering Support Winner of 2014 *Human Factors* Prize**



The Human Factors and Ergonomics Society congratulates Bastiaan Petermeijer, David Abbink, and Joost de Winter on receiving the 2014 *Human Factors* Prize for their article, "Should Drivers Be Operating Within an Automation-Free Bandwidth? Evaluating Haptic Steering Support Systems With Different Levels of Authority." The authors will be awarded the \$10,000 cash prize and publication of their paper in the Society's flagship journal, *Human Factors*. Petermeijer will present his work at a special session on Tuesday, October 28, from 3:30 to 5:00 p.m. in Grand

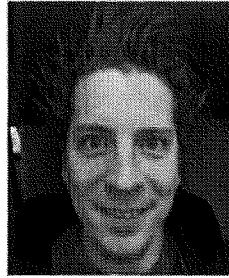
B (Gold Level, East) at the upcoming HFES International Annual Meeting in Chicago.

The topic for this year's competition is human-automation interaction/autonomy, and articles were invited on human factors/ergonomics (HF/E) research pertaining to effective and satisfying interaction between humans and automation.

The winning paper compares how continuous versus bandwidth haptic steering guidance affects drivers' ability to stay in their lane as well as the overall level of drivers' satisfaction. The authors conducted a study in which participants drove five trials in a simulator with varying lev-



Bastiaan Petermeijer



David Abbink



Joost de Winter

els of haptic support, then evaluated which method was better at preventing errors and improving performance and satisfaction.

"My coauthors and I are absolutely delighted to have won the 2014 *Human Factors Prize*," said Petermeijer. "Our article investigates the fundamental topic of whether human operators should be supported continuously or should be seen as satisfiers who need support only when acceptable tolerance limits are exceeded. By discussing the costs and benefits of both approaches, we attempt to promote critical thinking about automation support systems."

Submissions to the competition were judged on the importance of the implications for human-automation interaction/autonomy, originality of the research, contribution to the HF/E knowledge base, and soundness of the methodology.

"As automation becomes more prevalent in our society, it is becoming clear that we need to better understand how the person in the system integrates with the automation," said William S. Marras, who chairs the *Human Factors Prize* Board of Referees. "This work represents an important step forward in this understanding."

Bastiaan Petermeijer is a PhD candidate at the Lehrstuhl für Ergonomie of the Technische Universität München, Germany. Bastiaan obtained his MSc in biomechanical engineering—automotive at the Delft University of Technology in March 2014. His research in the Marie Curie ITN HFauto project investigates human factors in highly automated driving. Bastiaan's PhD will focus on developing and evaluating a haptic interface to mitigate out-of-the-loop issues.

David Abbink received an MSc degree in 2002 and a PhD in mechanical engineering in 2006 from Delft University of Technology. His doctoral dissertation, "Neuromuscular Analysis of Haptic Feedback During Car Following," was the culmination of a project for Nissan, where he helped develop and evaluate a force-feedback gas pedal to support drivers with car following. He is a co-principal investigator on the H-Haptics project ([www.h-haptics.nl](http://www.h-haptics.nl)), an associate professor at TU Delft, senior member of the Institute of Electrical and Electronics Engineers (IEEE), founding cochair of the IEEE-SMC Technical Committee on Shared Control, and associate editor for *IEEE Transaction on Human-Machine Systems*.

Joost de Winter is a tenured assistant professor of mechanical, maritime, and materials engineering at the Delft University of Technology. He obtained an MSc in aerospace engineering in 2004 and a PhD focusing on driver training and assessment in 2009 from the Delft University of Technology. De Winter has authored more than 40 journal articles and has secured a prestigious VENI grant, awarded to young scientists in the Netherlands. He supervises PhD students in the Marie Curie Initial Training Network (ITN) projects HFauto (Human Factors of Automated Driving) and MOTORIST (MOTORcycle Rider Integrated SafeTy).

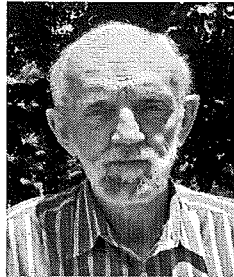
For more information on the *Human Factors Prize*, visit <http://www.hfes.org/web/pubpages/hfprize.html> or contact HFES Communications Director Lois Smith ([lois@hfes.org](mailto:lois@hfes.org); 310/394-1811).

The topic for the 2015 *Human Factors Prize* is human factors and sustainability/resilience. Additional information will be forthcoming, so bookmark the [\*Human Factors Prize Web page\*](#) and check back soon.

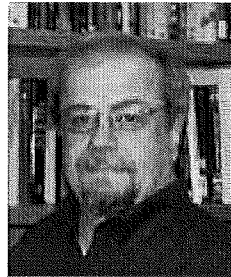
## ANNUAL MEETING

### Plenary Speakers Announced

The following individuals will present talks at the Opening Plenary Session of the 2014 Annual Meeting in Chicago. The session takes place on Tuesday, October 28, from 8:00 to 10:00 a.m. in Suite Grand B (Gold Level, East).



Raymond S. Nickerson



Francis T. Durso



Deborah A. P. Hersman

#### **Keynote Address: Human Factors and Information Technology**

Raymond S. Nickerson, Tufts University

The logarithmic slide rule was invented sometime before 1630. It was a remarkable invention. At least in the western world this device served as the primary computation aid—some might say the primary cognitive aid—for engineers of all varieties for over 300 years.

The tale of the slide rule is a metaphor of the story of information technology over the recent past. Developments, many of them unanticipated even by the most visionary technologists, have changed, and are changing our lives in fundamental ways. This talk raises questions about the HF/E implications of the rapidity with which information technology changes and, conversely, about how HF/E may influence the nature of future developments.

#### **Presidential Address: Zen and the Art of Human-Systems Integration**

Francis T. Durso, HFES President

Boundaries both define us and constrain us. Knowing—or, better, assuming—where one thing ends and another begins is also important in how we relate to others. Where does the sociotechnical system end and context begin? Where does the human end and technology begin? This presentation will explore the possibility that our ability to reach out to industry and to basic science has been limited because of the boundaries we place on the science and practice of human factors.

#### **Invited Address: The Importance of Human Factors in Promoting Safety**

Deborah A. P. Hersman, President & CEO, National Safety Council; former Chair, National Transportation Safety Board

Ms. Hersman was a tireless and effective advocate of human factors during her tenure as NTSB chair. She will share her perspective on the importance of human factors in enhancing safety in transportation systems, its role in incident investigations, and how each of us can get involved in advocating for safety at the federal, state, and agency levels.

## **COTG Announces Recipients of Student Author Presentation Support Award**

The results of the 2014 Student Author Presentation Support Award (SAPSA) selection process are in, and the Council of Technical Groups is pleased to announce the ten student awardees and the technical groups in whose programs they will be making Annual Meeting presentations:

- Shiyang Yang, Perception & Performance TG
- Chiara Margherita Santomauro, Health Care TG
- Mia McLanders, Health Care TG
- Tara McCurdie, Health Care TG
- Molly C. Martini, Individual Differences on Performance TG
- Kathryn Tippey, Student Forum
- Jing Chen, Internet TG
- Jongsoo Park, Internet TG
- Joey C. Y. So, Training TG
- Aleksandra Stankovic, Aerospace Systems TG

Many thanks to Jennifer Riley, COTG Chair, who administered the program and to the HFES Council of Technical Groups, which funded the awards. Details about the program may be found in the June issue of the *HFES Bulletin*.

## **Meet Other Early-Career Professionals in Chicago**

**By Chris Brill and David Cades, Cochairs, Early-Career Professionals Committee**

We would like to extend an invitation to all early-career professionals to attend the Early-Career Professionals (ECP) Reception on Wednesday, October 29, from 5:30 to 7:00 p.m. The reception provides an occasion for ECPs to meet one another, network, and share their experiences about the years following graduation. The evening will include brief inspirational words of wisdom from fellow ECPs and plenty of time for socializing. Hors d'oeuvres will be served, and a cash bar will be available.

If you're an ECP (within five years of earning your highest degree), please join us. There is no fee for this event, but please indicate your desire to attend when registering for the HFES Annual Meeting. See the conference program for the event location. *Sorry, but this event is not for students.*

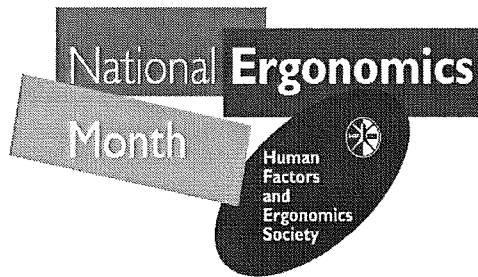
## **NEM Best Action Plan Winners**

**By Joseph R. Keebler, Chair, NEM Subcommittee**

We had some amazing NEM Best Action Plan proposals this year, and we want to congratulate our winners and thank everyone who submitted an entry. This is the first year we have had multiple NEM Best Action Plan awards.

Gold Winner: University of Wisconsin (UW)-Madison – **“Building an Open-Source Ergonomics Training Module”** – The motivation behind this plan was to expose students and professionals alike to important HF/E tools and knowledge. The HFES UW-Madison Student Chapter members were interested in entering the Ergo Cup competition and wanted to form a team of students who may or may not have backgrounds in HF/E but who wish to learn how to

redesign systems that better fit the human. It was decided that these students would be better prepared for the competition if they had a short introduction to HF/E.



The chapter decided to take advantage of university resources to develop a novel training module that could be used for informing not only the students interested in the competition but also anyone else who wanted to learn more about HF/E. Thus, the chapter members developed a Web-based Ergonomics Training Module under the guidance and advice of Professor Robert Radwin.

**Silver Winner: Georgia Tech – “Seventh Annual Bad Design Atlanta Competition”** –Students from

the university were asked to look around Atlanta for everyday items or systems that are designed poorly and to feature them in their submission for the 7th Annual Bad Design Atlanta Competition. Each contestant submitted a document containing a bad design and the proposed solutions with citations to HF/E research and methods to address the problem.

**Bronze Winner: George Mason University (GMU) – “Human Factors Challenge”** – The Patient Safety Department at Children's National Medical Center collaborates with GMU by offering internships for graduate students from the university's Human Factors and Applied Cognition Program. This year, the Patient Safety Department and GMU will host the Human Factors Challenge, a 4-hour seminar featuring games and design sessions to teach medical professionals about HF/E principles.

We thank those who submitted and invite everyone to attend the NEM Expo on Monday, October 27, from 4:45 to 6:15 p.m. in the Columbus Foyer (Gold Level, East) of the Hyatt Regency Chicago. This will be an opportunity to meet with me and other outreach members, as well as students working in other communities. It's a great way to share ideas. Furthermore, anyone who is interested in demonstrating new technology at the NEM Expo should e-mail information on space or equipment needs to me at [joseph.keebler@wichita.edu](mailto:joseph.keebler@wichita.edu).

## **Student Lounge Speaker and Event Schedule**

***By Vindhya Venkatraman and Rashmi Payyanadan, Cochairs, 2014 Student Lounge***

Please join us for a full program of activities in the Student Lounge. If you'd like to participate in the Scavenger Hunt, go to [HFES 2014 Scavenger Hunt](#) for details and an entry form. See you in Chicago!

**Tuesday, October 28**

**8:00 a.m.–5:00 p.m.**

**Full-Day Events**

### **Board of Certification in Professional Ergonomics (BCPE) Day**

- Student Lounge sponsored by BCPE
  - BCPE Representatives available to answer student questions
- Scavenger Hunt and Networking Meet-Ups sponsored by the Industrial and Systems Engineering Department, University of Wisconsin-Madison

#### **Scavenger Hunt**

- Packet Pickup
- Volunteer in charge: Erin Chiou ([chiou2@wisc.edu](mailto:chiou2@wisc.edu))

#### **Networking Meet-Ups**

- Groups scheduled to meet at the Lounge will be allocated a table.
- Volunteer in charge: Eleese McLaurin ([emclaurin@wisc.edu](mailto:emclaurin@wisc.edu))

**8:00–11:30 a.m.**

Scavenger Hunt

- On-site registration open

**10:00–10:30 a.m.**

Refreshment Break sponsored by BCPE

**11:30 a.m.–12:30 p.m.**

Speaker Session: Career Benefits of Certification, BCPE

- Discussion on career paths, certification process, networking, and job search

Lunch Break

**3:00–3:30 p.m.**

Refreshment Break

**3:00–5:00 p.m.**

Student Open Mike Session

- Student introductions and informal meet & greet

**5:00 p.m.**

Scavenger Hunt Early Registrants' Prizes announced at the Student Reception

**Wednesday, October 29**

**8:00 a.m.–5:00 p.m.**

**Full-Day Events**

**User Experience (UX) Day**

- Student Lounge sponsored by UX Day
- Scavenger Hunt and Networking Meet-Ups sponsored by the Industrial and Systems Engineering Department, University of Wisconsin-Madison

Scavenger Hunt

- Ongoing and submissions welcome by e-mail to Erin Chiou ([chiou2@wisc.edu](mailto:chiou2@wisc.edu))

Networking Meet-Ups

- Groups scheduled to meet at the Lounge will be allocated a table
- Volunteer in charge: Eleese McLaurin ([emclaurin@wisc.edu](mailto:emclaurin@wisc.edu))

**10:00–10:30 a.m.**

Speaker Session: Google[x] Guest Speaker, "UX Careers at Google"

- Dhvani Patel-Smith will share insights about beginning a career in industry, common pitfalls when applying for positions, and finding the right opportunities at Google. Dhvani is a Senior UX Researcher in Google's advanced R&D lab, Google[x], where she's worked on wearables, smart contact lenses, and, most recently, airborne wind turbines. Dhvani previously worked at Microsoft Office Labs, at a children's book start-up, and in education policy research in Washington, D.C. She holds a PhD and MA in applied developmental psychology from George Mason University.

Refreshment Break

**3:00–3:30 p.m.**

Speaker Session: Key Lime Interactive Guest Speaker, “UX Consulting War Stories”

- Kelley Parsons will share some insights and lessons learned from a career path that has been anything but predictable, the same insights that she infuses into lectures to her students as they prepare to leave the university setting and venture into the world of competitive employment. Kelley is a Senior User Researcher with Key Lime Interactive, the leading user experience consultancy for global research. Her clients include GE Healthcare, The Coca-Cola Company, Exxon Mobil, and Citi. Prior to joining KLI, she worked at Eastman Kodak Company, the National Institute for Occupational Safety and Health, Wright-Patterson Air Force Base, and Cornell University as a post-doc. Kelley received her PhD in applied experimental psychology from the University of Cincinnati.

Refreshment Break

**Thursday, October 30**

**8:00 a.m.–5:00 p.m.**

**Full-Day Events**

**Student Lounge sponsored by HFES Cognitive Engineering and Decision Making Technical Group**

- Scavenger Hunt and Networking Meet-Ups sponsored by the Industrial and Systems Engineering Department, University of Wisconsin-Madison

Scavenger Hunt

- All teams must submit entries by e-mail to Erin Chiou by 12:00 noon ([chiou2@wisc.edu](mailto:chiou2@wisc.edu))
- Winners announced at 3:30 p.m., and prizes available to collect

Networking Meet-Ups

- Groups scheduled to meet at the Lounge will be allocated a table
- Volunteer in charge: Elese McLaurin ([emclaurin@wisc.edu](mailto:emclaurin@wisc.edu))

**10:00–10:30 a.m.**

Panel Discussion: From Student to Professional: Early-Career Professionals Discuss HF/E Opportunities and Challenges

Panelists:

- Jia-Hua Lin, PhD
  - Ergonomist at Safety & Health Assessment & Research for Prevention (SHARP) in Washington State Department of Labor & Industries, Washington
- Xu Xu, PhD
  - Research scientist at Liberty Mutual Research Institute for Safety, Boston, MA
- Rupa Valdez, PhD
  - Assistant Professor, Division of Biomedical Information, Department of Public Health Sciences, University of Virginia School of Medicine, Charlottesville, VA

Refreshment Break

**12:00 noon**

Scavenger Hunt submissions due from all teams by e-mail to Erin Chiou ([chiou2@wisc.edu](mailto:chiou2@wisc.edu))



**3:00–3:30 p.m.**

Panel Discussion: From Student to Professional: Early Professionals Discuss HFE Opportunities and Challenges

Panelists:

- Richard J. Holden, PhD
  - Assistant Professor, Department of BioHealth Informatics, Indiana University School of Informatics and Computing, Indianapolis, IN
- Samuel Alpers, PhD
  - Senior Associate, Exponent Failure Analysis Associates, Chicago, IL

Refreshment Break

**3:30–5:00 p.m.**

Scavenger Hunt: Winners and Runners-Up will be announced by Twitter, Facebook, and team e-mails.

Prizes available to collect at Student Lounge and are sponsored by the Industrial and Systems Engineering Department, University of Wisconsin-Madison.

## OPINION

### **(More) Words Matter**

**By Robert R. Hoffman, Senior Research Scientist, Institute for Human and Machine Cognition, and Peter A. Hancock, Provost Distinguished Research Professor, University of Central Florida**

Our previous essay, entitled “Words Matter” (Hoffman & Hancock, 2014), resulted in a remarkable amount of correspondence, which suggested to us that we may well have struck a nerve (or two) with the HF/E professional community. Our purpose in that essay was to comment on certain popular words and phrases that seem to be mandated by our HF/E subject matter but which, we asserted, should be used somewhat more cautiously and deliberatively. We even proposed that we might consider discarding some of these single descriptors and phrases entirely. Encouraged by that correspondence, and finding ourselves with no shortage of material to consider, we present a further exercise in linguistic hygienics.

For the present, we decided to pass on commenting on the phrase *human performance measurement*. Although such a phrase appears generally to be neutral, it is in fact burdened with much historical baggage. It carries with it a tacit stance about how things “should” be measured, and thus it has issues still hiding in the methodological shadows. We also decided to pass (pro tem) on the phrase *function allocation*, largely for the same reasons.

We should make clear that our purpose here is not to advocate for any particular theoretical or methodological stance, given that HF/E professionals can legitimately disagree about the foundation of, and methodology that accompanies, each of the terms or phrases we have singled out for comment. Neither are we concerned here in particular with any direct debates about terms and concepts (although in other work, of course, that remains a concern for us). Rather, we want to argue that certain terms should be used more mindfully by our community as a whole. Having stated the bounds of our present remit, let us proceed to the first phrase/term that we consider.

#### **Decision Support**

It is true that we nearly decided to pass on commenting about this apparently innocent phrase. It seems innocent in the same way that the phrase *human performance measurement* seems innocent. When you look under the hood of most decision-support systems, you find that they are, in actuality, process control systems. They presuppose specific tasks and specific goals.

They guide (or force) the decision maker through a rather dutiful, rigid, and even potentially mindless series of keystrokes. Problematically, the richness and complexity of actual decision making can then be masked or, worse, even ignored. Indeed, it is worthwhile to consider the fact that decisions are not things that are made at all. Deciding is a process that is often highly context dependent, and is always conditional in complex and dynamic situations (see Hoffman & Yates, 2005; Klein, Orasanu, Calderwood, & Crandall, 1993). This contrasts with a more common and perhaps traditional view that is instantiated in decision-support systems. This is the view that decision making is a fixed sequence of processes that lead to some final point-like action. Most models are of the following form:

1. Acquire information in some manner,
2. Comprehend the information in some manner, then
3. Commit to a momentary, resolving action.

“Real-world” (oops!) decisions often have no clear-cut beginnings or endings and also entail a number of issues that are rarely embraced by so-called decision-support systems, whereas deciding involves the acquisition of information that may itself involve other decisions and deliberations concerning future possibilities, preferences, options, trade-offs, and goals. New decision problems constantly arise, either in the process of implementing a previous commitment or, perhaps, because that previous decision instigated new threats and opportunities. The transcendental temptation here is to provide support for relatively closed-end, serially modeled sorts of decisions. However, it is almost inevitable that these nominal decisions are embedded or inserted in messy, unpredictable, and under-specified worlds. Decision making may be much more volatile and spontaneous than we have yet to plumb. Providing decision support sounds like such a moral, laudable, and helpful enterprise that we should always beware such seductive pronouncements!

### User

*User* is to computer science what *subject* is to psychology. Specifically, we see the term as dehumanizing; it serves to distance “us,” the scientists, from the mass of humanity whom presumably, we strive to serve. Recently, it has been argued that one reason the national proportion of the overall budget for science has fallen is not because of lack of pragmatic, financial return on investment (which is actually healthy) but at least partly because scientists do not engage the wider public. Although this is an arguable proposition, it should serve to remind us that the remote, antiseptic, white-coated stance of the putatively disinterested scientist may, in today’s society, be even less acceptable than it was a mere decade or two ago.

The word *user* was assimilated into HF/E as a consequence of our necessary linkage to the field of computer science and its applications. Resistance here is not futile, and we should resist. If humans are the essence of human factors, then surely we should treat them as such as part of our larger moral obligation (Hancock, 2014).

### Agent

*Agent* is to computer science what *rat* is to psychology. As expert systems committed suicide and the field of intelligent systems arose from the ashes like a phoenix, computer scientists came to treat certain kinds of machines and people as being no different. Both have agency; they can influence the world. Thus, it is possible to refer to *human and machine agents*, a phrase one often sees in conference papers and grant proposals. Apart from the fact that the word *agent* can be rather ambiguous when the technology under discussion is in service of intelligence analysis, we hasten to reaffirm that humans and machines are in fact still very different. Reducing the human to the simple agency of a bag of software code is hardly respectful, helpful, or liable to lead to insightful steps forward at the present time.

## Automation

When used in phrases we've seen such as *human-automation interdependence*, the word *automation* is tautological and working toward the nonsensical. Humans are never autonomous. Machines have never been autonomous. And if humans and machines are interdependent, why is the machine thought of as being "automation"? Well, one might argue, the ancient concept of autonomy (that the human can determine his or her own fate) has expanded recently, and these days we do not *really* mean that "automation" is autonomous. But this masks a designer-centered stance: The belief that all our problems can be solved "if we only had more automation." There is a palpable danger in this (Bradshaw et al., 2013; Hoffman, Hawley, & Bradshaw, 2014). The reality of more automation has almost always failed to live up to the promise (Christofferson & Woods, 2002; Woods & Hollnagel, 2006). This is a concept/term whereby computer science is getting one up on HF/E. In computer science, some clarity is being achieved by regarding such separable dimensions as degrees of self-sufficiency and degrees of self-directedness. We do not need more automation, though we certainly need better machines.

## Real World Versus the Field

We expressed an "Oops!" when using this phrase above. Although the distinction between the laboratory and the field is sometimes useful, the phrase *real world* asserts two contrasting stances. One is that the artificial laboratory is somehow disconnected from harsh realities, as in the metaphor of the ivory tower. But it is certainly just as possible to emphasize ecological validity and representativeness in laboratory research as it is beyond the forbidding walls. Indeed, psychologists have been champions of this notion for decades (e.g., Brunswik, 1952; Gibson, 1979; also see Hoffman & Deffenbacher, 1993).

The second stance is just the converse: that the traditional academic laboratory is the exclusive owner of controlled factorial experimentation and the sole licensee of its conduct (i.e., true science). There is a long tradition of control and manipulation of variables in experiments conducted in work settings and a long tradition of naturalistic approaches as a key contributor to the overall scientific enterprise. The phrases *work setting* and *operational context* are far better than a phrase that seems to imply that there must be some non-real world, existing perhaps in the basement of academic edifices.

## Behavioral Science

Some professionals with degrees in psychology find themselves employed in organizations that use *behavioral scientist* as a job category, and thus they have to and succumb to the requirement that they refer to themselves as such. We empathize with them and encourage them toward change. Resistance is not futile.

## Transparency

*Transparency* is one of the most misused terms in our current lexicon. It has spilled into scientific discourse from its use in political and civic (and typically uncivil) conversations about matters legal and nonlegal. One of the most common, if not universal, metaphors we use to understand cognition is that "knowing is seeing" (Hoffman, Cochran, & Nead, 1990). See what we mean? Conversely, if something is unseen, is it necessarily unknown by this standard? And if one is prevented from seeing something, is one prevented from knowing it? Although we want our governments to be transparent, in the sense that they do not hide facts or truths from us hapless citizen taxpayers, the word *transparency* has gotten flipped on its head when, for instance, we refer to the need for software to be transparent. Well, if the software is transparent, it cannot be seen (and hence cannot be understood?). What is meant is that software systems need *apparency*, not transparency. This is a canon of human-centered (or work-centered) systems: that the technology proves to be sufficiently understandable. *Apparency* is a perfectly good word.

## Conclusion

Perhaps the most irritating thing about writing commentaries such as these is that we ourselves often slip in maintaining mindfulness about parlance, and we anticipate that we will make such faux pas in the future. However, as users of decision-support systems for interdependent human-agent automation in the real world, and as behavioral scientists to boot, we strive to be transparent.

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## STANDARDS UPDATE

### ISO/TC 159 Standards Update for October

By Daryle Gardner-Bonneau, Chair, U.S. TAG to ISO/TC 159

The items presented in this article concern news relevant to ISO/TC 159 standards activities and include upcoming meetings, newly published standards, new standardization projects, and draft standards currently being balloted.

Except for newly published standards, titles of standards are abbreviated in this listing, but you can obtain the complete title for any standard by visiting the [HFES Standards Web](#) page and then clicking on the Subcommittee (SC) Technical Advisory Group (TAG) that is involved with the standard in which you're interested. Clicking that link will display a graphic of the SC's structure and a listing of all the projects and standards of that subcommittee. You can also purchase standards and search full titles and abstracts by going to the [ANSI Store](#) or the [ISO Store](#) and searching by the document's number (e.g., ISO 24504).

The contacts whose e-mail addresses are provided below (i.e., Daryle Gardner-Bonneau, Robert Fox, and James Williams) welcome your inquiries and your participation in these activities.

The listings use the following ISO abbreviations:

TC = Technical Committee  
SC = Subcommittee  
WG = Working Group  
CD = Committee Draft  
DIS = Draft International Standard  
FDIS = Final Draft International Standard  
TR = Technical Report  
NWIP = New Work Item Proposal  
PAS = Publically Available Specification

#### New Projects

(Items new this month are preceded by \*\*\*)

SC3 – revision of ISO 14738 – Safety of Machinery – Anthropometric requirements for the design of machinery workstations (joint writing group formed from the manual handling and anthropometry working groups to do this work). Contact [robert.r.fox@gm.com](mailto:robert.r.fox@gm.com).

SC3 – Extension of ISO 11228 series of standards to manual agricultural work (see related [HFES Bulletin](#) article in the August issue). Contact [robert.r.fox@gm.com](mailto:robert.r.fox@gm.com).

SC4 – ISO 9241-332 – Autostereoscopic displays. Contact [ergojim@earthlink.net](mailto:ergojim@earthlink.net).

## Draft Documents Released for Comment and Vote

\*\*\*SC3 – ISO/CD 7250-1 – Anthropometry – Part 1 – Body measurements and landmarks (updating of anatomical landmark definitions to be compatible with 3D scanning systems). Contact [robert.r.fox@gm.com](mailto:robert.r.fox@gm.com).

SC3 – ISO/DIS 20685-2 – 3D scanning methodologies – Evaluation protocols of surface shape and repeatability of relative landmark positions; due January 1, 2015. Contact [robert.r.fox@gm.com](mailto:robert.r.fox@gm.com).

### Upcoming Meetings

Standard/Group	Date	Location/Description	Contact
TC159/SC1/WG2	October 16–17	Berlin, Germany – to begin work on the revision of ISO 10075 on mental workload	<a href="mailto:JDNBonneau@charter.net">JDNBonneau@charter.net</a>
***U.S. TAG to ISO/TC159/SC4	October 28, 10:30–11:30 a.m. (in conjunction with the HFES Annual Meeting) Room: Skyway 280	Chicago, IL – to review the work of the SC4 TAG (human-system interactions). Meeting is open to anyone interested in joining the TAG.	<a href="mailto:ergojim@earthlink.net">ergojim@earthlink.net</a>
TC159/SC4/WG28	October 29–31	Gaithersburg, MD – continuing work on the Systems and Software Quality Requirements and Evaluation (SQUARE) standards series	<a href="mailto:ergojim@earthlink.net">ergojim@earthlink.net</a>
TC159/SC1/WG5	October 30–31 (at the HFES Annual Meeting Site)	Chicago, IL – to process comments on, and continue development of, ISO 27500 and 27501 (ergonomic process standards)	<a href="mailto:JDNBonneau@charter.net">JDNBonneau@charter.net</a>
TC159/SC4/WG6	November 24–26, Web Ex half-day meetings	Work on finalizing ISO 9241-220 (human-centered design process), after which it will be sent out for vote	<a href="mailto:JDNBonneau@charter.net">JDNBonneau@charter.net</a>

## **Update on Federal and Congressional Activities**

By Lewis-Burke Associates LLC

On September 18, the U.S. Senate gave final approval to H.J. Res. 124, a Continuing Resolution (CR) to fund the federal government into the new fiscal year, which begins October 1. This action cleared the CR for President Obama, who will sign the bill. The House of Representatives overwhelmingly approved the bill on September 17 after agreeing to an amendment to authorize the president to arm and train moderate Syrian rebels fighting the Islamic State of Iraq and the Levant (ISIL) in Iraq and Syria.

The CR provides funding authority for federal agencies and programs through December 11, 2014, at the overall fiscal year (FY) 2014 enacted funding level of \$1.012 trillion. The bill continues programs and policies in the current appropriations bills for FY 2014. It also includes a minimal reduction in funding in all 12 annual bills to keep final funding within the overall budget limitation.

Enactment of the CR will allow Congress to return after the elections and chart the path forward. That path could include negotiations on an omnibus appropriations bill to provide federal agencies with a full-year budget similar to the FY 2014 Consolidated Appropriations Act, an extension of the CR for a full year, or an extension of the CR into next year, when a new Congress is sworn in and can revisit the bills. A final appropriations endgame will depend on the political climate resulting from the midterm elections.

The full Lewis-Burke analysis of the CR for FY 2015 is available [here](#).

### **NASA Announces Space Technology Research Fellowship**

On September 17, NASA released the [solicitation](#) for the Space Technology Research Fellowship, sponsored by the Space Technology Mission Directorate. NASA seeks applications from current graduate students or from those who plan to pursue master's or doctoral degrees in disciplines relevant to space technology. Awards will be granted up to \$74,000 per year, and distribution will coincide with the fall 2015 academic year. In total, this program has awarded 247 grants to student researchers from 79 universities. The application deadline is **November 13, 2014**.

### **Policy Updates and Funding Opportunities**

Below are links to Lewis-Burke's reports on policy updates and funding opportunities relevant to HF/E.

#### **Agency Update:**

- [Advanced Research Projects Agency-Energy Opens Early Registration for Annual Energy Innovation Summit – February 9-11, 2015 and Announces Summit Student Program – September 18](#)

#### **Funding Opportunities:**

- [Funding Opportunity: DOD Releases FY 2015 DURIP BAA – September 19](#)
- [Funding Opportunity: Department of Defense Releases New BAA for the Minerva Research Initiative – September 19](#)
- [Funding Opportunity: DARPA Releases SIMPLEX Solicitation Related to Big Data and Computational Analysis of Complex Systems – September 18](#)

*Lewis-Burke Associates LLC, a leading Washington, D.C.-based government relations and consulting firm, represents the public policy interests of scientific societies and institutions of higher education. Lewis-Burke's staff of about 20 government relations professionals work to promote the federal research and policy goals of HFES and the HF/E community.*

## OTHER NEWS

### Call for Journal of Vision Special Issue Papers

Papers on the topic of scene perception from central to peripheral vision are invited for a special issue of *Journal of Vision*.

Many key topics related to scene perception from central to peripheral vision are outside the topics traditionally studied under the heading of "peripheral vision." These topics include the role of peripheral preview in object recognition, the role of scene gist perception (based largely on peripheral vision) on eye movement guidance, or the role of foveal load on peripheral object or event perception. Furthermore, research and theories on the roles of central and peripheral vision in ventral functions (e.g., object and scene recognition) have little interchange with research and theories on the roles of central and peripheral vision in dorsal functions (e.g., prehension, locomotion, navigation, and balance). Thus, there is a need for a synthesis across these areas of research.

Submit an abstract **December 1, 2014**, by e-mail to Lester Loschky with the subject line "JOV Special Issue: Scene Perception from Central to Peripheral Vision: Proposed Abstract." The paper submission deadline is **June 1, 2015**. For more information, visit [http://www.journalofvision.org/site/misc/peer\\_review.xhtml#MT](http://www.journalofvision.org/site/misc/peer_review.xhtml#MT).

## CALENDAR

### Featured Events

**HFES 2014 Annual Meeting**, October 27–31, 2014, Hyatt Regency Chicago, Chicago, IL.

**2015 Symposium on Human Factors and Ergonomics in Health Care: Improving the Outcomes**, April 26–29, 2015, Baltimore, MD.

**19th Triennial Congress of the International Ergonomics Association**, August 9–14, 2015, Melbourne, Australia.

### December 2014

**OzCHI 2014: Annual Conference for the Computer-Human Interaction Special Interest Group (CHISIG) of the Human Factors and Ergonomics Society of Australia**, December 2–5, 2014, Sydney, Australia.

### March 2015

**Inaugural International Convention of Psychological Science (ICPS)**, March 12–14, 2015, Amsterdam, The Netherlands.

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