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**FROM THE PRESIDENT**

## Another Day of Infamy

*By David L. Post, HFES President*

Like many of you, I was standing before a television on the morning of September 11, watching smoke pour from the North Tower of the World Trade Center and wondering what sort of mechanical or human problem could have produced this aviation disaster, when a second airplane appeared suddenly on the screen. As we stared unbelievably, it smashed into the South Tower, and in that surreal moment, the true nature of the horror became clear.

My feelings are a mixture of shock, outrage, and despair over the fate of the victims. Television commentators have made the comparison with Pearl Harbor, which seems apt. New generations know first-hand now what American World War II generations must have felt, except we've had the dismal experience of watching it all live on television while wondering what would come next.

I have no message for you at the moment that relates human factors or HFES to the tragedies in New York, Washington, D.C., and Pennsylvania. If there are implications for us professionally, perhaps they will have become evident by the time you read this. For now, I can only offer my deep condolences to those of us who have lost loved ones, friends, and colleagues. I don't know yet whether I'm among you.

I could never have imagined that my first presidential article for the *HFES Bulletin* would address a topic like this: the most despicable and deadly act of terrorism in history. But then I couldn't imagine deliberately steering planeloads of innocent passengers into buildings full of innocent people. Ideas like this – to say nothing of the resolve to actually plan and implement them – are unique to minds that presumably care nothing about suiting technology to human characteristics.

People in our profession are motivated fundamentally by a desire to make the world a better place for all humanity. In the face of such barbarism, it's easy to become angry and wonder whether all of humanity deserves the effort. Perhaps the most difficult – even outrageous – thought to grasp is that the people who perpetrated these monstrous crimes were also seeking, in a horribly misguided way, to improve the world.

Human factors can certainly contribute toward the technological measures needed to thwart terrorism and deal with the aftermath. I doubt our field can do much to resolve the issues that

*continued on page 3*

**NEWS**

## New Design Guidelines Aim to Reduce Driver Distraction

*By Daniel V. McGehee*

The proliferation of in-vehicle devices has automotive industry designers, major auto suppliers, and the telecommunications industry searching for driver interface input and output alternatives that minimize the demand on driver attention. Some companies that design such systems and devices advocate encouraging drivers to operate in-vehicle devices responsibly rather than spending time and resources to reduce driver distraction through efficient design.

Organizations such as the Society of Automotive Engineers (SAE) – which provides U.S. standards for the automotive industry – are engaged in writing practical design guidelines for in-vehicle operator interfaces aimed at reducing distraction (these documents are all being written by active HFES members). In addition to the SAE, the Alliance of Automobile Manufacturers (AAM), a trade group that represents 12 of the major automotive companies, has also recently weighed in on this issue. Guidelines generated by these organizations help the human factors/ergonomics (HF/E) profession by defining core

*continued on next page*

## 2002 Membership Dues Renewal

The 2002 dues renewal packets will be in the mail soon, and we thank you in advance for renewing your membership for the year 2002. Renew to help HFES support your professional needs, to strengthen your profession, and to maintain uninterrupted delivery of *Human Factors, Ergonomics in Design*, and the *HFES Bulletin*. Renew early to save \$15 on postage surcharge fees. The deadline for the receipt of your dues is January 15, 2002.

The dues renewal packet includes your contact information. Please update your member listing by visiting the On-Line Member Directory at <http://hfes.org> or by calling the HFES central office at 310/394-1811. You will need your member ID, the five-digit number on the mailing label of this issue, to access your file. Changes submitted through January 15, 2002, will be included in the 2002–2003 HFES *Directory and Yearbook*.



issues central to driving safety, as well as identifying design-relevant research issues.

In June 2001, the AAM released a second draft of its “Statement of Principles on Human-Machine Interface for In-Vehicle Information and Communication Systems.” This document is a great start that will undoubtedly serve to promote sound HF/E design. The 18-page working draft consolidates the basic interface design recommendations from European Union design principles. It is one of the first publicly released documents from the automotive industry attempting to reduce driver distraction by outlining specific design principles. In addition, verification procedures – which are critical to the successful implementation of such guidelines – are specified. Most organizations do not want their competitive design innovations to be constrained by others, so it is usually difficult to reach consensus on these types of principles and verification procedures.

Although many of the AAM principles are based on well-documented installation and location principles (e.g., visual displays should be designed and installed to avoid glare and reflection), for the first time this group of automotive companies address “Information Presentation Principles,” which are far more elusive because they involve quantifying driver behavior and performance. For instance, two key variables must be considered in measuring the attention demand of a visual display: off-roadway glance duration and the number of glances off roadway needed to complete a task. The HF/E literature over the last 15 years has quantified off-roadway glances, but the automotive industry has never drawn a line in the sand. The AAM guidelines boldly and rightly do just that. Although the actual numbers may change in future revisions, they propose verifying attentional limits using interface interaction, such as the following: “While the vehicle is in motion, the total glance time shall not exceed 10 seconds, with any single glance not to exceed 2 seconds, and a total [interaction] time [e.g., dialing a cell phone] not to exceed 30 seconds.”

In addition to information presentation principles, the AAM draft includes principles for

- installation (i.e., physical location of devices);
- interaction with displays and controls (i.e., modes and duration of input);
- systems behavior (i.e., locking out nondriving functions while the vehicle is in motion); and
- information about the system (i.e., providing accurate and easy-to-interpret information).

Although, together, these principles are a good first step in forming a comprehensive set of guidelines, a few areas require further attention. The principles currently do not address either voice interaction or device integration. Although we have good measures for quantifying visual, visual-manual, and manual interactions with such systems (Wierwille, 1993), additional research is needed to quantify nonvisual cognitive demands. Many designers of automotive systems assume that voice input and output is the magic bullet that will eliminate distraction; research, however, is now showing that these nonvisual cognitive demands on the driver can be problematic (Lee, Caven, Haake, & Brown, in press; Strayer, Drews, Albert, & Johnston, 2001).

Crashes involving looking but not seeing (processing) may increase as “hands-free” and voice-based interfaces become more popular. Given that the integration of such devices is critical to how they are used, designers cannot assume that following the AAM principles for each device will result in a safe system when multiple devices are placed in a car (Lee & Kantowitz, 2001). Designers may want to explore integrating information flows from the various devices to coordinate information presented to the driver. For instance, linking collision warning information to the use of such devices could help redirect a driver’s attention to a hazard ahead.

There is also the question of how carried-in devices such as personal digital assistants (PDAs), cell phones, and pagers should be integrated into the driving environment. We know these devices are used while driving, so this becomes an even more critical issue when one considers how such devices are *intended* to be used relative to how they *will* be used.

OEMs, Tier 1 suppliers, and large corporations may have well-informed HF/E specialists, but they are sometimes powerless to implement superior interface designs because of management and organizational (e.g., marketing) decisions and the lack of internal standards. Armed with design principles like those drafted by AAM, HF/E designers will be better able to support their design recommendations to management. Additionally, as time passes and these types of design guidelines become more widely used, small specialty companies that do not have human factors/ergonomics expertise will be able to use the criteria to guide the development of their products. One can only hope that designers of carried-in devices such as PDAs, advanced cell phones, and pagers will also take heed.

Design guidelines based on rigorous empirical research, combined with a strong theoretical core, will advance the HF/E discipline and driving safety. On one side the trick is to avoid “compressed and distilled one-line nuggets,” delivered without justification and explanation, as described by Woods and colleagues (1992). On the other side, too much detail may be seen as



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constraining design. Finding the fine line between the two is one of the most difficult aspects of guidelines and standards-making. The third draft of the AAM Principles document is expected at the end of the year and will, it is hoped, continue to build toward a meaningful set of design principles.

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*Daniel V. McGehee* ([daniel-mcgehee@uiowa.edu](mailto:daniel-mcgehee@uiowa.edu)) is chair of the Surface Transportation Technical Group and director of the Human Factors and Vehicle Safety Research Program at the University of Iowa Public Policy Center. ☒

## ERGONOMICS IN DESIGN

*Welcomes Your Submission!*

**Ergonomics in Design** focuses exclusively on information about how human factors/ergonomics is applied to improve the design and functioning of any system, tool, environment, or product with which people interact.

Articles are welcome. We are particularly interested in how the application and/or the process by which it was implemented may benefit readers, whether they are working or merely interested in the field. Articles should be written in a less formal style than that used for a journal but suitable for addressing professionals of varied educational and scientific backgrounds. Avoid excessive use of jargon, and define technical terms clearly and simply. Use of first person is encouraged.

Feature articles should be 1500-3000 words in length; shorter articles (e.g., for the "Focus" department) should not exceed 1500 words. All text must be typed double-spaced on one side of each letter-sized page. Do not use footnotes. Authors are encouraged to provide illustrative materials (photos, drawings, graphs, charts, tables, etc.) to support major points in the text.

Send four copies of your submission to:

### **Ergonomics in Design**

c/o Editor, Human Factors and Ergonomics Society  
P.O. Box 1369, Santa Monica, CA 90406-1369 USA

All submissions are acknowledged on receipt and are peer reviewed (allow 8 weeks for review). Sample issues are available on request by calling the HFES Communications Department at 310/394-1811 or by writing to the address above.

motivate terrorists in the first place. Progress here is more likely through our efforts as private citizens to promote peace and understanding worldwide. Let us stand united in these efforts, in the hope that people everywhere recognize someday that violence and murder only perpetuate misery, and efforts to bully free nations like the United States will always be futile. ☒

## FELLOWS

### Invitation for Fellow Nominations

The Human Factors and Ergonomics Society's Fellows Selection Committee hereby invites nominations for Fellows of the Society to be elected in 2002. "Fellow" is a special class of Society membership, as established in the Bylaws, Article I, Section 4.

Election to Fellow status is an honor conferred by distinguished colleagues to recognize outstanding achievement, consistently superior professional performance, exceptional contributions, personal service to the Society, and other meritorious accomplishments by Society Members. Any voting Member of the Society in good standing (except members of the Fellows Selection Committee) may initiate a nomination by completing the nomination forms for Fellow. No limitation is placed on the number of times a Member may be nominated for election to Fellow.

A number of revisions to the Fellow selection process, summarized in the August 1998 issue of the *HFES Bulletin*, are in effect. Prospective Nominating Members should carefully review the revised rules and regulations for Fellow designation and the guide for preparing the contribution statement for nomination of HFES Fellows prior to initiating the process. These documents will be included in the Nomination Package provided to Nominating Members.

The Nominating Member initiating the nomination must solicit recommendations from three other voting Members who are willing to provide written recommendations in support of the candidate. The meritorious contributions of the nominee on which the nomination is based must be detailed in the nomination form and must be supported by evidentiary documentation and included with the package. The Nominating Member serves an important role in the Fellow selection process and bears a responsibility not only to the nominee but to the Society to approach the task in a highly conscientious manner.

The Fellow Nomination Package, including instructions, nomination and recommendation forms, and supporting information, may be obtained from HFES, P.O. Box 1369, Santa Monica, CA 90406-1369. The completed nomination package (nomination form, recommendation form, nominee's vitae or résumé, and supporting documentation) must be received by the Fellows Selection Committee at the HFES central office on or before **February 1, 2002**. Nominations approved by at least two-thirds of the Fellows Selection Committee and a majority of the full Executive Council at its midyear meeting will be recommended for approval to all Fellows by mail ballot in May 2002. The incoming chair of the Fellows Selection Committee is Jerry Duncan. ☒

## Update: Quick Exposure Checklist

Robert Brown of the University of Sunderland recently aided the evaluation of scores from the Quick Exposure Check (QEC) with the development of preliminary “action levels.” The QEC, originally developed by Guangyan Li and Peter Buckle at the University of Surrey, provides a method for assessing exposure to physical risks for work-related musculoskeletal disorders (WMSDs). Brown’s work clarifies the value of QEC scores by comparing them with exposure scores obtained from the Rapid Upper Limb Assessment (RULA) and suggesting actions for investigation and change at each score level. For more information and QEC downloads, visit <http://www.geocities.com/qecuk/>.

## HFES Members Support Space Settlement Design Competition

By *John Barnett*

The Eighth Annual International High School Space Settlement Design Competition finals were held at Kennedy Space Center, Florida, on July 13–16. HFES members John Barnett (Army Research Institute, Orlando, Florida) and John P. Holmquist (U. of Central Florida) conducted a human factors engineering workshop for high school students participating in the competition and also served as human factors technical experts for the teams.

The competition challenges teams of high school students to design a viable human settlement in space in the year 2036. Students from high schools in the United States, and as far away as Austria, were represented. This year’s finalists were tasked to design a permanent mining settlement on the moon for 1300 people.

The teams were formed into “companies,” each with four departments: structural engineering, operations, automation, and human engineering. Prior to the competition, members of these departments attended workshops. The human engineering workshop focused on human factors in the design process with emphases on extreme environment considerations, such as those found on the lunar surface. Later, the workshop presenters acted as technical consultants for the design teams, responding to specific human factors-related questions.

To win a place in the finals, the high school teams had to earn top marks in a qualifying design project. This year’s qualifier had to design an earth-orbiting space station for 22,000 full-time inhabitants. The winning company in this year’s competition was “Vulture Aviation,” represented by Vienna International School from Vienna, Austria, and Whitney High School from Cerritos, California. For more information about the Space Settlement Design, visit <http://space.bsdi.com>.

*John Barnett is a research psychologist with the Army Research Institute (ARI) branch in Orlando, Florida.*

## Help Needed to Preserve AML Reports

By *John W. Senders*

I recently tried to assist a caller who was inquiring about an airline landing incident. I knew of a study related to the particulars of the incident that was performed at the Aero Med Lab (now the USAF Research Lab, Wright-Patterson Air Force Base, OH) more than 50 years ago. In my own archives I was able to only find the citation in the AML bibliography of 1953 (“Reports of Research in the Field of Engineering Psychology,” Christensen, J. M., & Collins, H. R., WADC TR 53-75, 1953). When I told my caller that there was a technical report from 1947, he held out hope for something newer. Soon, however, he called back saying, “1947 is looking pretty good.”

I called AML and found that they had the report but could not provide a digital copy. They had no budget for scanning in spite of the fact that the documents are getting so fragile that even reading them is not encouraged. After receiving a copy of the report, I scanned, OCR’d, and corrected it. I then e-mailed the electronic version back for others to use (“Pilot Reaction Time: A study of the time required by pilots to comprehend and react to contact and instrument recovery problems,” Fitts, P. M., Jones, R. E., Milton, J. L., & Morris, J. B., AMC MR TSEAA-694-13A, 26 May 1947). The librarian agreed to my suggestion that HFES members take one or more photocopied documents to scan, OCR, and correct for the archives – so here I am trying!

I am willing to act as a center for this project and hope that other members will help. Please send me ([jwsenders@post.harvard.edu](mailto:jwsenders@post.harvard.edu)) your name and e-mail address and I will handle the exchanges. I shall try to circulate a list of everything from which to choose. However, a willingness to accept “the luck of the draw” may be an interesting way to expand one’s horizons. ☒

### SHORT COURSES

**Ergonomics and Packaging** (November 5–7, 2001, Orlando, Florida). University of Wisconsin–Madison, Department of Engineering Professional Development, 432 N. Lake St., Madison, WI 53706; 800/462-0876, fax 608/263-3160; [custserv@epd.engr.wisc.edu](mailto:custserv@epd.engr.wisc.edu), <http://epdweb.engr.wisc.edu>.

**The Engineer in Transition to Management** (November 5–7, 2001). UCLA Department of Engineering, Information Systems and Technical Management, Short Courses; 310/825-1047, fax 310/206-2815; [mhennes@unex.ucla.edu](mailto:mhennes@unex.ucla.edu), <http://www.uclaextension.org/shortcourses>.

**Principles of Ergonomics** (November 26–29). OSHA Training Institute, Eastern Michigan University, 2000 Huron River Dr., Suite 101, Ypsilanti, MI 48197; 734/487-2259, fax 734/481-0509; <http://www.emuoshaweb.org/>. ☒

## ASMA 2002

The Aerospace Medical Association invites papers for its annual scientific meeting to be held May 5–9, 2002, in Montreal, Canada. Topic areas include aerospace human factors, performance/psychology, and occupational/environmental medicine. Abstracts are due *October 31, 2001*. Contact ASMA, 320 S. Henry St., Alexandria, VA 22314-3579; 703/739-2240, fax 703/739-9652. For further information or to submit on line, visit <http://www.asma.org>.

## Conference on Design and Emotion

Abstracts are invited for the 3rd International Conference on Design and Emotion, to be held July 1–3, 2002, in Loughborough, England. Topics include emotion and design, tools and methods for experiential design, design for the senses, and affective intelligence in products. Abstracts are due *November 16, 2001*. E-mail submissions to [designandemotion2002@lboro.ac.uk](mailto:designandemotion2002@lboro.ac.uk) or visit <http://www.designandemotion2002.lboro.ac.uk>.

## SID International Symposium

The Society for Information Display will hold its symposium May 19–24, 2002, in Boston, Massachusetts. SID encourages the submission of original papers on all aspects of research, engineering, application, evaluation, and utilization of displays. Abstracts are due *December 1, 2001*. Electronic submissions are required. Contact Bill Klein, Palisades Convention Management, Inc., 411 Lafayette St., 2nd Floor, New York, NY 10003; 212/460-8090 x204, fax 212/460-5460; [wklein@pcm411.com](mailto:wklein@pcm411.com)

## National Safety Council Congress & Expo

NSC calls for submissions to its 90th annual Congress and Expo. The event will be held October 7–9, 2002, in San Diego, California. Subject categories include ergonomics, industrial hygiene, and transportation safety. Proposals must be submitted by *December 3, 2001*. Submit on line at <http://www.nsc.org>.

## Journal of Applied Biomechanics

The *Journal of Applied Biomechanics* seeks manuscripts in the area of occupational biomechanics and ergonomics. The journal is published quarterly by Human Kinetics Publishers and welcomes manuscripts from the human factors/ergonomics community. Contact Mark Grabinger, editor, [grabinger@uic.edu](mailto:grabinger@uic.edu) or Kevin Granata, [KPG8N@virginia.edu](mailto:KPG8N@virginia.edu). 

*Announcement deadlines: 1st day of the month prior to the desired issue; for events or deadlines within the first 3 weeks of a month, send information at least 2 months in advance. Items are published according to space availability.*

★ **2nd Annual DoD Ergonomics Working Group Conference: Forging Ahead – Preventing Work-Related Musculoskeletal Disorders**, November 5–6, 2001, Chantilly, VA. LTC Mary Laedtke, 410/436-7323; [Mary.Laedtke@apg.amedd.army.mil](mailto:Mary.Laedtke@apg.amedd.army.mil), <http://chppm-www.apgea.army.mil/ergowg/conference/>.

★ **HFES Europe Chapter Annual Meeting**, November 7–9, 2001, Turin, Italy. Dick de Waard, [d.de.waard@ision.nl](mailto:d.de.waard@ision.nl), <http://www.ision.nl/users/hfesecc/conf.htm>.

★ **ASME 2001 International Mechanical Engineering Congress and Exposition**, November 11–16, 2001, New York, NY. American Society of Mechanical Engineers, Three Park Ave., New York, NY 10016-7674; 212/591-7722, fax 212/591-7674; [infocentral@asme.org](mailto:infocentral@asme.org), <http://www.asme.org>.

★ **6th Annual International Conference on Industrial Engineering Theory, Applications, and Practice**, November 18–20, 2001, San Francisco, CA. Jeff Fernandez, Conference Chair, 703/518-0289; [jfernandez@exponent.com](mailto:jfernandez@exponent.com).

★ **2001: Road Safety Research, Policing, and Education Conference**, November 19–20, 2001, Melbourne, Australia. Irene Thavarajah, Road Safety 2001 Secretariat, Conference Management Office, Monash University, P.O. Box 69, Clayton, Victoria 3800; +61 3 9905 1344, fax +61 3 9905 1343; [irene.thavarajah@adm.monash.edu.au](mailto:irene.thavarajah@adm.monash.edu.au), <http://monash.edu.au/oce/roadsafety>.

★ **37th Annual Conference of the Ergonomics Society of Australia**, November 28–30, 2001, Sydney, Australia. Conference Organiser, 25 Birdwood St., Sylvania, NSW 2224 Australia; +61 9544 9134, fax +61 9522 4447; [ergonomics@iceaustralia.com](mailto:ergonomics@iceaustralia.com), <http://esa.conf.au/main.htm>.

★ **142nd Meeting of the Acoustical Society of America**, December 3–7, 2001, Fort Lauderdale, FL. Acoustical Society of America, Suite 1N01, 2 Huntington Quadrangle, Melville, NY 11747-4502; 516/576-2360, fax 516/576-2377; [asa@aip.org](http://asa.aip.org), <http://asa.aip.org>.

★ **CTBUH's Building for the 21st Century Conference**, December 9–11, 2001, London, U.K. Rahim Absussalam, Council on Tall Buildings and Urban Habitat Conference Coordinator, Lehigh University, 11 E. Packer Ave., Bethlehem, PA 18015-3191; 610/758-3515; [inctbuh@lehigh.edu](mailto:inctbuh@lehigh.edu), <http://ctbuh.org>.

★ **International Congress on Humanizing Work and Work Environment**, December 11–14, 2001, Mumbai, India. Gaur G. Ray, Secretary General HWWWE, Industrial Design Centre, Indian Institute of Technology Bombay, Powai, Mumbai 400 076, India; +91 22 576 7821, fax +91 22 576 7803; [ggray@idc.iitb.ac.in](mailto:ggray@idc.iitb.ac.in), <http://ergoasia.virtualave.net>.

★ **26th International Symposium of the International Section for the Prevention of Occupational Risks in the Construction Industry**, December 12–14, 2001, Paris, France. CRAMIF – Secrétariat du Colloque, AISS-BTP, 17-19, place de l'Argonne, F-75019 Paris, France; +33 1 40 05 38 02, fax +33 1 40 05 38 84; [construction.issa@cramif.cnams.fr](mailto:construction.issa@cramif.cnams.fr), <http://www.cramif.fr>.

★ **National Ergonomics Conference and Exposition**, December 11–13, 2001, Las Vegas, NV. Continental Exhibitions, 370 Lexington Ave., Suite 1401, New York, NY 10017; 212/370-5005, fax 212/370-5699; [contexhib@aol.com](mailto:contexhib@aol.com), <http://www.ergoexpo.com>.

★ indicates new listing

# Bulletin

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Opinions expressed in BULLETIN articles are those of the authors and should not be considered as expressions of official policy by the Human Factors and Ergonomics Society.

## FLASH!

2002 dues renewal packets will be mailed at the end of October. If you don't receive your packet by mid-November, please call HFES (310/394-1811, fax 310/394-2410, [info@hfes.org](mailto:info@hfes.org)).

**Deadline for submitting nominations for new HFES Fellows: February 1, 2002.**  
**Call HFES today to request a nominating packet.**  
**(See page 3 inside.)**



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