

CONTENTS

IEA 2000/HFES 2000.....2
INSIDE HFES2
JOURNAL3
FELLOWS PROFILE3

CALLS FOR PAPERS5
NEWS5
SHORT COURSES5
CALENDAR5

Patient Safety and Human Factors/ Ergonomics

Congressional and national media attention has recently turned to the complex problem of medical errors in the health care field. A report issued in November 1999, "To Err Is Human: Building a Safer Health System" – funded by the National Research Council and the Commonwealth Fund and produced by the Institute of Medicine – describes the extent of the problem and outlines a four-part plan for addressing it. The IOM report is available from the National Academy Press (http://books.nap.edu/html/to_err_is_human or by phone at 800/624-6242, 202/334-3313).

According to Immediate Past President David D. Woods, who will be taking part in a February 8 briefing with Senate staffers (see below), the IOM report has put human factors/ergonomics "squarely at the center of the patient safety issue."

The report has kicked off a series of actions at the federal policy level. On December 6, President Clinton signed a bill reauthorizing the Agency for Health Care Policy and Research through the end of FY 2005. Renamed the Agency for Healthcare Research and Quality (AHRQ, www.ahrq.gov), this body is responsible for supporting research leading to improving health care quality, reducing costs, and providing broader access to essential services. On December 7, Clinton signed an executive order mandating the formation of the Quality Interagency Coordination Task Force (QuIC), whose chief aim is to ensure coordinated activity among all federal agencies that purchase, provide, study, or regulate health care services in any effort to improve the quality of health care. The QuIC has established work groups to (a) improve patient and consumer information on health care quality, (b) identify key opportunities for improving clinical quality, (c) improve efforts to measure quality of care, (d) develop the health care work force, and (e) improve information systems.

In a Rose Garden meeting in December, Clinton said, "Ensuring patient safety is not about fixing blame. It's about fixing problems in an increasingly complex system; about creating a culture of safety and an environment where medical errors are not tolerated.... Ongoing research to enhance patient safety, to reduce patient errors, is absolutely critical.... The Institute of Medicine's report makes clear that a systematic approach to reducing medical errors gives us the best chance of success."

Woods notes that the IOM report and resulting legislative activity "has created a political window of opportunity for human

factors/ergonomics input," though until the infrastructure and resource issues are resolved, the extent of opportunity will not be clear.

Efforts to Promote HF/E Input

The Federation of Behavioral, Psychological, and Cognitive Sciences, of which HFES is a member, and the American Psychological Association's Science Policy Office have teamed up to influence any legislation that may emerge from Congress to address patient safety. They recently prepared an initial briefing sheet and met with the Senate staffer from the Health, Education, Labor and Pensions Committee who is putting together four hearings on the issue for Senator James Jeffords, chair of the committee.

From that meeting came an agreement to present a formal briefing on February 8 to Senate staffers working on the matter. The Federation and APA will be bringing in several human factors scientists to carry out that briefing, and there is a tentative agreement to repeat the briefing on the House side to key staffers from the Commerce Committee, which has jurisdiction over health issues. The committee is likely to eventually hold hearings, but for now, the Senate is taking the lead.

Other Institutional Involvement

The National Patient Safety Foundation, a nonprofit research and education organization founded by the American Medical Association with a number of partners, has actively sought improvements in health care safety by studying errors in the health care system and implementing safeguards to prevent patient injury. NPSF has been bringing together the diverse stakeholders in health care to address patient safety concerns for many years.

continued on page 2

Updates

Ballots for nominating candidates for officers and Executive Council members will be mailed in February. Completed ballots are due March 15, 2000.

The HFES Midyear Executive Council meeting will take place February 10–12 at the Westin Harbor Island Hotel in San Diego, California.

Items Wanted for Daily Newsletter

The IEA 2000/HFES 2000 newsletter/on-site information editors are now accepting items for publication in the Congress newsletter. Issues may include advertisements, descriptions of demonstrations, previews of panels, TG special session information, invited speakers and topics, summaries of the keynote and presidential addresses, special events, "Birds of a Feather" gatherings, "Web Site of the Day" URL, news on upcoming events, last-minute program changes, and other announcements.

The first day's issue is being assembled, and e-mail submissions are encouraged. If you would like to submit an article or help with the newsletter, contact Sherry Proctor or Dan Manes, 6310 Greenwich Dr., Ste. 200, San Diego, Ca 92122; 858/535-1661, fax 858/535-1665; sproctor@pacific-science.com or dmanes@pacific-science.com. If you are interested in advertising in the newsletter, please contact the HFES Communications Department at 310/394-1811; hfes@compuserve.com

Call for Student Volunteers

HFES invites all students who are planning to attend the joint meeting of the 14th Triennial Congress of the International Ergonomics Association and the 44th Annual Meeting of the Human Factors and Ergonomics Society to serve as volunteers.

More than 2500 people are expected to attend the combined congress, which will make it the largest human factors/ergonomics professional gathering held anywhere in the world. IEA 2000/HFES 2000 will be held in San Diego from July 30 to August 4, 2000. Volunteer for one day, and your registration fees for the entire meeting will be reimbursed.

Serving as a volunteer affords you the opportunity to work closely with other students and presenters to help make the con-

gress a success. To volunteer, or for more information, contact Suzanne Dawes, The Aerospace Corporation, P.O. Box 92957, M1/112, Los Angeles CA 90009-2957; 310/336-5643, fax 310/336-4070; suzanne.m.dawes@aero.org. ☒

INSIDE HFES

OSHA Compliance Expo

HFES thanks member Holly Hancock, along with Mike Kelly and Ratanya Jackson, for staffing the HFES booth at the 1999 OSHA Compliance Expo in Atlanta, Georgia, last October. More than 3,000 people attended the 3-day event.

An Apology

The HFES Communications Department apologizes to all members for the extreme lateness of the September 1999 issue of *Human Factors*. Due to unavoidable production delays, the issue was mailed to members and subscribers in mid-January. The December issue, also behind schedule, will be mailed in February. The October 1999 issue of *Ergonomics in Design* was also mailed in mid-January. We appreciate your patience as we return to normal schedules.

Erratum

One page was inadvertently omitted from a paper in the CD-ROM version of the 1999 Annual Meeting Proceedings. (The version in the paperbound proceedings is complete.) To obtain a copy of the paper, "Effects of Concurrent Cognitive Task Loading on Warning Compliance Behavior" by Michael S. Wogalter and Mary O. Usher, please contact the Communications Department (310/394-1811, hfes@compuserve.com). ☒

Bulletin

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Patient Safety and HF/E (continued from page 1)

The major impetus for the founding of NPSF was a workshop held in 1996 focusing on errors in health care. It drew participants from every sector, including patients, health care professionals, insurance companies, researchers, and lawyers. In 1997, another multisector, multidisciplinary workshop was held and a report released in 1998: "A Tale of Two Stories: Contrasting Views of Patient Safety," coauthored by HFES members Richard I. Cook and David D. Woods with NPSF staffer Charlotte Miller. The report covers the two-day presentations on notable accidents, successful models for accident reporting, and lessons to be learned from incidents and accidents (<http://www.npsf.org/exec/front.html>).

To Be Continued . . .

The Society will continue to monitor the activities surrounding patient safety at the federal level and publish reports in the *HFES Bulletin*. The March issue will include a follow-up to the February 8 meeting with Senate staffers. ☒

Call for Journal Special Section Submissions

Proposals are invited for a special section of *Human Factors* in one or more of the general areas listed below. Candidate topics may be broader or narrower than the specific areas listed, with titles modified accordingly. Each respondent to this invitation must agree to serve as Guest Editor in accordance with journal policy regarding special sections (contact the HFES Communications Department at bkvhfes@compuserve.com). Proposals, which should not exceed 1–3 pages of text, must include a rationale and evidence to support the existence of a pool of potential contributors, plus the proposed Guest Editor's CV. Acceptance decisions will be made collectively by the journal's four action editors.

We invite proposals covering the following areas:

- Performance measurement in complex systems
- Knowledge elicitation and mental modeling
- Work-related musculoskeletal disorders and interventions
- Human factors and disability
- Organizational and environmental factors in stress
- Driver behavior and highway safety
- Advances in training design and technology
- Advances in usability testing
- Advances in warning and alarm systems
- Applications of fuzzy and neural models in human factors
- Human factors in medicine
- Human factors in aging
- Human factors in recreational activities

Please submit proposals by March 17, 2000 to Editor, *Human Factors*, P.O. Box 1369, Santa Monica, CA 90406-1369. ☒

Call for Fellows Profiles

By Todd Chapin, *Fellows Profiles Coordinator*, and Steven M. Casey, *HFES Historian*

The *HFES Bulletin* seeks Fellows Profiles for publication in future issues. Brief autobiographies or biographies of HFES Fellows are intended to inform (and sometimes entertain) the membership and to serve as a record of the career paths, accomplishments, and philosophies of Society Fellows. The Fellows Profile column is one of the most popular to have appeared in the *Bulletin*. During the first two years that the column ran, a total of about 35 profiles were written and published. (Note: profiles are published on a space-available basis.)

If you are an HFES Fellow and have not yet submitted a profile, please send one soon. You may also write a profile for another Fellow, deceased or living.

The guidelines for submission are as follows:

- 800 to 1200 words
- We recommend, but do not require, that a profile be written in the first person, with a personal and friendly tone.
- A flattering photograph of yourself at any point during your career would be welcome.
- It is largely up to you, but we suggest addressing why you selected human factors as a career, your education, jobs, colleagues, important experiences, and hopes and insightful words for the future.

Submit your profile to Todd Chapin, Fellows Profiles, 5 Almont St., #8, Medford, MA 02155. Submissions may also be made via e-mail to todd.chapin@usa.net. Please call Steve Casey at 805/683-6610 if you have additional questions. ☒

Fellows Profile: Valerie J. Gawron

I must be getting old. In the past month I've been asked to write my life's story not once but twice. Are people afraid I'm near the end of my life and have been hoarding the secrets of the universe, secrets that I must divulge before my death (which actuarially should be in 34 years)? Maybe it's my dangerous lifestyle – naw! The FBI just investigated me for a clearance, and I was told I'm dull. Dull is not dangerous. Maybe it's the gray hair or lack of makeup (I can hear some of you laughing). I is what I is – prematurely gray and pale from overwork.



So here's my life's story (short as it is):

I completed my BA in psychology in under four years at the State University College at Buffalo. Because I finished in December, finding a doctoral program was impossible, so in January I started the master's in psychology program at the State University College at Geneseo. As a research assistant to Margaret Matlin, I helped conduct memory research – that I remember very clearly. I also clearly remember my first thesis. It was a test of the effects of gender identification on personal space. (Remember, it was the late 1970s!) I learned that blindfolded subjects will let an experimenter get very close – all but stepping on their toes!

After Geneseo, I accepted an assistantship at the University of Illinois. (Yes, I am a member of the Illinois Mafia.) There I taught a statistics lab at 8:00 a.m. on Monday mornings (my first tough audience). I advanced to a research assistantship with Stan Roscoe. (Yes, I am one of Roscoe's Raiders.) As part of this assistantship, I helped complete his book, *Aviation Psychology*. I developed

continued on page 4

the index, coauthored a chapter on training, and sought releases from other coauthors. I, like most of Stan's other students, did a dissertation on visual illusions. I also helped write a proposal to the National Science Foundation for environmental research. The grant was awarded one year later, just as Stan was moving to New Mexico State University (NMSU); I followed to work on the grant as a postdoctoral student. At NMSU, I learned a lot about the effect of environmental stressors on human performance and how hot Mexican food could be!

In the fall of 1980, I received a great offer from Bob Sugarman to work at Calspan. It meant going home to Buffalo. (Yes, I am a native Buffalonian.) Shortly after coming to Calspan, I had numerous human engineering challenges – workload measurement of radar operators, designing the human interface on a chemical agent detector, evaluating a six-degree-of-freedom controller, testing side-impact padding for passenger cars, and developing a voice recognition system for naval aircraft – but then I was offered a move to Calspan's Boulder, Colorado, office. There I spent two years building digital models of human performance. I realized that I needed more training in industrial engineering and so started a second master's degree. I was privileged to have Colin Drury as my thesis adviser; the topic was aggregating independent data sets, critical to my modeling efforts.

While in Boulder, I also led the proposal effort for the Air Force Cockpit Automation Technology (CAT) program. Teamed with McAir, we won! I spent the next 18 months designing a computer-aided engineering tool for crew station designers. (Great challenge! Great team!) However, I realized I needed more training in managing million-dollar programs and went back for an MBA.

After CAT, I had another great program – the flight test of a chemical defense prophylactic. This gave me the privilege of working with Sam Schifflett. The flight test experience was so challenging that I transferred to the flight research group at Calspan and have been supporting flight tests ever since – flight tests of color displays, the pilot-vehicle interface for the Global Positioning System, peripheral vision display, head-up display symbology, the C-141 proposed glass cockpit displays, pilot handedness effects, parachutes, pilot training, and more.

To help analyze flight test data, I led the development of the Test Planning, Analysis, and Evaluation System, a computer-aided engineering system for test personnel. As part of this project, I had the honor of working with the human factors specialists at the Air Force Flight Test Center. One of them, Gina Papa, nominated me for the Air Force Scientific Advisory Board. I was accepted and am now in my fourth and final year. As a member, I have led panels to identify threats (and their countermeasures) to deployed Air Force personnel, recommended technologies to manage combat information, evaluated the science and technology being developed at the Air Force Research Laboratory, and provided guidance for information operations missions.

But even though my focus is flight test, I am still part of engineering teams addressing diverse human factors problems, including building a rapid entry/exit system from contaminated areas, a selection guide for the design of protective barriers

around U.S. embassies, a wind tunnel training plan, a soft-copy imagery interpretation system, countermeasures for impaired drivers, and situational awareness measures. The number of teams to which I belong has recently increased since I have been honored to become the human factors leveraging champion for my company, a company that has grown and merged to become Veridian with more than 4,500 employees, only a small portion of whom are involved in flight test.

Now here are my words of wisdom:

1. When choosing a career, pick something you love to do, because you'll be doing it for half a century. These are my uncle's words. He said these words to me while we were watching airplanes take off and land at the Buffalo International Airport when I was five. Many years later, I'm still at the same airport watching airplanes (the United States Air Force Total In-flight Simulator, the Variable-Stability In-flight Simulator and Test Aircraft, and two Variable-Stability Learjets) take off and land. But now I have them fully instrumented.

2. Never stop. These are the words of a woman I met in the emergency room where I was volunteering. She was 103, black, and a retired dentist. I sometimes had problems as a female engineering student 20 years ago, but this woman had obtained a dental degree in spite of being a woman, being black, and going to school 80 years ago. I went on to finish a bachelor's, three masters, and a doctoral degree. I now help (I hope) other students by being an outside reader on theses and dissertations. I plan never to stop.

3. Listen to Aaron Copeland's *Fanfare for the Common Man* at least once a month. The advice was from Aaron himself at an open rehearsal at Buffalo's Kleinhan's Music Hall. That piece of music should be the anthem of human factors engineers. We are the designers, trainers, and evaluators of systems for the common human. The challenge is, not everyone is so common.

4. Be eclectic. These are my own words. I find great pleasure in tackling a diverse domain of problems. The pleasure comes from learning techniques in one domain (e.g., head-up display symbology in military aircraft) and applying them to another domain (e.g., HUDs in passenger cars).

5. Publish, publish, publish. I once had the unfortunate experience of duplicating an experiment that was doomed. The original experiment was never published, and I was destined to repeat history – painfully. I am currently under contract to Lawrence Erlbaum to write a book on human performance measurement, and I publish at least three articles and present at least two workshops each year.

6. Remember that America isn't the only country in the world. My great uncle Paul's words. He taught the family to seek knowledge anywhere and everywhere. So I suggest that you read *Ergonomics* or *Applied Ergonomics*, participate in international conferences, skim AGARD proceedings, and travel. And when you travel, remember *Fanfare for the Common Man* and listen and help. As human factors engineers, we have the tools to better the world. Let's do it!

7. Participate. I've learned a lot from being technical and program chairs for our society. Don't limit yourself to HFES (probably heresy, but...). The Aerospace Medical Association needs reviewers; the American Institute of Aeronautics and Astronautics lacks volunteers to write standards; the Association of Avia-

tion Psychologists wants reviewers for student grant applications; the Intelligent Transportation System of America is soliciting members; the Military Operations Society pines for an accurate model of human behavior; and the Society of Automotive Engineers wants to develop more resource documents. Just do it!

8. Finally, maintain a sense of humor. As some of you know, I've been threatened with guns and knives, jumped out of perfectly good airplanes onto land and into sea, and ridden in Army tanks, experimental aircraft, state-of-the-art automobiles, military helicopters, naval ships, and submarines – all for the sake of human factors engineering.

So that's my life so far. Can't wait to see what happens next! I'll keep you posted. ☉

CALLS FOR PAPERS

Human Performance Conference

The international conference on Human Performance, Situation Awareness and Automation: User-Centered Design for a New Millennium, will be held October 15–19 in Savannah, Georgia. Abstracts are invited on topics relating to advanced and automated systems that support high levels of situation awareness and human performance. Abstracts are due *March 3, 2000*. Contact David Kaber, Mississippi State University, P.O. Box 9542, MS 39762; 662/325-3865, fax 662/325-7618; <http://www.ie.msstate.edu/>.

Color Imaging 8

The 8th Color Imaging Conference will be held November 6–10 in Scottsdale, Arizona. Technical summaries are invited on color imaging topics, including psychophysics, color display, and virtual reality. Summaries are due *April 1, 2000*. Contact the Society for Imaging Science and Technology, 7003 Kilworth Ln., Springfield, VA 22151; 703/642-9090, fax 703/642-9094; info@imaging.org, <http://www.imaging.org/conferences/cic8/program.html>. Web site submissions are strongly encouraged. ☉

NEWS

New National Safety Council Web Site

The National Safety Council (NSC) recently introduced *Crossroads*, a new Web site developed for health, safety, and environment professionals (<http://www.crossroads.nsc.org>). The site features search engines for accessing information from NSC's internal databases and other on-line resources. Other features include emergency management, hazardous materials profiles, safety data sheets, training programs, and a special section for users of chemical emergency planning software. ☉

SHORT COURSES

The Role of Warnings and Instructions (March 22–24, 2000). Department of Engineering Professional Development at the University of Wisconsin, Madison, The Pyle Center, 702 Langdon St., Madison, WI 53706; 800/462-0876, fax 800/442-4214; <http://www.epdweb.engr.wisc.edu>.

Health, Safety, and Environmental Conference (April 4, 2000). Deep South Center for Occupational Health and Safety, University of Alabama, School of Public Health, Birmingham, Alabama 35294-2010; 205/934-7178; dsc@uab.edu, <http://www.uab.edu/dsc>.

Engineering/Management Program, (May 1–5, 2000). Schools of Engineering and Krannert Graduate School of Management, Purdue University, 1310 Krannert Center, Ste. 239, West Lafayette, IN 47907-1310; 765/494-1554, fax 765/496-3483; <http://www2.mgmt.purdue.edu>.

CALENDAR

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.

- ★ **CSUN's 15th Annual International Conference: "Technology and Persons with Disabilities,"** March 20–25, 2000, Los Angeles, CA. Center on Disabilities, California State University, Northridge, 18111 Nordhoff St., Northridge, CA 91330-8340; 818/677-2578, fax 818/677-4929; ltm@csun.edu, <http://www.csun.edu/cod/>.
- ★ **Workshop on Metrology and Modeling of Color and Appearance**, March 29–30, 2000, Gaithersburg, MD. Teresa Vicente, National Institute of Standards and Technology, 100 Bureau Dr., Stop 3461, Bldg. 101, Rm. B116, Gaithersburg, MD 20899-3461; 301/975-3883, fax 301/948-2067; teresa.vicente@nist.gov.
- ★ **CHI 2000 Conference on Human Factors in Computing Systems**, April 1–6, 2000, The Hague, Netherlands. CHI 2000 Office, 703 Giddings Ave., Ste. U-3, Annapolis, MD 21401; 410/263-5382, fax 410/267-0332; CHI2000-office@acm.org, <http://www.acm.org/chi2000>.
- ★ **EDRA 31/2000**, May 10–14, 2000, San Francisco, CA. Environmental Design Research Association, P.O. Box 7146, Edmond, OK 73083-7146; 405/330-4863, fax 405/330-4150; edra@telepath.com, <http://www.telepath.com/edra/home.html>.
- ★ **2000 Annual Scientific Meeting of the Aerospace Medical Association**, May 14–18, 2000, Houston, TX. Aerospace Medical Association, 320 S. Henry St., Alexandria, VA 22314-3579; 703/739-2240, fax 703/739-9652; <http://www.asma.org>.
- ★ **SID International Symposium, Seminar, and Exhibition**, May 14–19, 2000, Long Beach, CA. Mark Goldfarb, Society for Information Display, c/o Palisades Institute for Research Services, Inc., 411 Lafayette St., 2nd Fl., New York, NY 10003; 212/460-8090 x.202, fax 212/460-5460; mgoldfar@newyork.palisades.org.
- ★ **IEA 2000/HFES 2000**, July 30–August 4, 2000, San Diego, CA. Human Factors and Ergonomics Society, P.O. Box 1369, Santa Monica, CA 90406-1369; 310/394-1811, fax 310/394-2410; hfes@compuserve.com, <http://hfes.org>.

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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!

Book your accommodations for the IEA/HFES 2000 Congress online! Visit <http://iea2000.hfes.org> to access the Housing Form. Special hotel rates apply three days before and three days after the Congress.

Students: Sign up to volunteer, and your registration fees will be refunded. See inside, page 2.



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