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Standards Committee Activities

The HFES Institute was established to promote the transition of human factors/ergonomics research into the practice and teaching of human factors/ergonomics. Since its inception, the development of American National Standards Institute (ANSI)/HFES and International Organization for Standardization (ISO) standards has been an important focus of the Institute. The following is a summary of some of the most recent activities of the Society's Standards Committees.

Human Factors Engineering of Computer Workstation Design (HFES 100). The BSR/HFES 100 was published in March 2002 as an ANSI Draft Standard for Trial Use (DSTU). The HFES 100 Committee, chaired by Tom Albin, is currently preparing status reports for each chapter based on comments received from users. These reports should be completed by the fall and will include proposed revisions and resources needed to complete the work.

Human Factors Engineering of Software Interfaces (ANSI 200). The ANSI 200 Software Ergonomics Standard was prepared in five parts and will be published as an ANSI DSTU. In 2003, the HFES 200 Committee, chaired by Paul Reed, expects to publish three parts of the standard: "200.2 – Accessibility," "200.3 – Interaction Techniques," and "200.5 – Interactive Voice Response." Each section will have the "200.1 – Introduction" included with it for completeness. If response to these DSTUs is positive, the standard will undergo the canvass process and eventually be published as ANSI/HFES 200.

Anthropometric Methods (ANSI 300). Final committee revisions to ANSI 300 "Guidelines for Using Anthropometry in Product Design" were completed in April under the leadership of Mark Strauss. The committee considered several possible formats for this document, including an ANSI DSTU, an ANSI Technical Report, and an HFES Institute Best Practices document. The manuscript is currently with Tom Albin, who chairs the Institute's new Best Practices publication series.

ISO TC 159 TAG Ad Hoc Group on People with Special Requirements. At their 14th meeting in Paris last fall, ISO Technical Committee 159, "Ergonomics," decided to establish an ad hoc group called "Ergonomics for People with Special Requirements." The purpose of this group is to advise TC 159 and its subcommittees on how to incorporate the needs of individuals with a "very wide continuum of competencies and abilities" into both existing and new ISO standards. Daryle Gardner-Bonneau serves as the ANSI representative to this committee. The committee had its first meeting in Nice on March 26, at which Gardner-Bonneau gave a short presentation on how accessibility issues are

addressed in ANSI 200.2 (Accessibility) and 200.5 (Interactive Voice Response).

ANSI HFES TAG to ISO TC 159/SC3: Anthropometry and Biomechanics. The US TAG to ISO TC 159/SC3 voted unanimously against approval of ISO FDIS 11228-1, "Ergonomics – Manual handling, Part 1: Lifting and carrying." The negative vote is consistent with all previous U.S. votes, reflecting the fact that prior technical comments concerning lifting limits and cumulative carrying limits had not been satisfactorily addressed. Bob Fox is actively writing sections of ISO WD 11228-2, "Ergonomics – Manual handling, Part 2: Pushing, pulling and holding" and ISO WD 11228-3, "Ergonomics – Manual handling, Part 3: Handling of low loads at high frequency." It is therefore expected that U.S. interests will be better represented in these standards than was the case with 11228-1, which was largely drafted before the U.S. became involved.

The U.S. TAG to ISO TC 159/SC3 voted to approve ISO FDIS 15535, "General requirements for establishing anthropometric databases," which also received the necessary votes from other ISO Member Bodies to become an ISO standard. This result was particularly satisfying, as ISO 15535 is the first ISO standard to emerge from SC3 that has had U.S. input from its very first draft.

Mike Biferio has authored a new section on verification and validation for ISO WD 15536-2, "Ergonomics – Computer manikins and body templates, Part 2: Structure and dimensions." This section was received enthusiastically at the joint meeting of ISO TC 159/SC3/WG1 and CEN TC 122/WG1 held in Vienna on April 7–8, 2003.

The U.S. TAG to ISO TC 159/SC3 voted to approve DTS 20646, "Ergonomic procedures for the improvement of local muscular workloads," which also received the necessary votes from other ISO Member Bodies to progress to Final Draft Technical Specification (FDTS) stage. Dan Roley has been working with this group. In a related action, the chair of ISO TC 159/SC3/WG5, Toru Itani, has organized a symposium entitled "International Standards for Preventing Work-Related Musculoskeletal Disorders" at the upcoming IEA 2003 meetings. David Cochran will speak as a U.S. expert in this symposium.

The U.S. TAG to ISO TC 159/SC3 voted to approve CD 20685, "3-D Scanning methodologies for internationally compatible anthropometric databases," which also received the necessary votes from other ISO Member Bodies to progress to DIS stage. Comments received in CD voting will be discussed at the August meeting of ISO TC 159/SC3/WG1 in Seoul. This project, led by Bruce Bradtmiller, is the first in ISO TC 159/SC3 that has been proposed and chaired by the U.S. (ANSI).

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SHORT COURSES, cont.

Bonisteel Blvd., Ann Arbor, MI 48109-2092; 734/647-7200, fax 734/647-7182; cpd-info@umich.edu, <http://cpd.engin.umich.edu>.

System Engineering for Project Managers, July 28–30, 2003, Los Angeles, CA. UCLA Extension, Department of Engineering, Information Systems and Technical Management, Short Courses, 1095 Le Conte Ave., Rm. 313, Los Angeles, CA 90024-2883; 310/825-3344, fax 310/206-2815; shortcourses@uclaextension.org, <http://uclaextension.org/shortcourses>.

16th Annual Occupational Safety & Health Institute, July 28–August 1, 2003, Emeryville, CA. University of California, COEH Continuing Education, UC Berkeley MC 5120, 2223 Fulton St., 2nd Floor, Berkeley, CA 94720-5120; 510/643-7277, fax 510/643-7291; coehce@socrates.berkeley.edu, <http://socrates.berkeley.edu/~coehce>.

Human Factors Engineering, July 28–August 2, 2003, Ann Arbor, MI. University of Michigan, College of Engineering, Center for Professional Development, 273 Chrysler Center, 2121 Bonisteel Blvd., Ann Arbor, MI 48109-2092; 734/647-7200, fax 734/647-7182; cpd-info@umich.edu, <http://cpd.engin.umich.edu>.



LAB REPORT

Florida Institute of Technology Space Coast Center for Human Factors Research

By John E. Deaton, Florida Institute of Technology

One of this lab's current projects, titled, "An Experimental Analysis of Type and Temperament Matching Using the Myers-Briggs Type Indicator as a Means of Aircrew Composition Optimization," is an attempt to identify personality combinations that enhance the crews' ability to coordinate and those that impede it. The sample consists of 25 pilots with a similar knowledge base and experience level. The pilots were given the Myers-Briggs to identify their psychological type. The sample was then divided into four groups, including those paired (1) randomly, (2) with the same psychological type, (3) with the opposite psychological type, and (4) hybrid teams consisting of both similar and dissimilar types. Each of the crews then flew a mission in the PC combat simulator Falcon 4.0. Each crew was videotaped and asked to complete a self-evaluation form of how well they felt their crew worked together. The analysis includes statistical comparisons of the mean performance scores of each group, the frequency of communications, and the coordination ratings derived from the self-evaluation forms.

A second project, "Certified Flight Instructor Instructional Skill Improvements Through Utilization of Personal Computer-Based Aviation Training Devices," is part of an effort to explore the pos-

sibility of supplementing current pilot training programs with enhanced training tools. By applying advancements and capabilities of computing technology to pilot training (primarily PC-based training devices), it may be possible to place greater emphasis on flight instructor error detection and flight instructor teaching performance. Redesigning current thinking could substantially improve accident rates in general aviation.

Finally, "Development of a Small Aircraft Maintenance Monitoring System (SAMMS) Interface for In-flight Mechanical Fault Management" is an extension of a Navy study to determine if HUMS (Health and Usage Monitoring System) technology improves pilot fault detection performance in general aviation aircraft and what is the best method to display the additional information the system provides over and above traditional warning-caution-advisory systems to indicate a potential malfunction. A display that represents the instrument panel of the Piper Warrior, a display based on a Navy HUMS prototype, and a display designed by the researcher are compared.

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Standards Committee Activities

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The U.S. TAG to ISO TC 159/SC3 will meet in Yellow Springs, Ohio, on July 24–25, 2003. In addition to ISO project reports and discussions, the TAG will consider expanding its membership through targeted recruiting, and increasing meeting frequency via teleconference so that members with travel restrictions can participate more actively.

ANSI/HFES TAG to ISO TC 159/SC4. The U.S. TAG to ISO TC 159/SC4, chaired by Jim Williams, has reviewed and voted on ISO CD 11064-6, "Environmental requirements for control centers," and ISO DIS 11064-6, "Workstation layout and dimensions." Tom Albin has joined the SC4 TAG and been nominated as a U.S. Expert to ISO TC 159/SC4/WG2, "Visual Display Requirements."

IEEE Voting System Standard Task Force. Work in this committee is on a fast track, as the goal of the IEEE Voting Equipment Standard (P-1583) is to impact the 2004 election. The HFES task force, led by John O'Hara, is responsible for two sections: Section 5.3 on standards for usability and accessibility and Section 6.3 on verification and test criteria for the standards.

The fourth iteration of the usability and accessibility standards section is nearly complete and will soon be ready for IEEE Committee ballot. A white paper addressing the verification section uses a testing approach that combines standards compliance evaluation and usability testing. This will be circulated for comment, and a completed draft for IEEE balloting is expected before the close of 2003.

For more information about any of the work of the Standards Committee, please contact Claire Gordon, Standards Committee Chair, U.S. Army, Natick RD&E Ctr., Science & Technology Directorate, Natick, MA 01760-5020; 508/233-5429, fax 508/233-5104, claire.gordon@natick.army.mil.

