



WORKSHOPS

Sign up for workshops on the Registration Form by selecting the appropriate number. Indicate second choice where applicable. Workshop fees include handout materials. **ALL WORKSHOPS ARE ON MONDAY, September 27.** Attendance is limited to 40 persons per workshop. Workshops may be canceled if minimum attendance is not achieved by September 3.

Expertise levels are as follows: **Beginner** has no prior knowledge or experience; **Novice** is acquainted with the topic but has no detailed knowledge; **Experienced** has good working knowledge with hands-on experience; **Expert** has extensive knowledge and experience.

Materials for workshops will be provided prior to the meeting. Attendees are encouraged to bring their own laptops to view the materials (except for Workshop 7, in which one laptop will be provided for every three attendees). Unless otherwise stated during the workshop, **Internet access is not provided.**

All registered workshop participants automatically receive Continuing Education Units (CEUs) from North Carolina State University, an authorized International Association for Continuing Education Training (IACET) provider. Earn 0.3 unit for half-day workshops and 0.6 unit for full-day workshops. Proof of CEU credit may be obtained after the meeting by ordering a transcript from NCSU (\$10; details provided with the workshop handouts). **Note:** NCSU requires a date of birth for each participant. This information will be shared only with NCSU.

The names and contact information (including e-mail addresses) of preregistered workshop attendees will be provided to the presenters of the workshops for which attendees have registered, in the event that presenters wish to contact attendees prior to the event. If you do not wish to have your contact information shared for this purpose, please notify HFES in writing via fax (310/394-2410) or e-mail (lois@hfes.org).

Monday, September 27 Morning Only, 8:30 a.m. to 12:00 noon

~~WK1~~ ▶ ~~A "Whys" Approach to Back Injury Prevention~~

~~R. J. Banks, State Compensation Insurance Fund~~

~~LEVEL: Novice, Experienced, Expert. FEE: \$225 members, \$275 nonmembers, \$125 students.~~

~~Back injury prevention fails to be effective when the traditional methods focus on changing worker behavior. Realizing this, the developers of California's State Fund's Back Connection® created a process of getting workers to participate in risk identification using a picture-based method called the Risk Analysis Process or "card sort." Workshop participants will use the electronic card sort on the Back Connection DVD to analyze a job. Participants will then propose and evaluate solutions to mitigate risk factors. The computer-based program features an interactive toolbox containing tools for an effective back injury prevention process, cost-benefit analysis, root cause analysis, and training, including videos, "toolbox talks," and documentation, all in English and Spanish. Anyone who is responsible for developing and maintaining an~~

~~effective back injury prevention program will benefit from this workshop, which gives participants the tools they need to take their program from a task approach to a systems approach. A working knowledge of basic ergonomics principles is recommended. Participants must bring a Windows-based laptop in order to work with the DVD. (Administrative access must be permitted on laptops that run Windows Vista so the User Account setting can be changed.)~~



WK2 ▶ The Impact of Culture on User Experience

Shatha N. Samman, Global Assessment

LEVEL: Beginner, Novice. FEE: \$225 members, \$275 nonmembers, \$125 students.

This workshop aims to provide attendees with practical, useful human factors and usability guidelines for designing an international or multinational workplace and marketplace. Participants will first learn the ABCs of culture in terms of the attitudinal, behavioral, and cognitive dimensions of cross-cultural differences (e.g., the importance of nonverbal communication in issues related to trust and persuasion). They will then learn how to apply this knowledge to conduct a cognitive task analysis on international users, with consideration for which approaches are best suited to the targeted user's cultural cognitive dimension. Participants will also learn how to apply these principles and guidelines in designing and evaluating user experiences for their respective global users. This workshop will be beneficial for all professionals who design for the international market, research cross-cultural similarities/differences, and interact with cross-cultural colleagues in multinational companies. No prerequisite knowledge is necessary for this workshop.



Monday, September 27
Afternoon Only, 1:30 to 5:00 p.m.

WK3 ▶ **Macro-cognition Metrics and Scenarios:
Design and Evaluation for Real-World Teams**

Emily S. Patterson, Ohio State U.; Janet E. Miller, 711th Human Performance Wing/Human Effectiveness Directorate; Emilie M. Roth, Roth Cognitive Engineering

LEVEL: Beginner, Novice, Experienced. FEE: \$225 members, \$275 nonmembers, \$125 students.

The workshop presenters recently completed an edited book on advances in macro-cognition methods and measures for real-world teams. The short definition of macro-cognition is how cognition adapts to complexity, with an emphasis on cognition in real-world settings supported by information technology and people in specialized roles. The focus of this workshop will be translating selected measures and scenario design techniques for the unique needs of workshop participants in their professional settings. Measurement skills to be learned are macro-cognitive measures for rigor in information analysis, planning and plan execution, and expertise in problem recognition. Additional scenario design techniques to be covered include how to augment the complexity of existing scenarios for humans-in-the-loop simulations to evaluate software and training interventions. The intended audience for this workshop is practitioners who need to measure objectively in an evaluation whether a proposed intervention (e.g., new display, decision aid, training program) will impact human and/or team performance in a real-world setting. The workshop should be valuable for the beginning to experienced range, with no prerequisite knowledge.



WK4 ▶ **Communications Analysis for Assessing Collaboration**

Nancy J. Cooke, Arizona State University; Jamie Gorman, Cognitive Engineering Research Institute

LEVEL: Novice. FEE: \$225 members, \$275 nonmembers, \$125 students.

Communication data provide rich accounts of collaborative behavior and, though easily collected, are not as easily analyzed. There are many pitfalls and leverage points in communication analysis. This workshop will focus on the pragmatics of communication analysis for assessing collaboration. Instructors will convey tips, guidelines, and lessons learned from over a decade of experience analyzing communications including voice, e-mail, and text chat. Issues associated with collection, formatting, transcribing, coding, and interpretation of communications data will be covered with respect to the analysis of communication content and patterns of interaction (flow), as well as static summaries and dynamic sequences. Sample data will be analyzed, and participants will have the opportunity to relate methods to a problem of their own. Participants will gain an understanding of the communication analysis problem space (i.e., what to use and when) and skill needed to effectively develop a communication analysis plan suited to their problem. Participants are encouraged to bring samples of communication data to the workshop that can serve as an example in the discussion and provide a context for relevant take-home guidance. Participants are expected to have a basic understanding of experimental design and statistics (correlation, probability) but need not have experience working with communication data. This workshop is especially suited to individuals who are new to communication analysis (i.e., novices) but does not require experience working with communication data. Many of the techniques, tools, and procedures discussed in this workshop are also applicable to the analysis of more generic sequential event data. The workshop is appropriate for researchers and practitioners in a variety of domains. Those working on problems of team performance, human-systems integration, macroergonomics, groupware, team training, cognitive engineering, human-computer interaction, cognitive modeling, or augmented cognition may be interested in this topic.

Monday, September 27
All-Day Sessions, 9:00 a.m. to 4:30 p.m.

WK5 ▶ **Cognitive Crash Dummies: Predictive Human
Performance Modeling for Interactive System Design**

Bonnie John, Carnegie Mellon University

LEVEL: Beginner. FEE: \$375 members, \$425 nonmembers, \$175 students.

Why is Google like the Carlsbad Police Department? They have both reported using predictive human performance models, aka *cognitive crash dummies*, to guide system design. Just as crash dummies in the automotive industry save lives by testing the physical safety of automobiles before they are brought to market, cognitive crash dummies save time, money, and potentially even lives by enabling designers of computer-based systems to test their design ideas before implementing them. Cognitive crash dummies



are engineering models of human performance that can make quantitative predictions of human behavior using proposed systems without waiting for empirical studies on running prototypes. Scores of research papers and practical experience have demonstrated the accuracy and value of such models in the 25 years since they were introduced in *The Psychology of Human-Computer Interaction* (Card, Moran, & Newell, 1983). Today there are tools that support modeling; it can be taught effectively in a few hours to participants without requiring expertise in computational modeling. This workshop will review the state of the art of predictive modeling in HCI. Participants will use their own laptops to build a storyboard of an interactive system using *CogTool* and create a model of skilled performance time on that storyboard. Peer review will provide an opportunity for discussing storyboard and modeling options and trade-offs. The workshop will end with a review of other tools currently available and a look to the future of predictive modeling.



WK6 ▶ Human-Centered Systems Engineering: How to Design, Develop, and Validate Human-Centered Products, Processes, and Services

George M. Samaras, Samaras & Associates, Inc.

LEVEL: Novice, Experienced, Expert. FEE: \$375 members, \$425 nonmembers, \$175 students.

Products, processes, and services exist solely because their uses by humans have real or perceived value (utilitarian or aesthetic). This is the fundamental justification and rationale for human-centered development, which provides the greatest long-term return on investment and lowest total cost of ownership. Systems engineering (SE) is a structured, systematic approach to the conceptualization, design, development, deployment, and replacement of products, processes, and services. Classical SE, in existence since the early 1900s, is one of the oldest agile methods. The presenter will discuss the fundamental state space, lifecycle, technical, and management activities in the context of microergonomics (tools for individuals) and macroergonomics (tools for organizations). The concept of human-centered system complexity (from physical and behavioral to social and cultural considerations) will be presented, followed by a detailed discussion of the relevant me-

trology. Human-centered SE presents a rather large set of factors for experimental verification and validation studies. Experimental design approaches, historically used by engineers, are very inefficient given large numbers of factors. The presenter will discuss the fundamental principles of experimental design and the modern approaches (statistical design of experiments, or DOE) that are useful for product, process, and/or service verification and validation studies. DOE will be visually presented using its underlying, simple geometric structure. Participants are required to bring their own laptops.

WK7 ▶ Human Performance Modeling and Simulation

John Keller, Alion Science & Technology, MA&D Operation

LEVEL: Beginner, Novice, Experienced. FEE: \$375 members, \$425 nonmembers, \$175 students.

The purpose of this workshop is to provide individuals who are considering the use of computer modeling and simulation of human performance with an understanding of what simulation is, when it might be useful, and what specific considerations and approaches should be used when using simulation to solve problems within the context of system design. Participants will perform a series of hands-on exercises with prebuilt Micro Saint Sharp human performance models. They will learn how models are used to solve real-world design problems, including evaluating the necessary word recognition rate to make computer speech input more efficient than mouse input and determining the optimal makeup of a team, given task demands and function allocation. Also, they will receive hands-on model-building experience through the construction of a simple model to evaluate the cognitive workload issues of driving while using a cell phone. Following each exercise, participants will engage in brainstorming sessions focused on how they might use each technique in their own human performance analyses.

WK8 ▶ Sitting in the Hot Seat: How To Be an Effective Human Factors/Ergonomics Expert Witness

Marc Resnick, Florida International University; Andrew Le Cocq, Consultant; H. Harvey Cohen, Error Analysis, Inc.; David Thompson, Portola Associates, Inc.

LEVEL: Beginner, Novice, Experienced. FEE: \$375 members, \$425 nonmembers, \$175 students.

This workshop will provide human factors/ergonomics professionals with an overview of the legal domain and an understanding of how HF/E practice must be tailored to work within the unique confines of the litigation process. The workshop will cover the entire scope of forensic practice, including dealing with attorneys, conducting forensic investigations, crafting expert reports, and testifying in deposition and trial. Participants will learn many of the "tricks of the trade" that are required to be an effective forensic expert. A unique twist of this workshop is the extensive use of mock interactions. Each module will include a simulated experience that demonstrates the topics covered. Participants may ask their own questions to see how the expert responds in real time or to suggest answers to difficult questions. Each simulation will start with the presenters asking novices for their input. Then, the more experienced in the audience will be invited to contribute. Finally, the presenters will respond and then discuss the different answers.



The workshop is intended for individuals who have expertise in human factors tools and techniques. It will focus on how these practices must be modified to maximize their effectiveness in the legal domain. Students are also encouraged to attend, with the understanding that they need to develop their HF/E credentials before a career in forensics practice would be feasible. Attendees are encouraged to submit expert reports in advance so they can be critiqued in real time during the workshop.

WK9 ▶ Workshop on Falls: Walkway and Stairway Evaluations

Daniel A. Johnson, Olympia, Washington; Jake Pauls, Jake Pauls Consulting Services

LEVEL: Beginner, Novice, Experienced. FEE: \$375 members, \$425 nonmembers, \$175 students.

Design, construction, and maintenance flaws in stairs result in about 3 million medically treated injuries each year in the United States. There is a need to develop standard methods for measuring pedestrian hazards. There is a lack of knowledge even among professionals in the field of safety and forensics as to how to accurately determine if a change in level is dangerous, a surface is too slippery, or a stairway is too steep or irregular. Participants will learn important information that will help them when they investigate fall cases. They will learn the latest on when, where, how, and why falls occur. There will be discussions and demonstrations of the various methods for taking measurements on difficult surfaces, such as trip hazards caused by broken, sloped, and irregular sidewalks. Methods of measuring slippery surfaces will also be discussed, and the use of one of the most common devices, the Variable Incident Tribometer, will be demonstrated. Participants will learn how to accurately measure step geometry and handrail graspability, height, location, and shape. The latest research will be discussed, as will the requirements set forth in building codes and ANSI standards. Attention will be paid to the question of why home stairways are being built to lower safety standards than other stairways.

WK10 ▶ Questionnaire Design

William F. Moroney, U. of Dayton

LEVEL: Beginner, Novice. FEE: \$375 members, \$425 nonmembers, \$175 students.

Anyone can write a questionnaire, but not necessarily well. This workshop provides practitioners with the skills they need to properly design questionnaires. Participants will be introduced to critical issues in questionnaire design; the development, use, and advantages/disadvantages of questionnaires; questionnaire development strategies; scale selection; and ways of evaluating questionnaires. A flow chart of the questionnaire design process and a checklist to evaluate the quality of questionnaires will be provided. Web-based questionnaires, basic statistical analysis, and the presentation of results are discussed; however, time constraints preclude addressing sampling and advanced statistical analyses. Participants will gain a greater appreciation for the complexity involved in developing and employing questionnaires properly. They will evaluate and correct a problematic questionnaire. Finally, they will be provided with information about sources of questionnaires that can be adapted to meet their needs. An annotated bibliography and references will be provided.

WK11 ▶ Online Usability Testing: Moving Beyond the Lab

Tom Tullis & Donna Tedesco, Fidelity Investments

LEVEL: Beginner, Novice, Experienced. FEE: \$375 members, \$425 nonmembers, \$175 students.

Online (unmoderated) usability testing is a cost-effective, efficient, and reliable method for collecting qualitative and quantitative data from hundreds or thousands of users simultaneously. It is an increasingly popular method for measuring the holistic user experience with a product, especially Web sites and applications. This workshop will give participants the skills they need to conduct an online study from start to finish—including planning, design, implementation, analysis, and presentation of results. This includes topics such as determining when to use online testing, tips for scheduling and recruiting for studies, task and question construction, choosing a vendor tool or utilizing discount approaches to implementation, piloting and launching the study, preparing and analyzing data, and presentation tips. Although the most common application of online studies is in the evaluation of Web sites, the presenters will also discuss and explore applications of the method to other types of systems and products. The intended audience for this workshop is professionals within the human factors and usability fields who have a basic understanding of typical in-lab usability testing techniques.



Hyatt Regency San Francisco

WK12 ▶ Task Structure Modeling and Flow Analysis: From Verbal Data to Practical Implications

Avi Parush, Carleton U.

LEVEL: Novice, Experienced. FEE: \$375 members, \$425 nonmembers, \$175 students.

Task analysis is a commonly practiced family of techniques that can be applied to various ends in various contexts. It typically requires collecting user data; compiling, organizing, and preparing



the data for analysis; performing the analysis; and drawing the relevant conclusions and implications. Organizing the collected data in a way that will allow the transition to task modeling and analysis and extracting practical implications is often a challenge. This workshop will provide the opportunity to review, have hands-on practice, and discuss the process of organizing verbal data (e.g., from interviews, comments) using several task structure modeling perspectives, performing the analysis, and drawing practical implications. The workshop will be beneficial to professionals who perform analyses for the design and testing of human-machine and human-computer systems, job design, selection, training, and human error and safety applications.

WK13 ▶ Design Creation and Development: Design Chautauqua 2010

Steven M. Belz, AT&T; Brian Stonecipher, CONTINUUM; Barry Katz, IDEO Product Development; Heather Reavey, CONTINUUM

LEVEL: Novice. FEE: \$375 members, \$425 nonmembers, \$175 students.

The Design Chautauqua draws its name from the highly popular education movement in the late 19th and early 20th centuries. Just as the original Chautauquas brought together specialists from a variety of backgrounds to share ideas and experience, the Design Chautauqua seeks to expose the human factors/ergonomics professional engaged in product design to the practices and methodologies employed by other design professions. This year's Chautauqua focuses on design creation and development. This all-day design experience will provide participants with an opportunity to gain perspective from leading professionals in the area of design creation and development. The morning session will be a hands-on introduction to Design Thinking led by Barry Katz. Design Thinking involves combining creativity and rationality to meet user needs and support business success. Heather Reavey, an envisioner, will lead the afternoon session by introducing participants to various methods for creating or envisioning early design concepts and discussing the role that envisioning plays in product development. Brian Stonecipher will then share methods for evaluating abstract concepts very early in the design process. Participants should have an educational or practice-based background that includes HF/E.

TECHNICAL SESSIONS

The preliminary program for the HFES 54th Annual Meeting is available via a link from the main meeting page, www.hfes.org/web/HFESMeetings/2010annualmeeting.html. It can be searched by author name, keyword in title, technical group, and date/time. The itinerary builder assists in creating a personal schedule for the meeting.

Don't Miss "Usability and HCI Day"

The Computer Systems Technical Group has partnered with the Internet Technical Group and the 2010 Host Committee to bring you a full day of events devoted to usability and human-computer interaction. BayCHI members: Sign up for the day or week and get 10% off. (HFES members not eligible.) Here's the lineup on Wednesday, September 29:

Head to Head: Remote Usability Testing Takes on Live Usability Testing in the HFES Ultimate Fight Challenge

Remote usability testing is emerging as a popular approach through which evaluators can test technology interfaces on a large number of participants quickly and inexpensively. Two types of remote studies have been employed, either with a moderator interacting remotely with the participant or in an unmoderated format. This session is a novel format that pits the two in a head-to-head challenge using audience participants, who will be able to decide for themselves the advantages and disadvantages of each method. **8:30–10:00 a.m.**

Harvesting Innovation in the Industry: Prescriptions for Breakthrough Products

This panel will bring together human factors leaders from some of the most innovative companies in the technology domain. They will present how their companies have achieved such high levels of innovation and how this impacts the practice of human factors. **10:30 a.m.–12:00 noon**

Blasphemy or Pragmatics? When NOT to Follow User-Centered Design Techniques

This invited panel brings together several high-profile members of the HCI community for an exciting, if not controversial, discussion and debate. Each is well versed in the principles and best practices of user-centered design, user experience research, and design innovation. How do they respond to the emerging topic of when NOT to use conventional user-centered design techniques? **1:30–3:00 p.m.**

Networking Event

The Computer Systems Technical Group and Internet Technical Group will hold a networking event starting at **3:30 p.m.**

Other Don't-Miss Sessions

Early Morning Madness

HFES will be introducing something new this year: short "madness" presentations to kick off each day of the 2010 Annual Meeting. These Madness sessions will consist of 25-second previews of full talks, providing an overview of the day's presentations to help you decide which ones to attend. An invitation and instructions on how to participate in Madness will be sent to all authors prior to the Annual Meeting. Madness presentations will be captured on video. The idea for Madness comes from our friends at CHI. Come get a preview of the day's presentations to see which ones you don't want to miss. Come for the fun and energy of Early Morning Madness! **Tuesday, September 28, 7:00–7:45 a.m.; Wednesday through Friday, September 29–October 1, 7:15 to 8:00 a.m.**

A Debate: Is There Low-Hanging Fruit in Medical Human Factors?

Does human factors and ergonomics have anything to contribute to patient safety and health care practices? Most people would say yes. However, there is great controversy as to the form the contribution can take. The results of this debate may help focus health care human factors professionals toward the most productive approaches for influencing health care and patient safety. **Thursday, September 30, 10:30 a.m.–12:00 noon**