PROGRAM UPDATES AS OF SEPTEMBER 25

The following changes occurred after the Annual Meeting program went to press. Updates are reflected in the mobile program app. Please consult the app for up-to-the-minute news and program changes.

SPONSORS

HFES thanks new sponsors End to End User Research and the Health Care Engineering Systems Center at the University of Illinois Urbana-Champaign for their support of the Health Care/Product Design Technical Group Reception on Tuesday evening.

Thanks also to new Pink Socks supporters Anthony D. (Tony) Andre, William S. Marras, and Kermit G. Davis.

The Computer Systems Technical Group has been added as a cosponsor, with State Farm, of the UX Day Mentor-Mentee Lunch on Wednesday.

EXHIBITS

The newest exhibitor is Sunrise Human Technology LLC, in Tablettop 5. Sunrise Human Technology LLC has expertise in Customized Driving Simulator Programming, including both manual and self-driving car driving programming, simulator setup, and simulation; 3-D Human Photography and Human-Like AI System Development and Test; Usability Testing; Augmented Reality System Programming and Testing; Human-Centered System Design, Human/Worker/Operator Performance Improvement, Human Factors, and Usability Experience and System Design Consultation.

Visit the HFES Future Meetings booth, #8, in the Exhibit Hall (Franklin Hall, Level 4).

Activities of HFES U.S. TAG to ISO/TC 159 and its subcommittees are displayed in Booths 11-12 in the Exhibit Hall.

EVENTS

Monday

Workshop 1: Usability Testing will be held in Room 411 (Level 4).

Tuesday

The correct title of the PD1 presentation by guest speaker Greg Andrasyia is “Value Engineering: Participatory Methods for Designing Useful, Cost-Effective Products.” The session will be chaired by Stanley H. Caplan, Usability Associates and cochaired by Adam Shames, Core Human Factors. (1:30-3:00 p.m., Franklin 6, Level 4)

The new chair for session SF2 – Cognitive Considerations for Health Care Practitioners and Consumers (1:30-3:00 p.m., Franklin 7, Level 4) is Heidi Kim, U.S. Army Research Lab.

The reception for Technical Group Chairs from 6:30 to 7:00 p.m. has been moved to Room 411 (Level 4).

Wednesday

The following presentation was inadvertently omitted from the printed program. It is the fifth presentation in HP2 - Model Checking and Multitasking (10:45 a.m.-12:15 p.m., Franklin 7, Level 4). “Dual-Task Redundant-Target Processing: The Case of the Limited Capacity Parallel Model,” Stephanie Morey, Flinders U.; Nicole Thomas, James Cook U.; and Jason McCarley, Oregon State U.

Ellen Bass, Brian Kleiner, and Dietrich Manzey are not able to present a poster in the Posters With Fellows session at 11:00 a.m.

In VE3 − Me and My VE, Part 5: Applications in Human Factors Research and Practice (2:00 p.m.), Jeremy Flynn is being replaced by Jeff Mills, U. of Central Florida.

Thursday

The chair and moderator for the 9:45 a.m. plenary (Salon E, 5th Floor) will be Peter A. Hancock, University of Central Florida.

The cochair for A1 – Age-Related Considerations for Emerging Technologies (10:45 a.m.) is Kelly Steelman, Michigan Technological U.

Tony McDonald, the cochair for ST4 – Perception and Safety of Vehicle Automation (10:45 a.m.) is unable to attend.

The new cochair for session AS2 – Pilot Performance and Issues (2:00 p.m.) is Sheryl Chappell, Federal Aviation Administration.

In session TE2 – Subjective Assessment Measurement Techniques (3:45-5:15 p.m., Salon C, Level 5), please note the following changes: The new chair is Heather Wojton, Institute for Defense Analyses, and the new cochair is Heidi Kim, U.S. Army Research Lab. The 5th presentation, by Kendra Befort and coauthors, will be followed by a demonstration of a swarm activity in which audience members will be provided with devices for group participation.
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**bold**
/böld/
*adj.* showing an ability to take risks; confident and courageous

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# General Information

## Technical Program Committee

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chair</td>
<td>CHRISTOPHER B. MAYHORN</td>
</tr>
<tr>
<td>Chair-Elect</td>
<td>RONALD L. BORING</td>
</tr>
<tr>
<td>General Sessions</td>
<td>SANDRA GARRETT</td>
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<tr>
<td>Interactive Sessions</td>
<td>ROGER LEW</td>
</tr>
<tr>
<td>Practitioner Track</td>
<td>AVI PARUSH</td>
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<tr>
<td>Quality</td>
<td>ANNE E. ADAMS</td>
</tr>
<tr>
<td>Student Forum</td>
<td>PAMELA A. SAVAGE-KNEPSHIELD</td>
</tr>
<tr>
<td>Workshops</td>
<td>TARAH DALY</td>
</tr>
</tbody>
</table>

## Technical Group Program Chairs

<table>
<thead>
<tr>
<th>Group</th>
<th>Chairs</th>
</tr>
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<tbody>
<tr>
<td>Aerospace Systems</td>
<td>STEVEN J. LANDRY</td>
</tr>
<tr>
<td>Environmental Design</td>
<td>CLIVE D’SOUZA</td>
</tr>
<tr>
<td>Forensics Professional</td>
<td>TIMOTHY RHOADES JASON YOUNG</td>
</tr>
<tr>
<td>Human Performance Modeling</td>
<td>CHRISTINA RUSNOCK SHI CAO</td>
</tr>
<tr>
<td>Individual Differences in Performance</td>
<td>KRYSTYNA GIELO-PERCZAK JAMES L. SZALMA</td>
</tr>
<tr>
<td>Internet</td>
<td>JUAN GILBERT MARVIN ANDUJAR</td>
</tr>
<tr>
<td>Macroergonomics</td>
<td>EDMOND RAMLY</td>
</tr>
<tr>
<td>Occupational Ergonomics</td>
<td>GWEN MALONE</td>
</tr>
<tr>
<td>Perception &amp; Performance</td>
<td>ROBERT KING</td>
</tr>
<tr>
<td>Product Design</td>
<td>SAMI DURRANI</td>
</tr>
<tr>
<td>Safety</td>
<td>TAMSYN EDWARDS</td>
</tr>
<tr>
<td>Surface Transportation</td>
<td>YI-CHING LEE YU ZHANG</td>
</tr>
<tr>
<td>System Development</td>
<td>PETRA ALFRED</td>
</tr>
<tr>
<td>Test &amp; Evaluation</td>
<td>PAMELA A. SAVAGE-KNEPSHIELD</td>
</tr>
<tr>
<td>Training</td>
<td>LINDA PIERCE</td>
</tr>
<tr>
<td>Virtual Environments</td>
<td>BENJAMIN GOLDBERG</td>
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</tbody>
</table>

## Philadelphia Coordination

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Volunteers Coordinators</td>
<td>SHELBY K. LONG (CHAIR) AMAL F. PONATHIL (COCHAIR)</td>
</tr>
<tr>
<td>Technical Tours</td>
<td>ELLEN DEUTSCH SCOTT DYER DANIEL GOTTESMAN PETER SNEERINGER</td>
</tr>
<tr>
<td>User Experience Day</td>
<td>LARA CHENG FRANCE JACKSON</td>
</tr>
</tbody>
</table>
Human Factors and Ergonomics Society Officers ..............................................

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VALERIE J. BERG RICE

President-Elect
KERMIT G. DAVIS

Immediate Past President
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Outreach
KAREN JACOBS

Education
BETH BLICKENSDERFER

Scientific Communications and Publications
WILLIAM HORREY

Technical Standards
ROBERT R. FOX

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Communications Director
LOIS SMITH

Senior Production Editor
STEVE STAFFORD

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Director of Member Services
CARLOS DE FALLA

Member Services Coordinator
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WALDEMAR KARWOWSKI

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DSO NATIONAL LABORATORIES
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COUNCIL OF TECHNICAL GROUPS
WALDEMAR KARWOWSKI

HCTG/PDTG Networking Reception
BOLD INSIGHT
BOSE
CORE HUMAN FACTORS
DESIGN SCIENCE
DESIGNTHINK
HILL-ROM
HUMAN FACTORS IN CONTEXT LLC
LORING HUMAN FACTORS, LLC
MEDSTAR HEALTH’S NATIONAL CENTER FOR HUMAN FACTORS IN HEALTHCARE
STARSHIP HEALTH TECHNOLOGIES
USABILITY ASSOCIATES
USERWORKS

HFE WOMAN Networking Luncheon
AEROSPACE SYSTEMS TECHNICAL GROUP
COGNITIVE ENGINEERING AND DECISION MAKING TECHNICAL GROUP
NUANCE COMMUNICATIONS
UNIVERSITY OF CENTRAL FLORIDA, INSTITUTE FOR SIMULATION AND TRAINING
UNIVERSITY OF ILLINOIS AT CHICAGO

Lanyards
BOLD INSIGHT

Student Career and Professional Development Day – “The Mentoring Game”
HAYDEE M. CUEVAS

Student Lounge
BOARD OF CERTIFICATION IN PROFESSIONAL ERGONOMICS – TUESDAY

Mentor-Mentee Lunches
HAYDEE M. CUEVAS
STATE FARM (WEDNESDAY)

Child Care Fund
ANONYMOUS

**Pink Socks**
DAVID COCHRAN
NANCY COOKE
F. THOMAS EGEMEIER
M. SUSAN HALLBECK
RICHARD HOLDEN
ANDREW IMADA
CHRISTOPHER REID
DAVID REMPEL
VALERIE RICE
EDUARDO SALAS
CAROLYN SOMMERICH

UX Day Marc Resnick Best Paper Competition
STATE FARM

UX in Practice Alternative Format Session
BUSINESS WIRE

**Exhibitors** *(As of August 27, 2018)************

Booth 1  Biopac Systems, Inc.
Tabletop 2  Board of Certification in Professional Ergonomics
Booths 3–4  CRC Press, Taylor & Francis Group
Booth 6  Design Science
Tabletop 3  Foundation for Professional Ergonomics
Booth 5  Noldus Information Technology
Booth 9  SAGE Publishing
Booth 7  Smart Eye AB
Booth 13  Tobii Pro
Booth 14  University of Florida Herbert Wertheim College of Engineering
Tabletop 4  University of Illinois at Chicago
Tabletop 1  University of Michigan Center for Ergonomics
Booth 12  Wearable Sensing
Booth 2  Xsens
Contents

Registration & Facilities
Meeting Facilities .................................................. 2
Registration Counter Location and Hours ................. 2
On-Site Event Tickets ............................................... 2
Refreshments ....................................................... 2
Resources
HFES Services ..................................................... 2
On-Site Career Center ............................................ 3
Job Notices at the Annual Meeting ......................... 3
Internet Café ...................................................... 3
Internet Access ................................................... 3
Message Board ................................................... 3
News and Announcements ...................................... 3
Follow Us on Twitter @HFES ................................. 3
Mobile Program App ............................................. 3
Student Lounge .................................................. 3
Audiovisual Preview Room ..................................... 3
Birds of a Feather Room ....................................... 3
Volunteers Assignment Room ................................. 3
Exhibits
Location and Hours ............................................... 3
Exhibitor List ...................................................... 3
Prize Drawings in the Exhibit Hall ............................. 4
Special Programs
ErgoX Symposium: Exoskeletons in the Workplace –
Assessing Safety, Usability, & Productivity ............... 4
Student Career & Professional Development Day ....... 4
National Ergonomics Month Expo ......................... 4
NEW! Practitioner Track Sessions .......................... 4
NEW! Professional Development Sessions ............... 4
Posters Reception ............................................... 4
HFES Annual Business Meeting ......................... 4
Wednesday Plenary Session ................................ 4
User Experience Day .......................................... 4
Interactive Demonstrations ................................ 4
Fellows Poster Session ....................................... 4
University Lab Posters ....................................... 4
Thursday Plenary Session .................................. 4
Social and Networking Events
New Members and First-Timer Attendees Welcome .... 5
Opening Reception .............................................. 5
Mentor-Mentee Brown Bag Luncheons .................... 5
Early-Career Professionals Luncheon .................... 5
Early-Career Professionals Reception .................... 5
Student Reception ............................................. 5
Women’s Networking Lunch ................................ 5
Policies
Attendee Badges ............................................... 5
Appropriate Conduct ......................................... 5
Photography and Recording Policies ....................... 5
Cell Phones ..................................................... 6
Non-smoking Policy ........................................... 6
Proceedings .................................................... 6
Meetings
HFES Groups ..................................................... 6
Other Groups ................................................... 6
ISO and ANSI Standards Committees ..................... 7
Technical Groups ............................................. 7
Social Events .................................................... 8
Technical Tours ............................................... 9
Technical Program
Key to Abbreviations Used in This Program ............ 9
Technical Program ............................................ 9
Program at a Glance .......................................... center spread
Participant Index ............................................. 47
Advertisers ..................................................... 54
Facility Maps .................................................. 60–61

Registration & Facilities

Meeting Facilities
All Annual Meeting functions other than technical tours and
some networking events will be held at the Philadelphia
Marriott unless otherwise noted in the program. A map of
the meeting space may be found on pages 60–61. Electronic
signage is also available.

Registration Counter Location and Hours
Registration is open during the following hours in Salon E Foyer.

<table>
<thead>
<tr>
<th>Day</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Sunday</td>
<td>3:00–6:00 p.m.</td>
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<tr>
<td>Monday</td>
<td>7:00 a.m.–7:30 p.m.</td>
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<tr>
<td>Tuesday</td>
<td>7:00 a.m.–6:00 p.m.</td>
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<tr>
<td>Wednesday</td>
<td>7:30 a.m.–5:30 p.m.</td>
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<tr>
<td>Thursday</td>
<td>7:30 a.m.–5:00 p.m.</td>
</tr>
<tr>
<td>Friday</td>
<td>8:00 a.m.–12:00 p.m.</td>
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</tbody>
</table>

On-Site Event Tickets
For those events not sold out or canceled, tickets for tours
and social events may be purchased at the Registration
Counter (Salon E Foyer, Level 5) during registration hours.
No waiting lists will be established; tickets will be sold on a
first-come, first-served basis.

Refreshments
Beverage breaks will take place in the following locations. Note
that due to the plenary sessions Wednesday and Thursday, the
refreshment breaks are 15 minutes in duration.

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
<th>Location</th>
</tr>
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<tbody>
<tr>
<td>Monday</td>
<td>10:00–10:30 a.m.</td>
<td>Franklin Pre-Function Foyer (Level 4)</td>
</tr>
<tr>
<td></td>
<td>3:00–3:30 p.m.</td>
<td>(Level 4)</td>
</tr>
<tr>
<td>Tuesday</td>
<td>10:00–10:30 a.m.</td>
<td>Salon E Foyer (Level 5)</td>
</tr>
<tr>
<td></td>
<td>3:00–3:30 p.m.</td>
<td>Franklin Hall (Exhibits – Level 4)</td>
</tr>
<tr>
<td>Wednesday</td>
<td>9:30–9:45 a.m.</td>
<td>Franklin Hall (Exhibits – Level 4)</td>
</tr>
<tr>
<td></td>
<td>3:30–3:45 p.m.</td>
<td></td>
</tr>
<tr>
<td>Thursday</td>
<td>9:30–9:45 a.m.</td>
<td>Franklin Hall (Exhibits – Level 4)</td>
</tr>
<tr>
<td></td>
<td>3:30–3:45 p.m.</td>
<td></td>
</tr>
<tr>
<td>Friday</td>
<td>10:00–10:30 a.m.</td>
<td>Franklin Foyer (Level 4) &amp; Salon E Foyer (Level 5)</td>
</tr>
</tbody>
</table>

Resources

HFES Services
Members of the HFES team will be present in the
registration area (Salon E Foyer, Level 5) to provide
information on membership, publications, and services.
Nonmembers who are registered for the full week are entitled to HFES member prices on publication orders.

**On-Site Career Center**
The Career Center is located in Franklin 5 (Level 4) and is open during the following hours:

- Monday 1:00–6:00 p.m.
- Tuesday 8:30 a.m.–6:00 p.m.
- Wednesday 8:30 a.m.–5:30 p.m.
- Thursday 8:30 a.m.–5:00 p.m.

Employers who have a current job posting, or are registered to search résumés, in the HFES Online Career Center may reserve interview booths and/or tables at the On-Site Career Center, subject to availability. If you have not already reserved space, you may reserve an interview space at the HFES Services desk. The scheduling of interviews at the Annual Meeting is the sole responsibility of the employer.

HFES members: You may post your résumé in the Online Career Center free of charge. Visit hfes.org and click “Career Center.”

**Job Notices at the Annual Meeting**
Companies that wish to post a job in the on-site Career Center, and are NOT interviewing, may opt to have HFES staff collect résumés and mail them after the meeting. The charge is $150.

Organizations not interviewing or collecting résumés may post a “for information only” job notice at the on-site Career Center for a $75 fee. Job seekers will be directed to send their résumés directly to the organization advertising the position.

**Internet Café**
Computers with Internet access will be available in Salon E Foyer (Level 5). Please limit your time to 10 minutes per session.

**Internet Access**
Complimentary WiFi is available throughout the meeting space. It is also complimentary in the guest rooms for Marriott Rewards members.

**Message Board**
A cork message board will be available in Salon E Foyer (Level 5) for posting hard-copy messages and announcements about meetings and events.

**News and Announcements**
Notifications and news alerts will be sent via the mobile program app and Twitter.

Follow Us on Twitter @HFES
Check out the Twitter feed @HFES and post at #HFES2018.

**Mobile Program App**
Download the HFES 2018 Annual Meeting mobile app from Google Play and the App Store. The app provides details about technical sessions, workshops, tours, events, and more. Updates to the program will be provided via push notifications through the app.

**Student Lounge**
The Student Lounge, located in Room 402 (Level 4), has been set aside for students to meet, network, participate in special student activities, and relax. Hours are Tuesday through Thursday, 8:00 a.m. to 7:00 p.m.

**Audiovisual Preview Room**
Room 501 (Level 5) has been reserved for presenters who wish to preview their audiovisual materials. Computers will be available for AV preview only. Preview hours are as follows:

- Monday–Tuesday 7:00 a.m.–6:00 p.m.
- Wednesday 7:30 a.m.–5:30 p.m.
- Thursday 7:30 a.m.–5:00 p.m.
- Friday 7:30 a.m.–12:00 noon

**Birds of a Feather Room**
Room 403 (Level 4) has been set aside Monday through Thursday from 7:00 a.m. to 8:00 p.m. and on Friday from 7:00 a.m. to 12:00 noon for individuals with mutual interests to discuss pertinent topics or conduct meetings. A sign-up sheet is provided at the room for advance reservations. Meeting times are allocated on a first-come, first-served basis.

**Volunteers Assignment Room**
Student volunteers who have been assigned duties should check in with Volunteer Coordinators Shelby Long and Amal Ponathil in Room 409 (Level 4).

**Exhibits**

**Location and Hours**
All attendees are encouraged to visit the exhibits, located in Franklin Hall (Level 4). Refreshment breaks will be held in the Exhibit Hall on Tuesday afternoon and on Wednesday and Thursday morning and afternoon.

Exhibition hours are as follows:

- Tuesday 3:00–5:00 p.m.
- Wednesday 9:30 a.m.–5:00 p.m.
- Thursday 9:30 a.m.–3:45 p.m.

**Exhibitor List**
The list of exhibitors appears on page 1.
Prize Drawings in the Exhibit Hall
HFES will be giving away two 2019 membership renewals and two registrations for the 2019 Annual Meeting, to be held in Seattle, Washington, October 28-November 1. To enter a drawing to win these prizes, fill out the entry slip found in your portfolio bag and deposit it in the appropriate box inside the Exhibit Hall.

Drawings will be held on Wednesday and Thursday during both the morning and afternoon refreshment breaks (9:30–9:45 a.m. and 3:30–3:45 p.m.). Names of winners will be posted on a sign board in the Exhibit Hall. You must be present to claim your prize.

Special Programs
ErgoX Symposium: Exoskeletons in the Workplace – Assessing Safety, Usability, & Productivity
This full-day event on Monday, provides an update on human factors, safety, and ergonomics research methods for exoskeletons; highlights standards and technology on exoskeletons; and informs and educates stakeholders (designers, users, and researchers) about exoskeleton types, applications, and their potential to reduce injuries and increase human performance (productivity, quality, etc.). A separate registration fee applies, which includes refreshment breaks and lunch. ErgoX takes place in Franklin 9 (Level 4).

Student Career & Professional Development Day
The HFES Student Affairs Committee is pleased to offer a special day devoted to events of interest to students on Monday in Salon B (Level 5). The Mentoring Game takes place during a sponsored lunch in the same room. The Speed Networking session will be held in Salon K. See page 10 for a schedule of events.

National Ergonomics Month Expo
Celebrate National Ergonomics Month! All HFES meeting attendees and their guests are invited to a special 90-minute NEM Expo, to be held on Monday from 4:45 to 6:15 p.m. in the Salon H Foyer (Level 5).

NEW! Practitioner Track Sessions
This year marks the debut of the Practitioner Track, organized by Technical Program Committee member Avi Parush. The track kicks off with an invited address by Charles Mauro on Tuesday at 1:30 p.m., “Human Factors Engineering Innovations in the Age of Apple v. Samsung: How HF/E Practice Can Add Major Value to the Intellectual Property Assets of Corporations and Academic Institutions.” Check the program for additional sessions identified with “Practitioner Track.”

NEW! Professional Development Sessions
A variety of sessions during the week focus on helping attendees enhance their skills and knowledge for successful career advancement. Look for sessions preceded by “ProfDev.”

NEW! Human Factors Cast
The Human Factors Cast podcast will be live at HFES 2018! Visit Nick Roome and Blake Arnsdorff in the Franklin Foyer (Level 4), and check the booth sign for hours of operation. Enter the raffle for free 2019 Annual Meeting registration.

Posters Reception
Technical posters will be presented in a dedicated session on Tuesday from 5:00 to 7:00 p.m. in Salon E (Level 5).

Wednesday Plenary Session
A panel session on Wednesday, titled “Diversity and Inclusion in HFES and Beyond: Striving To Be Better,” features leaders in diversity who will provide unique perspectives on how HFES can continue to be more inclusive as well as impact society as a whole. Moderated by Doug Mitchell, Project Lead, Next Generation Radio and National Public Radio, the panel includes Nick Adkins, Founder, Pink Socks Tribe; Sylvain Bruni, President, Boston Pride; Beth Cady, Acting Director, National Academy of Engineering; and Marilyn Mobley, Vice-President, Office for Inclusion, Case Western University. This plenary takes place in Salon E (Level 5) from 9:45 to 10:45 a.m..

User Experience Day
User Experience Day is a dedicated track of programming specifically geared for user experience professionals. The event will take place on Wednesday from 8:30 a.m. to 8:00 p.m. in various locations.

Interactive Demonstrations
Interactive demonstrations will be presented on Wednesday from 2:00 to 3:30 p.m. in Salon E (Level 5). The presenters will repeat their demonstrations as attendees move from one demo to the next throughout the 90-minute session.

Fellows Poster Session
HFES Fellows will once again display posters of some of their latest work. The session will be held on Wednesday from 11:00 a.m. to 12:00 p.m. in Franklin Pre-Function (Level 4).

University Lab Posters
Lab posters will be on display in the Franklin Hall Foyer (Level 4) on Wednesday, between 9:00 a.m. and 12:15 p.m. Representatives from the labs will be on hand each day from 9:00 to 10:00 a.m. to answer attendees’ questions.

Thursday Plenary Session
Join guest speakers Tamara Griffith, Amanda Klinger, and Phelan Wyrick for the plenary panel titled “Preventing Violence in Schools: Does the Human Factors/Ergonomics Profession Have a Role?” The panelists will address school
violence by identifying issues and potential solutions, with a focus on how the HF/E profession might play a role in addressing this important societal issue. The plenary takes place from 9:45 to 10:45 a.m. in Salon E (Level 5).

Social and Networking Events

New Members and First-Timer Attendees Welcome
A special event for new members and first-timers will take place on Monday, from 6:00 to 6:30 p.m. in Salon I (Level 5). Presenters will briefly describe how they benefited from mentorship opportunities and professional collaboration through their membership in HFES and attendance at the Annual Meeting.

Opening Reception
Join friends and colleagues on Monday in Salon E (Level 5) from 6:30 to 9:30 p.m. for this festive kickoff reception. See old friends and meet new ones while you enjoy beverages and hors d’oeuvres. Guest tickets are available to those not attending the annual meeting. All guest tickets must be purchased at the Registration Counter prior to 7:00 p.m. on Monday.

Mentor-Mentee Brown Bag Luncheons
A series of mentor-mentee luncheons on Tuesday, Wednesday, and Thursday will be held to assist students and early-career professionals and those in career transition to develop mentoring relationships with established professionals in the HF/E field. These small-group, dynamic, interactive sessions enable students and young professionals to meet in an informal setting and discuss their concerns and interests.

The luncheons will be held from 12:00 noon to 1:30 p.m. on Tuesday and 12:30−2:00 p.m. on Wednesday and Thursday at The Field House (off site) for those who reserved a space with Haydee Cuevas prior to the meeting. A waiting list will be available at HFES Services near the Registration Counter (Salon E Foyer, Level 5).

Early-Career Professionals Luncheon
During this networking lunch on Tuesday from 12:00 noon to 1:30 p.m. in Room 404 (Level 4), early-career professionals will have the opportunity to dine and converse with established academic, industry, and government professionals. Attendance is by prior reservation.

Early-Career Professionals Reception
If you indicated at registration that you would attend this event, join your early-career colleagues in Independence Ballroom I (3rd Floor – Headhouse Tower) from 5:00 to 6:00 p.m. on Wednesday. The reception is intended for professionals in their first five years following graduation who are working in industry and academia. In addition to networking with one another and with prominent HFES members, a short program will target specific topics of interest to early-career professionals.

Student Reception
The Student Reception will take place on Tuesday in Liberty Ballroom (Headhouse Tower – Level 3) from 5:30 to 6:30 p.m. Snacks, beverages, and a no-host bar will be provided, and student awards will be presented.

HFE WOMAN Networking Lunch
Those who reserved a seat in advance will meet at the Hard Rock Cafe from 12:30 to 1:45 p.m.

Policies

Attendee Badges
All persons attending workshops, technical sessions, exhibits, tours, receptions, and other events must wear their registration badges. Attendees may register for Annual Meeting events at the Registration Counter (Salon E Foyer, Level 5).

Appropriate Conduct
To provide all participants – members and other attendees, speakers, exhibitors, staff, and volunteers – the opportunity to benefit from the event, HFES is committed to providing a safe and productive meeting environment free of discrimination, hostility, and harassment, in any form, for everyone, regardless of gender, sexual orientation, gender identity, gender expression, physical or mental disability, medical condition, physical appearance, ethnicity, race, religion, political affiliation, nationality, or any other group identity or basis protected by federal or applicable state laws or local ordinances. The Society does not tolerate discrimination or any form of unlawful harassment and is committed to enforcing this Statement of Appropriate Conduct (the “Code”) at all HFES events. See the full policy at https://hfes.org/ContentCMS/ContentPages/?Id=mkcDU6u8D48=

Photography and Recording Policies
Attendees may take photos and/or make audio or video recordings of speakers or their visual aids, or exhibitors and their displays, only with permission from HFES and the speakers or exhibitors. Permission forms are available at HFES Services near the Registration Counter. Please complete a form for each presentation you wish to record, obtain the speaker(s)’ signature(s), and return it to HFES Services.

HFES reserves the right to use photographs of attendees for promotional purposes. If you do not want HFES to use your photo, please send an opt-out message to Lois Smith at lois@hfes.org.
Cell Phones
Please mute mobile devices (cell phones, tablets, etc.) while attending sessions.

Nonsmoking Policy
Smoking is not permitted inside the Philadelphia Marriott or on technical tours.

Proceedings
All registered attendees have been provided with a flash drive containing the proceedings. Those who reserved a CD-ROM at registration will be provided with a disc.

A computer and printer are located at the Internet Café (Salon E Foyer, Level 5) for attendees who wish to print papers from the proceedings. For printing needs not associated with obtaining printouts of papers from the proceedings, visit the FedEx Kinkos Business Center, located in the lobby.

Annual Meeting proceedings papers are also available free to HFES members via SAGE Journals Online. To access the content, log in at http://hfes.org with your user name and password and select the appropriate link on the Welcome page.

HFES Groups
SATURDAY–SUNDAY, SEPTEMBER 29–30

HFES Executive Council
7:30 a.m.–6:00 p.m.
Room 402 (Level 4)

TUESDAY, OCTOBER 2

Human Factors Editorial Board (Lunch)
12:00 noon–1:15 p.m.
Room 411 (Level 4)

Local Chapter Presidents (Lunch)
12:00 noon–1:15 p.m.
Room 407 (Level 4)

Education Division
4:30–5:30 p.m.
Room 406
Room 401 (Level 4)

HFES Annual Business Meeting
7:00–7:30 p.m.
Salon C (Level 5)

WEDNESDAY, OCTOBER 3

HFES Scientific Publications Committee (Breakfast)
7:00–8:00 a.m.
Room 404 (Level 4)

Outreach Division Meeting (Breakfast)
7:00–8:00 a.m.
Room 410 (Level 4)

Ergonomics in Design Editorial Board (Lunch)
12:30–2:00 p.m.
Room 407 (Level 4)

Student Chapter Presidents (Lunch)
12:30–2:00 p.m.
Room 414 (Level 4)

THURSDAY, OCTOBER 4

Education & Training Committee (Breakfast)
6:45–7:45 a.m.
13 Restaurant (Lobby)

Journal of Cognitive Engineering and Decision Making Editorial Board (Lunch)
12:30–2:00 p.m.
Room 407 (Level 4)

FRIDAY, OCTOBER 5

Technical Program Committee (Breakfast)
9:15–11:00 a.m.
Conference Suite 3 (Level 3)

Other Groups
MONDAY, OCTOBER 1

Foundation for Professional Ergonomics
8:00 a.m.–4:00 p.m.
Conference Suite 3 (Level 3)

TUESDAY, OCTOBER 2

Board of Certification in Professional Ergonomics Reception
7:00–8:00 p.m.
Room 407 (Level 4)

WEDNESDAY, OCTOBER 3

SAE International G45 Human Systems Integration Committee Meeting
3:00–5:00 p.m.
Room 404 (Level 4)
FRIDAY, OCTOBER 5

Board of Certification in Professional Ergonomics Business Meeting
7:30 a.m.–5:00 p.m.
Room 404 (Level 4)

SATURDAY, OCTOBER 6

Board of Certification in Professional Ergonomics Business Meeting
7:30 a.m.–3:00 p.m.
Room 404 (Level 4)

ISO and ANSI Standards Committees

TUESDAY, OCTOBER 2

U.S. TAG to ISO/TC159/SC4
10:30–11:30 a.m.
Room 410 (Level 4)

U.S. TAG to ISO/TC 159/SC3
4:00–5:30 p.m.
Room 410 (Level 4)

WEDNESDAY, OCTOBER 3

ANSI/HFES 100 Committee
8:30–10:30 a.m.
Room 413 (Level 4)

Technical Standards Committee/Division
4:00–5:30 p.m.
Room 413 (Level 4)

Technical Groups

MONDAY, OCTOBER 1

Council of Technical Groups
3:30–5:00 p.m.
Salon A (Level 5)

TUESDAY, OCTOBER 2

Health Care & Product Design Technical Group Reception
7:30–9:30 p.m.
Off Site

WEDNESDAY, OCTOBER 3

Aerospace Systems (Reception)
5:15–6:00 p.m.
Franklin 8 (Level 4)

Aging (Lunch)
12:30–2:00 p.m.
Room 411 (Level 4)

Augmented Cognition (Reception)
4:30–5:15 p.m.
Franklin 7 (Level 4)

Children’s Issues / Environmental Design / Macroergonomics (Reception)
3:45–4:30 p.m.
Franklin 12 (Level 4)

Cognitive Engineering & Decision Making (Reception)
3:45–5:15 p.m.
Salon B (Level 5)

Communications
3:45–4:30 p.m.
Franklin 9 (Level 4)

Computer Systems / Internet
4:30–5:15 p.m.
Franklin 11 (Level 4)

Education (Breakfast)
6:30–8:00 a.m.
Room 407 (Level 4)

Environmental Design / Macroergonomics / Children Issues (Reception)
3:45–4:30 p.m.
Franklin 12 (Level 4)

Forensics Professional / Safety (Reception)
3:45–4:30 p.m.
Franklin 8 (Level 4)

Health Care (Reception)
Business Meeting
5:15–6:00 p.m.
Salon D (Level 5)

Human Performance Modeling
5:15–6:00 p.m.
Franklin 10 (Level 4)

Individual Differences in Performance
4:30–5:15 p.m.
Franklin 12 (Level 4)
Internet / Computer Systems
4:30−5:15 p.m.
Franklin 11 (Level 4)

Macroergonomics / Environmental Design / Children’s Issues (Reception)
3:45−5:30 p.m.
Franklin 12 (Level 4)

Occupational Ergonomics
3:45−4:30 p.m.
Salon A (Level 5)

Perception & Performance (Breakfast)
7:00−8:00 a.m.
Room 404 (Level 4)

Product Design (Reception)
Business Meeting
3:45−4:45 p.m.
Salon C (Level 5)

Safety / Forensics Professional (Reception)
3:45−4:30 p.m.
Franklin 8 (Level 4)

Surface Transportation (Reception)
6:00−8:00 p.m.
Field House (off site)

System Development (Lunch)
12:30−2:00 p.m.
Off site

Test & Evaluation (Reception)
4:30−5:15 p.m.
Franklin 6 (Level 4)

Training
4:30−5:15 p.m.
Franklin 9 (Level 4)

Virtual Environments
4:30−6:00 p.m.
Off site

THURSDAY, OCTOBER 4

Technical Group Program Chairs
5:30−6:45 p.m.
Room 411 (Level 4)

Social Events

MONDAY, OCTOBER 1

New Members/First Timers Welcome
6:00−6:30 p.m.
Salon I (Level 5)

Opening Reception
6:30−9:30 p.m.
Salon E (Level 5)

WEDNESDAY, OCTOBER 3

Early-Career Professionals Reception
5:00−6:00 p.m.
Independence Ballroom I (Headhouse Tower − Level 3)

Student Reception
5:30−6:30 p.m.
Liberty Ballroom (Headhouse Tower − Level 3)
Technical Tours

Buses will begin loading in front of the hotel on the corner of Market and 12th Street 15 minutes prior to the departure times listed below. Tickets for events not sold out may be purchased at the Registration Counter. Tickets must be presented when buses are loading.

At press time, the following tours were scheduled to take place; however, please check the mobile program app and the poster boards in the registration area for updates about canceled events. Tours with low attendance are subject to cancellation.

TUESDAY, OCTOBER 2
T1 – Boeing Philadelphia, 10:15 a.m. to 4:00 p.m.
T2 – ECRI Institute, 1:00 p.m. to 5:30 p.m.

WEDNESDAY, OCTOBER 3
T3 – Design Science Consulting, Inc., 3:40 to 6:00 p.m.

THURSDAY, OCTOBER 4
T4 – Environmental Tectonics Corporation’s National Aerospace Training and Research (NASTAR) Center, 8:45 a.m. to 12:15 p.m.
T5 – Children’s Hospital of Philadelphia (CHOP) Center for Simulation, Advanced Education and Innovation, University of Pennsylvania Perelman School of Medicine, 1:30 to 4:45 p.m.

Technical Program

At press time, the following workshops were scheduled to take place. However, check the mobile program app for updates.

Monday, October 1
9:00 a.m.–4:30 p.m.

ALL-DAY WORKSHOPS

WK1 – Usability Testing: A Hands-On Workshop to Improve User Experience
Pamela Savage-Knepshield, Diane Quarles, Christopher Paulillo, Napoleon Gaither, and Heidi Kim, U.S. Army Research Lab; Jeffrey Thomas, Headquarters, Department of the Army; Courtney Savage, HSI; Katherine Badt-Frissora, ASRC Federal Vistronix; Charles Hernandez, U.S. Army Research Lab; Rachael Lund, Naval Surface Warfare Center, U.S. Navy; Cheryl Coyle, SAS Institute; Kathryn Cohen, U.S. Army Research Lab
Monday, October 1, 9:00 a.m.–4:30 p.m.
Room 402 (Level 4)

Key to Abbreviations Used in This Program

<table>
<thead>
<tr>
<th>AS</th>
<th>Aerospace Systems</th>
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<th>Health Care</th>
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<td>Aging</td>
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<td>Individual Differences in Performance</td>
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<td>Children’s Issues</td>
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<td>Internet</td>
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<td>CE</td>
<td>Cognitive Engineering &amp; Decision Making</td>
<td>ME</td>
<td>Macroergonomics</td>
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<td>C</td>
<td>Communications</td>
<td>OE</td>
<td>Occupational Ergonomics (formerly Industrial Ergonomics)</td>
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<td>CS</td>
<td>Computer Systems</td>
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<td>Plenary Session</td>
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<td>Demonstrations</td>
<td>PP</td>
<td>Perception &amp; Performance</td>
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<td>Education</td>
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<td>Forensics Professional</td>
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<td>Interactive Posters</td>
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<td>General Sessions</td>
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<td>Workshops</td>
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WK2 − Behavioral Data Analytics
John Lee, U. of Wisconsin-Madison; Linda Boyle, U. of Washington
Monday, October 1, 9:00 a.m.–4:30 p.m.
Room 407 (Level 4)

Monday, October 1
1:30–5:00 p.m.
AFTERNOON WORKSHOP

WK6 − Mental Models and Their Impact on Scholarship and Practice: Improving Diversity and Inclusion in HF/E
Christine Kaunas, Texas A&M U. Health Science Center
Monday, October 1, 1:30–5:00 p.m.
Salon I (Level 5)

Monday, October 1
10:30 a.m.–5:00 p.m.
SF1 − Student Career and Professional Development Day
STUDENT FORUM
Monday, October 1, 10:30 a.m.–5:00 p.m.
Alternative Format
Salon B (Level 5)

10:30–11:45 a.m.
Session 1: Transitioning From Student to Professional
Chair: Taylor Kunkes, University at Buffalo, SUNY
Panelists: Rebecca Berg, Yale New Haven Health; Ashley Hughes, U. of Illinois at Chicago; Michael Jenkins, Charles River Analytics; Woodrow Gustafson, Pacific Science & Engineering Group

12:00–1:30 p.m.
The Mentoring Game Lunch Session
(complimentary for session attendees)

1:30–2:45 p.m.
Session 2: Build Your Network Through Speed Networking Bingo
Cochairs: Carolina Rodriguez-Paras, Texas A&M University, and Taylor Kunkes, University at Buffalo, SUNY
Panelists: Kathryn Tippey, Design Science; Farzan Sasangohar, Texas A&M U.; Ashley Hughes, U. of Illinois at Chicago; Michael Jenkins, Charles River Analytics

Monday, October 1
3:30–5:00 p.m.
Session 3: Human Factors in Practice: Past and Future Directions
Chair: Sean Kortschot, University of Toronto
Panelists: Valerie Gawron, MITRE Corp.; Patrick Stahl, Apple; Nathan Lau, Virginia Tech

Monday, October 1
3:30–5:00 p.m.
Council of Technical Groups
Salon A (Level 5)

Monday, October 1
4:45–6:15 p.m.
SS1 − National Ergonomics Month Expo
SPECIAL SESSIONS
Monday, October 1, 4:45–6:15 p.m.
Salon H Foyer (Level 5)
Alternative Format
Chair: Elizabeth Phillips, Brown U., NEM Committee Chair; Cochair: Joseph Keebler, Embry-Riddle Aeronautical U.

Monday, October 1
6:00–6:30 p.m.
New Members & First-Timers Session
Salon I (Level 5)

Monday, October 1
6:30–9:30 p.m.
Opening Reception
Salon E (Level 5)
Tuesday, October 2
8:00–10:00 a.m.

PL1 – Opening Plenary Session
PLENARY
Tuesday, October 2, 8:00–10:00 a.m.
Salon E (Level 5)
Chair: Christopher B. Mayhorn, North Carolina State U.
1. Presidential Address by Valerie J. Berg Rice, “Making This House a Home”
3. Presentation of Newly Elected Fellows
4. Presentation of HFES Awards

Tuesday, October 2
10:30 a.m.–12:00 p.m.

AC1 – Augmented Cognition
AUGMENTED COGNITION
Tuesday, October 2, 10:30 a.m.–12:00 p.m.
Franklin 12 (Level 4)
Lecture
Chair: Grace Teo, U. of Central Florida
1. Conner Motzkus, Douglas Getty, Andrea Campos, Joel Cooper, and David Strayer, U. of Utah, Utilizing a Remote LED Stimulus to Concurrently Measure Cognitive and Visual Task Demand
2. Camille Wheatley, Jess Esplin, Sydney Loveless, Joel Cooper, Francesco Biondi, and David Strayer, U. of Utah, Performance and Workload Trends: The Effects of Repeated Exposure to “High” Demand Tasks
4. Patrick Weis and Eva Wiese, George Mason U., Speed Considerations Can Be of Little Concern When Outsourcing Thought to External Devices
5. Erfan Pakdamanian, Lu Feng, and Inki Kim, U. of Virginia, The Effect of Whole-Body Haptic Feedback on Drivers’ Perception in Negotiating a Curve

CE1 – Team Cognition & Performance
COGNITIVE ENGINEERING AND DECISION MAKING
Tuesday, October 2, 10:30 a.m.–12:00 p.m.
Salon B (Level 5)
Lecture
Chair: Cullen Jackson, BIDMC/Harvard Medical School; Cochair: Linda Pierce, FAA
1. Ronald Stevens, UCLA School of Medicine/The Learning Chameleon; Trysha Galloway, The Learning Chameleon, Inc.; Ann Willemsen-Dunlap, Order of Saint Francis Hospital; Jamie Gorman, Georgia Tech; Donald Halpin, Order of Saint Francis Hospital, Making Sense of Team Information
2. Shannon Devlin, Jake Flynn, and Sara Riggs, Clemson U., Connecting the Big Five Taxonomies: Understanding How Individual Traits Contribute to Team Adaptability Under Workload Transitions
4. Braxton Hicks, Makenzie Pryor, John Sprufera, and Amy Greene, North Carolina State U.; Vicky Byrne, KBRwyle; Anne McLaughlin, North Carolina State U., Time Pressure and Teams: Contextual Factors Influencing Task Experience when Using a Cognitive Aid
5. Joshua Eaton, David Mendonca, and Matthew-Donald Sangster, Rensselaer Polytechnic Inst. (RPI), Attack, Damage, and Carry: Role Familiarity and Team Performance in League of Legends

FP1 – Forensic Practice
FORENSICS PROFESSIONAL; PRACTITIONER TRACK
Tuesday, October 2, 10:30 a.m.–12:00 p.m.
Franklin 11 (Level 4)
Lecture
2. Robert Morrison, Unaffiliated, The Ubiquitous Orange Traffic Cone: An Observational Study
4. Kenneth Nemire, HFE Consulting LLC, Consumer Perception of Portable Ladder Hazards and Warnings
5. Michael Vredenburgh and Meriel Bench, Vredenburgh & Associates, Inc., Why We Withdrew from Our First Forensics Case

HC1 – Town Hall on Patient-Centered Human Factors and Ergonomics
HEALTH CARE
Tuesday, October 2, 10:30 a.m.–12:00 p.m.
Salon D (Level 5)
Alternative Format
Chair: Richard Holden, Indiana U.–Indianapolis; Cochair: Rupa Valdez, U. of Virginia
OE1 – Virtual Models, Exoskeletons and Sensors
OCCUPATIONAL ERGONOMICS
Tuesday, October 2, 10:30 a.m.–12:00 p.m.
Salon A (Level 5)
Lecture
Chair: Gwen Malone, General Motors; Cochair: Divya Srinivasan, Virginia Tech
2. Mohammad Iman Mokhlespour Esfahani and Maury Nussbaum, Virginia Tech U., Detection of Occupational Physical Activities Using a Smart Textile System
3. Nicholas La Delfa, U. of Ontario Inst. of Technology; Clark Dickerson, U. of Waterloo, Enhancing Proactive Evaluation of Shoulder Fatigue in Digital Human Models
4. Logan Van Engelhoven, Nathan Poon, and Homayoon Kazerooni, U. of California, Berkeley; Alan Barr and David Rempel, U. of California San Francisco; Carisa Harris-Adamson, U. of California, Berkeley, Evaluation of an Adjustable Support Shoulder Exoskeleton on Static and Dynamic Overhead Tasks
5. Adrian de Gouw, Xiaoxu Ji, and Joel Cort, U. of Windsor, The Evaluation of Absolute Position Drift of Inertial-Based Motion Capture Systems

S1 – Safety in Transportation
SAFETY; COSPONSORED BY SURFACE TRANSPORTATION
Tuesday, October 2, 10:30 a.m.–12:00 p.m.
Franklin 8 (Level 4)
Lecture
Chair: Swaroop Dinakar, Crash Safety Research Center, LLC; Cochair: William Vigilante, Vigilante Forensic
1. Yourui Tong, Bochen Jia, Yi Wang, and Si Yang, U. of Michigan-Dearborn, Detecting Pedestrian Situation Awareness in Real-Time: Algorithm Development Using Heart Rate Variability and Phone Position
3. Hillary Abraham, Bryan Reimer, and Bruce Mehler, Massachusetts Inst. of Technology, Learning to Use In-Vehicle Technologies: Consumer Preferences and Effects on Understanding
4. Pedro Valero-Mora, Universitat de Valencia; David Shinar, Ben Gurion U. of the Negev; Rubén Ledesma, Universidad de Mar del Plata-CONICET; Narelle Haworth, Queensland U. of Technology, Why Women Do Not Use the Helmet When Riding a Bicycle
5. Brandon Richards, GE Aviation/Embry-Riddle Aeronautical U., Error Probabilities and Relationships in Assembly and Maintenance of Aircraft Engines

SD1 – How to Train Your Intelligent Agent and Other Applications of Models and Algorithms
SYSTEM DEVELOPMENT; COSPONSORED BY COMPUTER SYSTEMS, HUMAN PERFORMANCE MODELING
Tuesday, October 2, 10:30 a.m.–12:00 p.m.
Franklin 7 (Level 4)
Lecture
Chair: John Winters, BCI; Cochair: Petra Alfred, Pacific Science & Engineering Group, Inc.
1. Samantha Krenning and Karen Feigh, Georgia Inst. of Technology, Characteristics That Influence Perceived Intelligence in AI Design
2. Heejin Jeong and Yili Liu, U. of Michigan, Development and Evaluation of a Computational Human Performance Model of In-vehicle Manual and Speech Interactions
4. Steve Dorton, Ian Frommer, and Margaret Bailey, Sonalysts; Teresita Sotomayor, Army Research Lab, Prioritizing Design Goals for a Medical Simulator Using Pairwise Comparisons
5. Esa Rantanen, Rochester Inst. of Technology; Limor Hochberg, UL Wiklund; Mingyang Di, American Express; Diego Klabjan, Northwestern U., Decluttering Geographic Data View Displays

SS2 – Past President’s Forum – Human Factors/ Ergonomics and Multidisciplinary Collaboration: Challenges and Lessons Learned
SPECIAL SESSIONS
Tuesday, October 2, 10:30 a.m.–12:00 p.m.
Salon C (Level 5)
Discussion Panel
Chair: Nancy Cooke, Arizona State U.
Panelists: Ronald Boring, Idaho National Lab; Mica Endsley, SA Technologies, Inc.; Cleotilde Gonzalez, Carnegie Mellon U.; Emilie Roth, Roth Cognitive Engineering; Eduardo Salas, Rice U.

ST1 – Automation, Attention, and Feedback
SURFACE TRANSPORTATION
Tuesday, October 2, 10:30 a.m.–12:00 p.m.
Franklin 6 (Level 4)
Lecture
Chair: Bochen Jia, U. of Michigan; Cochair: Winnie Chen, U. at Buffalo, SUNY
2. Nathan Hatfield, Yusuke Yamani, Dakota Palmer, and Nicole Karpinkey, Old Dominion U.; William Horrey, AAA Foundation for Traffic Safety; Siby Samuel, U. of Waterloo, Comparison of Visual Sampling Patterns Under Simulated L2 and L0 Systems
4. Jonas Radlmayr, Karin Brüch, Kathrin Schmidt, Christine Solbeck, and Tristan Wehner, TU Munich, Peripheral Monitoring of Traffic in Conditionally Automated Driving
5. Natalie Lodinger and Patricia DeLucia, Texas Tech U., Does Automated Driving Affect Time-to-Collision Judgments?

Tuesday, October 2
12:00 noon–1:15 p.m.

Human Factors Editorial Board (Lunch)
Room 411 (Level 4)

Local Chapter Presidents (Lunch)
Room 407 (Level 4)

Tuesday, October 2
1:30–3:00 p.m.

C1 – Communications Among People and Groups
COMMUNICATIONS
Tuesday, October 2, 1:30–3:00 p.m.
Franklin 12 (Level 4)
Lecture
Chair: Harry Blanchard, New Jersey Inst. of Technology
1. Shanee Dawkins, Kristen Greene, Michelle Steves, Mary Theofanos, Yee-Yin Choong, and Susanne Furman, NIST; Sandra Prettyman, Culture Catalyst, LLC, Public Safety Communication User Needs: Voices of First Responders
2. Tanja Stoll, Nadine-Rebecca Strelau, and Martin Baumann, Ulm U., Social Interactions in Traffic: The Effect of External Factors
3. Justine Rockwood and Dan Nathan-Roberts, San José State U., A Systematic Review of Communication in Distributed Crews in High-Risk Environments
4. William Volante, Michael Garcia, and Peter Hancock, U. of Central Florida, Sharpening the Tool of Language: Examining Anchors and Ambiguities
5. Victor Finomore, West Virginia U.; Christopher McClernon, Air Force; Andrea Calvo, MIT; Lauren Brooks, Air Force, Multimodal Mobile Technology to Aid in Remote Guidance From Subject Matter Expert

CE2 – Machine Learning and Human Factors: Status, Applications, and Future Directions
COGNITIVE ENGINEERING AND DECISION MAKING
Tuesday, October 2, 1:30–3:00 p.m.
Salon B (Level 5)
Discussion Panel
Chair: Nathan Lau, Virginia Tech
Panelists: Linda Ng Boyle, U. of Washington; Lex Fridman, Massachusetts Inst. of Technology; Brett Borghetti, Air Force Inst. of Technology; Laura Barnes, U. of Virginia; John Lee, U. of Wisconsin-Madison; Michael Hildebrandt, Inst. for Energy Technology

CI1 – Trends in Infant Sleep: What Do the Data Show? What Are Caregivers Thinking?
CHILDREN’S ISSUES
Tuesday, October 2, 1:30–3:00 p.m.
Franklin 10 (Level 4)
Discussion Panel
Chair: Rana Balci-Sinha, U.S. Consumer Product Safety Commission

GS1 – Human Factors and Ergonomics in Diversity, Inclusion, and Social Justice Research
GENERAL SESSIONS
Tuesday, October 2, 1:30–3:00 p.m.
Salon C (Level 5)
Discussion Panel
Chair: Abigail Wooldridge, U. of Wisconsin-Madison
Panelists: Theresa Nguyen, Texas Tech U.; Rupa Valdez, U. of Virginia; Enid Montague, DePaul U.; Mattie Milner, Embry-Riddle Aeronautical U.; Michael Dorneich, Iowa State U.; Rod Roscoe, Arizona State U.

GENERAL SESSIONS; PRACTITIONER TRACK
Tuesday, October 2, 1:30–3:00 p.m.
Franklin 11 (Level 4)
Invited Address
Chair: Avi Parush, Technion, Israel Inst. of Technology
Invited Speaker: Charles Mauro, MAURO Usability Science
HC2 – Care Transitions and Interruptions

HEALTH CARE
Tuesday, October 2, 1:30–3:00 p.m.
Salon D (Level 5)
Lecture
Chair: Cullen Jackson, BIDMC / Harvard Medical School; Cochair: Kristen Webster, Johns Hopkins

1. Katherina Jurewicz, Clemson U.; Myrtede Alfred, Medical U. of South Carolina; David Neyens, Clemson U.; Ken Catchpole, Medical U. of South Carolina; Anjali Joseph, Clemson U.; Scott Reeves, Medical U. of South Carolina, Investigating Intraoperative and Intraprofessional Handoffs in Anesthesia

2. Laura Militello, Applied Decision Science, LLC; Nicholas Rattray, Mindy Flanagan, and Zamal Franks, Roudebush Veterans Affairs Medical Center; Shakaib Rehman, Phoenix Veterans Affairs Healthcare Systems; Howard Gordon, Jesse Brown Veterans Affairs Medical Center; Paul Barach, Children’s Hospital, Wayne State U. School of Medicine; Richard Frankel, Roudebush Veterans Affairs Medical Center, Cognitive Preparation for End-of-Shift Handoffs

3. Katherine Forsyth and Hunter Hawthorne, Mayo Clinic; Nibras El-Sherif, Hurley Medical Center; Skylar Pagel, Iowa State U.; Renaldo Blocker, Mayo Clinic, A Pilot Study Characterizing Interruptions Experienced by Emergency Medicine Residents


5. Curtis Craig, U. of Minnesota; Brady Patzer, Wichita State U.; Nichole Morris, U. of Minnesota, Minimizing the Impact of Interruptions in a Pediatric Retail Pharmacy


OE2 – Exposure & Task Analysis Part 1

OCCUPATIONAL ERGONOMICS
Tuesday, October 2, 1:30–3:00 p.m.
Salon A (Level 5)
Lecture
Chair: Mary Barbe, Temple U., Lewis Katz School of Medicine; Monica Jones, U. of Michigan Transportation Research Inst.

1. Mary Barbe and Vicky Massicotte, Temple U., Lewis Katz School of Medicine; Soroush Assari, Temple U., College of Engineering; Nagat Frara, Michele Harris, and Mamta Amin, Temple U., Lewis Katz School of Medicine; Tamara King, College of Osteopathic Medicine; Geneva Cruz and Steve Popoff, Temple U., Lewis Katz School of Medicine, Prolonged High Force, High Repetition Pulling Induces Trabecular Bone Loss and Microcracks, While Low Force, High Repetition Pulling Induces Bone Anabolism

2. Sean Gallagher, Mark Schall, Jr., Richard Sesek, and Rong Huangfu, Auburn U., Use of Varied Definitions of Repetition with the Distal Upper Extremity Tool (DUET)

3. Justin Haney, Tianke Wang, and Clive D’Souza, U. of Michigan; Monica Jones and Matthew Reed, U. of Michigan Transportation Research Inst., Modeling Hand Trajectories During Sequential Reach Movements in a Pulley Threading Task

4. Hossein Motabar, West Virginia U.; Saman Madinei, Virginia Tech; Xiaogeng Ning, West Virginia U., The Influence of Load Handling Height on Shoulder Biomechanics during Sudden Loading


6. Monica Jones, Sheila Ebert, and Matthew Reed, U. of Michigan Transportation Research Inst., Investigating the Effect of Task Parameters on Force Exertion Rating of One-Handed Pulling Tasks

PD1 – Value Engineering: Participatory Methods for Designing Useful, Cost-Effective Products

PRODUCT DESIGN
Tuesday, October 2, 1:30–3:00 p.m.
Franklin 6 (Level 4)
Invited Address
Chair: Juan Gilbert, U. of Florida
Invited Speaker: Greg Andrysiak, Cost Innovations, LLC

S2 – Assessing and Achieving Compliance

SAFETY
Tuesday, October 2, 1:30–3:00 p.m.
Franklin 8 (Level 4)
Lecture
Chair: Claudia Acemyan, Rice U.; Cochair: Terri Hall, Lockheed Martin

1. Seyed M. Miran and Chen Ling, The U. of Akron, Factors Influencing People’s Protective Action during three Tornado Events in Oklahoma City Metropolitan Area in May 2013

2. Timothy Neville, S. Camille Peres, Niles Ad, Changwon Son, Pranav Bagaria, Noor Quddus, and M. Sam Mannan, Texas A&M U., Assessing Procedure Adherence Under Training Conditions in High-Risk Industrial Operations

3. Roger Lew, U. of Idaho; Ronald Boring and Thomas Ulrich, Idaho National Lab, Transitioning Nuclear Power Plant Main Control Room From Paper-Based Procedures to Computer-Based Procedures
4. Ranjana Mehta and Sarah Thomas, Texas A&M U., Effects of Time Pressure and Experience Level on Worker Perceived Workload: Implications for Procedural Designs in High-Risk Industrial Tasks
6. Jaqueline Pereira Da Silva, U. of Iowa, Combining Safety Climate and Behavior-Based Safety to Achieve Compliance: A Sociotechnical Systems Model

SF2 – Cognitive Considerations for Health Care Practitioners and Consumers
STUDENT FORUM; COSPONSORED BY HEALTH CARE; PRACTITIONER TRACK
Tuesday, October 2, 1:30–3:00 p.m.
Franklin 7 (Level 4)
Lecture
Chair: Irwin Hudson, U.S. Army Research Lab; Cochair: James Flores, Texas A&M U.
1. James Flores and Farzan Sasangohar, Texas A&M U., Towards a Theoretical Model of Aggregate Fatigue in Nursing
2. Dina Kanaan and Nadine Moacdieh, American U. of Beirut, Effects of Workload and Auditory Interruptions on Emergency Dispatching Performance
4. Emma Scharett, Shradhha Narasimha, Kapil Chalil Madathil, Mackenzie Wilson, and Nicole Davis, Clemson U., Informational Needs of Urinary Incontinent Patients on Online Peer Support Groups: A Pilot Study
5. Amal Ponathil, Necmettin Firat Ozkan, and Jeffrey Bertrand, Clemson U.; Brandon Welch, Medical U. of South Carolina; Kapil Chalil Madathil, Clemson U., An Investigation of the Usability Issues of a Family Health History Compiling Application

TUESDAY, OCTOBER 2
3:30–5:00 p.m.
CE3 – Human Factors in Cybersecurity – Perspectives From Industries
COGNITIVE ENGINEERING AND DECISION MAKING
Tuesday, October 2, 3:30–5:00 p.m.
Salon B (Level 5)
Discussion Panel
Chair: Nathan Lau, Virginia Tech
Panelists: Robert Pastel, Michigan Tech; Melissa Chapman, Salient CRGT; Jennifer Minarik, Dell; Jonathan Petit, OnBoard Security; David Hale, Michigan Tech

CI2 – Children’s Issues
CHILDREN’S ISSUES
Tuesday, October 2, 3:30–5:00 p.m.
Franklin 10 (Level 4)
Lecture
Chair: Karen Jacobs, Boston U.
1. Helen Zaikina-Montgomery, Grand Canyon U.; N. Silver, U. of Nevada, Las Vegas, An Examination of Icons, Signal Words, Color, and Messages in Warnings for Children on the Internet
3. Sommayah Soliman and Dan Nathan-Roberts, San Jose State U., Evaluating Children’s Interaction with Touchscreens From 0 to 8 Years Old

PF2 – Understanding and Evaluating Eyewitness Recall of Events
FORENSICS PROFESSIONAL
Tuesday, October 2, 3:30–5:00 p.m.
Franklin 11 (Level 4)
Alternative Format
Chair: Jeffrey Martin, DSI Consulting; Cochair: Joseph Cohen, Error Analysis, Inc.

GS3 – Partnering Across the Atlantic: What HFES and CIEHF Can Learn and Achieve by Working Together
GENERAL SESSIONS
Tuesday, October 2, 3:30–5:00 p.m.
Salon C (Level 5)
Discussion Panel
Chair: Kermit Davis, HFES President-Elect
Panelists: Valerie Rice, President, Human Factors and Ergonomics Society; Ronald Boring, HFES Member; Claire Dickinson, Past President, Chartered Institute of Ergonomics and Human Factors; Patrick Waterson, CIEHF Chartered Member

Tuesday, October 2
4:30–5:30 p.m.
Education Division
Room 406 (Level 4)
HC3 — Health IT Design and Usability
HEALTH CARE
Tuesday, October 2, 3:30–5:00 p.m.
Salon D (Level 5)
Lecture
Chair: Kelly Caine, Clemson U.; Cochair: Dee Miller, Siemens Healthcare Innovation Center
1. Jason Saleem, U. of Louisville; Jennifer Herout, Veterans Health Admin., Transitioning From One Electronic Health Record (EHR) to Another: A Narrative Literature Review
2. Anne Miller, Paul Hudson, and Malcolm Green, New South Wales Health, The Role of EHRs in Rapid Response Callouts: A Case Study
3. Rebecca Green, Rachael Brandt, Anne Miller, Cerner Corp.; The Cerner Human Factors Team, Cerner Corp., A Framework for Integrating Safety in Usability Engineering for Electronic Health Records
5. Julie Hammett, Farzan Sasangohar, and Mark Lawley, Texas A&M U., Home Telemonitoring Platforms for Adults with Diabetes Mellitus: A Narrative Review of Literature

OE3 — Occupational Ergonomics
OCCUPATIONAL ERGONOMICS
Tuesday, October 2, 3:30–5:00 p.m.
Salon A (Level 5)
Lecture
Chair: Carisa Harris, U. of California, San Francisco; Julie Brazier, Ford Motor Company
1. Brian Lowe, Patrick Dempsey, and Evan Jones, NIOSH, Assessment Methods Used by Certified Ergonomics Professionals
3. Mahmoud Metwali and Nathan Fethke, U. of Iowa, Are Worker Perceptions of Task Ease and Performance Associated With Within-Subject Motor Variation During Repetitive Work?
4. Pranav Kannan, Noor Quddus, S. Camille Peres, and M. Sam Mannan, Texas A&M U., Can We Simplify Complexity Measurement? A Primer Toward Usable Framework for Industry Implementation

PD2 — Stanley H. Caplan User-Centered Product Design Award Session
PRODUCT DESIGN
Tuesday, October 2, 3:30–5:00 p.m.
Franklin 6 (Level 4)
Alternative Format
Chair: Adam Shames, Core Human Factors, Inc.; Cochair: Kathleen Kremer, Bose
The winners of the Stanley H. Caplan User-Centered Product Design Award will present their work.

ProfDev1 — Creating Amazing Leaders
PROFESSIONAL DEVELOPMENT; COSPONSORED BY EDUCATION
Tuesday, October 2, 3:30–5:00 p.m.
Franklin 8 (Level 4)
Alternative Format
Chair: Haydee Cuevas, Embry-Riddle Aeronautical U.; Cochair: Kadie Mullins, Embry-Riddle Aeronautical U.
Panelists: Baron Summers, Independent Consultant; Gabriella Hancock, California State U., Long Beach

SS3 — HFES Journal Awards and Human Factors Prize Presentations
SPECIAL SESSIONS
Tuesday, October 2, 3:30–5:00 p.m.
Franklin 12 (Level 4)
Awards will be presented for the best papers published in Human Factors (Jerome H. Ely Award), Ergonomics in Design, and the Journal of Cognitive Engineering and Decision Making. The 2018 Human Factors Prize will also be presented.

ST2 — Assistance Systems: Design and Redesign
SURFACE TRANSPORTATION; PRACTITIONER TRACK
Tuesday, October 2, 3:30–5:00 p.m.
Franklin 7 (Level 4)
Lecture
Chair: Shan Bao, U. of Michigan; Cochair: Valarie Yerdon, U. of Central Florida
1. Lauren Mims, Johnell Brooks, Mitchell Beckman, Breno Schwambach, Robert Knizek, Dheemanth Uppalapati, Casey Jenkins, and Paul Venhovens, Clemson U.; Ken Melnrick, DriveSafety, Inc.; Jochen Karg, Julian Weber, and Joerg Schulte, BMW Group, Development and Usability Testing of a Novel Parking Assist System that Aids Other Drivers While Parking
3. Seunghoon Lee and Minjae Kim, POSTECH; Sunwoo Choi, Hyundai Motor Company; Heecheon You, POSTECH, Evaluation of a Motion Seat System for Reduction of a Driver’s Passive Task-Related (TR) Fatigue

VE1 – Motion Sickness in Virtual Environments
VIRTUAL ENVIRONMENTS
Tuesday, October 2, 3:30–5:00 p.m.
Franklin 9 (Level 4)
Discussion Panel
Chair: Sarah Beadle, Clemson U.
Panelists: Eric Muth, Clemson U.; Behrang Keshavarz, Toronto Rehabilitation Inst.–U. Health Network; L. James Smart, Jr., Miami U.; Richard So, Hong Kong U. of Science and Technology

Tuesday, October 2
5:00–7:00 p.m.

POS – Interactive Posters Session and Reception
INTERACTIVE SESSIONS
Tuesday, October 2, 5:00–7:00 p.m.
Salon E (Level 5)
Poster Session
Chair: Roger Lew, U. of Idaho
All posters will be presented in one-hour periods. This enables all poster authors to view other posters when not required to be stationed at their poster boards to discuss their work with attendees. The schedule is as follows:
5:00–6:00 p.m.: Authors of odd-numbered posters will be present at their boards.
6:00–7:00 p.m.: Authors of even-numbered posters will be present at their boards.

Aerospace Systems
2. J. Christopher Brill, U.S. Air Force Research Lab; Anthony Gibson, Consortium of Universities of the Washington Metropolitan Area; Ben Lawson and Angus Rupert, U.S. Army Aeromedical Research Lab, Error Analysis for Localization of Multisensory Cues for Countering Spatial Disorientation
3. Salim Mouloua, James Ferraro, Mustapha Mouloua, and Peter Hancock, U. of Central Florida, Trend Analysis of Unmanned Aerial Vehicles (UAVS) Research Published in the HFES Proceedings

Aging
4. Richard Holden, Indiana U.; Pushkar Joshi, Kartik Rao, Anagha Varrier, Carly Daley, Davide Bolchini, and Jessica Blackburn, Indiana U.–Purdue U. Indianapolis; Tammy Toscos, Shauna Wagner, and Elizabeth Martin, Parkview Research Center; Amy Miller, Radiation Oncology, IU School of Medicine; Michael Mirro, Parkview Research Center, Modeling Personas for Older Adults with Heart Failure
5. Kenneth Blocker, U. of Illinois at Urbana-Champaign; Kathleen Insel and Jeannie Lee, U. of Arizona; Qiong Nie, U. of Illinois at Urbana-Champaign; Abidemi Ajuwon, U. of Arizona; Wendy Rogers, U. of Illinois at Urbana-Champaign, User Insights for Design of an Antihypertensive Medication Management Application

Augmented Cognition
6. Eric Greenlee, Tiffany Lui, and Emily Maw, Texas Tech U., Is Neuroergonomic Monitoring Nonintrusive? An Examination of Transcranial Doppler Sonography

Children’s Issues
7. Marika Hein and Dan Nathan-Roberts, San Jose State U., Socially Interactive Robots Can Teach Young Students Language Skills: A Systematic Review
8. Ellie Arndt and Douglas Peterson, U. of South Dakota, Experience Alters Perceptions of Educational Technology Acceptance among Adolescents

Cognitive Engineering and Decision Making
9. Luis Meireles, FC Porto – Futebol SAD/School of Psychology, U. of Minho; Luis Alves, FC Porto – Futebol SAD; José Cruz, School of Psychology, U. of Minho, Conceptualization and Measurement of Individual Situation Awareness (SA) in Expert Populations across Operational Domains: A Systematic Review of the Literature With a Practical Purpose on Our Minds
12. Spencer Kohn, George Mason U.; Daniel Quinn and Richard Pak, Clemson U.; Ewart de Visser, U.S. Air Force Academy; Tyler Shaw, George Mason U., Trust Repair Strategies With Self-Driving Vehicles: An Exploratory Study

13. Helen Hodgetts, Cardiff Metropolitan U.; Cindy Chamberland, Alexandre Marois, Jean-Denis Latulippe-Theriault, François Vachon, and Sébastien Tremblay, Université Laval, Priority or Parity? Scanning Strategies and Detection Performance of Novice Operators in Urban Surveillance


15. Igor Dolgov, New Mexico State U.; Jeremy Schwark, Exponent, Acquiescence Bias in Aided Visual Search


17. Lisa Vangness and Michael Young, Kansas State U., Central and Peripheral Cues to Difficulty in a Dynamic Task


Computer Systems


20. Claudia Acemyan, Philip Kortum, Jeffrey Xiong, and Dan Wallach, Rice U., 2FA Might Be Secure, but It’s Not Usable: A Summative Usability Assessment of Google’s Two-Factor Authentication (2FA) Methods

21. Dennis Harris, Trevor McIntyre, and Keith Jones, Texas Tech U., A Comparison of Near-Field Gesture, Touch, and Mouse Input

Education

22. Ecem Olcum and Valerie Sims, U. of Central Florida, The Effects of Anxiety and Seductive Details on Cognitive Load and Learning

23. Patricia DeLucia, Jeong-Hee Kim, Ngan Nguyen, Eugene Wang, and James Yang, Texas Tech U., Outcomes From a Research Experience in Undergraduates (REU) Program Focused on Behavioral Research With Real-World Implications


25. Brandon Fluegel, Sarah Powers, and Mark Scerbo, Old Dominion U., The Effect of Interruptions on Novices Learning a Challenging Surgical Skill

26. Pilar Ramos-Nunez, Laura Schaeffer, and Richard Catrambil, Georgia Inst. of Technology, Problem Solving with Color: Color’s Effect on Affect and Problem Solving with Subgoal Labels

Environmental Design

27. Nancy Stone, Missouri U. of Science and Technology, Environmental Design, Personality, and Online Learning

Health Care

28. Scott Winter, Joseph Keebler, and Stephen Rice, Embry-Riddle Aeronautical U.; Rian Mehta, Florida Inst. of Technology; Bradley Baugh, Embry-Riddle Aeronautical U., Driverless Ambulances: A Possibility, But Will Patients Ride?

29. Laura Nicholson, York U.; Olivia Lin and Edward Shim, Studio 1 Labs Inc., Intelligent Bed Sheet Detects Respiratory Patterns

30. Zach Kaznica, Orysia Bezpaklo, Grayson Privette, Kimberly Wilson, and James Won, Children’s Hospital of Philadelphia, Integrating the SEEV Model With Performance Improvement Methods to Increase Hand Hygiene in the Operating Room

31. Tiffany Tran and Dan Nathan-Roberts, San Jose State U., Design Considerations in Wearable Technology for Patients With Bipolar Disorder

32. Lorenzo Barberis Canonico and Nathan McNeese, Clemson U., Intelligent and Human-Centered Clinical Checklists: A Voice Interface for Virtualized Clinical Paths

33. Martina Klein, Patricia DeLucia, and Brittany Neilson, Texas Tech U., The Impact of Distance Between Displays on Visual Scanning in the Laparoscopic Training Environment: The Role of Effort


35. Rachel Wynn, Allan Fong, Danielle Weldon, Raj Ratwani, and Kristen Miller, National Center for Human Factors in Healthcare, MedStar Health, Oncology-Related Patient Safety Events

36. Joel Mumma and Francis Durso, Georgia Inst. of Technology; Michelle Dyes, Navicent Health; Amy Kicklighter, Children’s Hospital of Atlanta, Detecting Threats to Patient Well-Being: Change Blindness in Pediatric Critical Care Nurses

**Individual Differences in Performance**
40. Nicolas Uszak and James Szalma, U. of Central Florida, *Aspirations and Motivations for Facebook Use Through SEM Modeling*
41. Michael Wilson, U.S. Army Aeromedical Research Lab; Amelia Kinsela, Clemson U., *The MSSQ-S Had a Stronger Correlation to Actual Motion Sickness Than the MSHQ*
43. Salim Mouloua, Mustapha Mouloua, Daniel McConnell, and Peter Hancock, U. of Central Florida, *The Effects of Handedness and Dominance on Motor Task Performance*

**Internet**
44. David Schuster and Steven Wu, San Jose State U., *Toward Cyber Workforce Development: An Exploratory Survey of Information Security Professionals*

**Occupational Ergonomics**
47. Zachary Merrill, Subashan Perera, and Rakié Cham, U. of Pittsburgh, *Torso Segment Parameter Prediction in Working Adults*
48. Alexandre Marois, Université Laval; Daniel Lafond and Jean-François Gagnon, Thales Research and Technology Canada; François Vachon, Université Laval; Marie-Soleil Cloutier, Institut National de Recherche Scientifique, *Predicting Stress Among Pedestrian Traffic Workers Using Physiological and Situational Measures*
49. Matthew Thiese, U. of Utah; Ming-Lun (Jack) Lu, National Inst. of Occupational Safety and Health (NIOSH); Andrew Merryweather, U. of Utah; Sue Ferguson, Ohio State U.; Ruoliang Tang, U. of Wisconsin-Milwaukee; Betty Malloy, American U.; William Marras, Ohio State U.; Kurt Hegmann, U. of Utah; Arun Garg and Jay Kapellusch, U. of Wisconsin-Milwaukee, *Psychosocial Factors in a Pooled Analysis of Low Back Pain Prospective Cohorts*

**Perception & Performance**
50. Patricia DeLucia and Eric Greenlee, Texas Tech U.; Joel Warm, AFRL-WPAFB, *Does the Vigilance Decrement Occur for Elementary Features?*
52. Andrew Stets and William Helton, George Mason U., *Dual-Task Interference: Swimming and Verbal Free Recall*
55. Terence Tyson and Patrick Cravalho, San Jose State U., *Optimizing Waveform Descriptors and Pupillometry of the Pupillary Light Reflex Using Data Acquired from Video-Based Eye Trackers*
56. Himika Hagiwara and Himika Hagiwara, San Jose State U., *Trends in HRC and Their Effects on Human Operators’ Sense of Presence in Manufacturing Settings*
59. Michael Crites, Texas Tech U.; Jamie Gorman, Georgia Inst. of Technology, *Visuomotor Coupling During Two-Handed Tasks: An Investigation of Bimanual and Intermanual Coordination*
Product Design
60. Dar-Wei Chen and Laura Schaeffer, Georgia Inst. of Technology; Kimberly Preusse, Facebook; Thomas Gable, Microsoft; Carolyn Hartzell, Sean McGlynn, Angela Yoo, and Christina Gipson, Georgia Inst. of Technology; David Kim, CDC, Improving the U.S. Adult Immunization Schedule by Applying Usability Principles
61. Matthew Pierce, William Shelstad, Emily Rickel, and Barbara Chaparro, Embry-Riddle Aeronautical U., Thinking “Out-of-the-Box” with Board Games
62. Susanne Furman, Mary Theofanos, John Libert, John Grantham, and Brian Stanton, NIST, Mobile Phone Fingerprinting: A Picture is Worth a Thousand Words
63. Thomas Schnieders and Richard Stone, Iowa State U., Ranking Importance of Exoskeleton Design Aspects

Safety
68. Joanne Ullman and Ned Silver, U. of Nevada Las Vegas, Perceived Effectiveness of Potential Music Piracy Warnings
69. Sarah Hemler, Mark Redfern, Joel Haight, and Kurt Beschorner, U. of Pittsburgh, Influence of Natural Wear Progression on Shoe Floor Traction − A Pilot Study
70. Richard Stone, Brandon Moeller, and Thomas Schnieders, Iowa State U.; Ahmad Mumani, Yarmouk U., Vastus and Patellar Protection with Range of Motion Pad − Advanced Personal Protective Equipment for the Lower Body
71. Jason Parker, Daphne Whitmer, and Valerie Sims, U. of Central Florida, Warnings for Hurricane Irma: Trust of Warning Type and Perceptions of Self-Efficacy and Susceptibility
72. Jasmine Granados, Matthew Hopper, and Jibo He, Wichita State U., A Usability and Safety Study of Bone-Conduction Headphones During Driving While Listening to Audiobooks
73. Adam Armijo and Joel Suss, Wichita State U., Use of an Ecologically Valid Test of Firearm Functioning to Assess Differences Between Perceived and Actual Firearm Safety Knowledge
74. Daniel Quinn and Darlene Edewaard, Clemson U., Exploring the Combined Effects of Conspicuity Aids and Safety Automation on Vulnerable Road User Recognition

Surface Transportation
75. Emily Anania, Embry-Riddle Aeronautical U.; Rian Mehta, Florida Inst. of Technology; Daniel Marte, Stephen Rice, and Scott Winter, Embry-Riddle Aeronautical U., Which Factors Predict Consumer Willingness to Ride in Driverless Vehicles?
76. Johnathan McKenzie, Karim Zahed, and Jeff Warner, Texas A&M; Halit Uster, Southern Methodist U.; Thomas Ferris, Texas A&M U., Survey and Modeling Approach to Predicting Driver Turnover in Long-Haul Trucking
77. Samuel Levulis, Patricia DeLucia, and James Yang, Texas Tech U.; Vivian Nelson, The U. of Arkansas at Pine Bluff, Does Perceived Harm Underlie Effects of Vehicle Size on Overtaking Judgments During Driving?
78. Joscha Wasser and Cyriel Diels, Coventry U.; Anthony Baxendale, HORIBA MIRA; Michael Tovey, Coventry U., Ergonomic Evaluation of a Driverless Pod Design
79. Fangda Zhang, Shashank Mehrotra, and Shannon Roberts, U. of Massachusetts Amherst, Examining the Effect of Social Influence on Young Drivers’ Behavior
81. Canmanie Ponnambalam, Ryan Cheng, and Birsen Donmez, U. of Toronto, Effects of Searching for Street Parking on Driver Behavior and Physiology: Results From an On-Road Instrumented Vehicle Study

System Development
82. Ian Robertson and Philip Kortum, Rice U., Extraneous Factors in Usability Testing: Evidence of Decision Fatigue During Sequential Usability Judgments
83. Katarina Crenshaw, DCGS-A, Conducting User Engagements Within the DoD: Barriers, Analysis, and Results

Test and Evaluation
85. Meiyuqi Gao, Philip Kortum, and Frederick Oswald, Rice U., Psychometric Evaluation of the USE (Usefulness, Satisfaction, and Ease of use) Questionnaire for Reliability and Validity

87. Laura Rabbitt, Jacob Hasselgren, Cynthia Cook, and Yevgeniy Sirotin, SAIC, Measuring Satisfaction With Standard Survey Instruments and Single-Button Responses on Kiosks


89. Matthew Canham, Stephen Fiore, and Bruce Caulkins, U. of Central Florida, Developing Training Research to Improve Cyber Defense of Industrial Control Systems

90. Stephanie Brown, Jose Villa, Clifford Hancock, and Leif Hasselquist, Natick Soldier Research, Development and Engineering Center, Stance and Transition Movement Effects on Marksmanship Performance of Expert Shooters During a Simulated Multiple-Target Engagement Task

91. Ji hye Song, Olivia Newton, Stephen Fiore, Jonathan Coad, Jared Clark, Corey Pittman, and Joseph LaViola, U. of Central Florida, Examining Impact of Training and Feedback on Visualization-Supported Decision Making under Uncertainty


Virtual Environments


94. Elaine Thai and Dan Nathan-Roberts, San Jose State U., Social Skills Focuses of Virtual Reality Systems for Individuals Diagnosed with Autism Spectrum Disorder; A Systematic Review


Tuesday, October 2
7:00–7:30 p.m.

HFES Annual Business Meeting
Salon C (Level 5)

Tuesday, October 2
7:30–9:30 p.m.

Health Care & Product Design Technical Group Reception
Off Site
Wednesday, October 3
6:30–8:00 a.m.

**Education Technical Group Networking/Business Meeting (Breakfast)**
6:30–8:00 a.m.
Room 407 (Level 4)

**HFES Scientific Publications Committee (Breakfast)**
7:00–8:00 a.m.
Conference Suite 3 (Level 3)

**Outreach Division Meeting (Breakfast)**
7:00–8:00 a.m.
Room 410 (Level 4)

**Perception & Performance Technical Group Networking/Business Meeting (Breakfast)**
7:00–8:00 a.m.
Room 404 (Level 4)

Wednesday, October 3
8:00–9:30 a.m.

**CE4 – Automation & Human-Agent Teams**

**COGNITIVE ENGINEERING AND DECISION MAKING**
Wednesday, October 3, 8:00–9:30 a.m.
Salon B (Level 5)
Lecture
Chair: Sylvain Bruni, Aptima
2. David Grimm, Georgia Inst. of Technology; Mustafa Demir, Arizona State U.; Jamie Gorman, Georgia Inst. of Technology; Nancy Cooke, Arizona State U., Team Situation Awareness in Human-Autonomy Teaming: A Systems Level Approach
5. Kimberly Pollard, Stephanie Lukin, Matthew Marge, Ashley Foots, and Susan Hill, U.S. Army Research Lab, How We Talk With Robots: Eliciting Minimally Constrained Speech to Build Natural Language Interfaces and Capabilities

**CS1/I – Mark Resnick Best Paper Competition**

**COMPUTER SYSTEMS; COSPONSORED BY INTERNET**
Wednesday, October 3, 8:00–9:30 a.m.
Franklin 11 (Level 4)
Lecture
Chair: Anand Gramopadhye, Clemson U.; Cochair: Jay Elkerton, Emerson Process Management
1. Douglas Gillan, North Carolina State U.; Jeff Sorge, AT&T; Randolph Bias, U. of Texas at Austin, Fitting Motivation to Fitts’ Law: Effect of a Penalty Contingency on Controlled Movement
2. Kelly Satterfield, ORISE; Vincent Mancuso, MIT Lincoln Lab; Adam Strang, U.S. Air Force Research Lab; Eric Greenlee, Texas Tech U.; Brent Miller and Gregory Funke, Air Force Research Lab, When Actions Speak Louder Than Words: Using Changes in Operator Behavior and System Efficiency Measures to Detect the Presence of a Cyber Attack
4. Amal Ponathil, Necmettin Firat Ozkan, and Jeffrey Bertrand, Clemson U.; Brandon Welch, Medical U. of South Carolina; Kapil Chalil Madathil, Clemson U., New Approaches to Collecting Family Health History – A Preliminary Study Investigating the Efficacy of Conversational Systems to Collect Family Health History
5. Ben Lane and David Lacey, U. of the Sunshine Coast; Neville Stanton, U. of Southampton; Anita Matthews, IDCare; Paul Salmon, U. of the Sunshine Coast, The Dark Side of the Net: Event Analysis of Systemic Teamwork (EAST) Applied to Illicit Trading on a Darknet Market

**GS4 – Elaborating the Human Aspect of the NIST Framework for Cyber-Physical Systems**

**GENERAL SESSIONS**
Wednesday, October 3, 8:00–9:30 a.m.
Franklin 6 (Level 4)
Discussion Panel
Chair: Joe Manganelli, xplr design, llc/Fluor Enterprises/Kent State U.
Panelists: Martin Burns and David Wollman, National Inst. of Standards and Technology; Ronald Boring, Idaho National Lab; Stephen Gilbert, Iowa State U.; Edward Griffor, National Inst. of Standards and Technology; Yi-Ching Lee, George Mason U.; Dan Nathan-Roberts, San Jose State U.; Tonya Smith-Jackson, North Carolina A&T State U.
HC4 – EHR-to-EHR Transitions: Establishing and Growing a Knowledge Base
HEALTH CARE
Wednesday, October 3, 8:00–9:30 a.m.
Salon D (Level 5)
Discussion Panel
Chair: Jennifer Herout, Veterans Admin.
Panelists: Jason Saleem, U. of Louisville; Matthew Weinger, Vanderbilt U. Medical Center; Robert Grundmeier, Children’s Hospital of Philadelphia; Emily Patterson, Ohio State U.; Shilo Anders, Vanderbilt U. Medical Center; Zachary Hettinger, MedStar Health

HP1 – Teaming with Technology at the TSA: Practical Methods for Enhancing Human Performance with Automation in Operational Environments
HUMAN PERFORMANCE MODELING
Wednesday, October 3, 8:00–9:30 a.m.
Franklin 7 (Level 4)
Discussion Panel
Chair: Kristopher Korbelak, Department of Homeland Security, Transportation Security Administration

OE4 – Practitioners Session – Occupational Ergonomics
OCCUPATIONAL ERGONOMICS; PRACTITIONER TRACK
Wednesday, October 3, 8:00–9:30 a.m.
Salon A (Level 5)
Lecture
Chair: David Rempel, U. of California, Berkeley; Ryan Porto, General Motors
1. David Rempel, Andrea Antonucci, Alan Barr, Michael Cooper, and Bernard Martin, U. of California, Berkeley, Handle Vibration on a Pneumatic Rock and Electric Rotary Drill While Drilling into Concrete
2. Angela DiDomenico, Tamara Cohen, and Tmothy Joganich, ARCCA, Inc., Effect of Stair Tread Markings on Foot Placement During Stair Descent
5. Jeremy Leal and Wan Yan (Wendy) Ho, BC Hydro, Developing An Intraorganizational Human Factors Design Guideline

PD3 – Perception and Interactions
PRODUCT DESIGN
Wednesday, October 3, 8:00–9:30 a.m.
Salon C (Level 5)
Lecture
Chair: Denny Yu, Ford Motor Co.; Cochair: Susana Marulanda, Ford Motor Co.
2. Lauren Parikh, Hillary Abraham, Alea Mehler, Thomas McWilliams, and Jonathan Dobres, Massachusetts Inst. of Technology; Nadine Chahine; Bryan Reimer, Massachusetts Inst. of Technology, These Label Are Nuts: Challenges to Safe Product Identification for Nut-Allergic Consumers
3. Breno Schwambach, Johnell Brooks, Paul Venhovens, Robert Knizek, Lauren Mims, Casey Jenkins, Shayne McEconomy, and Yang Yang, Clemson U.; Jochen Karg, Julian Weber, and Joerg Schulte, BMW Group, Development and Usability of a Novel Holographic 3-Dimensional User Interface Using Hand-Gesture Control for a Future Vehicle Application by Older Adults
4. Glebys Gonzalez, Naveen Madapana, Rahul Taneja, and Lingsong Zhang, Purdue U.; Richard Rodgers, Indiana U. School of Medicine; Juan Wachs, Purdue U., Looking Beyond the Gesture: Vocabulary Acceptability Criteria for Gesture Elicitation Studies

S3 – Preventing and Evaluating Injury at Work
SAFETY
Wednesday, October 3, 8:00–9:30 a.m.
Franklin 8 (Level 4)
Lecture
Chair: Xinhui Zhu, Oregon State U.; Cochair: Changwon Son, Texas A&M U., Industrial and Systems Engineering
1. Ellen Martin, Erika Pliner, and Kurt Beschorner, U. of Pittsburgh, Characterizing the Required Friction During Ladder Climbing
Wednesday, October 3

9:00 a.m.–12:15 p.m.

University Lab Posters
FRANKLIN HALL FOYER (LEVEL 4)
Lab representatives will be present from 9:00 to 10:00 a.m.
1. Human Systems Engineering Labs, Arizona State University
2. The Center for Occupational Safety, Ergonomics, and Injury Prevention, Auburn University
4. Applied Cognitive Science and Human Factors Program, Michigan Technological University
5. Human Factors Psychology Labs, Old Dominion University
6. Human Factors/Human-Computer Interaction, Rice University
7. The HF/E Labs, Texas A&M University
8. Human Factors Engineering, University at Buffalo, SUNY
9. Human-Systems Engineering Program, University of Florida
10. Center for Psychological Sciences (CPS), Zhejiang University

Wednesday, October 3

9:45–10:45 a.m.

PL2 – Plenary – Diversity and Inclusion in HFES and Beyond: Striving To Be Better
SPECIAL SESSIONS
Wednesday, October 3, 9:45–10:45 a.m.
Salon E (Level 5)
Discussion Panel
Chair: Kermit Davis, U. of Cincinnati Environmental and Occupational Hygiene
Panelists: Doug Mitchell, National Public Radio; Nick Adkins, Pink Socks Tribe; Sylvain Bruni, Boston Pride; Beth Cady, National Academy of Engineering; Marilyn Mobley, Case Western U.

Wednesday, October 3

10:45 a.m.–12:15 p.m.

CE5 – Reliability, Trust & Decision Making
COGNITIVE ENGINEERING AND DECISION MAKING
Wednesday, October 3, 10:45 a.m.–12:15 p.m.
Salon B (Level 5)
Lecture
Chair: X. Jessie Yang, U. of Michigan; Cochair: Barry Goettl, U.S. Air Force
2. Stephen Dorton, Christopher Smith, and Jason Upham, Sonalysts, Applying Visualization and Collective Intelligence for Rapid Group Decision Making
3. Jing Chen, Scott Mishler, and Bin Hu, Old Dominion U., Conveying Automation Reliability and Automation Error Type: An Empirical Study in the Cyber Domain
4. Na Du, Qiaoning Zhang, and Xi (Jessie) Yang, U. of Michigan, Evaluating Effects of Automation Reliability and Reliability Information on Trust, Dependence, and Dual-Task Performance
5. Yidu Lu and Nadine Sarter, U. of Michigan, Eye Tracking: A Promising Method for Inferring Trust in Real Time

E1 – Putting the Applied in Applied Psychology: Experiential Learning Projects in the HFE Classroom
EDUCATION
Wednesday, October 3, 10:45 a.m.–12:15 p.m.
Franklin 9 (Level 4)
Discussion Panel
Chair: Heather Lum, Penn State Erie, Behrend College
Panelists: Gabriella Hancock, California State U., Long Beach; Grace Waldfogel, U. of Central Florida; Federico Scholcover, North Carolina State U.; Nicholas Kelling, U. of Houston Clear Lake

FP3 – Falls and Premises Liability
FORENSICS PROFESSIONAL; COSPONSORED BY SAFETY; PRACTITIONER TRACK
Wednesday, October 3, 10:45 a.m.–12:15 p.m.
Franklin 10 (Level 4)
Lecture
1. Brian Grieser, Applied Safety and Ergonomics, Study of Slip/Trip/Fall Hazards at a Midwestern Urban Hospital Campus
2. Roger Jensen, Montana Tech; Lee Calf Looking, Indian Health Service, Stairway Uniformity Measurement: What Lateral Location Should be Measured?

GS5 − Maintaining Awareness in Semiautomated Vehicles
GENERAL SESSIONS; COSPONSORED BY SAFETY
Wednesday, October 3, 10:45 a.m.–12:15 p.m.
Franklin 6 (Level 4)
Discussion Panel
Chair: Dean Cisler, George Mason U.

HC5 − Physical Environmental Design in Health Care
HEALTH CARE
Wednesday, October 3, 10:45 a.m.–12:15 p.m.
Salon D (Level 5)
Lecture
Chair: Rebecca Berg, U. at Buffalo, SUNY; Miranda Hancock, Air Force Medical Operations Agency
1. Jason Saleem, Dustin Weiler, and Tyler Satterly, U. of Louisville; Maury Nussbaum, Virginia Tech; Neale Chumbler, Western Kentucky U.; Gary Fischer, Department of Veterans Affairs; Shakaib Rehman, Phoenix Veterans Affairs (VA) Health Care System, Field Investigation of Ambulatory Clinic Exam Room Design with respect to Computing Devices: A Pilot Study
4. Mahzar Eisaour and Shi Cao, U. of Waterloo; Laura Domenicucci, Schlegel Villages; Jennifer Boger, U. of Waterloo, Virtual Reality Exergames for People Living With Dementia Based on Exercise Therapy Best Practices

HP2 − Model Checking and Multitasking
HUMAN PERFORMANCE MODELING
Wednesday, October 3, 10:45 a.m.–12:15 p.m.
Franklin 7 (Level 4)
Lecture
Chair: Jeffrey Dressel, Transportation Security Admin.; Cochair: Jieun Kim, U. of Washington
1. Meng Li, Sara Behdad, and Matthew Bolton, U. at Buffalo, SUNY, A Formal Methods Approach for Predicting How Users will Utilize System Features
3. Christopher Wickens, Colorado State U.; Anne McLaughlin, North Carolina State U.; John Keller, Alion Science; Jie Tan, South China Normal U., Task Switching in Rock Climbing: Validation of a Computational Model for Different Skill Levels
4. Kristopher Korbelak and Jeffrey Dressel, Transportation Security Admin.; Donald Tweedie and Whitney Wilson, Deloitte Consulting LLP; Simone Erchov and Brian Hilburn, Humanproof, Teaming With Technology at the TSA: An Examination of Trust in Automation’s Influence on Human Performance in Operational Environments

I1/CS − UX in Practice: Applying a Heuristic Evaluation Technique to Real-World Challenges
INTERNET; COSPONSORED BY COMPUTER SYSTEMS
Wednesday, October 3, 10:45 a.m.–12:15 p.m.
Franklin 11 (Level 4)
Alternative Format
Chair: France Jackson, U. of Florida; Cochair: Lara Cheng, eero

OE5 − Human Factors Consulting: The Ins & Outs, Ups & Downs, Pros & Cons
OCCUPATIONAL ERGONOMICS
Wednesday, October 3, 10:45 a.m.–12:15 p.m.
Salon A (Level 5)
Discussion Panel
Chair: Thomas Albin, High Plains Engineering Services, LLC
Panelists: Sheree Gibson, Ergonomic Applications; Richard Kelly, Pacific Science & Engineering Group, Inc; Dee Miller, Dell, Inc.
PD4 – Ergonomics, Handhelds, and Wearables

PRODUCT DESIGN
Wednesday, October 3, 10:45 a.m.–12:15 p.m.
Salon C (Level 5)
Lecture
Chair: Rachel Bartels, U. of Rhode Island; Cochair: Michael Lee, U. of Kentucky
2. Songil Lee, Donghee Choi, Hyeeun Choi, Kitae Hwang, Seonghyeok Park, Minjung Kim, and Jihhyeon Yi, UNIST; Si Jung Kim, U. of Nevada; Gyougyung Kyung, UNIST, Determining Ergonomic Forms for Rollable Display Devices
3. Haerim Bak, Ulsan National Inst. of Science and Technology; Clive D’Souza, U. of Michigan; Gwanseob Shin, Ulsan National Inst. of Science and Technology, Upper Extremity Muscle Activity During Household Floor Vacuuming With Upright Cleaners
4. Younggeun Choi and Hayoung Jung, POSTECH; Jangwoon Park, Texas A&M U.–Corpus Christi; Heecheon You, POSTECH, Development of an Ergonomic Method for Determination of Smartphone Hard Key Locations
5. Norene Kelly, UEGroup; Stephen Gilbert, Iowa State U., The Wearer, the Device, and Its Use: Advances in Understanding the Social Acceptability of Wearables

SF3 – Understanding Factors That Impact Data Consumption, Performance, and Mental Health

STUDENT FORUM; COSPONSORED BY PERCEPTION & PERFORMANCE, HEALTH CARE
Wednesday, October 3, 10:45 a.m.–12:15 p.m.
Franklin 12 (Level 4)
Lecture
Chair: Napoleon Gaither, U.S. Army Research Laboratoraya; Cochair: Emily Wright, North Carolina State U.
2. Drew Zachary, Brandeis U., A Recognition Primed Decision Model for Public Consumption of Government Data
3. Elizabeth Fox and Joseph Houpt, Wright State U., Quantifying the Effects of Multitasking on Processing Efficiency
5. Kunal Khanade and Farzan Sasangohar, Texas A&M U., Heart Rate Assessment for Post-Traumatic Stress Disorder Symptoms among Military Veterans: A Narrative Literature Review

PP1 – Visual Perception and Safety

PERCEPTION AND PERFORMANCE
Wednesday, October 3, 10:45 a.m.–12:15 p.m.
Franklin 8 (Level 4)
Lecture
Chair: Jason McCarley, Oregon State U.; Cochair: Keith Karn, Human Factors in Context LLC
2. Yousif Abulhassan, Murray State U.; Dania Bani Hani and Gerard Davis, Auburn U., Effectiveness of Pictogram Instructions for Donnig Smoke Hoods
3. Ellen Szubski, Drea Fekety, Darlene Edewaard, and Rick Tyrrell, Clemson U., Perceptual Judgments of the Efficacy of Visibility Aids
4. Yulin Deng and David Kaber, North Carolina State U., Effect of Vehicle Control Format on Driver Performance and Attention Allocation under Adaptive Cruise Control

Wednesday, October 3
11:00 a.m.–12:00 p.m.

SS4 – Posters With Fellows

SPECIAL SESSIONS
Wednesday, October 3, 11:00 a.m.–12:00 p.m.
Franklin Pre-Function
Poster Session
Chair: Philip Kortum, Rice U.; Cochair: S. Camille Peres, Texas A&M U.
Wednesday, October 3
12:30–2:00 p.m.

Aging Technical Group Networking/Business Meeting
(Lunch)
Room 411 (Level 4)

Ergonomics in Design Editorial Board (Lunch)
Room 407 (Level 4)

Student Chapter Presidents (Lunch)
Room 414 (Level 4)

System Development Technical Group Networking/
Business Meeting (Lunch)
Off site

Wednesday, October 3
2:00–3:30 p.m.

CE6 – Cognitive Engineering
COGNITIVE ENGINEERING AND DECISION MAKING
Wednesday, October 3, 2:00–3:30 p.m.
Salon B (Level 5)
Lecture
Chair: Patty McDermott, Aptima, Inc.; Heejin Jeong, U. of Michigan

CS2/I – Input Methods and Visualizations
COMPUTER SYSTEMS; COSPONSORED BY INTERNET
Wednesday, October 3, 2:00–3:30 p.m.
Franklin 11 (Level 4)
Lecture
Chair: Kapil Chalil Madathil, Clemson U.; Cochair: Sruthy Agnisarman, Clemson U.
2. Andrina Helgerson and Jamiahus Walton, Iowa State U.; Celia Loya, Texas A&M U.; Christopher Kawell, Samford U.; Katherine Atwell, U. of Maryland, Baltimore County; Quinn Monaghan, Lakshay Ahuja, Hesham Hassan, Stephen Gilbert, and Anuj Sharma, Iowa State U., Developing an Optimized UI for Traffic Incident Managers
3. Dominic Canare, Wichita State U.; Barbara Chaparro and Alex Chaparro, Embry-Riddle Aeronautical U., Using Gesture, Gaze, and Combination Input Schemes as Alternatives to the Computer Mouse
4. Isis Chong, Huangyi Ge, Robert Proctor, and Ninghui Li, Purdue U., Safety Priming and Subsequent App Selection Behaviors

DEM – Demonstrations
INTERACTIVE SESSIONS
Wednesday, October 3, 2:00–3:30 p.m.
Salon E (Level 5)
Demonstrations
Chair: Roger Lew, U. of Idaho
Each demo will be repeated during the session to allow attendees to view them all.
E2 – Movies, Media, and Online Learning Spaces
EDUCATION
Wednesday, October 3, 2:00–3:30 p.m.
Franklin 9 (Level 4)
Lecture
Chair: Susan Amato-Henderson, Michigan Technological U.
1. Hung-Tao Chen, Eastern Kentucky U.; Benjamin Horne, Rensselaer Polytechnic Inst., Effects of Priming on Online Discussion Behavior

GS6 – HFES Technical Standards Update
GENERAL SESSIONS; COSPONSORED BY OCCUPATIONAL ERGONOMICS
Wednesday, October 3, 2:00–3:30 p.m.
Franklin 6 (Level 4)
Discussion Panel
Chair: Robert Fox, General Motors Corp.

HC6 – Patient Experience and User-Centered Design
HEALTH CARE
Wednesday, October 3, 2:00–3:30 p.m.
Salon D (Level 5)
Lecture
Chair: Onur Asan, Medical College of Wisconsin; Cochair: Korey Johnson, Bold Insight
2. Kathryn Tippey, Design Science Consulting, Inc.; Jason Slagle, Vanderbilt U. Medical Center; Ryan Cleary, Debra Friedman, and Lisa Kachnic, Vanderbilt Ingram Cancer Center; Matthew Shotwell, Vanderbilt U. School of Medicine; Jie Xu, Sarah Moroz, Shilo Anders, and Matthew Weinger, Vanderbilt U. Medical Center, Evaluating the Use of Patient-Reported Non-Routine Events in Pediatric and Radiation Oncology: A Pilot Study
3. Jonathan Gaev and Patrice Tremoulet, ECRI Inst., Implementing a Program to Share User Experience Data for Medical Devices
5. Elizabeth Papautsky, U. of Illinois at Chicago; April Panganiban, Wright-Patterson Air Force Base, Implications of Trust on Patient-Generated Health Data

ME1 – Enhancing Worker Capability Through HF/E: Evidence Management Can Understand
MACROERGONOMICS
Wednesday, October 3, 2:00–3:30 p.m.
Franklin 12 (Level 4)
Discussion Panel
Chair: Cristina Banks, Healthy Workplaces Center
Panelists: Michelle Robertson, Office Ergonomics Research Committee; Deborah Gebhardt, Human Resources Research Organization (HumRRO); David Rempel, U. of California, Berkeley; Kathleen Mosier, TeamScape LLC; Nancy Larson, Nancy LJ Larson Consulting LLC; Blake McGowan, Humantech

OE6 – Fatigue Models & Assessments
OCCUPATIONAL ERGONOMICS
Wednesday, October 3, 2:00–3:30 p.m.
Salon A (Level 5)
Lecture
Chair: Richard Marklin, Marquette U.; Cochair: Christopher Reid, Boeing Co.
1. Rong Huangfu and Sean Gallagher, Auburn U.; Phillip Whitley, CFD Research Corp.; Richard Sesek, Mark Schall, and Gerard Davis, Auburn U., Lumbar Muscle Fatigue Analysis Using Sorensen Test with Different Upper Body Offload Conditions
2. Rong Huangfu, Sean Gallagher, Richard Sesek, Mark Schall, and Gerard Davis, Auburn U., Evaluating the Linear Integration Method of Estimating Cumulative Loading Using an Eccentric Exercise
5. Mohamed Badawy, Mark Schall, Sean Gallagher, Richard Sesek, and Gerard Davis, Auburn U., Heart Rate and Perceived Exertion Among Young Adult Obese Males During One-Handed Carrying
6. Ashley Shortz, W. Sloane Hoyle, S. Camille Peres, and Ranjana Mehta, Texas A&M U., Fatigue Indicators of 12-Hour Day and Night Shifts in Simulated Offshore Well Control Scenarios
PD5 – Health Care and Medical Devices

PRODUCT DESIGN
Wednesday, October 3, 2:00–3:30 p.m.
Salon C (Level 5)
Lecture
Chair: Katherine Hansboro, Design Science; Cochair: S. D. Miller, Dell, Inc.
1. Rachel Stuck and Emily McDonald, Georgia Inst. of Technology; Wendy Rogers, U. of Urbana-Champaign, Older Adult Preferences for Robot Care Providers
4. Amro Abdelrahman, Bethany Lowndes, Anita Mohan, Shelley Noland, Dawn Finnie, Valerie Lemaine, and M. Susan Hallbeck, Mayo Clinic, Surgeons’ Perspectives on User-Designed Prototypes of Microsurgery Armrests

S4 – Arnold M. Small Lecture in Safety: The Safety Force Field
SAFETY
Wednesday, October 3, 2:00–3:30 p.m.
Franklin 8 (Level 4)
Invited Address
Chair: Michael Kalsher, Rensselaer Polytechnic Inst.
Invited Speaker: Michael Wiklund, Wiklund-UL

SF4 – Performance Assessment and Optimization
STUDENT FORUM; COSPONSORED BY PERCEPTION & PERFORMANCE
Wednesday, October 3, 2:00–3:30 p.m.
Franklin 7 (Level 4)
Lecture
Chair: Katy Badt-Frissora, ASRC Federal; Cochair: Heidi Kim, U.S. Army Research Lab
3. Makenzie Pryor and Anne McLaughlin, North Carolina State U., Developing Video or Multimedia Instructions for Older Adults
5. Jorgen Ernsten, U. of South-Eastern Norway; Mashrura Musharraf, Memorial U. of Newfoundland; Steven Mallam and Salman Nazir, U. of South-Eastern Norway; Brian Veitch, Memorial U. of Newfoundland, Bayesian Network for Assessing Performance in Complex Navigation: A Conceptual Model

VE3 – Me and My VE, Part 5: Applications in Human Factors Research and Practice
VIRTUAL ENVIRONMENTS; PRACTITIONER TRACK
Wednesday, October 3, 2:00–3:30 p.m.
Franklin 10 (Level 4)
Alternative Format
Chair: Randall Spain, North Carolina State U.
Presenters: Benjamin Goldberg, Jeffrey Hansberger, and Tami Griffith, U.S. Army Research Lab; Jeremy Flynn, U. of Central Florida; Christopher Garneau, Paul Shorter, and Anne Sinatra, U.S. Army Research Lab; Phillip Key, Boeing Co.; Tor Finseth, Iowa State U.

Wednesday, October 3
3:45–9:00 p.m.

Aerospace Systems Technical Group Networking/Business Meeting (Reception)
5:15–6:00 p.m.
Franklin 8 (Level 4)

Augmented Cognition / Individual Differences in Performance Technical Group Networking/Business Meeting (Reception)
4:30–5:15 p.m.
Franklin 7 (Level 4)

Children’s Issues / Environmental Design / Macroergonomics Technical Group Networking/Business Meeting (Reception)
3:45–4:30 p.m.
Franklin 12 (Level 4)

Cognitive Engineering & Decision Making Technical Group Networking/Business Meeting (Reception)
3:45–5:15 p.m.
Salon B (Level 5)
Communications Technical Group Networking/Business Meeting
3:45–4:30 p.m.
Franklin 9 (Level 4)

Computer Systems / Internet Technical Group Networking/Business Meeting
4:30–5:15 p.m.
Franklin 11 (Level 4)

Environmental Design / Macroergonomics / Children Issues Technical Group Networking/Business Meeting
(Reception)
3:45–4:30 p.m.
Franklin 12 (Level 4)

Forensics Professional / Safety Technical Group Networking/Business Meeting (Reception)
3:45–4:30 p.m.
Franklin 8 (Level 4)

Health Care Technical Group Networking/Business Meeting (Reception)
Business Meeting
5:15–6:00 p.m.
Salon D (Level 5)

Human Performance Modeling Technical Group Networking/Business Meeting
5:15–6:00 p.m.
Franklin 10 (Level 4)

Individual Differences in Performance / Augmented Cognition Technical Group Networking/Business Meeting (Reception)
4:30–5:15 p.m.
Franklin 7 (Level 4)

Internet / Computer Systems Technical Group Networking/Business Meeting
4:30–5:15 p.m.
Franklin 11 (Level 4)

Macroergonomics / Environmental Design / Children’s Issues Technical Group Networking/Business Meeting
(Reception)
3:45–5:30 p.m.
Franklin 12 (Level 4)

Occupational Ergonomics Technical Group Networking/Business Meeting
3:45–4:30 p.m.
Salon A (Level 5)

Product Design Technical Group Networking/Business Meeting (Reception)
Business Meeting
3:45–4:45 p.m.
Salon C (Level 5)

Safety / Forensics Professional Technical Group Networking/Business Meeting (Reception)
3:45–4:30 p.m.
Franklin 8 (Level 4)

Surface Transportation Technical Group Networking/Business Meeting (Reception)
6:00–8:00 p.m.
Field House (off site)

Test & Evaluation Technical Group Networking/Business Meeting (Reception)
4:30–5:15 p.m.
Franklin 6 (Level 4)

Training Technical Group Networking/Business Meeting
4:30–5:15 p.m.
Franklin 9 (Level 4)

Virtual Environments Technical Group Networking/Business Meeting
4:30–6:00 p.m.
Off site

Wednesday, October 3
5:00–6:00 p.m.
Early-Career Professionals Reception
Independence Ballroom I (Headhouse Tower – Level 3)

Wednesday, October 3
5:30–6:30 p.m.
Student Reception
Liberty Ballroom (Headhouse Tower – Level 3)
Thursday, October 4
6:45−7:45 a.m.

Education & Training Committee (Breakfast)
13 Restaurant (Lobby)

Thursday, October 4
8:00–9:30 a.m.

AS1 – Theories Applied to Aviation System Problems
AEROSPACE SYSTEMS
Thursday, October 4, 8:00–9:30 a.m.
Salon C (Level 5)
Lecture
Chair: Dennis Beringer, Federal Aviation Admin.; Cochair: Jennifer Louie, U. of Central Florida
2. Jordan Hill and Barrett Caldwell, Purdue U., Toward Better Understanding of Function Allocation Requirements for Planetary EVA and Habitat Tasks
3. Asaf Degani, General Motors, Schelling’s Theory of Contracts and Rules: Applications for Procedure Design and Safety Analysis
4. Igor Dolgov, Edin Sabic, and Bryan White, New Mexico State U., Activity Theory as a Framework for Integrating UAS Into the NAS: A Field Study of Crew Member Activity During UAS Operations Near a Non-Towered Airport
5. Ryan McKendrick and Erin Cherry, Northrop Grumman, A Deeper Look at the NASA TLX and Where It Falls Short

HC7 – Improving Care Transitions in Health Care: A Human Factors/Ergonomics (H/FE) Approach
HEALTH CARE
Thursday, October 4, 8:00–9:30 a.m.
Salon D (Level 5)
Discussion Panel
Chair: Patrick Waterson, Loughborough U.

CE7 – Planning & AI
COGNITIVE ENGINEERING AND DECISION MAKING
Thursday, October 4, 8:00–9:30 a.m.
Salon B (Level 5)
Lecture
Chair: Nathan Lau, Virginia Tech; Cochair: Anne Miller, Cerner Corp.
1. Robert Hoffman, IHMC; Gary Klein, MacroCognition LLC; Shane Mueller, Michigan Technical U., Explaining Explanation for “Explainable” AI
2. Chenzan Wang, U. of Michigan; Chongjie Zhang, Tsinghua U.; Xi (Jessie) Yang, U. of Michigan, Automation Reliability and Trust: A Bayesian Inference Approach
3. Christopher Lilburne, Dale Temby, Audrey Leong, and Maureen Hassall, U. of Queensland, End-Users’ Perspectives on Safety Risks in Different High-Hazard Industries
4. Aren Hunter and Tania Randall, Defence Research and Development Canada; Heather Colbert, Heather Colbert Consulting, Intuitive Insights for Course of Action Development
5. Joseph Coyne, Cyrus Foroughi, Noelle Brown, and Ciara Sibley, U.S. Naval Research Lab, Evaluating Decision Making in a Multi-Objective Route-Planning Task

I2/CS – New Directions in Human-Automation Interaction
INTERNET; COSPONSORED BY COMPUTER SYSTEMS
Thursday, October 4, 8:00–9:30 a.m.
Franklin 11 (Level 4)
Lecture
Chair: Marvin Andujar, U. of South Florida
1. Stephanie Tulk and Eva Wiese, George Mason U., Trust and Approachability Mediate Social Decision Making in Human-Robot Interaction
2. Mira Armstrong, Keith Jones, Akbar Siami Namin, and David Newton, Texas Tech U., The Knowledge, Skills, and Abilities Used by Penetration Testers: Results of Interviews with Cybersecurity Professionals in Vulnerability Assessment and Management
3. Michael Tolston, Ball Aerospace; Gregory Funke, Gene Alarcon, and Brent Miller, U.S. Air Force Research Lab; Margaret Bowers and Christina Gruenwald, Ball Aerospace; August Capiola, Wright State U., Have a Heart: Predictability of Trust in an Autonomous Agent Teammate through Team-Level Measures of Heart Rate Synchrony and Arousal
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<thead>
<tr>
<th>Time</th>
<th>Monday</th>
<th>Tuesday</th>
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<tbody>
<tr>
<td>8:00−10:00 a.m.</td>
<td><strong>Morning-Only Workshop</strong></td>
<td><strong>Opening Plenary Session, Salon E</strong></td>
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<td>Monday−Tuesday:</td>
<td>WK5 Enhance Your Qualitative Research, Salon I</td>
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<td>Wednesday−Thursday:</td>
<td>9:00 a.m.–4:30 p.m.</td>
<td>All-Day Workshops</td>
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<td>Wednesday−Thursday:</td>
<td>WK1 Usability Testing, Room 402</td>
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<td>Wednesday−Thursday:</td>
<td>WK2 Behavioral Data Analysis, Room 407</td>
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<td>Wednesday−Thursday:</td>
<td>WK3 Observing and Interviewing in Context, Room 411</td>
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<td>Wednesday−Thursday:</td>
<td>WK4 &quot;You’re Too Academic,&quot; Room 414</td>
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<td>10:30 a.m.–5:00 p.m.</td>
<td>SF1 Student Career and Professional Development Day, Salon B</td>
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<td>10:30 a.m.–12:00 noon</td>
<td>AC1 Augmented Cognition, Franklin 12</td>
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<td>10:30 a.m.–12:00 noon</td>
<td>CE1 Team Cognition &amp; Performance, Salon B</td>
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<td>10:30 a.m.–12:00 noon</td>
<td>FP1 Forensic Practice, Franklin 11</td>
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<td>10:30 a.m.–12:00 noon</td>
<td>HC1 Patient-Centered HF/E Town Hall, Salon D</td>
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<td>10:30 a.m.–12:00 noon</td>
<td>OE1 Virtual Models, Exoskeletons, Salon A</td>
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<td>10:30 a.m.–12:00 noon</td>
<td>S1 Safety in Transportation, Franklin 8</td>
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<td>10:30 a.m.–12:00 noon</td>
<td>SD1 Intelligent Agent, Franklin 7</td>
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<td>10:30 a.m.–12:00 noon</td>
<td>SS2 Past President’s Forum, Salon C</td>
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<td>10:30 a.m.–12:00 noon</td>
<td>ST1 Automation, Attention, Franklin 6</td>
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<td>1:30−3:00 p.m.</td>
<td>Full-day workshops continue</td>
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<td>Student Career Day continues</td>
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<td>Full-day workshops continue</td>
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<td>Student Career Day continues</td>
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<td>CE3 HF in Cybersecurity, Salon B</td>
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<td>CI2 Children’s Issues, Franklin 10</td>
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<td>3:30−5:00 p.m.</td>
<td>FP2 Understanding Eyewitness Recall, Franklin 11</td>
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<tr>
<td>3:30−5:00 p.m.</td>
<td>GS3 Partnering Across the Atlantic, Salon C</td>
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<tr>
<td>3:30−5:00 p.m.</td>
<td>HC3 Health IT Design &amp; Usability, Salon D</td>
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<tr>
<td>3:30−5:00 p.m.</td>
<td>OE3 Occupational Ergonomics, Salon A</td>
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<tr>
<td>3:30−5:00 p.m.</td>
<td>PD2 User-Centered Product Design Award, Franklin 6</td>
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<tr>
<td>3:30−5:00 p.m.</td>
<td>ProDev1 Creating Amazing Leaders, Franklin 8</td>
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<tr>
<td>3:30−5:00 p.m.</td>
<td>SS3 Journal Awards Session, Franklin 12</td>
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<tr>
<td>3:30−5:00 p.m.</td>
<td>ST2 Assistance Systems, Franklin 7</td>
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<tr>
<td>3:30−5:00 p.m.</td>
<td>VE1 Motion Sickness in VE, Franklin 9</td>
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<tr>
<td>Evening</td>
<td>National Ergonomics Month Expo, Salon H Foyer</td>
<td></td>
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<tr>
<td>Evening</td>
<td>New Members/First Timers Welcome, Salon I</td>
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<tr>
<td>Evening</td>
<td>6:00−6:30 p.m.</td>
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<tr>
<td>Evening</td>
<td>6:30−9:30 p.m.</td>
<td>Opening Reception, Salon E</td>
</tr>
<tr>
<td>Evening</td>
<td>5:00−7:00 p.m.</td>
<td>Interactive Posters Session and Reception, Salon E</td>
</tr>
<tr>
<td>Evening</td>
<td>7:00−7:30 p.m.</td>
<td>HFES Annual Business Meeting, Salon C</td>
</tr>
</tbody>
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### PROGRAM AT A GLANCE

#### Wednesday

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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</thead>
<tbody>
<tr>
<td>8:00−9:30 a.m.</td>
<td>CE4  Automation &amp; Human-Agent Teams, Salon B</td>
</tr>
<tr>
<td>8:45−9:30 a.m.</td>
<td>CS1/I Marc Resnick Best Paper, Franklin 11</td>
</tr>
<tr>
<td>8:30−9:30 a.m.</td>
<td>GS4  NIST Framework, Franklin 6</td>
</tr>
<tr>
<td>9:00 a.m.</td>
<td>CE7  Planning and AI, Salon B</td>
</tr>
<tr>
<td>9:00 a.m.</td>
<td>HC4  EHR-to-EHR Transitions, Salon D</td>
</tr>
<tr>
<td>9:00 a.m.</td>
<td>HP1  Teaming With Technology at TSA, Franklin 7</td>
</tr>
<tr>
<td>9:00 a.m.</td>
<td>OE4  Early-Career Professionals Reception, 5:00−6:30 p.m., Salon A</td>
</tr>
<tr>
<td>9:00 a.m.</td>
<td>PD3  Perception &amp; Interactions, Salon C</td>
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<tr>
<td>9:00 a.m.</td>
<td>S2  Preventing Injury at Work, Franklin 8</td>
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<tr>
<td>9:00 a.m.</td>
<td>VE2  Video Game Research, Franklin 12</td>
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</tbody>
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#### Thursday

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>8:00−9:00 a.m.</td>
<td>AS1  Theories &amp; Safety Problems, Salon C</td>
</tr>
<tr>
<td>8:45−9:00 a.m.</td>
<td>CE7  Planning and AI, Salon B</td>
</tr>
<tr>
<td>9:00 a.m.</td>
<td>HC7  Improving Care Transitions, Salon D</td>
</tr>
<tr>
<td>9:00 a.m.</td>
<td>I2/CS Human-Automation Interaction, Franklin 11</td>
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<tr>
<td>9:00 a.m.</td>
<td>OE7  Performance Modeling, Franklin 8</td>
</tr>
<tr>
<td>9:00 a.m.</td>
<td>PP2  Performance Modeling, Franklin 8</td>
</tr>
<tr>
<td>10:45 a.m.</td>
<td>ST2  Future Design Considerations, Franklin 10</td>
</tr>
<tr>
<td>10:45 a.m.</td>
<td>ST3  Measurement for Driver-Vehicle, Franklin 6</td>
</tr>
<tr>
<td>10:45 a.m.</td>
<td>TE1  Usability Assessment Methods, Franklin 12</td>
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#### Friday

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>8:30−10:00 a.m.</td>
<td>AS3  Air Traffic Concepts, Performance, Salon A</td>
</tr>
<tr>
<td>8:30−10:00 a.m.</td>
<td>CE10 Coping With Complexity, Salon B</td>
</tr>
<tr>
<td>9:00 a.m.</td>
<td>CE7  Planning and AI, Salon B</td>
</tr>
<tr>
<td>9:00 a.m.</td>
<td>HC7  Improving Care Transitions, Salon D</td>
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<tr>
<td>9:00 a.m.</td>
<td>I2/CS Human-Automation Interaction, Franklin 11</td>
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<tr>
<td>9:00 a.m.</td>
<td>OE7  Performance Modeling, Franklin 8</td>
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<tr>
<td>9:00 a.m.</td>
<td>PP2  Performance Modeling, Franklin 8</td>
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<tr>
<td>9:00 a.m.</td>
<td>SF7  Understanding Human Performance, Franklin 8</td>
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<tr>
<td>9:00 a.m.</td>
<td>TE1  Usability Assessment Methods, Franklin 12</td>
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#### Evening

- **5:00−6:30 p.m.**
  - Early-Career Professionals Reception, Independence Ballroom
- **5:30−6:30 p.m.**
  - Student Reception, Liberty Ballroom

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**PROGRAM AT A GLANCE**
OE7 – Occupational Low Back and Low Back Analysis

OCCUPATIONAL ERGONOMICS
Thursday, October 4, 8:00–9:30 a.m.
Salon A (Level 5)
Lecture
Chair: Robert Radwin, U. of Wisconsin-Madison; Cochair: Dan Mines, Sandalwood
1. Kathryn Lucaites and Christopher Pagano, Clemson U., Affordance Perception by Users of Assistive Walking Devices
2. Hamid Norasi, Jordyn Koenig, and Gary Mirka, Iowa State U., Effect of Load Weight and Starting Height on the Variability of Trunk Kinematics
3. Emmanuel Tetteh and Gary Mirka, Iowa State U. of Science and Technology, Effect of Time on the Variability of Lifting Kinematics in a Repetitive Lifting Task
4. Faisal Alessa and Xiaopeng Ning, West Virginia U., Lumbar Range of Motion and Flexion Relaxation Phenomenon Onset During Static Trunk Bending Postures

PP2 – Performance Modeling
PERCEPTION AND PERFORMANCE
Thursday, October 4, 8:00–9:30 a.m.
Franklin 8 (Level 4)
Lecture
Chair: Barry Goettl, U.S. Air Force; Cochair: Rebecca Grier, Ford Motor Co.
1. Hanshu Zhang and Joseph Houpt, Wright State U., When Visual Search Target Is Rare: Overweighting or Underweighting the Probability?
3. Andrew Dattel, Simona Teodorovic, Saralee Pruksaritanon, John Brooks, Andrey Babin, Ziyi Dong, and Priyanka Shetty, Embry-Riddle Aeronautical U., Inattentional Insensitivity as a Predictor of On-Task Performance and Performance in a Subsequent Task
4. Chang Xu, Yuxiang Wang, Steven Hauser, and Gregory Gerling, U. of Virginia, In the Tactile Discrimination of Compliance, Perceptual Cues in Addition to Contact Area Are Required

ProfDev2 – Women’s Leadership in HF/E: Past, Present, & Future
PROFESSIONAL DEVELOPMENT
Thursday, October 4, 8:00–9:30 a.m.
Franklin 7 (Level 4)
Discussion Panel
Chair: Gabriella Hancock, California State U., Long Beach

SD2 – Future Design Considerations of Safety-Critical Environments
SYSTEM DEVELOPMENT; COSPONSORED BY SAFETY, TEST & EVALUATION
Thursday, October 4, 8:00–9:30 a.m.
Franklin 10 (Level 4)
Lecture
Chair: Tina Mirchi, Pacific Science & Engineering Group; Cochair: Petra Alfred, Pacific Science & Engineering Group
2. Blake Bequette, Massachusetts Inst. of Technology; Adam Norton, U. of Massachusetts Lowell; Eric Jones, Draper; Leia Stirling, Massachusetts Inst. of Technology, The Effect of a Powered Lower-Body Exoskeleton on Physical and Cognitive Warfighter Performance
3. Monica Tatasciore, Vanessa Bowden, Troy Visser, Stephanie Chen, and Shayne Loft, The U. of Western Australia, The Effect of the Degree of Static Automation in Simulated Submarine Track Management
5. Thomas Ulrich and Ronald Boring, Idaho National Lab; Roger Lew, U. of Idaho, Qualitative or Quantitative Data for Nuclear Control Room Usability Studies? A Pragmatic Approach to Data Collection and Presentation
ST3 – Measurement for Driver-Vehicle Interactions
SURFACE TRANSPORTATION
Thursday, October 4, 8:00–9:30 a.m.
Franklin 6 (Level 4)
Lecture
Chair: Seyed Armin Raeis Hosseiny, Ford Research and Advanced Engineering; Cochair: Shiyan Yang, Seeing Machines
1. Azadeh DinparastDjadid and John Lee, U. of Wisconsin-Madison; Chris Schwarz and Timothy Brown, U. of Iowa; Pujitha Gunaratne, Toyota Collaborative Safety Research Center, Understanding Drivers’ Steering Behavior: Chain and One-Time Corrections
2. Ben Sawyer, Massachusetts Inst. of Technology; Sean Seaman and Linda Angell, Touchstone Evaluations; Bryan Reimer, Massachusetts Inst. of Technology, New Measures for Visual Strategy: Transitions Away per Second (TRAPS) and Percentage Time on Interface (PTAR)
3. Areen Alsaid and John Lee, U. of Wisconsin-Madison; Daniel Roberts, Daniela Barrigan, and Carryl Baldwin, George Mason U., Looking at Mind Wandering During Driving Through the Windows of PCA and t-SNE
4. Swaroop Dinakar, Jeffrey Muttart, Teena Garrison, and Suntasy Gernhard, Crash Safety Research Center, LLC; Jim Marr, Kineticorp, LLC, Influence of Taillight Brightness on the Ability to Recognize Closing Speed, Closing Distance, and Closing vs. Separating

TE1 – Usability Assessment Methods and Techniques
TEST AND EVALUATION; COSPONSORED BY SYSTEM DEVELOPMENT
Thursday, October 4, 8:00–9:30 a.m.
Franklin 12 (Level 4)
Lecture
Chair: Rachael Lund, U.S. Navy; Cochair: Diane Quarles, U.S. Army Research Lab
2. Kaifeng Liu and Calvin Or, The U. of Hong Kong, Effects of Image Segmentation and Target Number on Visual Search: An Eye-Tracking Study
5. Nicholas DeFilippis, Jayde King, Thomas Guinn, Yolanda Ortiz, Quirijn Berendschot, Amber Cole, and Beth Blickensderfer, Embry-Riddle Aeronautical U., Evaluation of Graphical Weather Product Interpretation: Implications for Overlaying Weather Product Design

Thursday, October 4
9:00 a.m.–12:15 p.m.

University Lab Posters
FRANKLIN HALL FOYER (LEVEL 4)
Lab representatives will be present from 9:00 to 10:00 a.m.
1. Human-Centered Computing, Drexel University
2. Research Engineering and Applied Collaborations in Healthcare (REACH) Lab, Embry-Riddle Aeronautical University
3. The Human Factors and Applied Cognitive Program, North Carolina State University
4. Human Performance Lab, Purdue University
5. SJSU HFE Program, San Jose State University
6. Human Factors Psychology Department, Texas Tech University
7. MIT2 Laboratory, University of Central Florida
8. Center for Ergonomics, University of Michigan
9. Heimstra Human Factors Labs, University of South Dakota
10. The Centre for Human Factors and Sociotechnical Systems, University of the Sunshine Coast

Thursday, October 4
9:45–10:45 a.m.
PL3 – Plenary – Preventing Violence in Schools: Does the Human Factors/Ergonomics Profession Have a Role?
SPECIAL SESSIONS
Thursday, October 4, 9:45–10:45 a.m.
Salon E (Level 5)
Alternative Format
Chair: Valerie Rice, U.S. Army
Thursday, October 4
10:45 a.m.–12:15 p.m.

A1 – Age-Related Considerations for Emerging Technologies
AGING
Thursday, October 4, 10:45 a.m.–12:15 p.m.
Franklin 8 (Level 4)
Discussion Panel
Chair: Michael Rupp, U. of California, Riverside

CE8 – The Challenges of AI in Human Factors
COGNITIVE ENGINEERING AND DECISION MAKING
Thursday, October 4, 10:45 a.m.–12:15 p.m.
Salon B (Level 5)
Discussion Panel
Chair: Stephen Gilbert, Iowa State U.
Panelists: Marc Steinberg, Office of Naval Research; Juan Sebastián Casallas, Autodesk; Andreea Danielescu, Antilipsi i CivitasAI; Matthew Gombolay, Georgia Tech

E3 – Embracing The Grind: Why We Chose Higher Education Administration; Maybe You Should Too
EDUCATION
Thursday, October 4, 10:45 a.m.–12:15 p.m.
Franklin 12 (Level 4)
Discussion Panel
Chair: Doug Peterson, U. of South Dakota

ED1 – Environmental Design Potpourri
ENVIRONMENTAL DESIGN
Thursday, October 4, 10:45 a.m.–12:15 p.m.
Room 411 (Level 4)
Lecture
Chair: Sol Lim, U. of Michigan; Cochair: Clive D’Souza, U. of Michigan, Ann Arbor
1. Gourab Kar, Yilu Sun, Elif Celikors, Paulina Villacreces, Elena Misaiedes, Marty Schatz, Jeyon Kim, Yuan Ling Zi Shi, Yitong Gao, Joey Sun, Jiaming Zhang, and Alan Hedge, Cornell U., Effects of a Dynamic Foot Movement Device on Cognitive Performance in Short-Duration Computer-Based Tasks
2. Theresa Nguyen, Brittany Neilson, and Martina Klein, Texas Tech U., Greenery Versus Aquatic: Cognitive Restoration of Different Components of Nature for Improvement in Environmental Design
3. Alan Hedge, Cornell U.; Danny Nou, View Inc., Effects of Daylight and Electrochromic Glass on Computer Vision Syndrome
5. Sol Lim and Yue Luo, U. of Michigan, Ann Arbor; Sheila Ebert and Monica Jones, U. of Michigan Transportation Research Inst.; Oliver Varban and Clive D’Souza, U. of Michigan, Ann Arbor, Preliminary Study of Obstacle Clearance and Compensatory Movements in Individuals with High Body Mass Index

FP4 – Forensic Human Factors 101: Interactive Transportation and Product Liability Case Studies
FORENSICS PROFESSIONAL
Thursday, October 4, 10:45 a.m.–12:15 p.m.
Salon C (Level 5)
Alternative Format

HC8 – Health-Care Decision Making and Teamwork
HEALTH CARE
Thursday, October 4, 10:45 a.m.–12:15 p.m.
Salon D (Level 5)
Lecture
Chair: Steven Yule, Harvard Medical School; Cochair: Kenneth Catchpole, The Medical U. of South Carolina
1. Michelle Jahn and Barrett Caldwell, Purdue U., Developing Distributed Expertise Coordination Models of Diabetes Care Teams
2. Siddharth Ponnala, Dustin Weiler, Andrea Gilmore-Bykovskiy, Laura Block, Amy Kind, and Nicole Werner, U. of Wisconsin-Madison, Toward an Understanding of Informal Care Networks of Persons With Dementia: Perceptions of Primary Caregivers
4. Carly Daley, Health Innovation Lab; Davide Bolchini, Anagha Varrier, Kartik Rao, and Pushkar Joshi, Indiana U. Purdue U. Indianapolis School of Informatics and Computing; Jessica Blackburn, Health Innovation Lab; Tammy Toscos, Michael Mirro, Shauna Wagner, and Elizabeth Martin, Parkview Mirro Center for Research and Innovation, Parkview Health; Amy Miller, Indiana U. School of Medicine; Richard Holden, Indiana U., Naturalistic Decision Making by Older Adults with Chronic Heart Failure: An Exploratory Study Using the Critical Incident Technique
5. Katherine Forsyth and Hunter Hawthorne, Mayo Clinic, Perceived Workload and an Automated Workload Alert System: A Comparison in the Emergency Department
I3/CS – Designing for Places, Activities, and Experiences: The New Direction of IoT
INTERNET; COSPONSORED BY COMPUTER SYSTEMS
Thursday, October 4, 10:45 a.m.–12:15 p.m.
Franklin 11 (Level 4)
Invited Address
Chair: Anand Gramopadhye, Clemson U.
Invited Speaker: Joshua Ekandem, Intel

ME2 – Macroergonomics Potpourri
MACROERGONOMICS
Thursday, October 4, 10:45 a.m.–12:15 p.m.
Franklin 9 (Level 4)
Lecture
Chair: Edmond Ramly, U. of Wisconsin-Madison
1. Nita Shattuck and Panagiotis Matsangas, Naval Postgraduate School; Arlene Saitzyk, U.S. Navy, Improving Work and Rest Patterns of Military Personnel in Operational Settings with Frequent Unplanned Events
2. Linda Pierce and Elaine Pfeiderer, Federal Aviation Admin., Assessing a Retention Policy for Air Traffic Controllers
4. Changwon Son, Farzan Sasangohar, S. Camille Peres, and Sam Mannan, Texas A&M U., An Episode as a Trace of Resilient Performance in Large-Scale Incident Management Systems
5. Megan Nyre-Yu and Barrett Caldwell, Purdue U., Using Simulation Modeling Methods to Study Teams Doing Taskwork

OE8 – Ergonomics of Health Care
OCCUPATIONAL ERGONOMICS
Thursday, October 4, 10:45 a.m.–12:15 p.m.
Salon A (Level 5)
Lecture
Chair: Steven Lavender, Ohio State U.; Cochair: Susan Kotowski, U. of Cincinnati
1. Jie Zhou, Jeffrey Walton, and Fadi Fathallah, U. of California, Davis, Changes in MRI Parameters of Porcine Intervertebral Disks under Compressive Loading
3. Yaar Harari and Raziel Riemer, Ben Gurion U.; Eli Jaffe, Israeli National Emergency Service; Oren Wacht and Yuval Bitan, Ben Gurion U., The Relation Between the Paramedic’s Bags Location During Out-of-Hospital Resuscitation on Their Effort and Performance
5. Susan Kotowski, Swapnil Dala, Kelly Geis, Matt Gerardi, Emily Rike, and Max Westhoven, U. of Cincinnati, Optimal Hospital Bed Height and Transfer Technique During a Pull-Up-in-Bed Maneuver
6. Steven Lavender and Carolyn Sommerich, Ohio State U.; Barbara Polivka, U. of Louisville; Amy Darragh, Celia Wills, and Don Stredney, Ohio State U., Furthering Recognition of Lift, Slip, and Trip Hazards in Home Health Care Environments: Opportunities for Virtual Simulation Training

ProfDev3 – Women and Power: Claim It and Aim It (A Talk for All Humans.)
PROFESSIONAL DEVELOPMENT
Thursday, October 4, 10:45 a.m.–12:15 p.m.
Franklin 7 (Level 4)
Invited Address
Chair: Beth Blickensderfer, Embry-Riddle Aeronautical U.
Invited Speaker: Laura Steffen, Walking River Coaching

SF5 – Trust and Technology
STUDENT FORUM; COSPONSORED BY COGNITIVE ENGINEERING & DECISION MAKING
Thursday, October 4, 10:45 a.m.–12:15 p.m.
Franklin 10 (Level 4)
Lecture
Chair: Kathryn Cohen, U.S. Army Research Lab; Cochair: Courtney Savage, Contracting Resources Group
1. Jeremy Lopez and Richard Pak, Clemson U., Trust Strategies in Consumer Multiple-Component Systems
3. Alexandra Kaplan and Theresa Kessler, U. of Central Florida; J. Christopher Brill, U.S. Air Force Research Lab; Peter Hancock, U. of Central Florida, Individual Differences in Trust: An Examination of Precursors to Trust in Human Interactions With Automation, Robotics, and Other Humans
4. Victoria Lew, Joshua Smith, Nicholas Reuss, Xiyu Zhang, Jacob Guliuzo, and Christina Frederick, Embry-Riddle Aeronautical U., Relatedness in Gaming: How In-Game Touch Influences Player Connection
5. Jieun Lee, U. of Tsukuba; Yusuke Yamani, Old Dominion U.; Makoto Itoh, U. of Tsukuba, Revisiting Trust in Machines: Examining Human-Machine Trust Using a Reprogrammed Pasteurizer Task
ST4 – Perception and Safety of Vehicle Automation
SURFACE TRANSPORTATION
Thursday, October 4, 10:45 a.m.–12:15 p.m.
Franklin 6 (Level 4)
Lecture
Chair: Heejin Jeong, U. of Michigan; Cochair: Tony McDonald, Texas A&M U.
1. Frederik Naujoks and Sebastian Hergeth, BMW; Katharina Wiedemann and Nadja Schöming, Wuerzburg Inst. for Traffic Sciences (WIVW); Andreas Keinath, BMW, Use Cases for Assessing, Testing, and Validating the Human Machine Interface of Automated Driving Systems
2. Francesco Biondi, Monika Lohani, Rachel Hopman, Sydney Mills, Joel Cooper, David Strayer, U. of Utah, 80 MPH and Out of the Loop: Effects of Real-World Semiautomated Driving on Driver Workload and Arousal
3. Sandra Epple, Fabienne Roche, and Stefan Brandenburg, Technische Universität Berlin, The Sooner the Better: Drivers’ Reactions to Two-Step Take-Over Requests in Highly Automated Driving
4. Christian Hoyos, Benjamin Lester, Caroline Crump, David Cades, and Douglas Young, Exponent Inc., Consumer Perceptions, Understanding, and Expectations of Advanced Driver Assistance Systems (ADAS) and Vehicle Automation
5. Michael Nees, Lafayette College, Drivers’ Perceptions of Functionality Implied by Terms Used to Describe Automation in Vehicles

CE9 – New Results/New Ideas
COGNITIVE ENGINEERING AND DECISION MAKING
Thursday, October 4, 2:00–3:30 p.m.
Salon B (Level 5)
Alternative Format
Chair: Stephen Gilbert, Iowa State U.
Up to 15 people will share their late-breaking research results or early research concepts.

THURSDAY, OCTOBER 4

Thursday, October 4
12:30–2:00 p.m.
Journal of Cognitive Engineering and Decision Making
Editorial Board (Lunch)
Room 407 (Level 4)

Thursday, October 4
2:00–3:30 p.m.
AS2 – Pilot Performance and Issues
AEROSPACE SYSTEMS
Thursday, October 4, 2:00–3:30 p.m.
Salon C (Level 5)
Lecture
Chair: Valerie Gawron, The MITRE Corp.; Cochair: Terri Hall, Lockheed Martin
1. Tracy Lennertz, Andrea Sparko, Kim Cardosi, Alan Yost, Andrew Kendra, Jason Lu, and Tom Sheridan, U.S. DOT/ Volpe Center, Pilots’ Estimation of Altitude of a Small Unmanned Aircraft System (sUAS)
3. Dennis Beringer, Civil Aerospace Medical Inst.; David Domino and Jill Kamienski, MITRE, Pilot Performance Using Head-Up and Head-Down Synthetic-Vision Displays for SA CAT I Approaches
4. Michelle Yeh, FAA; Joseph Jaworski and Suzanne Thomas, CCRC; Andrew Kendra and Danielle Hiltunen, U.S. DOT Volpe Center, Examining the Compellingness of Electronic Low-Visibility Taxi Charts

E4 – Usability, Assessment, and Institutional Futures
EDUCATION
Thursday, October 4, 2:00–3:30 p.m.
Franklin 9 (Level 4)
Lecture
Chair: Ziho Kang, U. of Oklahoma
2. Bahar Memarian and Susan McCahan, U. of Toronto, Usability Analysis of Freeform Marking on Engineering Problem Solving
3. Barrett Caldwell, Purdue U., Considering the Future of Land Grant Ergonomics Education

GS7 – Navigating the Advent of Human-Machine Teaming
GENERAL SESSIONS; COSPONSORED BY COGNITIVE ENGINEERING & DECISION MAKING
Thursday, October 4, 2:00–3:30 p.m.
Franklin 8 (Level 4)
Discussion Panel
Chair: J. Christopher Brill, U.S. Air Force Research Lab
HC9 – Spreading the Word: Improving Outcomes With Human Factors Engineering (When Common Sense Is Not Enough)
HEALTH CARE
Thursday, October 4, 2:00–3:30 p.m.
Salon D (Level 5)
Discussion Panel
Chair: Michael Rayo, Ohio State U.
Panelists: Rollin Fairbanks, MedStar Health; Sarah Parker, Virginia Polytechnic Inst. and State U.; Laurie Wolf, Carilion Clinic; Rosemary Kennedy, Sotera Wireless

HP3 – Modeling Methods in Performance and Ergonomics
HUMAN PERFORMANCE MODELING
Thursday, October 4, 2:00–3:30 p.m.
Franklin 11 (Level 4)
Lecture
Chair: Yiqi Zhang, Pennsylvania State U., University Park; Cochair: Heejin Jeong, U. of Michigan
1. Panagiotis Matsangas and Nita Shattuck, Naval Postgraduate School, Agreement Between the 3-Minute Psychomotor Vigilance Task (PVT) Embedded in a Wrist-Worn Device and the Laptop-Based PVT
2. Ji-Eun Kim, U. of Washington; David Nembhard, Oregon State U., Modeling Human Performance with Temporal Motivation from Eye Movement
4. Xiaopeng Yang, Zhichan Lim, and Hayoung Jung, Pohang U. of Science and Technology; Wonsup Lee, Handong Global U.; Heecheon You, Pohang U. of Science and Technology, Estimation of Instantaneous Hand Joint Centers of Rotation Using 3D Reconstructed Hand Skeleton Motion From CT Scans

ID1 – Individual Differences in Applied Settings I
INDIVIDUAL DIFFERENCES IN PERFORMANCE
Thursday, October 4, 2:00–3:30 p.m.
Franklin 7 (Level 4)
Lecture
Chair: Victoria Claypoole, U. of Central Florida; Cochair: Susan Amato-Henderson, Michigan Technological U.
1. Mark Wiggins, Monique Crane, and Thomas Loveday, Macquarie U., Cue Utilization, Perception, and Experience in the Interpretation of Weather Radar Returns
2. Daniel Sturman, Mark Wiggins, and Jaime Auton, Macquarie U.; Shayne Loft, The U. of Western Australia, Cue Utilization Predicts Resource Allocation During Rail Control Simulations: A NIRS Study
3. Alexis Neigel, U.S. Army Research Lab; Daryn Dever, Victoria Claypoole, and Nicholas Fauvelini, U. of Central Florida; Gabriella Hancock, California State U. – Long Beach; James Szalma, U. of Central Florida, Sex Differences in Lexical Vigilance Performance
4. Shannon Devlin and Sara Riggs, Clemson U., The Effect of Video Game Experience and the Ability to Handle Workload and Workload Transitions
5. Ciara Sibley, Cyrus Foroughi, Noelle Brown, and Joseph Coyne, Naval Research Lab, Low-Cost Eye Tracking: Ready for Individual Differences Research?

OE9 – Chairs, Mobiles, and Office Ergonomics
OCCUPATIONAL ERGONOMICS
Thursday, October 4, 2:00–3:30 p.m.
Salon A (Level 5)
Lecture
Chair: Thomas Albin, High Plains Engineering Services; Cochair: Sarah Coppola, Northeastern U.
1. Jaejin Hwang, Kartheek Syamala, and Ravi Ailneni, Northern Illinois U.; Jeong Ho Kim, Oregon State U., Effects of Chair Support on Biomechanical Exposures on the Neck During Mobile Phone Use
2. Eunjee Kim and Gwanseob Shin, Ulsan National Inst. of Science and Technology, Head Rotation and Muscle Activity When Conducting Document Editing Tasks With a Head-Mounted Display
3. Hyeseon Han, Soonyoung Gwon, Misol Kim, and Gwanseob Shin, Ulsan National Inst. of Science and Technology, Head Tilt Angle When Using Smartphone While Walking
5. Denean Kelson and Divya Srinivasan, Virginia Polytechnic Inst. and State U.; Svend Erik Mathiassen, U. of Gavle, Differences in Trapezius Muscle Activation Patterns in Office Workers With and Without Chronic Neck-Shoulder Pain, as Quantified Through Exposure Variation Analysis
SF6 – Design Challenges and Lessons Learned: Weather & Virtual Reality Systems
STUDENT FORUM; COSPONSORED BY COGNITIVE ENGINEERING & DECISION MAKING, SYSTEM DEVELOPMENT
Thursday, October 4, 2:00–3:30 p.m.
Franklin 10 (Level 4)
Lecture
Chair: Charles Hernandez, U.S. Army Research Lab; Cochair: David Hullinger, U.S. Army Research Lab
1. Jayde King, Yolanda Ortiz, Beth Blickensderfer, and Emalee Christy, Embry-Riddle Aeronautical U., Challenges Contributing to the General Aviation Weather Problem – Decision Support Systems Technology Recommendations
4. Sean McGlynn and Ranjani Sundaresan, Georgia Inst. of Technology; Wendy Rogers, U. of Illinois – Urbana-Champaign, Investigating Age-Related Differences in Spatial Presence in Virtual Reality
5. Robert May and Herbert Colle, Wright State U., Learning Configural Spatial Knowledge From Navigating in Unstructured and Unfamiliar Virtual Environments
6. Quirijn Berendschot, Yolanda Ortiz, Beth Blickensderfer, Richard Simonon, and Nicholas DeFilippis, Embry-Riddle Aeronautical U., How to Improve General Aviation Weather Training: Challenges and Recommendations for Designing Computer-Based Simulation Weather Training Scenarios

ST5 – Special Populations in Surface Transportation
SURFACE TRANSPORTATION; COSPONSORED BY AGING
Thursday, October 4, 2:00–3:30 p.m.
Franklin 6 (Level 4)
Lecture
Chair: Brandon Pitts, Purdue U.; Cochair: Raina Shah, Applied Safety and Ergonomics, Inc.
1. Yalda Ebadi and Ganesh Pai Mangalore, U. of Massachusetts Amherst; Siby Samuel, U. of Waterloo, Impact of Cognitive Distractions on Drivers’ Anticipation Behavior in Vehicle–Bicycle Conflict Situations
3. Massimiliano Pau, Micaela Porta, Giuseppina Pilloni, Federica Corona, Maria Chiara Fastame, Paul Hitchcott, and Maria Pietronilla Penna, U. of Cagliari, Texting While Walking Induces Gait Pattern Alterations in Healthy Older Adults
4. James Unverriet and Yusuke Yamani, Old Dominion U.; William Horrey, AAAFTS, Calibration in Older and Middle-Aged Drivers: Relationship Between Subjective and Objective Glance Performance at Complex Intersections
5. Tamar Ben-Bassat, SCE – Shamoon College of Engineering; David Shinar, Ben-Gurion U. of the Negev, The Influence of Sign Variations on Drivers’ Comprehension

VE4 – Exploration and Research with Virtual Environments
VIRTUAL ENVIRONMENTS
Thursday, October 4, 2:00–3:30 p.m.
Franklin 12 (Level 4)
Lecture
Chair: Benjamin Goldberg, U.S. Army Research Lab
1. Rajaram Bhagavathula, Brian Williams, Justin Owens, and Ronald Gibbons, Virginia Tech Transportation Inst., The Reality of Virtual Reality: A Comparison of Pedestrian Behavior in Real and Virtual Environments
2. Shuchisnigdha Deb, Christopher Hudson, Daniel Carruth, and Darren Frey, Mississippi State U., Pedestrians’ Receptivity in Autonomous Vehicles: Exploring a Video-Based Assessment
3. Tor Finseth, Neil Barnett, Elizabeth Shirtcliff, Michael Dorneich, and Nir Keren, Iowa State U., Stress Inducing Demands in Virtual Environments
Thursday, October 4
3:45–5:15 p.m.

CE10 – Coping with Complexity: Emilie Roth’s Contributions to Cognitive Engineering, From Nuclear Power to Health Systems and Beyond
COGNITIVE ENGINEERING AND DECISION MAKING
Thursday, October 4, 3:45–5:15 p.m.
Salon B (Level 5)
Discussion Panel
Chair: Ann Bisantz, U. at Buffalo, SUNY
Panelists: Laura Militello, Applied Decision Science, LLC; David Woods, Ohio State U.; Jonathan Pfautz, DARPA; Ronald Scott, Raytheon; Emily Patterson, Ohio State U.; Scott Potter, General Dynamics C4 Systems

HC10 – Clinical Performance Measurement and Improvement
HEALTH CARE
Thursday, October 4, 3:45–5:15 p.m.
Salon D (Level 5)
Lecture
Chair: Shilo Anders, Vanderbilt U. Medical Center; Cochair: Sami Durrani, Fresenius Medical Care
1. David Azari, Brady Miller, Brian Le, Jacob Greenberg, Caprice Greenberg, Carla Pugh, Yu Hen Hu, and Robert Radwin, U. of Wisconsin-Madison, Can Surgical Performance for Varying Experience Be Measured From Hand Motions?
2. Yuhao Peng, Purdue U.; Nicholas Anton, Indiana U. School of Medicine; Jackie Cha, Purdue U.; Tomoko Mizota and Julie Hennings, Indiana U. School of Medicine; Ryan Stambro, Indiana U. Health; Megan Rendina, Katie Stanton, and Dimitrios Stefanidis, Indiana U. School of Medicine; Denny Yu, Purdue U., Do Objective Measures of Communication Predict Clinical Performance? Application in Acute Care Trauma Simulation
3. Sadaf Kazi, Johns Hopkins U.; Aaron Dietz, U.S. Department of Veterans Affairs; Sean Berenholtz, Adam Sapirstein, and Michael Rosen, Johns Hopkins U., Developing a Peer-To-Peer Learning Tool for Critical Care Physicians
5. Amanda Ashdown and Mark Scerbo, Old Dominion U.; Barry Knapp, Felicia Toreno, Craig Goodmurphy, and Don Byars, Eastern Virginia Medical School, Can Crowdworkers Be Used to Rate the Quality of Ultrasound Images?

HP4 – Models in Transportation
HUMAN PERFORMANCE MODELING
Thursday, October 4, 3:45–5:15 p.m.
Franklin 11 (Level 4)
Lecture
Chair: Gretchen Macht, U. of Rhode Island; Cochair: Xiaopeng Yang, Pohang U. of Science and Technology
1. Christopher Wickens, Colorado State U.; Gaia Dempsey, 7th Future; Andrew Pringle, Lucas Kazansky, and Stefanie Hutka, DAQRI, Developing and Evaluating an Augmented Reality Display to Assist the Joint Tactical Air Controller by Applying Human Performance Models
2. Lixiao Huang, M. Cummings, and Victoria Nneji, Duke U., Preliminary Analysis and Simulation of Railroad Dispatcher Workload

OE10 – Exposure and Task Analysis Part 2
OCCUPATIONAL ERGONOMICS
Thursday, October 4, 3:45–5:15 p.m.
Salon A (Level 5)
Lecture
Chair: Alison McDonald, U. of Waterloo
1. Jessica Cappelletto and James Lyons, McMaster U., Quantifying the Biomechanical Costs Used to Make Behavioral Decisions When Choosing Between Action Plans
2. Alison McDonald, Carmen Tsang, Kimberly Meszaros, and Clark Dickerson, U. of Waterloo, Shoulder Muscle Activity During Off-Axis Pushing and Pulling Tasks
3. Robyn Wells and Xinhui Zhu, Oregon State U., A Field Study on College Marching Band Members’ Workload

SS5 – Integrating Social and Behavioral Sciences Within the Weather Enterprise: The National Academies Board on Human Systems Integration Panel
GENERAL SESSIONS; COSPONSORED BY COGNITIVE ENGINEERING & DECISION MAKING
Thursday, October 4, 3:45–5:15 p.m.
Franklin 8 (Level 4)
Discussion Panel
Chair: Ellen Bass, Drexel U.
Panelists: Toby Warden, National Academies; Michael Kalsher, Rensselaer Polytechnic Inst.; Chen Ling, U. of Akron; Marita O’Brien, Franciscan U. of Steubenville
TE2 – Subjective Assessment Measurement Techniques
TEST AND EVALUATION; COSPONSORED BY SYSTEM DEVELOPMENT
Thursday, October 4, 3:45–5:15 p.m.
Salon C (Level 5)
Lecture
Chair: Jeffrey Thomas, Army Deputy Chief of Staff, G-1;
Cochair: Cheryl Coyle, SAS Inst.
2. Sheena Davis, Defence Science and Technology Group; Steve Milanese, U. of South Australia; Alistair Furnell, Defence Science and Technology Group; Karen Grimmer, U. of South Australia, Development of a Measure of Physical Discomfort for Combat Helmets Worn by Dismounted Soldiers
4. Sheena Davis, Defence Science and Technology Group; Steve Milanese, U. of South Australia; Alistair Furnell, Defence Science and Technology Group; Karen Grimmer, U. of South Australia, Dismounted Utility Considerations for Designing Human Factors and Ergonomics Evaluations of Soldier Clothing and Equipment
5. Kendra Befort, Boeing; David Baltaxe, Unanimous A.I.; Camila Profitt, Boeing; David Durbin, Army Research Lab, Artificial Swarm Intelligence Technology Enables Better Subjective Rating Judgment in Pilots Compared to Traditional Data Collection Methods

Friday, October 6
5:30–6:45 p.m.
Technical Group Program Chairs
Room 411 (Level 4)

VE5 – Virtual Environment Applications: Training, Analysis, and Collaboration
VIRTUAL ENVIRONMENTS
Thursday, October 4, 3:45–5:15 p.m.
Franklin 12 (Level 4)
Lecture
Chair: Scotty Craig, Arizona State U.
2. Shraddhaa Narasimha, Emma Scharett, Kapil Chalil Madathil, and Jeffrey Bertrand, Clemson U., WeRSort: Preliminary Results From a New Method of Remote Collaboration Facilitated by Fully Immersive Virtual Reality
3. Rod Roscoe, Arizona State U.; Laura Allen, Mississippi State U.; Adam Johnson and Danielle McNamara, Arizona State U., Automated Writing Instruction and Feedback: Instructional Mode, Attitudes, and Revising
Friday, October 5
9:15–11:00 a.m.

Technical Program Committee (Breakfast)
9:15–11:00 a.m.
Conference Suite 3 (Level 3)

Friday, October 5
8:30–10:00 a.m.

AS3 – Air Traffic Concepts, Performance, and Issues
AEROSPACE SYSTEMS
Friday, October 5, 8:30–10:00 a.m.
Salon A (Level 5)
Lecture
Chair: Doug Peterson, U. of South Dakota; Cochair: Kevin Lieberman, U. of Michigan, Ann Arbor
1. Daniela Schmid and Bernd Korn, German Aerospace Center (DLR), The Operational Issue of an Airliner’s Reduced-Crew Caused by Data-Link Break-Up to Remote Support
2. Philip Smith, Mark Evans, and Amy Spencer, Ohio State U.; Aditya Saraf, ATAC; Mark Klopfenstein, AvMet, Decision Support for Tactical Rerouting of Airborne Flights to Improve the Utilization of Airspace Capacity
4. Vanessa Bowden, Luke Ren, and Shayne Loft, U. of Western Australia, Supervising High Degree Automation in Simulated Air Traffic Control
5. Han Qiao, Jingyu Zhang, Xiaotian E, and Xiangying Sun, CAS Key Lab of Behavioral Science, The Peak-End Effects in Controllers’ Mental Workload Evaluation

ED2 – Designing a Global Learning Environment
ENVIRONMENTAL DESIGN; COSPONSORED BY EDUCATION
Friday, October 5, 8:30–10:00 a.m.
Franklin 7 (Level 4)
Discussion Panel
Chair: Nancy Stone, Missouri U. of Science and Technology; Cochair: Conne Bazley, RB Design
Panelists: Michelle Robertson, Office Ergonomics Research Committee; Nancy L. J. Larson, Nancy LJ Larson Consulting LLC; Beth Blickensderfer, Embry-Riddle Aeronautical U.; Ronald Boring, Idaho National Lab

GS8 – Real-World Strategies to Achieve Human Factors Integration
GENERAL SESSIONS; COSPONSORED BY SYSTEM DEVELOPMENT
Friday, October 5, 8:30–10:00 a.m.
Franklin 6 (Level 4)
Discussion Panel
Chair: Liza Josias, Independent Consultant
Panelists: Jason Demagalski, Federal Aviation Admin.; Sarah-Louise Donovan, Dyno Nobel; A. Joy Rivera, Children’s Hospital of Wisconsin; James Won, The Children’s Hospital of Philadelphia

HC11 – Human Factors Methods and Tools in Health Care
HEALTH CARE
Friday, October 5, 8:30–10:00 a.m.
Salon D (Level 5)
Lecture
Chair: Katie Hansbro, Design Science Consulting; Cochair: Kylie Gomes, Clemson U.
1. Jennifer Herout, Veterans Health Admin.; Jolie Dobre, General Dynamics Information Technology; William Plew, Veterans Health Admin.; Jason Saleem, U. of Louisville, Gathering Information in Healthcare Settings: A Tool to Facilitate On-Site Work
2. Kathryn Tippey, Larry McGrath, Mary Yovanoff, and Peter Snerringer, Design Science Consulting, Inc., Moderating Styles: Understanding Diverse Techniques for Investigating the Root Cause of Use Events
4. Carrie Reale, Vanderbilt U. Medical Center; Ross Speir, Kurt Ruark, and Jennifer Herout, Veterans Health Admin.; Jason Slagle, Matthew Weinger, and Shilo Anders, Vanderbilt U. Medical Center, Using Scenarios Throughout the User-Centered Design Process in Healthcare
5. Danielle Weldon, Rebecca Kowalski, and Laura Schubel, Medstar Health; Brett Schuchardt, Wake Forest U.; Ryan Arnold and Muge Capan, Drexel U.; Joseph Blumenthal and Ella Franklin, MedStar Health; Ken Catchpole, Medical U. of South Carolina; F. Jacob Seagull, U. of Michigan; J. Sanford Schwartz, U. of Pennsylvania; Kristen Miller, MedStar Health, Signaling Sepsis Scenario Development and Validation
PP3 − Alarms, Haptics, and Social Interaction
PERCEPTION AND PERFORMANCE
Friday, October 5, 8:30–10:00 a.m.
Salon B (Level 5)
Lecture
Chair: Brandon Pitts, Purdue U.; Cochair: William Kosnik, U.S. Air Force
3. Charles Miller, U. of California, Berkeley; Alan Barr, U. of California, San Francisco; Raziel Riemer, Beer-Sheva; Carisa Harris-Adamson, U. of California, Berkeley, The Effect of 5 Mechanical Gaming Keyboard Key Switch Profiles on Typing and Gaming Muscle Activity, Performance and Preferences
5. Kaitlyn Ouverson, Jacklin Stonewall, Stephen Gilbert, and Michael Dorneich, Iowa State U., Toward Strategic Training on Reading the Mind in the Eyes

ST6 − Display, Warning, and Interface
SURFACE TRANSPORTATION
Friday, October 5, 8:30–10:00 a.m.
Salon C (Level 5)
Lecture
Chair: Yiqi Zhang, Pennsylvania State U., University Park; Cochair: Erika Miller, U. of Washington
1. Hyungil Kim and Joseph Gabbard, Virginia Tech, Quantifying Distraction Potential of Augmented Reality Head-Up Displays for Vehicle Drivers
2. Ke Liu, U. of Michigan; Paul Green, U. of Michigan Transportation Research Inst., Driver Responses to Augmented Reality Warnings and Alternatives at Urban Signalized Intersections
3. Manuela Quaresma, Isabela Motta, Manuela Araújo, and Rafael Gonçalves, PUC-Rio U., The Relationship Between Rhythm Variation and Distance Perception in Auditory In-Vehicle Interfaces
4. Scott Mishler and Jing Chen, Old Dominion U., Effect of Response Method on Driver Responses to Auditory Warnings in Simulated Semi-Autonomous Driving
5. West O’Brien, Xingwei Wu, and Linda Boyle, U. of Washington, Examining Speech-Based Auditory Alerts for Intersection Collision Warning Systems Using a Driving Simulator

SF7 − Understanding and Modeling Human Performance
STUDENT FORUM; COSPONSORED BY PERCEPTION & PERFORMANCE
Friday, October 5, 8:30–10:00 a.m.
Franklin 8 (Level 4)
Lecture
Chair: Hunter Rogers, Clemson U.; Cochair: Christopher Paulillo, U.S. Army Research Lab
1. Hunter Rogers, Maher Al Ghalayini, and Kapil Chalil Madathil, Clemson U., A Preliminary Study to Investigate the Sensemaking Process of UAV Reports by Operators After Periods of Disconnect for Threat Assessment
2. Jukrin Moon, Farzan Sasangohar, S. Camille Peres, Timothy Neville, and Changwon Son, Texas A&M U., Modeling Team Cognition in Emergency Response via Naturalistic Observation of Team Interactions
5. Jorgen Ernssten, U. of South-Eastern Norway; Mashrura Musharraf, Memorial U. of Newfoundland; Salman Nazir, U. of South-Eastern Norway, Bayesian Model of Operator Challenges in Maritime Pilotage

T1 − Advances in Training Research
TRAINING
Friday, October 5, 8:30–10:00 a.m.
Franklin 11 (Level 4)
Lecture
Chair: Kelly Neville, Soar Technology, Inc.; Cochair: Dorrit Billman, San Jose State U.
1. Nima Ahmadi, Atefeh Katrahmani, and Matthew Romoser, Western New England U., Short and Long-Term Transfer of Training in a Tablet-Based Teen Driver Hazard Perception Training Program
2. Oleksandra Molloy, Brett Molesworth, and Ann Williamson, U. of New South Wales, The Effect of Cognitive-Based Training on Young Drivers’ Speed Management Behavior: An On-Road Study
3. Adam Braly and Patricia DeLucia, Rice U., Can Stroboscopic Training Improve Time-to-Collision Judgments of Lateral Moving Objects?
Friday, October 5
10:30 a.m.–12:00 p.m.

**CE11 – The Human in Human Factors**

**COGNITIVE ENGINEERING AND DECISION MAKING**
Friday, October 5, 10:30 a.m.–12:00 p.m.
Salon B (Level 5)
Lecture
Chair: Shanqing Yin, KK Women’s & Children’s Hospital; Cochair: Maya Toteva, Exponent
1. Ofir Yakobi, Technion – Israel Inst. of Technology, Determinants of Association and Dissociation Between Subjective and Objective Measures of Workload
2. Shaheen Shekh, Jaime Auton, and Mark Wiggins, Macquarie U., The Effects of Cue Utilization and Target-Related Information on Target Detection During a Simulated Drone Search and Rescue Task

**E5 – Cross-Training in Design and Human Factors**

**EDUCATION**
Friday, October 5, 10:30 a.m.–12:00 p.m.
Franklin 6 (Level 4)
Discussion Panel
Chair: Esa Rantanen, Rochester Inst. of Technology
Panelists: Stan Rickel, Rochester Inst. of Technology; Alisa Rantanen and Michael Lau, Insight Product Development

**HC12 – Special Issues in Health Care**

**HEALTH CARE**
Friday, October 5, 10:30 a.m.–12:00 p.m.
Salon D (Level 5)
Lecture
Chair: Abigail Wooldridge, U. of Wisconsin-Madison; Cochair: Sadaf Kazi, Johns Hopkins U.
2. Kylie Gomes, Clemson U.; Scott Reeves, Medical U. of South Carolina; Sara Riggs, Clemson U., The “Up-Side” and “Down-Side” of Tactile Parameters: An Evaluation of Increases and Decreases in Tactile Cue Magnitude to Support Anesthesia Monitoring
5. Peter Berggren, Centre for Teaching and Research in Disaster Medicine and Traumatology; Filip Svensson, Linköping U.; Maria Lampi, Centre for Teaching and Research in Disaster Medicine and Traumatology; Erik Prytz, Linköping U., Battlefield Trauma Care

**ID2 – Individual Differences in Applied Settings II**

**INDIVIDUAL DIFFERENCES IN PERFORMANCE**
Friday, October 5, 10:30 a.m.–12:00 p.m.
Franklin 11 (Level 4)
Lecture
Chair: Gabriella Hancock, California State U., Long Beach; Cochair: Amanda Harwood, George Mason U.
1. Tianxin Zhang and Christina Frederick, Embry-Riddle Aeronautical U., Busting the Myth of the Non-Social Gamer: Comparing Friendship Quality Between Gamers and Non-Gamers
2. Justin Bonny, Morgan State U., Preliminary Evaluation of a Brief Team Cohesion Manikin Scale
3. Alexis Neigel, U.S. Army Research Lab; Victoria Claypoole, Daryn Dever, and Nicholas Fraulini, U. of Central Florida; Gabriella Hancock, California State U.–Long Beach; James Szalma, U. of Central Florida, Sex Differences in the Stress and Workload of Lexical Vigilance
5. G. Teo, L. Reinerman-Jones, and G. Matthews, U. of Central Florida, Predicting Task-Induced State Changes in a Multitasking Environment From Personality Factors
ProfDev4 – Mentors, Mentees, and Building a Board of Directors: The Big Questions in Personal and Career Development Through Mentorship

PROFESSIONAL DEVELOPMENT; COSPONSORED BY EDUCATION
Friday, October 5, 10:30 a.m.–12:00 p.m.
Franklin 12 (Level 4)
Alternative Format
Chair: Haydee Cuevas, Embry-Riddle Aeronautical U.; Cochair: Kadie Mullins, Embry-Riddle Aeronautical U.

ST7 – Cognitive Distraction and Glance Behaviors
SURFACE TRANSPORTATION
Friday, October 5, 10:30 a.m.–12:00 p.m.
Salon C (Level 5)
Lecture
Chair: David Musgrave, DEKRA Insight; Cochair: Michael Clamann, U. of North Carolina
1. Shiyan Yang, Jonny Kuo, and Mike Lenné, Seeing Machines, Analysis of Gaze Behavior to Measure Cognitive Distraction in Real-World Driving
4. Dengbo He and Birsen Donmez, U. of Toronto, The Effects of Distraction on Anticipatory Driving

TE3 – Using the SUS: Lessons Learned and Forward-Looking Research
TEST AND EVALUATION; COSPONSORED BY SYSTEM DEVELOPMENT
Friday, October 5, 10:30 a.m.–12:00 p.m.
Salon A (Level 5)
Discussion Panel
Chair: Rebecca Grier, Ford Motor Co.
Panelists: Katie Allanson, Ford Motor Co.; Aaron Bangor, AT&T; Phillip Kortum, Claudia Acemyan, and Frederick Oswald, Rice U.

VE6 – Effects of Prolonged Use of Mixed-Reality Systems in Occupational Settings
VIRTUAL ENVIRONMENTS; PRACTITIONER TRACK
Friday, October 5, 10:30 a.m.–12:00 p.m.
Franklin 8 (Level 4)
Discussion Panel
Chair: Gregory Garrett, Boeing Co.; Cochair: Christopher Reid, Boeing Co.
Panelists: Michael Jenkins, Charles River Analytics; Thomas Talbot, U. of Southern California; Shawn Doherty, Embry-Riddle Aeronautical U.
Abbas, Hasan Tahir, 29
Abbate, Andrew J., 25
Abdelall, Esraa S., 29
Abdelrahman, Amro M., 29
Abraham, Hillary, 12, 23
Abulhassan, Yousf A., 26
Acemyan, Claudia Ziegler, 14, 18, 46
Acharya, Aditya, 22
Adams, Julie A., 27
Ade, Nilesh, 14
Adkins, Nick, 24
Agrawal, Pratik, 23
Agnisarman, Sthuthi, 27, 28, 40
Ahmadi, Nima, 14
Ahuja, Lakshay, 27
Ainleni, Ravi Charan, 39
Ajwun, Abidemi, 17
Alai, Oug, 39
Al Ghalayini, Maher, 44
Alarcon, Gene M., 31
Al Ghalayini, Maher, 44
Akkas, Oguz, 39
Alfred, Petra, 12, 34
Ammori, Jennifer, 16
Amin, Mamta, 14
Ambinder, Mike, 24
Amin, Mamta, 14
Ammori, Jennifer, 16
Anania, Emily, 20
Analis, Shilo, 23, 28, 41, 43
Andrusiak, Greg, 14
Andujar, Marvin, 31
Angell, Linda, 35
Anton, Nicholas, 41
Antonacci, Andrea, 23
Araujo, Manuela, 44
Arbab, Yasmin, 26
Armijo, Adam Jess, 20, 24
Armstrong, Miriam E., 31
Arnold, Ryan, 43
Arsenault Knudsen, Elise, 45
Asadi, Hamed, 37
Asan, Onur, 28
Ashdown, Amanda, 41
Assari, Soroush, 14
Atkins, Stephen, 31
Atwell, Katherine, 27
Auton, Jaime C., 39, 45
Avarri, David P., 41
Babar, Chris, 22
Babine, Andrey K., 34
Babaski-Reeves, Kari, 36
Badawi, Mohamed, 28
Badr-Frisorra, Katherine, 9, 29
Bagaria, Pranav, 14
Bagnall, Timothy, 31
Bak, Halerm, 26
Balci-Sinha, Rana, 13
Baldwin, Carryl L., 25, 35
Baltaxe, David, 42
Bangor, Aaron, 46
Bani Hani, Dania, 26
Banks, Cristina G., 28
Bao, Shan, 16
Bao, Stephen, 23, 39
Barac, Paul, 14
Baran, David, 19
Barbe, Mary F., 14
Barberis Canonico, Lorenzo, 18, 19
Barclay, Paul A., 21
Barnes, Laura, 13
Barnett, Neil, 40
Barclay, Jennifer, 23
Basko, Dawn G., 19
Bickensdref, Beth, 35, 37, 40, 43
Block, Laura, 36
Blocker, Kenneth A., 17
Bockelman, Patricia J., 21
Bodnar, Svetlana, 43
Boehm-Davis, Deborah, 26
Bogar, Jennifer, 25
Bolchini, Davide, 17, 36
Bolton, Matthew L., 25
Bonet, Samuel A., 45
Bonny, Justin W., 45
Borger, Paul, 14
Branaghan, Russell, 37
Brandenburg, Stefan, 38
Brandt, Rachael, 16
Braziar, Julie, 16
Breu, Gert J., 37
Brill, John Christopher, 17, 37, 38
Brooks, John, 34
Brooks, Johnell, 16, 23
Brooks, Lauren, 13
Brown, Janet, 16
Brown, Noelle, 31, 39
Brown, Stephanie A. T., 20, 21, 42
Brown, Timothy, 35
Browne, Samantha M., 37
Bruni, Sylvain, 22, 24
Brozowski, Sarah, 45
Burns, Catherine, 27
Burns, Martin, 22
Byars, Don, 41
Byrne, Ryan M., 16
Byrne, Vicky, 11
Caddick, Zachary, 21
Caddigan, Eamon, 38
Cades, David M., 38
Cady, Beth, 24
Caine, Kelly, 16, 36
Caldwell, Barnett, 31, 36, 37, 38
Calf, Looking, Lee, 24
Calhoun, Gloria, 22
Calvo, Andrea, 13
Cammon, Wesley D., 36
Campos, Andrea, 11
Canare, Dominic, 27
Canham, Matthew, 21
Cantin-Garside, Kristine
Dianne, 45
Cao, Shi, 25
Capan, Muge, 43
Capiola, August, 31
Caplan, Stan, 16
Cappelletto, Jessica, 41
Carden, Tony, 37
Cardosi, Kim, 38
Carlson, Leif, 27
Carman, Eva-Maria, 31
Carruth, Daniel W., 22
Carswell, C. Melody, 20
Casallas, Juan Sebastian, 36
Castro E Costa, Eduardo, 23
Catchpole, Ken, 14, 36, 43
Catrambone, Richard, 18, 21
Cauffman, Stephen J., 34
Caulkins, Bruce D., 21
Cavuoto, Lora A., 29
Cawley, Stephen J., 34
Cavnar, Andrew, 43
Chaparro, Alex, 27

Chaparro, Barbara S., 20, 27
Chapman, Melissa R., 15
Chappell, Sheryl, 26
Chen, Dar-Wei, 20
Chen, Hung-Tao Michael, 28
Chen, Jie, 37
Chen, Jing, 24, 44
Chen, Karen B., 42
Chen, Stephanie, 34
Chen, Winnie, 12
Cheng, Chun-Pong, 41
Cheng, Lara, 25
Cheng, Ryan, 20
Cherry, Erin, 31
Cheung, Chuen-Ho, 41
Chiou, Erin K., 12, 37
Cheung, Chuen-Ho, 41
Choi, Younggeun, 26
Choi, Sunwoo, 16
Choi, Younggeun, 26
Chong, Isis, 27
Choo, Yee-Yin, 13
Chowdhury, Suman K., 16
Christy, Naomi, 19
Christy, Emalee, 40
Cisler, Dean, 25
Claypoole, Victoria Lynne, 19, 39, 45
Cleary, Ryan K., 28
Craig, Curtis Michael, 14
Craig, Scotty D., 28, 38, 42
Cray, Monique, 39
Cravalho, Patrick F., 19
Crenshaw, Katarina, 20
Crites, Michael J., 19
Cronich, Chris, 43
Crui, Jessica, 29, 40
Crum, Caroline, 38
Cruz, Geneve E., 14
Cruz, José Fernando, 17
Cuevas, Haydee M., 16, 34, 46
Cummings, M. L., 38, 41
D’Souza, Clive R., 12, 14, 26, 36
Dändler, Celynda, 23
Dala, Swapnil, 37
Daley, Carly, 17, 36
Dang, Jasmine Sierra, 19
Daniels, Andreae, 36
Daragh, Amy, 37
Dattel, Andrew R., 34
Davenport, Paul B., 36
Davidson, Ethan, 40
Davies, Gerard A., 26, 28
Davies, Kara, 19
Davies, Kermit G., 15, 24, 26
Davies, Nicole, 15
Davies, Sheelana Elizabeth, 42
Dawkins, Shanee, 13
de Gouw, Adrian, 12
de Joux, Neil R., 19
de Visser, Ewart J., 17, 18
Deb, Shuchisnigdha, 40
DeFilippis, Nicholas, 35, 40
Degani, Asaf, 31
del Rio, Richard Alexander, 35
DeLucia, Patricia R., 13, 18, 19, 20, 26, 44
Demagalski, Jason, 43
Demir, Mustafa, 11, 22
Dempsey, Gaia, 41
Dempsey, Patrick, 16
Deng, Yunlin, 26, 40
Dennerlein, Jack T., 39
DePass, Beth, 22
DeSimone, Linda, 21, 42
Dever, Daryn Alexis, 39, 45
Devlin, Shannon P., 11, 39
Di, Mingyang, 12
Dickerson, Clark R., 12, 41
Dickinson, Claire, 15
DiDomienico, Angela, 23
Diels, Cyriel, 20
Dietz, Aaron S., 41
Dinakar, Swaroop, 12, 35
DinparastDjadiz, Azadeh, 35
Do Kim, Chung, 45
Dobre, Jolie, 43
Dobres, Jonathan, 23
Doherty, Shawn M., 42, 46
Dolgov, Igor, 18, 31
Domeniciucci, Laura, 25
Domeyer, Joshua, 12
Domino, David A., 38
Dong, Ziyi, 34
Donmez, Birsen, 20, 46
Donovan, Sarah-Louise, 43
Dorneich, Michael C., 13, 31, 39, 40, 44
Dorten, Stephen, 12, 24
Dressel, Jeffrey, 23, 25
Drury, Colin, 26
Du, Na, 24
Duncan, Chris, 19
Durbín, David, 42
Durrani, Sami, 41
Durso, Francis T., 18
Dyes, Michelle, 18
Dyckstra, Josiah, 42
E, Xiaotian, 43
Eaton, Joshua, 11
Ebadi, Yalda, 40
Ebert, Sheila M., 14, 36
Edwaerd, Darlene, 20, 26
Edgar, Graham, 45
Edwards, Tamryn, 12, 24
Edworthy, Judy, 25
Eichler, Tiffany, 19
Eisapour, Mahzar, 25
Ekandem, Joshua, 37
El-Sherif, Nibras, 14
Elkerton, Jay, 22
Endresen, Ian Adam, 18
Endsley, Mica R., 12, 25
Engstrom, Johan Anders, 12
Epling, Samantha L., 45
Eppler, Sandra, 38
Epstein, Ethan, 14
Erchow, Simone, 25
Ernstsen, Jorgen, 29, 44
Erol, Tugra, 23
Erraguntla, Madhav, 18, 29
Esplin, Jess, 11
Eurich, Sky, 21
Evans, Arthur W., 17, 19, 38
Evans, Mark, 31, 43
Fairbanks, Rollin J., 39
Fales, Colten, 21
Fallon, Corey K., 35
Farrell, Philip S. E., 38
Fastame, Maria Chiara, 40
Fathallah, Fadi, 37
Fawcett, Keith, 11
Feierle, Alexander, 34
Feigh, Karen M., 12, 27
Fekety, Drea, 26
Feldhütter, Anna, 34
Feldman, Jolene, 21
Feng, Lu, 11
Ferguson, Sue A., 19, 34
Ferguson-Walter, Kimberly, 22
Fern, Lisa, 26
Fernandes, Alicia, 31
Ferraro, James, 17, 19
Ferris, Thomas, 20
Fethke, Nathan B., 16
Figueroa Jacinto, Rosemarie, 11
Finnie, Dawn, 29
Finomore, Victor, 13
Finseth, Tor, 29, 40
Fiore, Stephen M., 18, 21
Fischer, Gary M., 25
Flanagan, Mindy E., 14
Flores, James, 15
Fluegel, Brandon A., 18
Flynn, Jake R., 11
Flynn, Jeremy, 29
Ford, Allan, 18
Foots, Ashley N., 19, 22
Ford, James, 43
Foroughi, Cyrus K., 24, 34, 39
Forsyth, Katherine L., 14
Fortes, Diego Miguel Goncalves, 28
Fox, Elizabeth, 26
Fox, Robert Rolland, 28
France, Megan, 17
Frankel, Richard M., 14, 36
Franklin, Ella, 43
Franks, Zamal, 14
Frantz, Jared P., 25
Frara, Nagat, 14
Fray, Mike, 31
Frederick, Christina M., 37, 42, 45
Frey, Darren, 40
Fridman, Lex, 13
Friedman, Debra L., 38
Finnie, Saw, 28
Frommer, Ian, 12
Frost, Elizabeth, 22
Fugate, Sunny, 22
Funke, Gregory J., 22, 31
Furman, Susanne Marlene, 13, 20
Furnell, Alistair, 42
Gabbard, Joseph L., 44
Gable, Thomas, 20
Gaeb, Jonathan A., 28
Gagnon, Jean-François, 19
Gaither, Napoleon, 9, 26
Galiana Ruíz de Adana, Ignacio, 29
Gallagher, Sean, 14, 16, 28
<table>
<thead>
<tr>
<th>Participant name</th>
<th>ID Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Koenig, Jordyn</td>
<td>34</td>
</tr>
<tr>
<td>Knizek, Robert</td>
<td>16, 23</td>
</tr>
<tr>
<td>Knapp, Barry J.</td>
<td>25</td>
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<td>K清明, Jieun</td>
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<td>King, Tamara</td>
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<td>Koh, Sang Lee</td>
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<td>Kohn, Spencer C.</td>
<td>17, 18</td>
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<td>Kolodge, Kristin</td>
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<tr>
<td>Korbekal, Kristopher</td>
<td>23, 25</td>
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<td>Korn, Bernd</td>
<td>43</td>
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<tr>
<td>Kortschot, Sean</td>
<td>10</td>
</tr>
<tr>
<td>Kortum, Philip</td>
<td>18, 20, 26, 46</td>
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<td>Kosnik, William</td>
<td>14, 27, 44</td>
</tr>
<tr>
<td>Kotowski, Susan</td>
<td>37</td>
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<tr>
<td>Kowalski, Rebecca</td>
<td>43</td>
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<td>Kozachuk, James</td>
<td>24</td>
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<tr>
<td>Krejci, Caroline</td>
<td>21, 39</td>
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<td>16</td>
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<td>42</td>
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<td>Kunkes, Taylor</td>
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<td>37</td>
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<td>Bjerk, 27</td>
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<td>Latorlipp-Theriault, Jean-Denis</td>
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</tr>
<tr>
<td>Lau, Chung-Wai</td>
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<td>Lau, Mei</td>
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<td>Lau, Michael</td>
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<td>Lau, Nathan Ka Ching</td>
<td>10, 13, 15, 31, 36</td>
</tr>
<tr>
<td>Lavender, Steven A.</td>
<td>37</td>
</tr>
<tr>
<td>LaViola, Joseph A.</td>
<td>21, 35</td>
</tr>
<tr>
<td>Lawley, Mark A.</td>
<td>16, 18, 29, 45</td>
</tr>
<tr>
<td>Lawley, Sarah</td>
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<tr>
<td>Lawson, Ben D.</td>
<td>17</td>
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<td>Le, Brian V.</td>
<td>41</td>
</tr>
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<td>Leal, Jeremy Daniel</td>
<td>23</td>
</tr>
<tr>
<td>Ledesma, Rubén</td>
<td>12</td>
</tr>
<tr>
<td>Lee, Byung Cheol</td>
<td>18</td>
</tr>
<tr>
<td>Lee, Cheng Hsien</td>
<td>39</td>
</tr>
<tr>
<td>Lee, Ja Young</td>
<td>46</td>
</tr>
<tr>
<td>Lee, Jeannie K.</td>
<td>17</td>
</tr>
<tr>
<td>Lee, Jeeun</td>
<td>37</td>
</tr>
<tr>
<td>Lee, John D.</td>
<td>10, 12, 13, 20, 25, 26, 35, 46</td>
</tr>
<tr>
<td>Lee, Joong Hee</td>
<td>20</td>
</tr>
<tr>
<td>Lee, Kyung-Jun</td>
<td>20</td>
</tr>
<tr>
<td>Lee, Paul</td>
<td>12</td>
</tr>
<tr>
<td>Lee, Seunghoon</td>
<td>16</td>
</tr>
<tr>
<td>Lee, Songil</td>
<td>26</td>
</tr>
<tr>
<td>Lee, Wonsup</td>
<td>39</td>
</tr>
<tr>
<td>Lee, Yi-Ching</td>
<td>15, 22</td>
</tr>
<tr>
<td>Leiden, Kenneth</td>
<td>31</td>
</tr>
<tr>
<td>Lemaine, Valerie</td>
<td>29</td>
</tr>
<tr>
<td>Lenné, Mike</td>
<td>46</td>
</tr>
<tr>
<td>Lenneman, John</td>
<td>25</td>
</tr>
<tr>
<td>Lennertz, Tracy</td>
<td>38</td>
</tr>
<tr>
<td>Leong, Audrey</td>
<td>31</td>
</tr>
<tr>
<td>Lester, Benjamin D.</td>
<td>38</td>
</tr>
<tr>
<td>Leventhal, Jonathan</td>
<td>21</td>
</tr>
<tr>
<td>Levulis, Samuel</td>
<td>20</td>
</tr>
<tr>
<td>Lew, Roger</td>
<td>14, 17, 27, 34</td>
</tr>
<tr>
<td>Lew, Victoria Kerwina</td>
<td>37</td>
</tr>
<tr>
<td>Li, Meng</td>
<td>25</td>
</tr>
<tr>
<td>Li, Simon Y. W.</td>
<td>41</td>
</tr>
<tr>
<td>Li, Yeli</td>
<td>27</td>
</tr>
<tr>
<td>Libert, John</td>
<td>20</td>
</tr>
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<td>Lieberman, Kevin</td>
<td>43</td>
</tr>
<tr>
<td>Liburne, Christopher M.</td>
<td>31</td>
</tr>
<tr>
<td>Lim, Jennifer Phaik Kooi</td>
<td>25</td>
</tr>
<tr>
<td>Lim, Sol I.</td>
<td>12, 36</td>
</tr>
<tr>
<td>Lim, Zhichan</td>
<td>39</td>
</tr>
<tr>
<td>Lin, Jia-Hua</td>
<td>23, 39</td>
</tr>
<tr>
<td>Lin, Jinkcho</td>
<td>45</td>
</tr>
<tr>
<td>Linden, Anna R.</td>
<td>36</td>
</tr>
<tr>
<td>Ling, Chen</td>
<td>14, 41</td>
</tr>
<tr>
<td>Liu, Kaifeng</td>
<td>45</td>
</tr>
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<td>Liu, Ke</td>
<td>44</td>
</tr>
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</tr>
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</tr>
<tr>
<td>Lodinger, Natalie R.</td>
<td>13</td>
</tr>
<tr>
<td>Loft, Shayne</td>
<td>34, 39, 43</td>
</tr>
<tr>
<td>Lohani, Monika</td>
<td>38</td>
</tr>
<tr>
<td>Lopes, Snehal</td>
<td>28</td>
</tr>
<tr>
<td>Lopes, Snowil</td>
<td>40</td>
</tr>
<tr>
<td>Lopez, Jeremy Adam</td>
<td>37</td>
</tr>
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<td>Louie, Jennifer F.</td>
<td>29, 31</td>
</tr>
<tr>
<td>Loveday, Thomas</td>
<td>39</td>
</tr>
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<td>Loveless, Sydney M.</td>
<td>11</td>
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<td>Lowe, Brian</td>
<td>16</td>
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<td>Lowndes, Bethany R.</td>
<td>29</td>
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<td>Lowry, Katherine M.</td>
<td>35</td>
</tr>
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<td>Loya, Celia</td>
<td>27</td>
</tr>
<tr>
<td>Lu, Jason</td>
<td>38</td>
</tr>
<tr>
<td>Lu, Ming-Lun (Jack)</td>
<td>19, 34</td>
</tr>
<tr>
<td>Lu, Yidu</td>
<td>24</td>
</tr>
<tr>
<td>Lucaites, Kathryn M.</td>
<td>34</td>
</tr>
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<td>Lui, Tiffany</td>
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<tr>
<td>Lukin, Stephanie M.</td>
<td>22</td>
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<tr>
<td>Lum, Heather C.</td>
<td>19, 21, 24</td>
</tr>
<tr>
<td>Lund, Rachael</td>
<td>9, 35</td>
</tr>
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<td>Luo, Yue</td>
<td>36</td>
</tr>
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<td>Lyons, James L.</td>
<td>41</td>
</tr>
<tr>
<td>Lyons, Joseph B.</td>
<td>38</td>
</tr>
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<td>Ma, Lanssie M.</td>
<td>27</td>
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<td>Maceda, Elaine</td>
<td>38</td>
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<td>Machado, Patricia</td>
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<tr>
<td>Macht, Gretchen</td>
<td>41</td>
</tr>
<tr>
<td>MacKenzie, Kevin J.</td>
<td>19</td>
</tr>
<tr>
<td>Madapana, Naveen</td>
<td>23</td>
</tr>
<tr>
<td>Madinei, Saman</td>
<td>14</td>
</tr>
<tr>
<td>Mallam, Steven</td>
<td>29</td>
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<tr>
<td>Malloy, Betty</td>
<td>19</td>
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<td>Malone, Gwen</td>
<td>12</td>
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<td>Mancuso, Vincent F.</td>
<td>22</td>
</tr>
<tr>
<td>Manganelli, Joseph</td>
<td>22</td>
</tr>
<tr>
<td>Mannan, M. Sam.</td>
<td>14, 28, 37</td>
</tr>
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<td>Manning, Matthew D.</td>
<td>27</td>
</tr>
<tr>
<td>Mantooth, Whitney P.</td>
<td>40</td>
</tr>
<tr>
<td>Manzey, Dietrich</td>
<td>26</td>
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<td>Marge, Matthew</td>
<td>22</td>
</tr>
<tr>
<td>Markin, Richard W.</td>
<td>28</td>
</tr>
<tr>
<td>Marois, Alexandre</td>
<td>18, 19</td>
</tr>
<tr>
<td>Mart, Jim F.</td>
<td>35</td>
</tr>
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<td>Marras, William S.</td>
<td>19, 34</td>
</tr>
<tr>
<td>Marshall, Tom</td>
<td>22</td>
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<tr>
<td>Marie, Daniel</td>
<td>20</td>
</tr>
<tr>
<td>Martin, Bernard</td>
<td>23</td>
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<tr>
<td>Martin, Elizabeth</td>
<td>17, 36</td>
</tr>
<tr>
<td>Martin, Ellen Ruth</td>
<td>23</td>
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<td>Martin, Jeffrey A.</td>
<td>15</td>
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<td>Martin, Rob</td>
<td>21</td>
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<tr>
<td>Massicotte, Vicky S.</td>
<td>14</td>
</tr>
<tr>
<td>Mathiass, Svend Erik</td>
<td>39</td>
</tr>
<tr>
<td>Matsangas, Panagiotis</td>
<td>37, 39</td>
</tr>
<tr>
<td>Matthews, Anita</td>
<td>22</td>
</tr>
<tr>
<td>Matthews, Gerald</td>
<td>45</td>
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<td>Mauro, Charles</td>
<td>4, 13</td>
</tr>
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<td>Maw, Emily</td>
<td>17</td>
</tr>
<tr>
<td>May, Robert Brian</td>
<td>40</td>
</tr>
<tr>
<td>Mayh orn, Christopher B.</td>
<td>11, 36</td>
</tr>
<tr>
<td>McBride, Maranda</td>
<td>36</td>
</tr>
<tr>
<td>McCahan, Susan</td>
<td>38</td>
</tr>
<tr>
<td>McCarley, Jason S.</td>
<td>26</td>
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<tr>
<td>McCleron, Christopher</td>
<td>13</td>
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<td>23</td>
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<td>McDermott, Patty</td>
<td>27</td>
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<td>McDonald, Alison Colleen</td>
<td>41</td>
</tr>
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<td>McDonald, Emily M.</td>
<td>29</td>
</tr>
<tr>
<td>McDonal, Tony</td>
<td>38</td>
</tr>
<tr>
<td>McGhee, Riley</td>
<td>35</td>
</tr>
<tr>
<td>McGlynn, Sean A.</td>
<td>20, 40</td>
</tr>
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<td>MgCookan, Blake</td>
<td>28</td>
</tr>
<tr>
<td>McGrath, Larry S.</td>
<td>43</td>
</tr>
<tr>
<td>McGuiere, Mason</td>
<td>19</td>
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<td>Mclntyre, Trevor</td>
<td>18</td>
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<td>McKendrick, Ryan</td>
<td>31</td>
</tr>
<tr>
<td>McKenzie, Johnathan</td>
<td>20</td>
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<tr>
<td>McLaughlin, Anne Collins</td>
<td>11, 26, 29</td>
</tr>
<tr>
<td>McNamara, Danielle S.</td>
<td>42</td>
</tr>
<tr>
<td>McNeese, Nathan</td>
<td>11, 18, 19</td>
</tr>
</tbody>
</table>
McWilliams, Thomas, 23
Meacham, Sarah, 27
Meh dizadeh, Amir, 16
Mehler, Alea, 23
Mehler, Bruce, 12
Mehrotra, Shashank Kumar, 20, 46
Mehta, R. M., 28
Mehta, Ranjana K., 15, 18, 28, 29, 40
Mehta, Rian, 18, 20
Meireles, Luis M., 17
Melnick, Ken, 16
Memarian, Bahar, 38
Mendonca, David, 11
Merrill, Zachary, 19
Merryweather, Andrew S., 19, 34
Mirchi, Tina, 34
Mireno, Bobby, 35
Ng Boyle, Linda, 10, 13, 44
Nguyen, Mai, 41
Nicholson, Laura L., 18
Nia, Qiong, 17
Ning, Xiaopeng, 14, 34
Niri, Ahmed, 38
Nneji, Victoria C., 41
Noland, Shelley, 29
Nonasi, Hamid, 34
Norton, Adam, 34
Nou, Danny, 36
Novak, Kyrsten, 40
Nussbaum, Maury A., 12, 25, 45
Nyre-Yu, Megan, 37
O’Brien, Marita, 41
O’Brien, West M., 44
O’Hearn, Brian E., 16
O’Neill, Patrick, 14, 27
Obenaier, William G., 23
Oden, Kevin, 38
Olcum, Ecem, 18
Or, Calvin Kalun, 35
Orlin-Gilad, Tal, 17
Ortiz, Yolanda, 35, 40
Ostrander, Alec, 44
Oswald, Frederick L., 22
Overson, Kaitlyn, 31, 44
Owens, Justin, 40
Ozkhan, Necmettin Firat, 15, 22
Pagano, Christopher C., 34
Pagi, Skylar, 14
Pal Mangalore, Ganesh, 40
Pak, Richard, 18, 36, 37
Pakdamanian, Erfan, 11
Palmer, Barbara, 14, 27
Palmer, Dakota, 13
Palmer, Evan McHughes, 19, 42
Panganiban, April Rose, 28
Paniukov, Dmitrii, 19
Parikhal, Lauren, 23
Park, Donggun, 20
Park, Jae hyun, 18
Park, Jangwoon, 18, 26
Park, Seongheyoek, 26
Parker, Jason Alexander, 20, 21
Parker, Sarah Henrickson, 20
Park, Seonghyeok, 20
Park, Jaehyun, 18
Park, Donggun, 20
Park, Seongheyoek, 26
Patzer, Brady, 14
Pastel, Robert, 15
Patchan, Melissa M., 40
Patterson, Emily S., 23, 28, 41
Pazik, Nauman, 18
Papautsky, Elizabeth Lerner, 28
Pawlik, Lauren, 23
Parker, Jason Alexander, 20, 21
Parker, Sarah Henrickson, 20
Parmet, Yisrael, 17
Parush, Avi, 4, 13,
Passe, Ulrike, 39
Pastel, Robert, 15
Patchan, Melissa M., 40
Patterson, Emily S., 23, 28, 41
Patzer, Brady, 14
Pau, Massimiliano, 40
Paudyal, Pragya, 27
Paulillo, Christopher, 9, 44
Peng, Yuhao, 41
Penn, Maria Pirottonia, 40
Pereira Da Silva, Jaqueline, 15
Perelman, Brandon S., 17, 19
Perera, Subashan, 19
Peres, S. Camille, 14, 15, 16, 26
Petterson, Donald, 42
Petterson, Douglas, 17, 36, 43
Petit, Jonathan, 15
Pfautz, Jonathan, 41
Pfeifer, Kevin, 21, 35
Pfeifer, Kevin,
Pfeifer, Elaine M., 37
Pierce, Linda, 11, 37
Pierce, Matthew B., 20
Pilioni, Giuseppina, 40
Pinekenstein, Barbara, 45
Pinya, Elizabeth, 26
Pittman, Corey, 21
Pits, Brandon, 40, 44
Plew, William, 43
Pliner, Erika, 23
Polivka, Barbara, 37
Pollack-Nelson, Carol, 13
Pollard, Kimberly A., 22
Ponathal, Amal Pradeep, 3, 15, 22, 28, 40
Ponnala, Siddarth, 36
Ponnambalam, Canmanie
Teresa, 20
Poon, Nathan, 12
Pope, Nathanael, 45
Popham, Jamey, 20
Popoff, Steve N., 14
Porta, Micaela, 40
Porto, Ryan, 23
Potter, Scott, 41
Powers, Sarah A., 18
Prettyman, Sandra Spickard, 13
Prenusse, Kimberly, 20
Prewitt, Deborah, 28
Price, Morgan, 12
Pringle, Andrew, 41
Pritchett, Amy R., 36, 27
Privette, Grayson, 18
Proctor, Robert W., 26, 27
Proffit, Camila, 42
Prukasaran, Saralee, 34
Pruttia, Arisa, 35
Pryor, Makenzie, 11, 29
Prytz, Erik, 45
Pugh, Carla M., 41
Pugh, Zachary, 44
Qaraq, Khalid, 18, 29
Qiao, Chunming, 13
Qiao, Han, 43
Quaresma, Manuela, 44
Quaries, Diane, 9, 35
Quddus, Noor, 14, 16
Quinn, Daniel B., 18, 20
Rabbitt, Laura R., 21
Radlimay, Jonas, 13
Radwin, Robert G., 34, 39, 41
<table>
<thead>
<tr>
<th>Name</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rossi Alvarez, Alexandria Ida</td>
<td>35</td>
</tr>
<tr>
<td>Rosen, Michael A.</td>
<td>20, 24, 26</td>
</tr>
</tbody>
</table>
Thomas, Suzanne, 38
Tice, James, 40
Tippey, Kathryn G., 10, 28, 43
Tokadlı, Guliz, 31
Toliver, Paul, 42
Tolston, Michael T., 31
Tong, Michelle, 43
Tong, Yourui, 12
Torelli, Gina, 35
Toreno, Felicia, 41
Toscos, Tammy, 17, 36
Toteva, Maya, 45
Tovey, Michael, 20
Tran, Tiffany, 18
Trask, Catherine, 23
Tremblay, Sebastien, 18
Tremoulet, Patrice D., 28
Tran, Tiffany, 18
Trask, Catherine, 23
Ullman, Joanne Rafanan, 20
Ulrich, Thomas A., 14, 34
Unverricht, James, 40
Upah, Jason B., 24
Uppalapati, Dheemanth, 16
Uster, Halit, 20
Uszak, Nicolas, 19
Vachon, Francois, 18, 19
Vaglienti, Richard, 34
Valdez, Rupa, 11, 13, 45
Valero-Mora, Pedro Miguel, 12
Van Engelhoven, Logan
Thomas, 12
Vangness, Lisa, 18
Varban, Oliver Adrian, 36
Varrier, Anagha, 17, 36
Vasquez, Gabrielle, 21
Veitch, Brian, 20
Venkatesaran, Vineyha, 12, 46
Verma, Vinay, 35
Vigilante, William, 12
Villa, Jose D., 20, 21
Villacreces, Paulina, 36
Vinet, Alexander, 16
Visser, Troy A. W., 34
Vistrom, Matias, 12
Volante, William Glenn, 13, 40
Vredenburgh, Alison G., 11, 25
Vredenburgh, Michael J., 11, 25
Wachs, Juan P., 23
Wacht, Oren, 37
Wallach, Dan S., 18
Walliser, James C., 17
Waldfogle, Grace E., 19, 21, 24
Walng, Shauna, 17, 36
Walliser, James C., 17
Walton, Jamiahus, 27, 44
Walton, Jeffrey, 37
Wampler, Jeffrey, 22
Wang, Yi, 12
Wang, Yuxiang, 34
Wang, Zhonglun Thomas, 21, 23
Warden, Toby, 41
Warm, Joel S., 19
Warner, Jeff, 20
Warta, Samantha F., 18
Wasser, Joscha, 20
Waterson, Patrick, 15, 31
Wazny, Jamet Han, 18
Weakley, Jonathon, 19
Weber, Julian, 16, 23
Webster, Kristen, 14
Wehner, Tristan, 13
Weiler, Dustin Travis, 25, 36
Weisinger, Matthew B., 23, 28, 43
Weiss, Patrick P., 11
Welch, Brandon, 15, 22
Weldon, Danielle L. M., 18, 43
Wells, Robyn, 41
Werner, Nicole, 31, 36
Westhoven, Max, 37
Wheatley, Camille Leslie, 11
Whetsel Borzendowski, Stephanie, 36
White, Bryan L., 31
White, Susan, 45
Whitley, Phillip, 28
Whitmer, Daphne Esther, 20
Wickens, Christopher D., 25, 26, 27, 41, 45
Wiedemann, Katharina, 38
Wiese, Eva, 11, 31, 44
Wiggins, Mark W., 39, 45
Wilkins, Adam Michael, 12
Willemse-Dunlap, Ann, 11
Williams, Adam, 45
Williams, Brian, 40
Williams, Jason Patrick, 28
Williamson, Ann, 44
Wils, Celia, 37
Wilson, Kimberly B., 18
Wilson, Kyle Malcolm, 19
Wilson, Mackenzie Klein, 15
Wilson, Michael, 19
Wilson, Whitney, 25
Winer, Eliot, 44
Winter, Scott R., 18, 20
Winters, John, 12
Wisniewski, Pamela J., 21
Wohleber, Ryan, 45
Wolf, Laurie, 39
Wollman, David, 22
Won, James C., 18, 43
Wong, B.L. William, 27
Wong, Novia, 19
Woo, Hyun, 24
Woods, David, 41
Wooldridge, Abigail R., 13, 31, 45
Wright, Emily G., 26
Wu, Changxu, 13, 41
Wu, Steven L., 19
Wu, Xingwei, 44
Wynn, Rachel M., 18
Wylick, Phelan, 35
Xiong, Jeffrey, 18
Xiong, Lin, 43
Xu, Chang, 34
Xu, Jie, 28
Xu, Wenyeo, 29
Yakobi, Ofir, 45
Yamani, Yusuke, 13, 34, 37, 40
Yang, James, 18, 20
Yang, Shiyan, 35, 46
Yang, Si, 12
Yang, X. Jessie, 24, 31
Yang, Xiaopeng, 39, 41
Yang, Yang, 23
Yang, Yucheng, 41
Yang, Zhuolin, 29
Yeh, Michelle, 38
Yerdon, Valarie A., 16, 29, 45
Yi, Jihhyeon, 26
Yin, Shanqing, 25, 45
Yoo, Angela, 20
Yost, Alan, 38
You, Heechoon, 16, 26, 39
Youn, Seokyoung, 26
Young, Douglas, 38
Young, Michael, 18
Yozuaw, Jason, 42
Yovanoff, Mary, 43
Yu, Denny, 23, 37, 41
Yule, Steven, 36
Yun, Myung Hwan, 11, 20
Yung, Marcus, 23
Zachary, Drew, 26
Zackowitz, Ilene B., 11
Zahabi, Maryam, 40
Zahed, Karim, 18, 20, 29
Zaikina-Montgomery, Helen, 15
Zak, Yuval, 17
Zellman, Jenny, 23
Zhang, Chongjie, 24, 31
Zhang, Fangda, 20, 46
Zhang, Hanshu, 34
Zhang, Jianming, 36
Zhang, Jingyu, 43
Zhang, Lingsong, 23
Zhang, Qian, 29
Zhang, Qiaoning, 24
Zhang, Shasha, 28
Zhang, Xinyuan, 45
Zhang, Xiuyu, 37
Zhang, Xudong, 16
Zhang, Yiqi, 13, 39, 41, 44
Zhou, Jie, 37
Zhou, Yu, 16
Zhu, Xinhui, 23, 41
Zhu, Yibo, 29
Zimmerlin, Zachary, 24, 27
Zinn, Cara M., 34
Zolghadr, Mohammad, 34
Zou, Xiangying, 43
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<table>
<thead>
<tr>
<th>Submissions</th>
<th>Requirements &amp; Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Papers¹</td>
<td>800 words</td>
</tr>
<tr>
<td>Posters¹</td>
<td>300 words</td>
</tr>
<tr>
<td>Demonstrations</td>
<td>300 words</td>
</tr>
<tr>
<td>Student Designs¹</td>
<td>300 words &amp; video clip</td>
</tr>
</tbody>
</table>

¹Submissions will be peer-reviewed by at least 2 independent referees from the International Program Boards.

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