2019 AHFE International

10th International Conference on Applied Human Factors and Ergonomics

jointly with

1st International Conference on Industrial Cognitive Ergonomics and Engineering Psychology
1st International Conference on Human Factors for Apparel and Textile Engineering
2nd International Conference on Human Factors in Artificial Intelligence and Social Computing
2nd International Conference on Kansei Engineering
2nd International Conference on Additive Manufacturing, Modeling Systems and 3D Prototyping
2nd International Conference on Advanced Production Management and Process Control
2nd International Conference on Interdisciplinary Practice in Industrial Design
2nd International Conference on Human Factors in Aging and Gerontology
2nd International Conference on Human Factors and Assistive Technology
3rd International Conference on Human Factors and Wearable Technologies
3rd International Conference on Human Error, Reliability, Resilience, and Performance
3rd International Conference on Human Factors in Communication of Design
3rd International Conference on Human Factors in Virtual Environments and Game Design
4th International Conference on Design for Inclusion
4th International Conference on Cognitive Computing and Internet of Things
4th International Conference on Human Factors and Simulation
4th International Conference on Human Factors in Management and Leadership
5th International Conference on Human Factors in Cybersecurity
5th International Conference on Human Factors and Systems Interaction
5th International Conference on Human Factors in Robots and Unmanned Systems
5th International Conference on Human Factors in Sports, Injury Prevention and Outdoor Recreation
5th International Conference on Human Factors, Business Management and Society
5th International Conference on Human Factors in Energy
5th International Conference on Human Factors in Training, Education, and Learning Sciences
6th International Conference on Human Factors, Software, Service and Systems Engineering
6th International Conference on Architecture, Sustainable Urban Planning and Infrastructure
6th International Conference on Safety Management and Human Factors
7th International Conference on Affective and Pleasurable Design
7th International Conference on Human Factors in Transportation
7th International Conference on Ergonomics in Design
8th International Conference on Cross-Cultural Decision Making
8th International Conference on Human Factors and Ergonomics in Healthcare and Medical Devices
8th International Conference on Digital Human Modeling and Applied Optimization
10th International Conference on Physical Ergonomics and Human Factors
10th International Conference on Usability & User Experience
10th International Conference on Neuroergonomics and Cognitive Engineering
10th International Conference on Social & Occupational Ergonomics

20th International Conference on The Human Aspects of Advanced Manufacturing: Managing Enterprise of the Future

Final Program

July 24-28, 2019

Washington Hilton
Washington D.C. USA

www.ahfe.org
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<td>16:00 - 18:00</td>
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INTRODUCTORY REMARKS
Waldemar Karwowski - General Conference Chair

IN THE FUTURE WILL THERE BE HUMANS TO FACTOR IN?

Prof. Peter A. Hancock
Pegasus Professor, Provost Distinguished Research Professor, and Trustee Chair
University of Central Florida, USA

About the speaker
Peter A. Hancock, D.Sc., Ph.D. is Provost Distinguished Research Professor in the Department of Psychology and the Institute for Simulation and Training, as well as at the Department of Civil and Environmental Engineering and the Department of Industrial Engineering and Management Systems at the University of Central Florida (UCF). In 2009, at UCF, he was selected as the 16th University Pegasus Professor and named the 6th University Trustee Chair in 2012. He directs the MIT2 Research Laboratories and is Associate Director of the Center for Applied Human Factors in Aviation (CAHFA). Prior to his current position, he founded and was the Director of the Human Factors Research Laboratory (HFRL) at the University of Minnesota, where he held appointments as Professor in the Departments of Computer Science and Electrical Engineering, Mechanical Engineering, Psychology, and Kinesiology as well as at the Cognitive Science Center and the Center on Aging Research. He continues to hold an appointment as a Clinical Adjunct Professor in the Department of Psychology at Minnesota. He is also an affiliated Scientist of the Humans and Automation Laboratory at MIT, a Research Associate of the University of Michigan Transport Research Institute, and a Senior Research Associate at the Institute for Human and Machine Cognition in Pensacola, Florida. Professor Hancock is the author of over seven hundred refereed scientific articles and publications as well as writing and editing over twenty books.
## Pre-Conference Tutorials

All Tutorials will be offered on Wednesday, July 24 and Thursday, July 25, 2019 (Cardozo, Gunston and Fairchild rooms are at the Terrace Level)

Tutorial registration is required.

### Wednesday, July 24

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<tbody>
<tr>
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<td>Coffee Break at 10:30</td>
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<tr>
<td>T-1</td>
<td>An Introduction to Cognitive Work Analysis</td>
<td>Cardozo</td>
<td>Neville Stanton, University of Southampton</td>
</tr>
<tr>
<td>T-3</td>
<td>Cybersecurity: How to Protect Yourself and Your Company From Cyber Attacks</td>
<td>Gunston</td>
<td>Abbas Moallem, San Jose State University</td>
</tr>
<tr>
<td>T-14</td>
<td>User-Centered Design Process</td>
<td>Fairchild</td>
<td>Javed Sheikh, University of Sialkot</td>
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<tr>
<td>13:00 - 17:00</td>
<td>Coffee Break at 15:30</td>
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<tr>
<td>T-4</td>
<td>Modern Design Heuristics</td>
<td>Cardozo</td>
<td>Everett McKay, UX Design Edge</td>
</tr>
<tr>
<td>T-6</td>
<td>Researching UX: How Can You Ensure That You Provide a Good Experience for Your Users?</td>
<td>Fairchild</td>
<td>Ger Joyce, Katarzyna Zerka, TripAdvisor and Google</td>
</tr>
<tr>
<td>T-16</td>
<td>Critical Safety Systems: Designing Warning Strategies and Requirements</td>
<td>Gunston</td>
<td>Susana Costa, University of Minho</td>
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### Thursday, July 25

<table>
<thead>
<tr>
<th>Time</th>
<th>Tutorial</th>
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<th>Presenter</th>
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<td>Coffee Break at 10:30</td>
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<tr>
<td>T-7</td>
<td>A Practical Guide to Doing Task Analysis</td>
<td>Cardozo</td>
<td>Neville Stanton, University of Southampton</td>
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<tr>
<td>T-8</td>
<td>Intuitive and Simple Design</td>
<td>Fairchild</td>
<td>Everett McKay, UX Design Edge</td>
</tr>
<tr>
<td>13:00 - 17:00</td>
<td>Coffee Break at 15:30</td>
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<tr>
<td>T-10</td>
<td>Prototyping HMI for Partially and Highly Automated Vehicles: A Balanced Human Systems Integration Approach</td>
<td>Cardozo</td>
<td>Marcel Baltzer, Frank Flemisch, RWTH-Aachen and Fraunhofer</td>
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<tr>
<td>T-12</td>
<td>Rapid Design Elicitation and Iteration Using Q-Methodology</td>
<td>Fairchild</td>
<td>Eric Vorm, Navy Aerospace Experimental</td>
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<tr>
<td>T-13</td>
<td>Eye Tracking in Use &quot;I see What You See:&quot; How We Can Effectively Use Eye Tracking Data in Research</td>
<td>Gunston</td>
<td>Julia Falkowska, Wroclaw University of Science and Technology</td>
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**Conference at a Glance**

**Conference Reception/Banquet**
**Thursday, July 25 • 19:00**

Columbia Ballroom
(Terrace Level)
(AHFE 2019 Badge Required)
Dress is business casual

**Registration Desk Open:**
Tuesday, July 23............13:00 - 18:00
Wednesday, July 24........7:00 - 18:00
Thursday, July 25...........7:00 - 18:00
Friday, July 26.............7:00 - 18:00
Saturday, July 27..........7:30 - 16:00
Sunday, July 28............7:30 - 16:00

**Scientific Advisory Board (SAB) Meetings (Simultaneous)**
**Saturday, July 27, 13:00-13:30**

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<thead>
<tr>
<th>Conference/Track</th>
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<td>Human Factors and Systems Interaction</td>
<td>Columbia 1</td>
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<tr>
<td>Human Factors in Aging and Gerontology</td>
<td>Columbia 2</td>
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<tr>
<td>Human Factors in Management and Leadership</td>
<td>Columbia 3</td>
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<tr>
<td>Human Factors in Training, Education, and Learning Sciences</td>
<td>Columbia 3</td>
</tr>
<tr>
<td>Human Factors, Architecture, Sustainable Urban Planning and Infrastructure</td>
<td>Columbia 4</td>
</tr>
<tr>
<td>Additive Manufacturing, Modeling Systems and 3D Prototyping</td>
<td>Morgan</td>
</tr>
<tr>
<td>Advanced Production Management and Process Control</td>
<td>Holmead West</td>
</tr>
<tr>
<td>Human Factors and Assistive Technology</td>
<td>Fairchild East</td>
</tr>
<tr>
<td>Neuroergonomics &amp; Cognitive Engineering</td>
<td>Dupont</td>
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<tr>
<td>Cognitive Computing and Internet of Things (IoT)</td>
<td>Columbia 9</td>
</tr>
<tr>
<td>Safety Management and Human Factors</td>
<td>Columbia 10</td>
</tr>
<tr>
<td>Transportation: Aviation, Road &amp; Rail, Maritime, Space</td>
<td>Columbia 11</td>
</tr>
<tr>
<td>Digital Human Modeling and Applied Optimization</td>
<td>Columbia 12</td>
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<tr>
<td>Interdisciplinary Practice in Industrial Design</td>
<td>Cardozo</td>
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<tr>
<td>Industrial Cognitive Ergonomics and Engineering Psychology</td>
<td>Embassy</td>
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<tr>
<td>Design for Inclusion</td>
<td>Gunston West</td>
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## Conference at a Glance

### Friday, July 26, 2019

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<td>1</td>
<td>Plenary: Neuroergonomics and Cognitive Engineering</td>
<td>Columbia 1</td>
<td>CN</td>
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<td>2</td>
<td>Plenary: Human Factors in Robots and Unmanned Systems</td>
<td>Columbia 2</td>
<td>HFRUS</td>
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<tr>
<td>3</td>
<td>Symposium: Digital Human Modelling by Women in Human Factors I</td>
<td>Columbia 3</td>
<td>DHMAO</td>
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<td>4</td>
<td>Sociotechnical Approach to Road Safety (STARS)</td>
<td>Columbia 4</td>
<td>RR</td>
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<tr>
<td>5</td>
<td>Physical Ergonomics and Comfort</td>
<td>Morgan</td>
<td>PEHF</td>
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<tr>
<td>6</td>
<td>Information, Design and Visualization</td>
<td>Holmead West</td>
<td>ED</td>
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<tr>
<td>7</td>
<td>Ergonomics in Design: Application in Indian Context</td>
<td>Fairchild East</td>
<td>ED</td>
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<tr>
<td>8</td>
<td>Artificial Intelligence and Social Computing I</td>
<td>Du Pont</td>
<td>AISC</td>
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<tr>
<td>9</td>
<td>Advances in User Experience, Affordance and Technology</td>
<td>Columbia 9</td>
<td>SYSI</td>
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<td>10</td>
<td>Human Factors, Business Management and Society: Business Development</td>
<td>Columbia 10</td>
<td>HFBMS</td>
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<td>11</td>
<td>Education in Medicine and Rehabilitation</td>
<td>Columbia 11</td>
<td>TELS</td>
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<tr>
<td>12</td>
<td>Human Factors for Apparel Design/Engineering</td>
<td>Columbia 12</td>
<td>HFATE</td>
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<tr>
<td>13</td>
<td>Leadership, Change Process and Technology</td>
<td>Cardozo</td>
<td>HFML</td>
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<tr>
<td>14</td>
<td>Algorithmic Design and Rapid Prototyping for Cultural Heritage I</td>
<td>Gunston West</td>
<td>AMMSP</td>
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<tr>
<td>15</td>
<td>Strategic Decision Making Models in Manufacturing and Service Systems</td>
<td>Embassy</td>
<td>APMPC</td>
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<td>16</td>
<td>Emotional Evidence</td>
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<td>IPID</td>
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<td>17</td>
<td>Human Factors and Assistive Technology I</td>
<td>Jay</td>
<td>HFAT</td>
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<td>18</td>
<td>Healthcare Worker Risk and Diagnosis Systems</td>
<td>Holmead East</td>
<td>EHMD</td>
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### Refreshments: 10:00 - 10:30 • Room: Columbia West (Terrace Level)

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<td>Systemic-Structural Activity Theory</td>
<td>Morgan</td>
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<td>21</td>
<td>Physical Ergonomics &amp; Human Factors</td>
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<td>22</td>
<td>Human Resilience in Aviation and Space Systems</td>
<td>Fairchild East</td>
<td>AVI/HERRP</td>
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<td>23</td>
<td>Social Design, Innovation and Ergonomics I</td>
<td>Du Pont</td>
<td>SOE</td>
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<td>24</td>
<td>Ergonomics in Building and Architecture I</td>
<td>Columbia 1</td>
<td>SUPI</td>
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<td>25</td>
<td>User Experience: Smart Phone and Mobile Applications</td>
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<td>Behavioral and Cognitive Science</td>
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<td>27</td>
<td>Panel: Human-Agent Teaming: Soldiers, Sailors, Airmen, and Marines and Their Alliance with Autonomous Unmanned Vehicles</td>
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<td>Occupational Safety, Defense and Security</td>
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<td>29</td>
<td>Human Factors in Virtual Environments I</td>
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<td>Design in Advertising and Media Communication</td>
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<td>31</td>
<td>Algorithmic Design and Rapid Prototyping for Cultural Heritage II</td>
<td>Columbia 12</td>
<td>AMMSP</td>
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<td>Interdisciplinary Design and Education</td>
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<td>Design for Health and Wellness</td>
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<td>Human Factors in Energy: Oil, Gas, Nuclear and Electric Power Industries</td>
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<td>Brain - Machine Interface and Artificial Intelligence (AI) Systems</td>
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<td>Transportation: Maritime</td>
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<td>Emotion, Culture and Society</td>
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<td>Understanding and Monitoring Human Performance Under Highly Ecological Settings</td>
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<td>UX in Design</td>
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<td>Tasks, Errors and Personal Resilience</td>
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<td>Agile Manufacturing</td>
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<td>Safety and Human Factors at a Societal Level</td>
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<td>Ergonomics in Building and Architecture II</td>
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<td>User Experience in Healthcare and Medical Applications</td>
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<td>Human-Machine Interaction Applications</td>
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<td>Human Factors, Business Management and Society: Social and Digital Views</td>
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<td>Internationalization in Learning Science</td>
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<td>Human, Artificial Intelligence, and Robot Teaming</td>
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<td>52</td>
<td>Human Factors in Cybersecurity: Applications and Privacy Research</td>
<td>Gunston West</td>
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<td>53</td>
<td>Design for Inclusion: Building Environment, Public Spaces and Communities</td>
<td>Embassy</td>
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<td>Communication Design and Practices</td>
<td>Gunston East</td>
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<td>55</td>
<td>Artificial Intelligence and Social Applications II</td>
<td>Jay</td>
<td>AISC</td>
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<td>56</td>
<td>Human Factors and Assistive Technology II</td>
<td>Holmead East</td>
<td>HFAT</td>
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<td>Artificial Intelligence and Social Applications I</td>
<td>Fairchild West</td>
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Refreshments: 15:30-16:00  •  Room: Columbia West (Terrace Level)

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<td>Emotional Interaction Design</td>
<td>Morgan</td>
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<td>Human-Machine Teaming and Leadership at the U.S. Air Force Academy</td>
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<td>Cultural Aspects in Design</td>
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<td>ED</td>
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<td>Design for People</td>
<td>Du Pont</td>
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<td>Automation II</td>
<td>Columbia 1</td>
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<tr>
<td>63</td>
<td>Macroergonomic Systems Design and Improvement</td>
<td>Columbia 2</td>
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<td>64</td>
<td>Ergonomics and Material Environment Design I</td>
<td>Columbia 3</td>
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<td>Usability Evaluation and Interface Design</td>
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**Session Time: 16:00-18:00 (pages 53 - 59)**

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**Sunday, July 28, 2019**

### Session Time: 8:00 - 10:00 (pages 60 - 65)

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<td>204</td>
<td>Human Reliability Analysis for Safety Critical Industries</td>
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<td>205</td>
<td>Macro 3D Printing</td>
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<td>208</td>
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<td>AISC</td>
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**Refreshments: 15:30-16:00 • Room: Columbia West (Terrace Level)**

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<td>Designing Autonomy in Transportation: Age and Inclusion</td>
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<td>Additive Manufacturing, New Materials and Industrial Processes</td>
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Session Time: 16:00-18:00 (pages 77 - 82)
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<td>1st International Conference on Human Factors for Apparel and Textile Engineering</td>
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<td>AMMSP</td>
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<td>IPID</td>
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<td>ENERGY</td>
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<td>SIPOR</td>
<td>5th International Conference on Human Factors in Sports, Injury Prevention and Outdoor Recreation</td>
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<td>5th International Conference on Human Factors in Training, Education, and Learning Sciences</td>
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<td>5th International Conference on Human Factors, Business Management and Society</td>
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<td>6th International Conference on Human Factors, Software, Service and Systems Engineering</td>
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<td>6th International Conference on Human Factors, Architecture, Sustainable Urban Planning and Infrastructure</td>
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<td>SMHF</td>
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<td>APD</td>
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<td>AV/MAR/ RR/SPACE</td>
<td>7th International Conference on Human Factors in Transportation: Aviation, Maritime, Road &amp; Rail, Space</td>
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<td>EHMD</td>
<td>8th International Conference on Human Factors and Ergonomics in Healthcare and Medical Devices</td>
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<td>CCDM</td>
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<td>DHMAO</td>
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<td>SOE</td>
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<td>MFG</td>
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<td>Fusako Sato, Karin Brolin, Mats Svensson, Astrid Linder, Japan</td>
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<td>Hyegjoo Choi, Todd Garlie, Peng Li, Asbed Tashjian, USA</td>
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<td>Hyunjin Koo, Jungsang Lee, Guira Park, Gyeongmin Yi, South Korea</td>
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<td>Elizabeth Benson, Sarah Jarvis, K. Han Kim, Jason Norcross, Sudhakar Rajulu, USA</td>
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<td>Brenda Bunyasi, Gilbert Kokwaro, Sylvia Anyika, James Oyoo, Kevin Otieno, Annette Murunga, Kenya</td>
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<td>Rich McIlroy, Neville Stanton, Katie Plant, UK</td>
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<td>Adnan Yousaf, Wu Jianping, Mingyu Liu, Linyang Wang, China</td>
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<td>Physical Ergonomics and Comfort</td>
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<td>Comparing the results of three methods used to predict heart rate-based on energy expenditure</td>
<td>Sahar Arab, Daniel Imbeau, Philippe-Antoine Dubé, Denise Dubeau, Canada</td>
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<td>Can the use of well-adjusted school furniture improve students’ performance?</td>
<td>Agostinho Fernandes, Paula Carneiro, Nelson Costa, Ana Braga, Portugal</td>
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<td>Influence of lumbar support prominence for a car seat in the seating pressure and discomfort perception.</td>
<td>Luis Ortiz, Fernanda Maradei, Laura Tatiana Gerrero, Paula Andrea Galvis, Colombia</td>
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<td>Analysis of work-related musculoskeletal disorders on office workers at the Industrial University of Santander</td>
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<td>A human-computer interaction framework for interface analysis and design</td>
<td>Sónia Rafael, Victor Almeida, Marco Neves, Portugal</td>
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<td>Collaboration: Critical roles of academia-business partnerships and challenges the workforce must face</td>
<td>Sara Antunes, Rita Almendra, Portugal</td>
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<td>The ‘place’ that shows the title of a TV series - what to name it and how it has evolved</td>
<td>Ricardo Pestana, João Brandão, Portugal</td>
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<td>Information design in presentation, interpretation and dissemination of natural and cultural heritage</td>
<td>Cristina Santos, Maria João Neto Pereira, Marco Neves, Portugal</td>
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<td>Communication design and medical procedures: Inform citizens to act in emergency situations</td>
<td>Marco Neves, Ana Rafaela Poças, Portugal</td>
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<td>Color and interaction in journalistic infographics: The case of online Portuguese media</td>
<td>Rita Salomé Esteves, Marco Neves, Portugal</td>
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<td>Ajita Dsingh, Ajay Deswal, India</td>
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<td>Role of postural control exercises and pelvic floor muscle exercises on chronic non-specific low back pain of women with sitting jobs</td>
<td>Ajita Dsingh, Amanpreet Kaur, India</td>
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<td>The role of organizational factors in development and progression of wrist disorders: Psychosocial aspects</td>
<td>Arunita Paul, Umri Salve, India</td>
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<td>Developing a framework that can assist designers to identify and incorporate notable cultural elements into products designed for tourists</td>
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<td>Design interventions of an Exergame for fall problem in Indian older adults</td>
<td>Nilakshi Yen, Swati Pal, India</td>
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<td>A re-look into the information in multimedia design and animation theme presentation</td>
<td>Manoj Majhi, Debkumar Chakrabarti, India</td>
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**Artificial Intelligence and Social Computing I**  
Co-Chairs: Tomek Strzalkowski and Anthony Palladino, USA  

**AISC**

- **8:00-10:00 - DU PONT**
  - Relevancy, bias, and coverage in news data scraped for automated social science analytics  
  - Anthony Palladino, Elisa J. Bienenstock, Skaidra Smith-Heisters, Timothy K. Perkins, Michael Salwen, USA  
  - EmoVis – An interactive visualization tool to track emotional trends during crisis events  
  - Samira Shaikh, Karthik Ravi, Tiffany Gallicano, Michael Brunswick, Bradley Aleshire, Omar El-Tayebey, Sara Levens, USA  
  - Using information processing strategies to predict message level contagion in social media  
  - Sara Levens, Omar El-Tayebey, Samira Shaikh, Tiffany Gallicano, Michael Brunswick, USA  
  - Social CONVOS: A new approach to modeling information diffusion in social media  
  - Tomek Strzalkowski, Gregorios Katsios, Ning Sa, USA  
  - Manipulated information dissemination and risk-adjusted momentum return in the Chinese stock market  
  - Hung-Wen Lin, Jing-Bo Huang, Kun-Ben Lin, Shu-Heng Chen, Taiwan  
  - Actionable pattern discovery for tweet emotions  
  - Jaishree Ranganathan, Angelina Tzacheva, Sai Yesawy Mylavarapu, USA

- **8:00-10:00 - COLUMBIA 9**
  - Pharmaceutical online store project: Usability, affordances and expectations  
  - Marcelo Guimarães, Rodrigo Zisman, Adriano Renzi, Brazil  
  - Social event management system: Users’ recommendations  
  - Thiago Gomes da Silva, Adriano Renzi, Brazil  
  - User experience interaction in cross-channel systems: Comparing heuristic evaluations  
  - Adriano Renzi, Olnei Fonseca De Almeida, Marcos Cesar, Brazil  
  - Banking cross-channel system UX evaluation  
  - Olnei Fonseca De Almeida, Adriano Renzi, Brazil  
  - Desatendó: Management system app for buildings  
  - Evelin Daiane Barreto dos Santos, Adriano Renzi, Brazil  
  - Towards machine translation of Chinese complex structures  
  - Jiali Du, Pingfang Yu, China  
  - Challenge of implanting educational management systems in Brazilian schools  
  - Eline Holanda Cavalcanti Guimaraes, Angelica Fonseca da Silva Dias, Juliana Baptista dos Santos França, Brazil

9  
**Advances in User Experience, Affordance and Technology**  
Co-Chairs: Adriano B. Renzi and Olnei Fonseca De Almeida, Brazil  

**SYSI**

- **8:00-10:00 - COLUMBIA 9**
  - Intermediary organization and collaboration platform for SMEs  
  - Kodjovi Lotch, Ebo Kwegyir-Afful, Afnan Zafar, Ari Sivula, Jussi Kantola, Finland  
  - Company decision factors while choosing the future location for the future business  
  - Heikki Ruohomaa, Vesa Salminen, Finland  
  - Ecosystem-based development on managing digital transformation  
  - Heikki Ruohomaa, Vesa Salminen, Finland  
  - A model for capturing tacit knowledge in enterprises  
  - Yehya Soliman, Hannu Vanharanta, Poland/Finland  
  - Responsibility caps from strategy to operations in leadership and management - conceptual model  
  - Tero Reunanen, Finland  
  - ENGINE model- Changing higher education with industry cooperation  
  - Rauni Jaskari, Timo Holopainen, Tero Reunanen, Martin Grotjahn, Thomas Röhr, Ludger Schneider-Störmann, Finland  
  - Knowledge management model to support a supply chain for timely order delivery in a telecommunications equipment marketing company  
  - Nicolle Vargas, Denisse Villaverde, Gino Viacava, Carlos Raymundo, Francisco Dominguez, Peru
Detailed Technical Program

Friday, July 26, 2019

**11 Education in Medicine and Rehabilitation**
Co-Chairs: Joanna Bartnicka and Mariusz Stepień, Poland

- The Erasmus+ strategic partnership as a way to attract young people to engineering
  Mariusz Stepień, Anton Rassolkin, Kévin Berger, Toomas Vaimann, Poland
- Virtual reality in stroke rehabilitation: Educational challenges for medics and patients
  Joanna Bartnicka, Agnieszka Aneta Zietkiewicz, Joanna Roziak, Alicja Kasprzak, Poland
- Functional evaluation as a new learning area against “functional disability epidemic”
  Joanna Bartnicka, Katarzyna Mleczko, Agnieszka Aneta Zietkiewicz, Cristina Herrera, Constanza Valenzuela, Peter Dieter, Poland
- Methods and tools for acquiring high-quality skills in digital era - innovative practices and results from 3DSPEC and e-MOTIVE projects
  Dariusz Michalak, Magdalena Rozmus, Poland
- A teaching experience of the human-computer interaction course in a Master Program
  Freddy Paz, Freddy Asrael Paz, Arturo Moquillaza, Fiorella Falconi, Peru
- Cyberloafing in academia: Determinants and impacts
  Anees Baqir, Javed Anjum Sheikh, Hamaad Rafique, Pakistan

**12 Human Factors for Apparel Design/Engineering**
Co-Chairs: Longlin Luo and Jia Lyu, China

- Research on human factors engineering for the innovative design of work clothes for couriers
  Longlin Luo, Xiaoping Hu, China
- The application and development of smart clothing
  Jia Lyu, Yue Sui, Dongsheng Chen, China
- Dynamic wardrobe from a user’s perspective
  Carla Morais, Portugal
- Performative approaches in designing costumes: Ergonomics in immersion and storytelling
  Alexandra Cabral, Carlos M. Figueiredo, Portugal
- Exploring fashion design methods: understanding human factors in new society contexts
  Luís Santos, Gianni Montagna, Carla Morais, Portugal
- Apparel for aging users
  Cristina Carvalho, Gianni Montagna, Carla Morais, Portugal

**13 Leadership, Change Process and Technology**
Co-Chairs: Christian Vocke and Diana Paola Moreno Alarcon, Germany/France

- Technology start-up firms’ management of data security and trust in collaborative work with third-parties in a developing economy
  Mohammed Aminu Sanda, Ghana
- Work in the age of artificial intelligence - challenges and potentials for the design of new forms of human-machine interaction
  Wilhelm Bauer, Christian Vocke, Germany
- Production process improvement of automotive wire harnesses enterprise through work teams
  Velia Herminia Castillo Pérez, Mario Corral-Chacón, Liliana Carrasco-Armendariz, Ramon Elizondo, Mexico
- Applying safety leadership and systems thinking to the formal and informal controls approach used in safety and risk management within the French nuclear sector
  Diana Paola Moreno Alarcon, Jean Francois Vautier, Guillaume Hernandez, Franck Guarnieri, France
- Leadership and the human factor in an enterprise providing services to the Polish Armed forces
  Artur Kobylanski, Zbigniew Wisniewski, Malgorzata Wisniewska, Poland
- A study on concepts development of ‘Locavore’ for restaurant managers in Taiwan
  Shao-Chieh Lin, Jen-Son Cheng, Shieh-Liang Chen, Peng-Lyun, Taiwan
- A study of team structure to enable effective product development process implementation
  Shasha Lu, Bin Yao, Chao Zhan, Hongtao Liu, Jin Zhefeng, China
### 14 Algorithmic Design and Rapid Prototyping for Cultural Heritage I
**Co-Chairs:** Leonardo Baglioni and Graziano Mario Valenti, Italy

#### 8:00-10:00 - GUNSTON WEST

- **An algorithmic approach to VIEWSHEDS analysis for cultural landscape: Manziana and the Bracciano lake area**
  - Matteo Flavio Mancini, Italy
- **Design and digital fabrication of a parametric joint for bamboo sustainable structures**
  - Francesco Di Paola, Andrea Mercurio, Italy
- **Three renaissance vaults in Milan. Cultural heritage and digital workflows for BIM modelling**
  - Cecilia Bolognesi, Fausta Fiorillo, Damiano Aiello, Italy
- **Four projects of Pier Luigi Nervi. A methodology for the construction and 3D print of architectural models**
  - Federico Fallavollita, Italy
- **Parametric design of applied origami with a synthetic computational approach**
  - Riccardo Foschi, Fabrizio I. Apollonio, Federico Fallavollita, Italy
- **Generative design for printable mass customization jewelry products**
  - Massimo Di Nicolantonio, Emilio Rossi, Italy

### 15 Strategic Decision Making Models in Manufacturing and Service Systems
**Co-Chairs:** Yusuf Tansel Ic and İsmail Bıçakcı, Turkey

#### 8:00-10:00 - EMBASSY

- **Ergonomic risk evaluation in work stations based on FARE-KEMIRA-M integration**
  - Pelin Toktas, Güln Feryal Can, Turkey
- **Prioritizing workers according to their exposure levels in manual lifting tasks by implementing MCDM approach**
  - Güln Feryal Can, Pelin Toktas, Turkey
- **A component based model developed for machine tool selection decisions**
  - Yusuf Tansel Ic, Mustafa Yurdakul, Turkey
- **A new formulation for level of repair analysis problem with multiple upstream approach in repair network**
  - İsmail Bıçakcı, Yusuf Tansel Ic, Turkey
- **Multiple service home health care routing and scheduling problem: A mathematical model**
  - Asiye Özge Dengiz, Kumru Didem Atalay, Fulya Altıparmak, Turkey
- **Order acceptance and scheduling problem: A proposed formulation and the comparison with the literature**
  - Papatya Sevgin Bıçakcı, İmdat Kara, Turkey
- **Management model logistic for the use of planning & inventory tools in a selling company of the automotive sector in Peru**
  - Luis Carazas, Manuel Barrios, Victor Nunez, Carlos Raymundo, Francisco Dominguez, Peru

### 16 Emotional Evidence
**Co-Chairs:** YoungAe Kim and Joungyun Choi, USA

#### 8:00-10:00 - GUNSTON EAST

- **In & out of school: Capturing the lived experiences of Latinx students through images**
  - Jeremy Swanston, Gerta Bardhoshi, USA
- **How creative mindset is involved in positive emotions and attitude that affects creative design process**
  - Joungyun Choi, USA
- **Happiness on Instagram – Content analysis and engagement based on attention theory**
  - Qiuwen Li, YoungAe Kim, USA
- **How color coding encourages emotional interactions while using smartphones**
  - YoungAe Kim, USA
- **A journey of taking industrial design students into uncharted territories: Designing crowd-sourced playful interactions for a public art event**
  - Magnus Feil, Milagros Zingoni, USA
- **Teaching industrial design through real world markets and manufacturing**
  - George Chow, USA
### Human Factors and Assistive Technology I
Co-Chairs: Anna Szopa and Lama Hamandi, USA/Lebanon

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<td>Evaluation of a multilingual workspace to practice math for visually impaired students</td>
<td>Islam Elkabani, Lama Hamandi, Rached Zantout, Lebanon</td>
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<td>The auto-personalization computing project in libraries</td>
<td>Anna Szopa, Gregg Vanderheiden, Bern Jordan, David Folmar, USA</td>
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<td>A comparative study of augmented reality assistant tools in assembly</td>
<td>Lea Daling, Anas Abdelrazeq, Christoph Sauerborn, Frank Hees, Germany</td>
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<td>The effect of training with a prosthetic hand simulator in adult non-amputees: A controlled pilot study</td>
<td>Stijn Verwulgen, Erik Haring, Kristof Vaes, Anouck Mees, Bram Raeymaekers, Steven Truijen, Belgium</td>
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<td>Human factors in all-terrain wheelchair design for rural population</td>
<td>Paula Chacon-Cifuentes, A. A. Zuleta, Gustavo Sevilla, Andres Valencia-Escobar, Esteban Correa-Bedoya, Felix Echeverria-Echeverria, Colombia</td>
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<td>Usability of assistive technology in the workplace: A literature review</td>
<td>Carolina Alonso, Danielle Silva dox Santos, Francisco Duarte, Brazil</td>
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### Healthcare Worker Risk and Diagnosis Systems
Co-Chairs: Chuliporn Sopajareeya and Riad Taha Al-Kasasbeh, Thailand/Russia

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<td>Low back pain and work ability among Thai nurses</td>
<td>Chuliporn Sopajareeya, Thailand</td>
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<td>Evaluation of the impact of the ergonomics of technical systems on the state of health of a human operator with regard to his functional reserve</td>
<td>Riad Taha Al-Kasasbeh, Nikolay Korenevskiy, Altyn Aikeyeva, Ilyash Maksim, Jordan/Russia</td>
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<td>Are teachers more affected by burnout than physicians, nurses and other professionals? A systematic review of the literature</td>
<td>Myriam Squillaci, Switzerland</td>
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<td>Understanding the challenges to the safe delivery of care in the Mexican healthcare system</td>
<td>Carlos D. de León Zuloaga, Carlos Aceves-Gonzalez, Elvira Perez Valiejos, Rosa Rosales-Cinco, Alexandra Lang, Sue Higness, Mexico/UK</td>
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<td>Ergonomic injury risk across ten surgical specialties</td>
<td>John Vaughan, Yona Vaisbuch, Justin Moore, Ksenia Aaron, Yifei Ma, USA</td>
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<td>Quantitative evaluation of pulse diagnosis using capillary blood flow of images</td>
<td>Yumie Osada, Fuminori Matsuura, Yoshinori Hirano, Xiaodan LU, Tomoko Ota, Hiroyuki Hamada, Noriyuki Kida, Japan</td>
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<td>SENS: A motion feedback device to assist in improving joint motion</td>
<td>Jeff Feng, Rajeshree Jaiswal, USA</td>
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10:00 - 10:30 Refreshments will be provided in Columbia West (Terrace Level)
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<td>10:30 - 12:30 - MORGAN</td>
<td><strong>Systemic-Structural Activity Theory</strong>&lt;br&gt;Co-Chairs: Inna Bedny and Alexander Yemelyanov, USA</td>
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<td>10:30 - 12:30 - MORGAN</td>
<td>Self-regulation model of decision-making&lt;br&gt;Alexander Yemelyanov, USA</td>
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<td>10:30 - 12:30 - MORGAN</td>
<td>Application of systemic-structural activity theory to evaluation of innovations&lt;br&gt;Inna Bedny, USA</td>
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<td>10:30 - 12:30 - MORGAN</td>
<td>Goal-classification and the influence of activity-goal-formation on individuals’ systemic-consideration of activity-strategies and decision-outcomes&lt;br&gt;Mohammedaminu Sanda, Ghana</td>
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<tr>
<td>10:30 - 12:30 - MORGAN</td>
<td>Performance evaluation process and express decision&lt;br&gt;Alexander Yemelyanov, Alla Yemelyanov, USA</td>
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<tr>
<td>10:30 - 12:30 - MORGAN</td>
<td>Estimation of emotional processes in regulation of the structural afferentation of varying contrast by means of visual evoked potentials&lt;br&gt;Sergey Lytaev, Mikhail Aleksandrov, Mikhail Lytaev, Russia</td>
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<td>10:30 - 12:30 - MORGAN</td>
<td>The contribution of Bedny’s systemic-structural activity theory to the science of activity&lt;br&gt;Fred Voskoboynikov, USA</td>
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<td>10:30 - 12:30 - HOLMEAD WEST</td>
<td><strong>Physical Ergonomics &amp; Human Factors</strong>&lt;br&gt;Co-Chairs: Xingwei Wang and Xiaoli Fan, Taiwan/China</td>
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<td>10:30 - 12:30 - HOLMEAD WEST</td>
<td>Review of the evaluation methods of mental workload&lt;br&gt;Xiaoli Fan, Chaoyi Zhao, Huimin Hu, Yuwei Jiang, China</td>
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<td>10:30 - 12:30 - HOLMEAD WEST</td>
<td>The understanding and influence of the connotation of semantics on the figurative product&lt;br&gt;Ching-Yi Wang, Peng Jyun Liu, Taiwan</td>
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<td>10:30 - 12:30 - HOLMEAD WEST</td>
<td>Experts and novices on the recognition and cognitive differences of brand color&lt;br&gt;Ching-Yi Wang, Peng Jyun Liu, Yu-Hsuan Chung, Yu-Ting Chen, Taiwan</td>
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<td>10:30 - 12:30 - HOLMEAD WEST</td>
<td>Deep learning model to recognize the different progression condition patterns of manual wheelchair users for prevention of shoulder pain&lt;br&gt;Jen-Yung Tsai, Yih-Kuen Jan, Ben-Yi Liao, Chien-Liang Chen, Peng-Je Chen, Chih-Yang Lin, Yi-Chun Liu, Chi-Wen Lung, Taiwan/USA</td>
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<td>10:30 - 12:30 - HOLMEAD WEST</td>
<td>Time frequency analysis of pupillary oscillations sheds light on cognitive workload of operators&lt;br&gt;Punit Kumar Bhavsar, Babji Srinivasan, Rajagopalan Srinivasan, India</td>
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<td>10:30 - 12:30 - HOLMEAD WEST</td>
<td>Development of ergonomic work station for sewing operations&lt;br&gt;Yuvraj Garg, Manoj Tiwari, India</td>
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<td>10:30 - 12:30 - HOLMEAD WEST</td>
<td>Impact of handwheel size on valve-operators’ torque production capabilities&lt;br&gt;Saif Al-Qaisi, Jad Mansour, Yousef Al-Abdallat, Lebanon</td>
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<td>10:30 - 12:30 - FAIRCHILD EAST</td>
<td><strong>Human Resilience in Aviation and Space Systems</strong>&lt;br&gt;Co-Chairs: Kimberly Stowers and Brandon Cuffie, USA</td>
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<td>10:30 - 12:30 - FAIRCHILD EAST</td>
<td>Risk culture in commercial air transport industry&lt;br&gt;Cengiz Turkoglu, UK</td>
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<td>10:30 - 12:30 - FAIRCHILD EAST</td>
<td>STPA: An engineering method to improve aviation human resilience&lt;br&gt;John Thomas, USA</td>
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<td>10:30 - 12:30 - FAIRCHILD EAST</td>
<td>A management science perspective on resilience&lt;br&gt;Kimberly Stowers, Yash Mehta, Youjeong Huh, Lisa Brady, Nicholas Kasdaglis, USA</td>
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<td>10:30 - 12:30 - FAIRCHILD EAST</td>
<td>Alternatives for scheduling departures for efficient surface metering in ATD-2:&lt;br&gt;Exploration in a human-in-the-loop simulation&lt;br&gt;Bonny K. Parke, Lindsay K. Stevens, William J. Coupe, Hanbong Lee, Yoon C. Jung, Deborah L. Bakowski, Kimberly Jobe, USA</td>
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<td>10:30 - 12:30 - FAIRCHILD EAST</td>
<td>Considerations for passenger experience in space tourism&lt;br&gt;Tiziano Bernard, Brandon Cuffie, Sebastien Boulnois, Yash Mehta, Yassine Rayad, Lucas Stephane, USA</td>
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<td>10:30 - 12:30 - FAIRCHILD EAST</td>
<td>Impact of plants in isolation: The EDEN-ISS human factors investigation in Antarctica&lt;br&gt;Irene Lia Schlacht, Daniel Schubert, Giorgio Musso, Germany</td>
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### Friday, July 26, 2019

#### Detailed Technical Program

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| 23 | Social Design, Innovation and Ergonomics I | Nicos Souleles and Ana Margarida Ferreira, Cyprus/Portugal | SOE | 10:30-12:30 - DU PONT | Social art: “Echoes of Machin”  
Ana Nolasco, Portugal  
Sustainable human environment: Mouraria, local color and sense of place of a historical Lisbon neighborhood  
Cristina Pinheiro, Lambert Rozema, Ana Margarida, Portugal/Holland  
Collaborative practices through design and engineering - pilot project to improve the human condition in vulnerable communities  
Joao Bernarda, Ana Margarida Ferreira, Carlos Santos Silva, Rui Costa Neto, Portugal  
Developing portable clean cart with broom and dustpan for street sweepers needs  
Bing Cheng Zhu, Chien-Hsu Chen, Taiwan  
Discuss the use of lip gloss and design improvement with universal design  
Peng Jyun Liu, Ching-Yi Wang, Yi Chun Hsieh, Yi-Jyun Ku, Taiwan  
Application of universal design for design improvement of hangers  
Peng Jyun Liu, Ching-Yi Wang, Yi-Chun Hsieh, Chu-Lin Su, Taiwan  
Case study of science communication in ergonomics: Introduction of ErgonomicThon workshop  
Yasuyuki Yamada, Takeshi Ebara, Japan |
| 24 | Ergonomics in Building and Architecture I | Jerzy Charytonowicz and Anna Jaglarz, Poland | SUPI | 10:30-12:30 - COLUMBIA 1 | Public toilets - Determinant of the progress of civilization and consciousness of societies or a necessary evil?  
Anna Jaglarz, Poland  
Reconstruction with a change of function – ergonomics of the hotel environment  
Joanna Jablonska, Elzbieta Trocka-Leszczynska, Poland  
T-house in shaping sustainable housing  
Boguslaw Wojtyszyn, Alicja Maciejko, Poland  
Ergonomics for children  
Elzbieta Trocka-Leszczynska, Joanna Jablonska, Poland  
Hygienic-sanitary zones in hotel objects  
Joanna Jablonska, Elzbieta Trocka-Leszczynska, Poland  
Building as a primary means of preventative care. The postulate of certification of buildings intended for use by the elderly in multi-family housing and collective housing  
Agata Bonenberg, Poland  
T-house: Shaping ergonomic and flexible interior in modular form connected with horticultural therapy zone  
Jerzy Charytonowicz, Alicja Maciejko, Agnieszka Skrzypczak, Poland |
| 25 | User Experience: Smart Phone and Mobile Applications | Soo Kim and Wei Wang, USA | UUE | 10:30-12:30 - COLUMBIA 2 | UTAUT-QiU: Technology acceptance evaluation model with integrated quality-in-use assessment for mobile UI adapted for low- and post-literate users  
Nikhalesh Patel, Olga Ormandjieva, Kristina Pitula, Canada  
The effects of progress indication on the usability of mobile wayfinding process  
Shasha Li, Chien-Hsiung Chen, Taiwan  
Utilizing wearable eye-tracking technology in mobile app design usability evaluation process  
Wei Wang, USA  
A training social media mobile app prototype for the elderly: A pilot study  
Abdulrahman Hafez, Yuanqiong (Kathy) Wang, USA  
Using established UX design techniques and visual enhancements to redesign an enterprise mobile app and improve employee productivity and engagement  
Soo Kim, Ed McFadden, USA  
Design and research on evaluation model of user experience on mobile terminal products  
Zhaoxui Huang, Yeye Hong, Xiao Xu, China  
A study on the landmark design for wayfinding maps in 3D virtual environments  
Mengxi Chen, Chien-Hsiung Chen, Taiwan |
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<td><strong>Co-Chairs:</strong> Beth Atkinson and Juan Cristóbal Castro-Alonso, USA/Chile</td>
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<td>The modality effect of cognitive load theory</td>
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<td>Juan Cristóbal Castro-Alonso, John Sweller, Chile</td>
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<td>How can robotics be integrated into the field of care and acceptance by the population for the use of artificial intelligence be strengthened?</td>
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<td>Ann Kathrin Stinder, Alexander-Maximilian Frische, Daniel Schilberg, Germany</td>
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<td>A healthy smartphone application to enhance patient services in Saudi Arabia in a human centered design approach</td>
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<td>Saad Almesalm, May Alflowzan, Hadeel Alajouri, Saudi Arabia</td>
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<td>A study of metacognitive problem solving in undergraduate engineering students</td>
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<td>Lisa Elliott, Heather Lum, Faisal Aqlan, Richard Zhao, Cathenne Dolores Lashe, USA</td>
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<td>The effect of screen size on reading speed: A comparison of three screens to print</td>
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<td>Lisa Elliott, Medina Ljubijanac, Danielle Wieczorek, Sarah Hornick, USA</td>
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<td>Utilizing a hybrid usability assessment for a new on-demand hypoxia training system</td>
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<td>Beth Atkinson, Emily Anania, Sarah Warnham, USA</td>
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<td>Human–agent teaming with next generation combat vehicles (NGCV): Interaction metrics and models</td>
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<td>Lixiao Huang, Craig Johnson, Nancy Cooke, Eric Holder, USA</td>
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<td>Assessment of manned-unmanned team performance: Comprehensive after-action review technology development</td>
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<td>An uncertainty principle for interdependence: Laying the theoretical groundwork for human-machine teams</td>
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<td>William Lawless, USA</td>
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<td>Neurophysiological closed-loop control for competitive multi-brain robot interaction</td>
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<td>Bryan Hernandez, Elijah Sawyers, Landon Bentley, Chris Crawford, Marvin Andujar, USA</td>
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<td>Human-robotic interactions (HRI) during natural disasters: Operator states assessments and improvements for effective HRI</td>
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<td>S. Camille Peres, Ranjana Mehta, Robin Murphy, Joseph Nuamah, Yibo Zhu, USA</td>
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<td>Naturalistic decision-making analogs for the combat environment</td>
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<td>Thom Hawkins, USA</td>
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<td>Risk perception with and without workers present in hazard recognition images</td>
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<td>Jennica Bellanca, Brianna Eiter, Jonathan Hrica, Robert Weston, Terrance Weston, USA</td>
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<td>EXAMiner: A case study of the implementation of a hazard recognition safety intervention</td>
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<td>Brianna Eiter, Jonathan Hrica, USA</td>
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<td>Development of a mast climbing work platform visual inspection tool</td>
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<td>Bryan Wimer, USA</td>
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<td>Development of visual elements for accurate simulation</td>
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<td>Timothy Orr, Jennica Bellanca, Jason Navosky, Brendan Macdonald, William Helfrich, Brendan Demich, USA</td>
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<td>Influence of social norms on decision-making against landslide risks in interactive simulation tools</td>
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<td>Pratik Chaturvedi, Varun Dutt, India</td>
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<td>Assessing a malodor’s affective rating in the absence of odor context</td>
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<td>William Pike, Mark Mazzeo, Basiel Makled, Conner Parsley, USA</td>
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Co-Chairs: Evangelos Markopoulos and Antonio Capobianco, UK/Germany | HFGD |
|  | Digital cultural strategies within the context of digital humanities economics  
Evangelos Markopoulos, Panagiotis Markopoulos, Mika Luimula, Younus Almufti, Chiara Romano, UK | |
|  | Depth sensor based detection of obstacles and notification for virtual reality systems  
Peter Wozniak, Antonio Capobianco, Nicolas Javahiraly, Dan Curticeapean, Germany | |
|  | An investigation of material perception in virtual environments  
Mutian Niu, Cheng-Hung Lo, China | |
|  | Research on location of emergency sign based on virtual reality and eye tracking technology  
Guilei Sun, China | |
|  | Design of virtual public resilience spaces of traditional cultures  
Jingjing He, Chaoxiang Yang, Michale Straeubig, China/UK | |

| 30 | Design in Advertising and Media Communication  
Co-Chairs: Sunny Sui Kwong Lam and Chi Kit Chan, Hong Kong | HFCD |
|  | Understanding how advertising gamification influences consumers: The effect of image experience and interactivity  
Huijie Yao, Yunbo Chen, China | |
|  | Locality and local identity discourses in post-handover Hong Kong brand advertisements  
Sui-kwong Sunny Lam, Lai Sim Ng, China | |
|  | Mainstreaming cultural jamming? Revisiting the socio-cultural impact of viral campaign  
Chi Kit Chan, Anna Wai Yee Yuen, China | |
|  | An investigation into the power of digital media in Hong Kong  
Edward C. K. Hung, China | |
|  | Emotions in advertising: How emotions affect creativity and communication  
Amic G. Ho, Sunny Sui-kwong Lam, Hong Kong | |

| 31 | Algorithmic Design and Rapid Prototyping For Cultural Heritage II  
Co-Chairs: Jessica Romor and Graziano Mario Valenti, Italy | AMMSP |
|  | Rapid prototyping for dissemination of perspective treatises  
Leonardo Baglioni, Marta Salvatore, Italy | |
|  | Semantic and procedural approaches in generative modeling for the representation of cultural heritage  
Graziano Mario Valenti, Leonardo Baglioni, Italy | |
|  | Procedural modeling as a tool for morphological analysis of the design idea  
Jessica Romor, Italy | |
|  | Resolution analysis of image-based 3D models  
Marta Salvatore, Graziano Mario Valenti, Italy | |
|  | Generative models for experimentation and knowledge of perspective principles  
Graziano Mario Valenti, Marco Fasolo, Flavia Camagni, Italy | |

| 32 | Interdisciplinary Design and Education  
Co-Chairs: Joyce Thomas and Randall Bartlett, USA | IPID |
|  | Exploring a new future in collaborative design processes in education  
Joyce Thomas, Jerrod Windham, Suresh Sethi, Manish Arora, USA | |
|  | Industrial design participation in project management  
Randall Bartlett, USA | |
|  | Moving from dependency, wastefulness, and risk toward sustainability and resilience through designed systems  
Carlton Lay, USA | |
|  | Designing under the influence: Exploring the motivations and obstacles of young design students  
Benjamin Bush, USA | |
|  | Lessons from the archive: Still relevant 50 years later  
David Smith, USA | |
|  | Collaboration models for teaching design within specialized contexts  
Shea Tillman, USA | |
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<td>Experiencing momentum through an effective use of technology in museums</td>
<td>Anna Kabjin Kim, Eileen Harris, Canada</td>
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<td>Better mental healthcare through the built environment</td>
<td>Alanna Bamber, Canada</td>
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<td>Leveraging disciplinary and cultural diversity in the conceptualization stages of design</td>
<td>Alex Close, Eileen Harris, Canada</td>
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<td>Interdisciplinary approach of the design process for the application of new materials in wheelchair design</td>
<td>Paula Chacon-Cifuentes, A. A. Zuleta-Gil, Gustavo Sevilla Cadavid, Andres Valencia-Escobar, Esteban Correa-Bedoya, Felix Echeverria-Echeverria, Colombia</td>
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<td>Importance of involving children in designing recycling facilities: A case study of Hong Kong children collecting and recycling recyclables</td>
<td>Kin Wai Michael Siu, Yi Lin Wong, Mei Seung Lam, China</td>
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<td>The role of affective design in sustainability</td>
<td>Guillermo Juarez, Canada</td>
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<td>Designing hospital wayfinding systems, touchscreen kiosks, environmental cues and mobile Apps: An evaluation of a mobile wayfinding application</td>
<td>Christy Harper, Tyler Duke, Andrea Crosser, Angie Avera, Spencer Jefferies, USA</td>
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<th>Session</th>
<th>34</th>
<th>Human Factors in Energy: Oil, Gas, Nuclear and Electric Power Industries</th>
<th>Co-Chairs: Susen Döbelt and Roger Lew, Germany/USA</th>
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<td>Time</td>
<td>10:30-12:30</td>
<td>EMBASSY</td>
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<tr>
<td>Topics</td>
<td>Imagine 2025: Prosumer and consumer requirements for distributed energy resource systems business models</td>
<td>Susen Döbelt and Maria Kreusslein, Germany</td>
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<td></td>
<td>Nuclear power plant accident diagnosis algorithm including novelty detection function using LSTM</td>
<td>Jaemin Yang, Jonghyun Kim, Subong Lee, South Korea</td>
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<td></td>
<td>Beyond COSS: Human factors for whole plant management</td>
<td>Roger Lew, Ronald Boring, Thomas Ulrich, USA</td>
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<td>Multivariate assessment of workload in the nuclear power plant main control room: A pilot study in a full scope simulated environment</td>
<td>Lauren Reinerman-Jones, Jinchao Lin, Gerald Matthews, Daniel Barber, Niav Hughes, USA</td>
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<th>Session</th>
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<th>Brain - Machine Interface and Artificial Intelligence (AI) Systems</th>
<th>Co-Chairs: Umer Asgher and Noriyuki Oka, Pakistan/Japan</th>
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<td>10:30-12:30</td>
<td>GUNSTON EAST</td>
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<tr>
<td>Topics</td>
<td>An application of extended Kalman filter for the pressure estimation in minimally invasive surgery</td>
<td>Van-Muot Nguyen, Eike Christian Smolinski, Alexander Benkmann, Wolfgang Drewelow, Torsten Jeinsch, Germany</td>
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<tr>
<td></td>
<td>A research agenda for neuroactivities in construction safety knowledge sharing, hazard identification and decision making</td>
<td>Rita Yi Man Li, China</td>
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<td></td>
<td>Impact of auditory alert on driving behavior and prefrontal cortex response in a tunnel: An actual car driving study</td>
<td>Noriyuki Oka, Toshiyuki Sugimachi, Kouji Yamamoto, Hideki Yazawa, Hideki Takahashi, Jongseong Gwak, Yoshihiro Suda, Japan</td>
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<td>Recognition of the cognitive state in the visual search task</td>
<td>Shuomo Zhang, Yanyu Lu, Shan Fu, China</td>
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<td>Research on the influence of dimension of visual grouping cue for guiding sign recognition</td>
<td>Zhongting Wang, Ling Luo, Chuanyu Zou, Linghua Ran, Haimei Wu, China</td>
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<td>Stress measurement in multi-tasking decision processes using executive functions analysis</td>
<td>Lucas Paletta, Martin Pszeida, Bernhard Nauschnegg, Raphael Marton, Thomas Haspl, Austria</td>
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<td>Psycho Web: A machine learning platform for the diagnosis and classification of mental disorders</td>
<td>Paulina Morillo, Holger Ortega, Diana Chauca, Julio Proaño, Diego Vallejo-Huanga, María Cazares, Ecuador</td>
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<td>36</td>
<td>Transportation: Maritime</td>
<td>Carl Hult and Massimo Di Nicolantonio</td>
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<td>10:30-12:30 - JAY</td>
<td>Towards autonomous shipping – exploring potential threats and opportunities in future maritime operations</td>
<td>Gesa Praetorius, Carl Hult, Carl Sandberg, Sweden</td>
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<tr>
<td>10:30-12:30 - JAY</td>
<td>Design of a sustainable and accessible royal rig MAXY clipper for single-handed</td>
<td>Massimo Di Nicolantonio, Italy</td>
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<tr>
<td>10:30-12:30 - JAY</td>
<td>Evaluating the impact of increased volume of data transmission on teleoperated vehicles</td>
<td>Kiome Pope, Aaron Roberts, Christopher Fenton, Neville Stanton, UK</td>
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<tr>
<td>10:30-12:30 - JAY</td>
<td>A novel target motion analysis interface: helping operators get the gist? Interfaces with legs? Documenting the design sprint of prototype future submarine control room user interfaces</td>
<td>Daniel Fay, Aaron Roberts, Neville Stanton, UK</td>
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<td>10:30-12:30 - JAY</td>
<td>Enhancing maritime search and rescue capabilities with unmanned aerial systems – practical requirements and solution approach</td>
<td>Thomas Luebke, Aylin Gözalan, Philipp Gorczak, Germany</td>
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<td>10:30-12:30 - JAY</td>
<td>The interaction of basic regulations with imperfect decision aiding in simulated maritime collision avoidance</td>
<td>Nicholas Fitzgerald, Christopher Wickens, Cap Smith, Benjamin Clegg, Gautham Vijayaragavan, Adam Williams, USA</td>
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<tr>
<td>10:30-12:30 - HOLMEAD EAST</td>
<td>Risk-based thinking methodology and its influence on occupational health and safety processes</td>
<td>Hana Pacaiova, Anna Nagyova, Milan Oravec, Slovakia</td>
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<tr>
<td>10:30-12:30 - HOLMEAD EAST</td>
<td>Effective tools to eliminate dangerous practices in the performance of work</td>
<td>Karol Habina, Jan Trcka, Slovakia</td>
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<td>10:30-12:30 - HOLMEAD EAST</td>
<td>Lift as a subject of risk analysis in the context of smart buildings</td>
<td>Juraj Glatz, Juraj Sinay, Marianna Tomášková, Marta Vargová, Slovakia</td>
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<td>10:30-12:30 - HOLMEAD EAST</td>
<td>Study of forklift cab shape design based on behavior analysis</td>
<td>Jing Ou, Yunshuang Zheng, Jun Yi, Bing Guo, China</td>
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<td>10:30-12:30 - HOLMEAD EAST</td>
<td>Risk assessment software tools</td>
<td>Jan Donic, Slovakia</td>
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<td>Lunch Break 12:30 - 13:30</td>
<td>Enjoy lunch at the restaurant of your choice</td>
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<td>39</td>
<td>Emotion, Culture and Society</td>
<td>Shuichi Fukuda, Yuuki Shigemoto and Matthias Hillner</td>
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<tr>
<td>13:30-15:30 - MORGAN</td>
<td>A big shift in engineering: From product to society</td>
<td>Shuichi Fukuda, Japan</td>
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<td>13:30-15:30 - MORGAN</td>
<td>Artificial intelligence and natural intelligence</td>
<td>Shuichi Fukuda, Japan</td>
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<td>13:30-15:30 - MORGAN</td>
<td>Designing emotional product design: When design management combines engineering and marketing</td>
<td>Yuuki Shigemoto, Japan</td>
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<td>13:30-15:30 - MORGAN</td>
<td>Design and research of infusion assistant products for children: Take the design of children's infusion hand plate and the mask of medical staff as an example</td>
<td>Qian Ji, Zhao Yiming, Lili Liu, Duanzhen Zhu, China</td>
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<td>13:30-15:30 - MORGAN</td>
<td>User-centered design research: Case study of baby bottle sterilizer design</td>
<td>Ying Cao, Chen Chen, China</td>
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<td>13:30-15:30 - MORGAN</td>
<td>Time consciousness in relation to emergent typography</td>
<td>Matthias Hillner, Singapore</td>
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<tr>
<td>13:30-15:30 - MORGAN</td>
<td>The lived experience of healthcare staff in the contemporary hospital environment in Montreal</td>
<td>Hammouni Zakia, Tiiu Poldma, Canada</td>
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### Understanding and Monitoring Human Performance Under Highly Ecological Settings

**Co-Chairs:** Frédéric Dehais and Daniel Callan, France/Japan  
**Location:** HOLMEAD WEST  
**Time:** 13:30-15:30

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<td>Measuring mental fatigue using a 32 dry EEG system in real flight condition</td>
<td>Daniel Callan, Frédéric Dehais, Japan/France</td>
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<td>Making sense of noisy data collected from wearables to monitor human performance “in-the-wild”</td>
<td>Tiago Falk, Canada</td>
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<td>Cognitive flexibility modulates pilot decision-making under uncertainty: An eye-tracking and fNIRS study</td>
<td>Julia Behrend, Frederic Dehais, France</td>
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<td>Neuroergonomics on the road to enhance vehicle-operator communications</td>
<td>Carryl Baldwin, USA</td>
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<tr>
<td>Neurocognitive and physiological monitoring using dry wearable sensors within an ice during 14-day simulated lunar/Martian missions</td>
<td>Tim Mullen, USA</td>
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<tr>
<td>Investigations enabled by human performance monitoring to address urban air mobility challenges</td>
<td>Angela Harrivel, Chad Stephens, Jon Holbrook, Eric Chancey, James Comstock, Kellie Kennedy, Joanne Walton, USA</td>
</tr>
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### UX in Design

**Co-Chairs:** Paulo Noriega and Eric Brangier, Portugal/France  
**Location:** FAIRCHILD EAST  
**Time:** 13:30-15:30

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<tbody>
<tr>
<td>Measure of the lived and functional effects of gamification: An experimental study in a professional context</td>
<td>Eric Brangier, Cathie Marache-Francisco, France</td>
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<td>Natural human-computer interfaces’ paradigm and cognitive ergonomics</td>
<td>Victor Almeida, Sónia Rafael, Marco Neves, Portugal</td>
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<td>Evaluation of the concept of smart city gamification from a user centered design perspective</td>
<td>Francisco Rebelo, Paulo Noriega, Tiago Oliveira, Portugal</td>
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<td>Grains of memory: User experience in the SandBox interactive installation</td>
<td>Adriana Moreno, Arminda Guerra Lopes, Monica Mendes, Portugal</td>
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<td>Visual storytelling - Creative strategy of visual clues promoted by archetypal images</td>
<td>Jose Silva, Daniel Raposo, João Neves, Fernando Moreira da Silva, Portugal</td>
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### Tasks, Errors and Personal Resilience

**Co-Chairs:** Valerie Rice and Gary Boykin, USA  
**Location:** DU PONT  
**Time:** 13:30-15:30

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<td>Self-reported stress-related coping strategies and perceived stress among a sample of active duty and veteran U. S. military service members</td>
<td>Valerie Rice, USA</td>
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<td>Training for readiness and resilience: Supplemental findings</td>
<td>Lauren Hallal-Kirk, Debra J. Patton, Joan Johnston, Laura Milham, Lisa Townsend, Dawn Riddle, USA</td>
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<td>Physical readiness is more than physical fitness: Relationships between army physical fitness test scores and self-reports of physical and psychological fitness</td>
<td>Gary Boykin, Valerie Rice, USA</td>
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<td>Which mindfulness meditation delivery method yields the greatest benefits?</td>
<td>Valerie Rice, Cory Overby, USA</td>
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<td>Measuring medical readiness in studies with military samples</td>
<td>Helen Phipps, Paul Schroeder, Lewis Nichols, Jorge Pena, Joshua Duncan, David Tucker, USA</td>
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<tr>
<td>Quantifying, visualizing, and predicting radiation oncology process reliability using incident learning system data</td>
<td>Thomas Howell, Lukasz Mazur, USA</td>
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<td>An estimation and comparison of human abilities to communicate information through pursuit tracking vs. pointing on a single axis</td>
<td>Michael Blandino, Edgar Berdahl, R. William Soukoreff, USA</td>
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## Detailed Technical Program

### Agile Manufacturing

Co-Chairs: Stefan Trzcielinski and Sebastian Pimminger, Poland/Austria

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<td>13:30-15:30</td>
<td>COLUMBIA 1</td>
<td>The relation of pro-exploitation attributes with selected criterion of agility of public transport vehicles manufacturing</td>
<td>Joanna Kałkowska, Poland</td>
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<td>The influence of macroenvironment changes on agility of enterprise</td>
<td>Stefan Trzcielinski, Poland</td>
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<td>Lean manufacturing model in a make to order environment in the printing sector in Peru</td>
<td>Adriana Becerra, Alessandro Villanueva, Victor Nunez, Carlos Raymundo, Francisco Dominguez, Peru</td>
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<td>Agile management methods in an enterprise based on cloud computing</td>
<td>Michal Trziszka, Poland</td>
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### Safety and Human Factors at a Societal Level

Co-Chairs: Regina Pope-Ford and Paulo Maldonado, USA/Portugal

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<td>Dynamic façades: Optimization of natural light at workplaces</td>
<td>Sandra Preto, Portugal</td>
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<td>Cubo: Communication system for children with autism spectrum disorders</td>
<td>Sofia Espadinha, Paulo Maldonado, Portugal</td>
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<td>Parent awareness of smartphone use and its health impact</td>
<td>Regina Pope-Ford, USA</td>
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<td>Human listener’s misperception between signal comprehension in noise and noise acceptability</td>
<td>Bankole Fasanya, USA</td>
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<td>Development of working at height management system based on legislation in Malaysia</td>
<td>Ezrin Hani Sukadarin, Law Peng Hang, Malaysia</td>
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<td>Inspiration mining: Intersecting improbable connections in a new landscape of cultural reflection and influence</td>
<td>Paulo Maldonado, Leonor Ferrão, Portugal</td>
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### Automation I

Co-Chairs: Neville Stanton and Ata Khan, UK/Canada

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<td>COLUMBIA 3</td>
<td>Bayesian artificial intelligence-based driver for fully automated vehicle with cognitive capabilities</td>
<td>Ata Khan, Canada</td>
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<td>A survey study to explore comprehension of autonomous vehicle's communication features</td>
<td>Shuchisnigda Deb, Daniel Carruth, Lesley Strawdeman, USA</td>
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<td>A novel method for designing metaphor based driver-vehicle interaction concepts in automated vehicles</td>
<td>Jan Bavendiek, Emily Oliveira, Lutz Eckstein, Germany</td>
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<td>How should automated vehicles communicate? – Effects of a light-based communication approach in a Wizard-of-Oz study</td>
<td>Ann-Christin Hensch, Isabel Neumann, Matthias Beggiato, Josephine Halama, Josef Krems, Germany</td>
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<td>Pimp my ride – personalisation vs customisation of alerts and feedback in semi-autonomous vehicles</td>
<td>Kirsten Revell, Neville Stanton, James Brown, UK</td>
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<td>Model of driving skills decrease in the context of autonomous vehicles</td>
<td>Darina Havičková, Petr Zámečník, Eva Adamovská, Adam Gregorovič, Václav Linkov, Aleš Zaoral, Czech Republic</td>
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### Detailed Technical Program

#### Friday, July 26, 2019

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<td><strong>Ergonomics in Building and Architecture II</strong></td>
<td>Co-Chairs: Anna Jaglarz and Jerzy Charytonowicz, Poland</td>
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<td></td>
<td>Ergonomics of sound in a hotel environment</td>
<td>Elzbieta Trocka-Leszczynska, Joanna Jablonska, Poland</td>
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<td>Designing public toilets in the historic urban landscape. Analysis based on the polish cities</td>
<td>Anna Jaglarz, Poland</td>
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<td>Landscape-solutions of sports and tourist complexes in the Karkonosze Mountains: Examples of sustainable development</td>
<td>Anna Wojtas-Haran, Poland</td>
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<td>Automated clash free rebar design in precast concrete exterior wall via generative adversarial network and multi-agent reinforcement learning</td>
<td>Pengkun Liu, Jiepeng Liu, Liang Feng, Wenbo Wu, Hao Lan, China</td>
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<td>An attempt to assess the need and potential of aesthetic regeneration to improve walkability and ergonomic experience of urban space</td>
<td>Tanima Bhattacharya, Suparna Dasgupta, Joy Sen, India</td>
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<td>Design and thinking of urban ecological symbiosis community under the background of globalization</td>
<td>Chen Liexue, Zhou Wuzhong, China</td>
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<td><strong>47</strong></td>
<td><strong>User Experience in Healthcare and Medical Applications</strong></td>
<td>Co-Chairs: Berglind Smaradottir and Richard Horst, Norway/USA</td>
<td>UUE</td>
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<td></td>
<td>User experiences and satisfaction with an electronic health record system</td>
<td>Berglind Smaradottir, Rune Fensli, Norway</td>
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<td>Classification of similarly looking drugs by human perception as compared with unsupervised learning results</td>
<td>Jinhyung Kim, Minjee Park, Choeun Kim, Byeol Kim, Eunah Choi, Taezoon Park, South Korea</td>
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<td>Comparing formative and summative approaches in the usability testing of medical devices</td>
<td>Richard Horst, USA</td>
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<td>The Impact of binaural beats on user performance and emotions using a BCI for robot control</td>
<td>Lizette De Wet, Lourens Potgieter, South Africa</td>
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<td>The effects of clinical task interruptions on subsequent performance of a medication pre-administration task</td>
<td>Craig Williams, Philip Morgan, Gary Christopher, Nancy Zook, Rebecca Hoskins, UK</td>
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<td><strong>48</strong></td>
<td><strong>Human-Machine Interaction Applications</strong></td>
<td>Co-Chairs: Ricardo Vigário and Jorge Perez Medina, Portugal/Ecuador</td>
<td>SYSI</td>
<td>13:30-15:30 - COLUMBIA 10</td>
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<tr>
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<td>Detecting human factors that induce errors in movement patterns for the development of a web-based telerehabilitation platform</td>
<td>Wilmer Esparza, Jonathan Baldeon, Jorge Luis Pérez Medina, Karina Jimenes Vargas, Ecuador</td>
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<td>Prescriptive and descriptive similarity of team contexts</td>
<td>Daichi Mitsuhashi, Taro Kanno, Daisuke Karikawa, Satoru Inoue, Kohei Nonose, Kazuo Furuta, Japan</td>
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<td>Towards a mobile phone pupillometer</td>
<td>Ricardo Vigário, Mariana Santos, Raúl Vences, Carla Quintão, Portugal</td>
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<td>RehabVisual: An application to stimulate visuomotor skills in preterm babies with developmental alterations</td>
<td>Cláudia Quaresma, Catarina Santos, Ana Ferreira, Carla Quintão, Portugal</td>
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<td>The use of voice controlled interface in a human computer interaction experiment using the Kinect v. 5.4 software: Challenges of a rainbow nation</td>
<td>Lesedi Milanzi, South Africa</td>
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<td>49</td>
<td>Human Factors, Business Management and Society: Social and Digital Views</td>
<td>Evangelos Markopoulos and Ebo Kwegyir-Afful, UK/Finland</td>
<td>HFBMS</td>
<td>13:30-15:30 - COLUMBIA 11</td>
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<td>Internationalization in Learning Science</td>
<td>Florentin Popescu and Mark Livingston, The Netherlands/USA</td>
<td>TELS</td>
<td>13:30-15:30 - COLUMBIA 12</td>
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<td>51</td>
<td>Human, Artificial Intelligence, and Robot Teaming</td>
<td>Nancy Cooke and Lixiao Huang, USA</td>
<td>HFRUS</td>
<td>13:30-15:30 - CARDOZO</td>
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Detailed Technical Program

Friday, July 26, 2019

**52 Human Factors in Cybersecurity: Applications and Privacy Research**
Co-Chairs: Rick van der Kleij and Isabella Corradini, The Netherlands/Italy

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<th>Session</th>
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<tr>
<td>GUNSTON WEST</td>
<td>Attempting to reduce susceptibility to fraudulent computer pop-ups using incentivized malevolence cue identification training&lt;br&gt;Phillip Morgan, Robinson Soteriou, UK&lt;br&gt;Cyber resilient behavior: Integrating human behavioral models and resilience engineering capabilities into cyber security&lt;br&gt;Rick van der Kleij, Rutger Leukfeldt, The Netherlands&lt;br&gt;An international extension of Sweeney’s data privacy research&lt;br&gt;Wayne Patterson, Cynthia Winston-Proctor, USA&lt;br&gt;The human factor in managing the security of information&lt;br&gt;Malgorzata Wisniewska, Zbigniew Wisniewski, Katarzyna Szaniawska, Michal Lehmann, Poland&lt;br&gt;Beyond passwords: Enforcing username security as the first line of defense&lt;br&gt;Nicholas Caporusso, Thaier Fandakly, USA&lt;br&gt;Social engineering and the value of data: The need of specific awareness programs&lt;br&gt;Isabella Corradini, Enrico Nardelli, Italy&lt;br&gt;Investigation and user’s web search skill evaluation for eye and mouse movement in phishing of short message&lt;br&gt;Takeshi Matsuda, Michio Sonoda, Masashi Eto, Hironobu Satoh, Tomohiro Hanada, Nobuhiko Kanahama, Hiroki Ishikawa, Ryutarou Ushigome, Seiha Yoshimitsu, Japan</td>
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**53 Design for Inclusion: Building Environment, Public Spaces and Communities**
Co-Chairs: Avril Accolla and Francesco Spagnoli, China/Italy

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<td>EMBASSY</td>
<td>Development of an anthropometric protocol for wheelchair users: Guiding the decision-making for designing inclusive spaces&lt;br&gt;Libertad Rizo, Adrián Leal-Pérez, John Rey-Galindo, Carlos Aceves-Gonzalez, Elvia Luz González-Muñoz, Mexico&lt;br&gt;A new inclusive housing prototype&lt;br&gt;Francesco Spagnoli, Italy&lt;br&gt;Assessing accessibility and safety conditions in an urban environment: What do pedestrians perceive?&lt;br&gt;Carlos Aceves-González, Libertad Rizo-Corona, Rosa Rosales-Cinco, John Rey-Galindo, Karthikeyan Ekambaram, Maricela Ramos-Tachiquin, Mexico&lt;br&gt;Bioclimatic design approach for low-income dwelling at Monte Sinahí, Guayaquil&lt;br&gt;Boris Forero, Jesús Rafael Hechavarria Hernández, Robinson Vega Jaramillo, Ecuador&lt;br&gt;Creating an accessibility index for large built environments&lt;br&gt;Wajdi Wazzan, Saudi Arabia&lt;br&gt;Designing a pilot system for sustainable villages for all&lt;br&gt;Avril Accolla, China&lt;br&gt;Co-design of public spaces for intercultural communication, diversity and inclusion&lt;br&gt;Alessandra Rinaldi, Maurizio Caon, Leonardo Angelini, Omar Abou Khaled, Elena Mugellini, Italy</td>
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**54 Communication Design and Practices**
Co-Chairs: Amic Ho and Joungyun Choi, Hong Kong/USA

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<tr>
<td>GUNSTON EAST</td>
<td>Nudge users to healthier decisions: A design approach to encounter misinformation in health forums&lt;br&gt;Mahdi Ebnali, Cyrus Kian, USA&lt;br&gt;How the creative mindset operates with respect to creative performance: pedagogical factors that ignite the creative mindset in design education&lt;br&gt;Joungyun Choi, USA&lt;br&gt;Exploration and thinking on the cultural communication of Guangdong museum&lt;br&gt;Xiaobao Yu, Ting Wang, China&lt;br&gt;Bullet points: Applying emotional symbols in information management&lt;br&gt;Amic Ho, Hong Kong&lt;br&gt;Impact of inspiration sources on designer’s idea generation strategy&lt;br&gt;Xinyu Yang, Jianxin Cheng, China</td>
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### Artificial Intelligence and Social Applications II

Co-Chairs: Stella Angova and Mireya Zapata, Bulgaria/Ecuador

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<th>Time</th>
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<tr>
<td>13:30-15:30</td>
<td>FAIRCHILD EAST</td>
<td><strong>Axonal delay controller for spiking neural networks based on FPGA</strong></td>
<td>Mireya Zapata, Jordi Madrenas, Mirosлава Aracely Zapata, Jorge Alvarez, Ecuador</td>
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<td></td>
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<td><strong>Academic quality management system audit using artificial intelligence techniques</strong></td>
<td>Rodolfo Bojorque, Fernando Pesáncetez, Ecuador</td>
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<td></td>
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<td><strong>Ensemble-based machine learning algorithms for classifying breast tissue based on electrical impedance spectroscopy</strong></td>
<td>Sam Matiur Rahman, Md Asraf Ali, Omar Altwijri, Mahdi Alqahtani, Nasim Ahmed, Nizam U. Ahmed, Bangladesh/Saudi Arabia/New Zealand/Malaysia</td>
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<td></td>
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<td><strong>Cognitive solutions in the enterprise: A case study of UX benefits and challenges</strong></td>
<td>Jon Temple, Brenda Burkhart, Ed McFadden, Claude Elie, Felix Portnoy, USA</td>
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<td></td>
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<td><strong>Research on accuracy of flower recognition application based on convolutional neural network</strong></td>
<td>Jing-hua Han, Chen Jin, Li-Sha Wu, China</td>
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<td></td>
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<td><strong>AI-based children monitoring support system using situation awareness knowledge database and RGB-D camera</strong></td>
<td>Fumiya Mitsuhashi, Koji Kitamura, Yoshifumi Nishida, Hiroshi Mizoguchi, Japan</td>
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<td>15:30-16:00</td>
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<td>Refreshments will be provided in Columbia West (Terrace Level)</td>
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<td>58</td>
<td>Emotional Interaction Design</td>
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<td>Co-Chairs: Masashi Okubo and Yoshihiro Sejima, Japan</td>
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<td>16:00-18:00 - MORGAN</td>
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<td>Influence of visual non-verbal information on information transmission to audience</td>
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<td>Akihiro Tatsumi, Kazuyuki Seki, Masashi Okubo, Kazuyuki Seki, Japan</td>
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<td>Development of a pupil response system with empathy expression in face-to-face body contact</td>
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<td>Yoshihiro Sejima, Yoichiro Sato, Tomio Watanabe, Japan</td>
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<td>An experimental study on evaluating glare in blue light exposure</td>
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<td>Daisuke Miyazaki, Kimi Ueda, Hirotake Ishii, Hiroshi Shimoda, Souma Kawamoto, Wakako Takekawa, Japan</td>
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<td>Analysis of answering time data for cognitive task to investigate intellectual concentration</td>
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<td>Kimi Ueda, Shota Shimonaka, Kosuke Sugita, Wakako Takekawa, Hiroshi Shimoda, Hirotake Ishii, Fumiaki Obayashi, Japan</td>
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<td>Research on platform design with tolerance of non-errors in user successive design</td>
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<td>Kun Chen, Dingbang Luh, China</td>
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<td>Evaluating similarities in visual product appearance for brand affiliation</td>
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<td>Matthias Sebastian Fischer, Daniel Holder, Thomas Maier, Germany</td>
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<td>Case study on innovative design of PTC peripheral products based on caring people</td>
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<td>Huabin Wang, China</td>
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| 59 | Human-Machine Teaming and Leadership at the U. S. Air Force Academy | CN |
| Co-Chairs: Chad Tossell and Ewart de Visser, USA |
| 16:00-18:00 - HOLMEAD WEST |
| Teaming with agents: Agent mitigated decision making and conflict mediation |
| Kerstin Haring, Jessica Tobias, Justin Waligora, Gale Lucas, Jonathan Gratch, Ewart de Visser, Chad Tossell, USA |
| Autonomy in operational environments |
| Nathan Tenhundfeld, Ewart de Visser, Chad Tossell, Victor Finomore, USA |
| The critical mission: Human-machine teaming and leadership at the U. S. Air Force Academy |
| Ewart de Visser, Chad Tossell, USA |
| Future horizons with human-machine teaming and leadership at the U. S. Air Force Academy |
| Ewart de Visser, Chad Tossell, USA |
| Communication and control for human-robot teaming |
| Elizabeth Phillips, USA |
| Basic influence process in human machine teaming |
| Christopher Kelley, Kerstin Haring, USA |

| 60 | Cultural Aspects in Design | ED |
| Co-Chairs: João Brandão and Elisabete Rolo, Portugal |
| 16:00-18:00 - FAIRCHILD EAST |
| The italic style, understanding the shape through history |
| João Brandão, Catarina Almeida, Portugal |
| Lighting design at workplaces: What should be the concerns for an architect? |
| Sandra Preto, Portugal |
| Design for the model of shared office space based on the logic of behavior: A case study of Chinese users |
| Zhang Ping, Yang Simeng, Liu Tingyu, Zhang Liang, China |
| The preservation of the built environment: A process of ergonomic design |
| Conceição Trigueiros, Mario Saleiro Filho, Portugal |
| Graphic design and cinema: Portuguese movie posters from the Nouvelle Vague period |
| Elisabete Rolo, Maria do Carmo Kattau Tierno de Andrade Lopes, Portugal |
| At hand, the brain of men |
| Luis Miguel Francisco Ginja, Portugal |
**Design for People**
Co-Chairs: John Smallwood and Marek Bures, South Africa/Czech Republic

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<td>PEHF</td>
<td>16:00-18:00 - DU PONT</td>
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<td>Strength and motor function in an aging population in dependence to work position</td>
<td>Marek Bures, Věra Čadková, Czech Republic</td>
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<td>Observing or experiencing - the effect of age simulation on the sensitivity to age-related impairment in elderly care</td>
<td>Danny Rueffert, Angelika C. Bollinger, Germany</td>
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<td>The evaluation of mechanical properties of soft tissue on pressure ulcers among bedridden elderly patients</td>
<td>Chi-Wen Lung, Yih-Kuen Jan, Jin-Huei Lu, Chien-Liang Chen, Fang-Chuan Kuo, Ben-Yi Liu, Taiwan</td>
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<td>Ergonomics in automotive glass manufacturing: Workers’ perceptions of strain</td>
<td>John Smallwood, Claire Deacon, South Africa</td>
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<td>Enhancing the life of the elderly - an application of design thinking</td>
<td>Ravinda S. Goonetilleke, Emily Yim Lee Au, China</td>
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<td>Ergonomic requirements in the design of high performance sports suits: BMX clothing</td>
<td>Fausto Zuleta Montoya, Gustavo Sevilla Cadavid, Blanca Echavarría Bustamante, Johana Hoyos-Ruiz, Colombia</td>
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<td>Development and validation of a dynamic time warping based algorithm to evaluate motion similarity for home-based fall interventions in older people</td>
<td>Xiaoqun Yu, Shuping Xiong, South Korea</td>
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**Automation II**
Co-Chairs: Dustin Souders and Kirsten Revell, USA/UK

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<td>RR</td>
<td>16:00-18:00 - COLUMBIA</td>
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<td>Vocal guidance of visual gaze during an automated vehicle handover task</td>
<td>Jedah Clark, Neville Stanton, Kirsten Revell, UK</td>
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<td>Tailoring introductory information to the level of automation: Effects on attitudes and usage of a simulated level 3 automated driving system</td>
<td>Dustin Souders, Shubham Agrawal, Irina Benedyk, Yujie Li, Srinivas Peeta, USA</td>
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<td>How do you want to be driven? Investigation of different highly-automated driving styles on a highway scenario</td>
<td>Patrick Roßner, Angelika C. Bullinger-Hoffmann, Germany</td>
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<td>Using technology acceptance model to explain driver acceptance of advanced driver assistance systems</td>
<td>Md Mahmudur Rahman, Shuchisnigdha Deb, Daniel Carruth, Lesley Strawderman, USA</td>
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<td>The user and the automated driving: A state-of-the-art</td>
<td>Sara Ferreira, Anabela Simões, José Pedro Tavares, Antonio Lobo, Antonio Couto, Liliana Cunha, José Carvalhais, Daniel Silva, Portugal</td>
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<td>Investigating drivers’ behaviour during diverging maneuvers using an instrumented vehicle</td>
<td>Fabrizio D’Amico, Alessandro Calvi, Chiara Ferrante, Luca Bianchini Ciampoli, Fabio Tosti, Italy</td>
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**Macroergonomic Systems Design and Improvement**
Co-Chairs: Leszek Pacholski and Joanna Kalkowska, Poland

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<td>SOE</td>
<td>16:00-18:00 - COLUMBIA</td>
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<td>The reporting system as a feedback tool to improve the process of entering data in IT systems</td>
<td>Maciej Siemieniak, Katarzyna Siemieniak, Poland</td>
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<td>The conditioning of macroergonomic design and improvement of the intelligent building’s use and service</td>
<td>Joanna Kalkowska, Leszek Pacholski, Poland</td>
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<td>The macroergonomic improvement of total quality management industrial systems</td>
<td>Milena Drzewiecka-Dahlke, Leszek Pacholski, Poland</td>
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<td>The ergonomics of work conditions as force element of the OHS management</td>
<td>Adam Gorny, Poland</td>
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<td>The improvement of women professional entrepreneurial attitude in a context of social expectations</td>
<td>Paulina Siemieniak, Poland</td>
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<td>Monitoring personnel presence and displacement in production facilities using RFID technology</td>
<td>Robert Waszkowski, Tadeusz Nowicki, Andrzej Walczak, Poland</td>
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<td>64</td>
<td>Ergonomics and Material Environment Design I</td>
<td>Co-Chairs: Anna Jaglarz and Joanna Jabłonska, Poland</td>
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<td>16:00-18:00 - COLUMBIA 3</td>
<td>Ideas behind the changes in the 20th c. avant-garde architecture</td>
<td>Teresa Bardzinska-Bonenberg, Poland</td>
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<td>The role of cultural heritage in sustainable development: Values and valuation as key factors in spatial planning of rural areas</td>
<td>Wojciech Bonenberg, Poland</td>
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<td>The application of BIM in the “China Beautiful Rural” design project: Yangyou Village river ecological landscape reconstruction design project</td>
<td>Wojciech Bonenberg, Xia Wei, Mo Zhou, China</td>
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<td>The method of designing an architectural compositions applying images reflected in water mirror</td>
<td>Zdzislaw Pelczarski, Poland</td>
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<td>Inclusive healthcare waiting rooms: A comparison study for improving the user experience within a built environment</td>
<td>Claudia Fernández, Carlos Aceves-Gonzalez, Matteo Zallio, Mario Mireles-Ramirez, Mexico/USA</td>
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<td>65</td>
<td>Usability Evaluation and Interface Design</td>
<td>Co-Chairs: Xingyi Zhong and Cigdem Altin Gumussoy, China/Turkey</td>
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<td>16:00-18:00 - COLUMBIA 4</td>
<td>Usability evaluation of the set top box and TV interfaces</td>
<td>Cigdem Altin Gumussoy, Aycan Kaya, Murat Kopru, Turkey</td>
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<td>Effects of gender and prior experience on immersive user experience with virtual reality</td>
<td>Camille Sagnier, Emilie Loup-Escande, Gérard Valléry, France</td>
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<td>Humanized design of interaction interfaces for small screen devices: Take intelligent lock as an example</td>
<td>Na Lin, Zhongting Wang, Chaoyi Zhao, China</td>
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<td>Research on application model of unconsciousness in user interface</td>
<td>Xingyi Zhong, Mengyi Cao, Ting Han, China</td>
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<td>Research on interface design of venue monitoring system based on product semantics</td>
<td>Ying Cao, Biying Li, Jiaxin Liu, China</td>
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<td>Usability evaluation of intelligent medical imaging diagnostic interface based on SD method</td>
<td>Lei Wu, Lijun Mou, Juan Li, Yao Su, Yue Sun, Yekai Wei, Huai Cao, Sijie Dong, China</td>
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<td>66</td>
<td>Human Factors in Sports, Injury Prevention and Outdoor Recreation</td>
<td>Co-Chairs: Reuben Burch and Stijn Verwulgen, USA/Belgium</td>
<td>SIPOR</td>
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<td>16:00-18:00 - COLUMBIA 9</td>
<td>The importance of baselining Division 1 football athlete jumping movements for injury mitigation and return to play</td>
<td>Reuben Burch, Lesley Strawderman, Anthony Piroli, Harish Chander, Wenmeng Tian, Fredrick Murphy, USA</td>
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<td>Foot arc and jumping ability of athletes and non-athletes</td>
<td>Ajita Dsingh, Mansi Batra, India</td>
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<td>Relationship between prosthesis and training in prosthetic marathon runner</td>
<td>Fuminori Matsuura, Yumie Osada, Isao Matsumoto, Yoshinori Hirano, Xiaodan Lu, Tomoko Ota, Hiroyuki Hamada, Noriyuki Kida, Japan</td>
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<td>Effective measures for minimizing playing-related musculoskeletal disorders among tertiary education student pianists in Malaysia</td>
<td>Titi Rahmawati Hamedon, Chia-Ying Ling, Fung Chiat Loo, Malaysia</td>
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<td>Thermal performance of equestrian helmets</td>
<td>Merlin Bauwens, Sarah de Graaf, Alexandra Vermeer, Shriram Mukunthan, Guido De Bruyne, Belgium</td>
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<td>Disorders of female athlete triad in college girls of Punjab</td>
<td>Ajita Dsingh, Amanpreet Brar, Jeewanjot Kaur, India</td>
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<td><strong>Panel: The Impact of Vehicle Automation on Vulnerable Road Users</strong></td>
<td>Shuchisnigda Deb and Md Mahmudur Rahman, USA</td>
<td>16:00-18:00</td>
<td>COLUMBIA 10</td>
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<td>The role of context and perception of road rules in the pedestrian crossing decision: A challenge for the autonomous vehicle</td>
<td>Marie-Axelle Granié, Florent Varet, Béatrice Degraeve, Achet Khalafian, France</td>
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<td>Pedestrian receptivity and their interaction with autonomous vehicles</td>
<td>Daniel Carruth, Shuchisnigda Deb, USA</td>
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<td>Are older adults at greater “risk” of missing out on the potential benefits of vehicle automation?</td>
<td>Bruce Mehler, USA</td>
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<td>Automated vehicles and schools: An analysis of deployment issues</td>
<td>Michael Clamann, USA</td>
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<td>Impact of vehicle automation on driving behaviors of novice teen drivers</td>
<td>Anuj Pradhan, USA</td>
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<td>68</td>
<td><strong>Human Factors, Business Management and Society: Leadership Views</strong></td>
<td>Tero Reunanen and Timo Holopainen, Finland</td>
<td>16:00-18:00</td>
<td>COLUMBIA 11</td>
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<td>Visualization of the wisdom cube - scientific knowledge space for management and leadership</td>
<td>Hannu Vanharanta, Evangelos Markopoulos, Finland/UK</td>
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<td>Enhanced higher education - industry cooperation improving work capabilities of sales engineering graduates</td>
<td>Ludger Schneider-Störmann, Thomas Röhr, Rauni Jaskari, Timo Holopainen, Tero Reunanen, Germany</td>
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<td>Value creation in three clusters focusing on chemistry</td>
<td>Timo Holopainen, Jukka Rantala, Finland</td>
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<td>Leadership role models for young professionals – case study from Finnish university students</td>
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<td>UDA-ERP: Theory, development and conflicts</td>
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<td>Green for all. A didactic experience on design for all applied to gardening earthenware objects.</td>
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<td>Participatory design with older adults: Exploring the latent needs of young-old and middle-old in daily living using a universal design approach</td>
<td>Alex Pui-Yuk King, China</td>
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<td>Advanced E-learning education for visually impaired students</td>
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Evangelos Markopoulos, Panagiotis Markopoulos, Mika Luimula, Younus Almufti, Chiara Romano, Paulina Benitez, UK

Cybersickness among gamers: An online survey
Stanislava Rangelova, Daniel Motus, Elisabeth André, Germany

Devilish dilemma games: Narrative game engine and accompanying authoring tool
Johan de Heer, Thomas de Groot, Rafal Hryniewicz, Tijoe Oortwijn, Paul Porskamp, The Netherlands

Gamifying the rice industry: The ‘Riceville’ paradigm
Evangelos Markopoulos, Ho Fung Kium Chan, Lincoln Lee Ming Tze, UK

Cultural playing: A video game case study of never alone and the teaching of culture
Hélio Parente de Vasconcelos Neto, Maria Aurileide Ferreira Alves, Brazil

Comparative user experience analysis of pervasive wearable technology
Nicholas Caporusso, Angela Walters, Devon Patchin, Spencer Romeiser, Meng Ding, Noah Vaughn, Daniel Jachetta, USA

The research of visual characteristics for the deaf wearing AR glasses
Zhelin Li, Xiaohui Mo, Chengchuan Shi, Shanxiao Jiang, Lijun Jiang, China

Current situation and problems of hand-transmitted vibration measurement equipment: Benefits of wearable sensors for everyday monitoring
Leif Anderson, Jacqui McLaughlin, Setsuo Maeda, Japan

Advancing the applications of augmented reality technology in healthcare: Current trends and implications for the future
Anya Andrews, USA

NIMBLE - A motion sensing and tracking system
Jeff Feng, Pei-Fen Chang, USA

Investigating collective mindfulness in mining: A prospective study in high-reliability organizations
Manikam Pillay, Karen Klockner, Michael Tuck, Australia

Management tool for reliability analysis in socio-technical systems - a case study
Salvador Ávila Filho, Érica Cayres, Adriano Puglia, César Malpica, Edmara Drigo, Cassio Brunoro Ahumada, Camille Peres, Brazil

Formerly unrevealed public records should change the account of what occurred on June 30, 2013
Fred Schoeffler, Lance Honda, Joy A. Collura, USA

Winning hearts and minds in high-reliability industries: The role of human performance in persistent front-line behaviour change
Damien Armenis, Australia

Human reliability research needs for long-duration spaceflight
Ronald Boring, David Gertman, Thomas Ulrich, USA

Capturing and describing the foot bottom with digital tools to design better fitting footwear
Susan L. Sokolowski, Alex Xu, USA

The application of the performance hand wear and tools innovation framework: Road cycling gloves
Susan Sokolowski, Christel Thue Hoegsted, USA

3D hand scanning to digital draping for glove design
Linsey Griffin, Susan Sokolowski, Emily Seifert, Chris Curry, USA

The variability of U. S. women’s plus size product sizing and self-identified size 18 bodies
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<td>Forensic analyses of rumble strips</td>
<td>Jack Auflick, James Sprague, Joseph Eganhouse, Julius Roberts, USA</td>
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<td>Investigation of Dubai tram safety challenges and road user behavior through tram driver’s opinion survey</td>
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<td>The effects of music background on hazard perception among young adult drivers</td>
<td>Warren Brodsky, Avinoam Borowsky, Israel</td>
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<td>Analysis of driving safety and cellphone use based on social media</td>
<td>Chao Qian, Yueqing Li, Wenchao Zuo, Yuhong Wang, USA</td>
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<td>A scenario-based investigation of truck platooning acceptance</td>
<td>Matthias Neubauer, Oliver Schauer, Wolfgang Schildorfer, Austria</td>
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<td>A co-model for research through co-design</td>
<td>Daniele Busciantella Ricci, Sofia Scataglini, Italy</td>
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<td>Toward a co-logical aid for research through co-design</td>
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<td>3D mapping of skin compression tolerance for spacesuit fit prediction</td>
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<td>Girls bra design for the demand of user</td>
<td>Yulin Zhao, Dingbang Luh, China</td>
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<td>Assessment of Portuguese firefighters’ needs: Preliminary results of a pilot study</td>
<td>Sophia Piacenza, Miguel Carvalho, Rachel Boldt, Fernando Ferreira, Linsey Griffin, Susan Ashdown, Portugal/USA</td>
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<td>8:00-10:00 - DU PONT</td>
<td>A JACK-based ergonomic analysis and design of the cockpit of agricultural material-handling vehicles</td>
<td>Sen Gu, Cheng Huang, Zhiqiang Song, Shasha Yuan, China</td>
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<td>Study on the influence of BMI difference on pressure distribution of mattress</td>
<td>Huimin Hu, Pu Hong, Mengjing Cai, Yinxia Li, Hong Luo, Haiimei Wu, China</td>
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<td>Research on body pressure distribution of mattress for different genders</td>
<td>Huimin Hu, Mengjing Cai, Pu Hong, Yinxia Li, Ling Luo, Haiimei Wu, China</td>
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<td>Research on comfort of mattresses with different hardness based on body pressure distribution</td>
<td>Huimin Hu, Pu Hong, Mengjing Cai, Hong Luo, Haiimei Wu, China</td>
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<td>Peng Han, China</td>
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<td>Effect of body weight of wheelchair care recipient on physical activity intensity of assistant person</td>
<td>Haruka Sugiyama, Yohsuke Yoshioka, Masaki Takahashi, Mitsuaki Shiraishi, Fumitake Hakozaki, Satoshi Kamen, Yoshihide Tokuda, Ken Nunota, Cheng Jiayu, Japan</td>
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<td>The importance of ergonomics in the development of sustainable materials applied to footwear design</td>
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<td>Aleksandra Polak-Sopinska, Anna Maczewska, Anna Walaszczyk, Zbigniew Wisniewski, Poland</td>
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<td>Ergonomics principles for the design of an assembly workstation for left-handed and right-handed users</td>
<td>Lucia Botti, Alice Caporale, Maddalena Coccagna, Cristina Mora, Italy</td>
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<td>Lean production management model for SMEs waste reduction in the processed food sector in Peru</td>
<td>Carlos Raymundo, Ernesto Altamirano, Jose Chavez, Fernando Osorio, Francisco Dominguez, Peru</td>
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<td>Development of an intelligent robotic additive manufacturing cell for the nuclear industry</td>
<td>Richard French, Hector Marin-Reyes, Gabriel Kapellmann Zafra, Samantha Abrego, UK</td>
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<td>Manageable and scalable manufacturing IT through an app based approach</td>
<td>Christian Knecht, Andreas Schuller, Andrei Miclaus, Germany</td>
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<td>Hanna Wlodarkiewicz-Klimek, Poland</td>
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<td>Analysis of driving performance data to evaluate brake manipulation by railway drivers</td>
<td>Daisuke Suzuki, Naoki Mizukami, Nobuyuki Tsuyuki, Yutaka Kakizaki, Japan</td>
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<td>Denis Miglianico, Vincent Pardage, France</td>
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<td>Application of cognitive work analysis to explore passenger behaviour change through provision of information to help relieve train overcrowding</td>
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<td>Tobias Heine, Marco Käppler, Barbara Deml, Germany</td>
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Yousif Al Thabahi, Marzouq Al Zaabi, Mohammed Al Eisaei, Abdulla Al Ghafl, UAE  
Impact of mind wandering on driving  
Minerva Rajendran, Venkatesh Balasubramanian, India  
Assessing the relation between emotional intelligence and driving behavior: An online survey  
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Road surface roughness and urban bus ride quality in Edinburgh: An EEG approach  
Benjamin Oladele Afuye, Wafaa Saleh, Achille Fonzone, UK  
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Russell Marshall, Stephen Summerskill, James Lenard, UK  
The development of a direct vision standard for trucks in London using a volumetric approach  
Stephen Summerskill, Russell Marshall, Abby Paterson, Anthony Eland, UK | |

| 84 | **Ergonomics and Material Environment Design II**  
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| 8:00-10:00 - COLUMBIA 4 | Human scale in architecture of buildings for the performing arts  
Pawel Amalowicz, Poland  
Renovations of public spaces at the junction with water – boulevards. Case studies in a spatial, visual and usable context  
Andrzej Sobolewski, Roman Czajka, Poland  
Village regeneration through cultural creativity and local identity: Polish case study  
Wojciech Bonenberg, Agata Bonenberg, Mo Zhou, Poland  
Preference of Chinese vernacular windows: Combined effects of shape and view  
Man Zhang, Jiangtao Du, Yuyang Tang, China  
Ergonomic shaping of functional and spatial program of housing  
Przemyslaw Nowakowski, Poland | |

| 85 | **User Experience and HMI: Automation and Transportation**  
Co-Chairs: Samineh Gillmore and Timo Schempp, USA/Germany | UUE |
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| 8:00-10:00 - COLUMBIA A9 | Comparative analysis of controlling drone  
Hajun Kim, Lim Seungchan, Lee Wonsup, South Korea  
User centered design strategies for improving visualization of sensor data in rotorcraft cockpit displays for degraded visual environment operations  
Bradley Davis, Kelly Dickerson, Samineh Gillmore, USA  
An evaluation method for a new adaptive operating system - using the example of a tractor  
Timo Schempp, Andreas Kaufmann, Ingmar Stoehr, Markus Schmid, Stefan Boettinger, Germany  
The development of an adaptive HMI - from the idea to the prototype  
Andreas Kaufmann, Timo Schempp, Ingmar Stoehr, Markus Schmid, Thomas Maier, Germany  
A smart factory in a laboratory size for developing and testing innovative human-machine interaction concepts  
Carsten Wittenberg, Benedict Bauer, Nicolaj Stache, Germany  
Comparative research about the preferences in 5 countries for the artificial intelligence agent UX in the multi-display based vehicle  
Hoonsik Yoo, Youngjin Kim, Bong Gyou Lee, South Korea | |
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| 89      | Advanced Methods for Human-Agent Interfaces | Jessica Reichers and Nia Peters, USA | HFRUS | Virtual ship information overlay and navigation VISION system  
Katia Estabridis, Jessica Reichers, Nathan Brannon, Joshua Rubini, Gary Hewer, Naomi Hills, USA  
Task engagement inference within distributed multiparty human-machine teaming via topic modeling  
Nia Peters, USA  
Decision making using automated estimates in the classification of novel stimuli  
Amber Hoenig, Joseph Stephens, USA  
Participant perception and HMI preferences during simulated AV disengagements  
Syeda Sheherbano Rizvi, Francesca Favaro, Sumaid Mahmood, USA |
| 90      | Human Factors in Virtual Environments II | Brian Sanders and Stijn Verwulgen, USA/Belgium | HFGD | Understanding user interface preferences for XR environments when exploring physics and engineering principles  
Brian Sanders, Yuzhong Shen, Dennis Vincenz, USA  
Appreciation of proportion in architecture: A comparison between facades primed in virtual reality and on paper  
Stijn Verwulgen, Sander Van Goethem, Gustaaf Cornelis, Jouke Verlinden, Tom Coppens, Belgium  
Immersive virtual reality beyond available physical space  
Nicholas Caporusso, Gordon Carlson, USA  
Gazing pattern while using AR route-navigation on smartphone  
Asami Tanabe, Yohsuke Yoshioka, Japan  
Healthcare design based on virtual reality technology: Enhance the user's engagement in the rehabilitation process  
Yu Qiao, Siyi Yang, China  
Research on virtual simulation evaluation system for passenger compartments lighting of subway trains in China  
Jian Xu, Ze-rui Xiang, Jin-yi Zhi, Xiao-fei Xu, Si-jun He, Jin Wang, Yang Du, Gang Xu, China |
| 91      | Human Factors in Aging and Gerontology I | Jay Kalra and Mengyi Cao, Canada/China | AGE | Alterations in thyroid function testing with aging  
Jay Kalra, Zoher Rafid-Hamed, Patrick Seitzinger, Canada  
A grip force training and testing device for old people  
Shijian Luo, Ze Bian, Yufei Zhang, Ping Shan, Hebo Gong, China  
Optimized design of accompanying smart car for the elderly based on humanization design methods  
Mengyi Cao, Xingyi Zhong, Ting Han, China  
Measuring ways research on public facilities of the elderly's physical flexibility  
Xing-Rong Wen, Ding-Bang Lu, China  
Individual 3D behavior capture method for elderly people with dementia under everyday life environment with RGBD camera  
Kei Hirano, Yoshifumi Nishida, Yusuke Miyazaki, Koji Kitamura, Japan |
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<td>Smart Additive Manufacturing: Sensing, Data Analytics and Process Control</td>
<td>Prahalad Rao and Hongyue Sun, USA</td>
<td>GUNSTON EAST</td>
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<td>93</td>
<td>Cross-Cultural Decision Making I</td>
<td>Atsuo Murata and Toshihisa Doi, Japan</td>
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<td>94</td>
<td>Interdisciplinary Practice for Automobile Design</td>
<td>Canqun He and Chunrong Liu, China</td>
<td>HOLMEAD EAST</td>
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### AMMSP
- **Modeling in-plane deviations of shapes to come based on prior deviation features in additive manufacturing**
  - Arman Sabbaghi, USA
- **Ushering the digital twin in metal additive manufacturing – a case for model-based monitoring of porosity in directed energy deposition.**
  - Prahalada Rao, USA
- **Cyber-coordinated simulation models for multi-stage additive manufacturing of energy products**
  - Hongyue Sun, USA
- **3D printing of high-strength continuous carbon fiber reinforced polymer composites**
  - Pedram Parandoush, Dong Lin, USA
- **Toward defect-free additive fabricating of flexible and hybrid electronics: Physics-based computational modeling and control of aerosol jet printing**
  - Roozbeh (Ross) Salary, Jack Lombardi, Darshana Weerawarne, Prahalada Rao, Mark Poliks, USA

### CCDM
- **Employee satisfaction, task performance, and emotional labor: An empirical examination**
  - Noriko Okabe, Japan
- **Sensitivity analysis of intercultural relationship based on DMIS model**
  - Zhenbin Wu, Baocui Chen, Xuebo Chen, China
- **Cross-cultural analysis of top page design among Brazilian, Chinese, Japanese and United States web sites**
  - Toshihisa Doi, Atsuo Murata, Japan
- **Globalisation, cultural differentiation and pluralism processes and proactive dimension of human world of “boundary-less careers”**
  - Agnieszka Cybal-Michalska, Poland
- **Influential factors in cross-country standards adoption from a macroergonomics perspective**
  - Qinyi Liu, Liang Ma, Phairoj Liukitithara, China

### IPID
- **Extracting contour shape of passenger car form in rear view based on form similarity judgment by young Chinese consumers**
  - Chunrong Liu and Minghua Zhang, China
- **Research on evaluation of CMF based on vision in automobile seat design**
  - Canqun He, Xue Sun, Weizhen Xiao, China
- **Study on the design elements of shape and interface of modern agricultural machinery**
  - Yitong Liu, Huabin Wang, China
- **Research on steering wheel interaction design for middle class consumers**
  - Xiyao Wang, Jiong Fu, China

10:00 - 10:30 Refreshments will be provided in Columbia West (Terrace Level)
| 96 | **Toward a Unified Approach for Studying Long-Term Bonding Between Humans and Autonomy**  
Chair: Frank Krueger, USA | CN |
|---|---|---|
| 10:30-12:30 - MORGAN | **The role of mind perception in bonding between humans and autonomy**  
Jonathan Gratch, USA  
**Monitoring brain function during human robot interaction with mobile fNIRS in natural settings**  
Hasan Ayaz, USA  
**The role of oxytocin in shaping long-term human bonding**  
Mary Lee, USA  
**A neuropsychological model of long-term bonding between humans and autonomy**  
Frank Krueger, USA  
**Long-term bonding with social robots**  
Ewart de Visser, USA | |

| 97 | **Human-Machine Interaction in Systems**  
Co-Chairs: Umer Asgher and Salman Nazir, Pakistan/Norway | ICEEP |
|---|---|---|
| 10:30-12:30 - HOMMEAD WEST | **Black hole illusion: Functions of temporal and spatial cues**  
Ming Chang, Lei Huang, China  
**Research on interactive performance optimization strategy of complex systems based on information coding**  
Tian Qin, Siyi Wang, China  
**Novel metaheuristic approach: Integration of variables method (IVM) and human-machine interaction for subjective evaluation**  
Umer Asgher, Rolando Simeón Monet, Riaz Ahmad, José Arzola-Ruiz, Pakistan/Cuba  
**Modeling and multi-objective optimization of insulating lining using Heuristic technique "Exploration of Variables Codes (ECV)"**  
Umer Asgher, José Arzola-Ruiz, Arlys Michel Lastre, Alexis Cordovés-García, Umer Asgher, Cuba/Pakistan  
**Using adaptive integration of variables algorithm for analysis and optimization of 2D irregular nesting problem**  
José Arzola-Ruiz, Arlys Michel Lastre, Alexis Cordovés-García, Umer Asgher, Cuba/Pakistan  
**Predicting operator performances and cognitive efficiency by monitoring physiological and cognitive states to improve risk management**  
Eva Hansenne, Jerome Wertz, Mathieu Jaspar, Anne-Sophie Nyssen, Clementine Francois, Belgium  
**Evaluation of fatigue and comfort of blue light under general condition and low light condition**  
Yunhong Zhang, Na Liu, Hong Chen, China | |

| 98 | **Safety Management and Behavior Analysis**  
Co-Chairs: Kapo Wong and Alan H. S. Chan, Hong Kong | SMHF |
|---|---|---|
| 10:30-12:30 - FAIRCHILD EAST | **Gender differences in risk-taking-related personality traits and risk perception: implications for safety training and awareness programs**  
Kapo Wong, Alan H. S. Chan, Saad A. Alabdulkarim, Hong Kong  
**Socially oriented design of technical systems and objects: Safety and accident prevention**  
Yulia Salnikova, Evgeny Kolbachev, Russia  
**Compliance supervision or self-regulation? A new research perspective based on game theory**  
Yuan Gao, Yuexiao Fan, China  
**Issues of human error management in introducing new technology for bridge inspection drones**  
Riku Tsumori, Yusaku Okada, Japan  
**Driving risk assessment under the effect of alcohol through an eye tracking system in virtual reality**  
Chiara Ferrante, Valerio Veraldi, Maria Rosaria De Blasiis, Italy  
**The impact of autonomous vehicles’ active feedback on trust**  
Ana Mackay, Inês Fortes, Catarina Santos, Dário Machado, Patrícia Barbosa, Vera Vilas Boas, João Ferreira, Nelson Costa, Carlos Silva, Emanuel Sousa, Portugal  
**An assessment of the potential risk of hearing loss from earphones based on the type of earphones and external noise**  
Alethea Diana Villa, Ysabel Neena Gayahan, Manuel Vincent Vi Chanco, Jeriko Merlo Reyes, Lizbeth Mariano, Philippines | |
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<th>The Present and Future of Macroergonomic Systems</th>
<th>Co-Chairs: Marcin Butlewski and Ana Margarida Ferreira, Poland/Portugal</th>
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<td>Gamifying onboarding: How to increase both engagement and integration of new employees</td>
<td>Louisa Heimburger, Ruben Gouveia, Oliver Korn, Lea Buchweitz, Germany</td>
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<td>Well-being through design for dynamic diversity: The voice of minorities in design for all</td>
<td>Marcin Butlewski, Poland</td>
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<td>Social design, innovation and ergonomics: Reflections on education, transdisciplinarity, and new blurred models for sustainable social change</td>
<td>Ana Margarida Ferreira, Nicos Souleles, Stefania Savva, Portugal</td>
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<td>Towards an expert system for assigning optimal workplaces to workers with disabilities</td>
<td>Gregor Harih, Nataša Vujica-Herzog, Slovenia</td>
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<td>The role of building construction project planning in accommodating ergonomic considerations of the aging workforce</td>
<td>Steven Kangisser, Young Mi Choi, USA</td>
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<td>Ergo + 50: Ergonomic assessment methodology aimed at older workers</td>
<td>Alberto Ferreras Remesal, Carlos Chirivella Moreno, Alicia Piedrabuena Cuesta, Rakel Poveda Puente, Sonia Serna Arnau, Consuelo Latorre Sánchez, Mercedes Sanchís Almenara, Raquel Marzo Rosello, Spain</td>
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<th>Ergonomics in Urban Design I</th>
<th>Co-Chairs: Joanna Jablonska and Anna Jaglarz, Poland</th>
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<td>10:30-12:30 - COLUMBIA 1</td>
<td>Landscape parks in China: Steering and handling growing tourism</td>
<td>Teresa Bardzinska-Bonenberg, Shoufang Liu, Poland</td>
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<td>Smart village as a model of sustainable development: Case study of Wielkopolska region in Poland</td>
<td>Wojciech Bonenberg, Mo Zhou, Xia Wei, Poland</td>
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<td>The growing house – The way to solve the housing problem in Interwar Germany</td>
<td>Jadwiga Urbanik, Poland</td>
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<td>Architectural challenges of designing front entrance area at city schools</td>
<td>Andrzej Dudzinski, Poland</td>
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<td>Smart eco-villages and tourism development based on rural revitalization with comparison Chinese and Polish traditional villages experiences</td>
<td>Ling Qi, Mo Zhou, Wojciech Bonenberg, Zixuan Ma, China</td>
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<td>Management balance between nature and rural settlements in China</td>
<td>Shoufang Liu, Lin Li, Wojciech Bonenberg, Teresa Bardzinska-Bonenberg, Mo Zhou, China</td>
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<td>Active city for healthy ageing and “anti-globesity”</td>
<td>Cristiana Cellucci, Michele Di Sivo, Italy</td>
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<th>Usability and User-Centered Design II</th>
<th>Co-Chairs: Hashim Chunpir and Lauren LaSpina-Paoletti, Germany/USA</th>
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<td>10:30-12:30 - COLUMBIA 2</td>
<td>Comparison of information technology service management (ITSM) practices in e-science, libraries, public administration and the private sector</td>
<td>Hashim Chunpir, Germany</td>
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<td>GDPR considerations in recruiting participants for human factors research</td>
<td>Richard Horst, Yasmin Diedenks, USA</td>
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<td>Heuristic and bias information on ship engine operation alarm display</td>
<td>Adi Mas Nizar, Takashi Miwa, Makoto Uchida, Masumi Nakamura, Japan</td>
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<td>Closing the gap of creating design concepts for DSS by applying the situation awareness oriented design principles</td>
<td>Elena Dalinger, Daniel Feiser, Germany</td>
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<td>Building a house with a limited tool set: Overcoming the challenge of incorporating usability in the acquisition process</td>
<td>Jade Driggs, Alice Diggs, Richard Steinberg, USA</td>
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<td>Are you prepared for the ISO 11607 medical device packaging changes?</td>
<td>Lauren LaSpina-Paoletti, USA</td>
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# Detailed Technical Program

## Saturday, July 27, 2019

### 102 Human Interaction with Small Unmanned Aerial Systems

**Co-Chairs:** Durant Bridges and Antti Vääätänen, USA/Finland

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| 10:30-12:30 - COLUMBIA 3 | Small unmanned aircraft-systems-operations augmented reality user interface types  | Durant Bridges, USA | Human–drone interaction: Virtues and vices in systemic perspective  
Khavanova Inna, Olga Burukina, Russia | Development of a concept of operations for autonomous systems  
Antti Vääätänen, Jari Laarni and Marko Höyhtyä, Finland | Visual detection of trespassing of a small unmanned aerial vehicle into an airspace  
Kai Li, S Chang, Lu Peng, Caijun Zhao, Taiwan | Taking advantage of swarming to support consistent and predictable behavior of an autonomous system following loss of communications  
Serge Chaumette, France | Spatiotemporal analysis of “Jello Effect” in drone videos  
Yang Cai, Eric Lam, Todd Howlett, Alan Cai, USA |

### 103 Human Factors in Cybersecurity: Awareness and Cyber-Physical Security

**Co-Chairs:** Nicholas Caporusso and Jeremiah Still, USA

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| 10:30-12:30 - COLUMBIA 4 | Perceiving behavior of cyber malware with human-machine teaming  
Yang Cai, Jose Morales, Neta Ezer, USA | Human-centered cyber situation awareness  
Vincent Mancuso, Sarah McGuire, Diane Staheli, USA | Over-the-shoulder attack resistant graphical authentication schemes impact on working memory  
Jeremiah Still, Ashley Cain, USA | Comparative evaluation of security and convenience trade-offs in password generation aiding systems  
Nicholas Caporusso, Michael Stainbrook, USA | HackIT: A human-in-the-loop simulation tool for realistic cyber deception experiments  
Palvi Aggarwal, Aksh Gautam, Vaibhav Aggarwal, Cleotilde Gonzalez, Varun Dutt, USA | Mathematical model of intrusion detection based on sequential execution of commands applying Pagerank  
Cesar Guevara, Jairo Hidalgo, Marco Yandún, Hugo Arias, Lorena Zapata-Saavedra, Ivan Ramirez-Morales, Fernando Aguilar-Galvez, Lorena Chalco-Torres, Dioselina Pimbosa Ortiz, Ecuador | Why drive license-free on information highway?  
Aftab Ahmad, Hak J. Kim, USA |

### 104 Designing for Inclusion in the Cultural Heritage

**Co-Chairs:** Giuseppe Mincolelli and Alessandra Rinaldi, Italy

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| 10:30-12:30 - COLUMBIA 9 | Media convergence in information transmission in museum space  
Yongbin Wang, Yongbin Wang, China | User interaction and scenario-based experience design for new media technology in museum spatial experience  
Jian Yu, Yongbin Wang, China | Inclusive design practices for natural parks. Products and services for experience-focused solutions in places of high naturalistic value  
Ivo Caruso, Vincenzo Cristallo, Carlo Martino, Italy | Inclusive participation design methodologies for digital cultural heritage  
Giuseppe Mincolelli, Michele Marchi, Italy | An application for mobile systems developed with the community involvement. An open source mobile application project of a perceptive city map  
Francesca Bozza, Italy | The effect of sliding door hardware design on opening operation  
Satoshi Kose, Yoshiaki Goto, Ken Nunota, Shinji Tanaka, Japan |
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<td>Advances in Computational Social Sciences</td>
<td>Zining Yang and Sekwen Kim, USA</td>
<td>HFSIM 10</td>
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<td>Diffusion of environmental protectionism: single-use plastic bags ban policy in California</td>
<td>Zining Yang, Sekwen Kim, USA</td>
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<td>The urban renew case study on a feasibility profit sharing in different development intensity by game theory</td>
<td>Yuan Yuan Lee, Zining Yang, Oliver Shyr, USA</td>
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<td>Nefarious actors: An agent based analysis of threats to the democratic process</td>
<td>Nicholas Stowell, Norvell Thomas, USA</td>
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<td>Train intelligent detection system based on convolutional neural network</td>
<td>Zhang Qiang, Zining Yang, Gao Chunhai, Cheung Virginia, USA</td>
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<td>Kun Chen and Ricardo Navarro, China/Peru</td>
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<td>Logic evaluation through game-based assessment</td>
<td>Carlos Arce-Lopera, Alan Perea, Colombia</td>
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<td>Designing experiences: A virtual reality video game to enhance immersion</td>
<td>Ricardo Navarro, Vanessa Vega, Sergio Martinez, Maria José Espinosa, Daniel Hidalgo, Brian Benavente, Peru</td>
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<td>The design of a WebGL-based 3D virtual roaming system for the “Batu Hitam” shipwreck</td>
<td>Gantian Bian, Baosheng Wang, China</td>
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<td>Virtual reality and its effect on intrinsic motivation during simulator training</td>
<td>Salman Nazir, Steven Mallam, Norway</td>
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<td>The design of card game for leukemia children based on narrative design</td>
<td>Hongzhi Pan, Long Ren, Chenyue Sun, Jiali Zhang, China</td>
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<td>Human Factors and Wearable Technologies II</td>
<td>Chantal Lidynia and Chih-Yu Hsiao, Germany/Taiwan</td>
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<td>A novel joint angle measurement system to monitor hip movement in children with hip diseases</td>
<td>Donato Giuseppe Leo, Badr M. Abdullah, Daniel C. Perry, Helen Jones, UK</td>
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<td>Nudging vs. budging: Users’ acceptance of nudging for more physical activity</td>
<td>Chantal Lidynia, Julia Offermann-van Heek, Martina Ziefle, Germany</td>
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<td>Evaluation of suitable rest times for the use of optical head-mounted displays</td>
<td>Chih-Yu Hsiao, Yi-An Liu, Mao-Jiun Wang, Taiwan</td>
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<td>Smartphone-based human fatigue detection for daily activities using gait analysis</td>
<td>Swapnali Karvekar, Ehsan Rashedi, Masoud Abdollahi, USA</td>
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<td>Wearable smart emotion-aware gloves: Development of a new way for people to interact with others</td>
<td>Shijian Luo, Ping Shan, Chengyi Shen, Zhitong Cui, Ze Bian, Huan Lin, Wenyin Zou, China</td>
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108 Human Error Considerations in Design
Co-Chairs: Xiaoli Wu and Salvador Avila Filho, Japan/Brazil

10:30-12:30 - CARDIZO

Mining human error incident patterns with text classification
Toru Nakata, Japan
A risk analysis method for human-machine system based on risk scenario and interaction interface analysis
Xing Pan, Yuhang Jiang, Wenjin Zhang, Xianheng Zhao, China
Human factors engineering analyses for human system interface of severe accident management support system based on human factors engineering program
Lee Sungheon, Jonghyun Kim, South Korea
Research on the evaluation method of human factors for the display and warning system of power plant in aircraft cockpit
Zongpeng Wang, Yundong Guo, Youchao Sun, China
Optimization of information interaction interface based on error-cognition mechanism
Xiaoli Wu, Chengqi Xue, Feng Zhou, Linlin Wang, Weiwei Zhang, Tingting Zhang, Ling Xia, China
'To err is human' but it's time to go deeper. An analysis of human and system level challenges in the educational testing industry
Irenka Suto, Jo Ireland, UK
A pilot error analysis method for the human-machine interface design process of civil aircraft cockpit
Shasha Lu, Yang Zhou, Hongtao Liu, Zhefeng Jin, China

109 Human Factors for Technologies in Apparel and Textile Design/Engineering
Co-Chairs: F. Moreira da Silva and Gianni Montagna, Portugal

10:30-12:30 - GUNSTON WEST

Distribution of clothing pressure in support knee-high socks and its evaluation
Tamaki Mitsuno, Aya Yamagishi, Mayuko Takenaka, Japan
Reliability of anthropometric reference data for children’s product design
Su-Jeong Shin, Mona Maher, USA
Formation of the 3D virtual models for clothing fit assessment applied in human factors
Hyunjung Lee, Su-Jeong Shin, USA
Research on the characteristics of hand shape in different countries
Jing Zhao, Gang Wu, Chao Zhao, Fan Zhang, Haitao Wang, Xinyu Cao, China
Clothing pressure alters brain wave activity in the occipital and parietal lobes
Yunjuan Liu, Yanyang Chen, Yingjin Gan, China
Development of flame retardant fiber Reinforced Plastics products embedded with Japan-specific traditional design
Tetsuo Kikuchi, Japan

110 Recent Developments in Rapid Prototyping for Assistive Technologies
Co-Chairs: Frode Eika Sandnes and Fausto Orsi Medola, Norway/Brazil

10:30-12:30 - EMBASSY

Using virtual reality and rapid prototyping to co-create together with hospitalized children
Vanessa Ghirardeli Usó, Frode Eika Sandnes, Fausto Orsi Medola, Brazil
Avoiding product abandonment through user centered design: A case study involving the development of a 3D printed customized upper limb prosthesis
Amanda Coelho Figliolia, Fausto Orsi Medola, Frode Eika Sandnes, Luis Carlos Paschoarelli, Ana Claudia Tavares Rodrigues, Brazil
Evaluation of orthosis rapid prototyping during the design process: Analysis of verification models
Ana Lya Moya Ferrari, Aline Darci Piculo dos Santos, Guilherme da Silva Bertolaccini, Fausto Orsi Medola and Frode Eika Sandnes, Brazil
3D printing as tool for guiding product design: A teaching experience in the ergonomics course
Rodolfo Nucci Porsani, Bruno Borges da Silva, Luiz Antonio Vasques Hellmeister, Fausto Orsi Medola, Luis Carlos Paschoarelli, Brazil
Design and development of a myoelectric upper limb prosthesis with 3D printing: A low-cost alternative
Bruno Borges da Silva, Rodolfo Nucci Porsani, Luiz Antonio Vasquez Hellmeister, Fausto Orsi Medola, Luis Carlos Paschoarelli, Brazil
Manufacturing technology in rehabilitation practice: Implications for its implementation in assistive technology production
Idinei Francisco Pires de Carvalho Filho, Fausto Orsi Medola, Frode Eika Sandnes, Luis Carlos Paschoarelli, Brazil
### Production, Quality and Intelligent Control Systems

**111**

- **Production management model based on lean manufacturing for cost reduction in the timber sector in Peru**
  - Fiorella Lastra, Nicolas Meneses, Ernesto Altamirano, Carlos Raymundo, Javier M. Moguerza, Peru
- **Production management model for increasing productivity in bakery SMEs in Peru**
  - Junior Huallpa, Tomas Vera, Ernesto Altamirano, Carlos Raymundo, Javier M. Moguerza, Peru
- **Conditioning of computerized maintenance management systems implementation**
  - Zbigniew Wisniewski, Artur Blaszczyk, Poland
- **Analysis of operational efficiency in picking activity on a pipes and fittings company**
  - Gustavo Moresco, Vanina Silva, Brazil
- **Remaining useful life prediction for components of automated guided vehicles**
  - Beata Mrugalska, Ralf Stetter, Poland
- **Discussion on the range of cut-off values in robust algorithm A**
  - Zhang Fan, Yue Zhang, Zhao Chao, Jing Zhang, Gang Wu, Haitao Wang, Xinyu Cao, China
- **Model for dilution control applying empirical methods in narrow vein mine deposits in Peru**
  - Luis Salgado, Diego Nuñez, Ivan Pehovaz, Carlos Raymundo, Javier M. Moguerza, Peru

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### Design Embracing Information Science, Intention and Experience

**112**

- **Planting new seeds: Opportunities for design to transform agriculture through emerging technologies**
  - John Capozzo, Cliff Shin, USA
- **Should the environment be a human factor?**
  - Stan Ruecker, Claudia Grisales, John A. Capozzo, Juan Alfonso de la Rosa, Gerry Derksen, Priscilla Boff Ferronato, Thais Cristina Sehn, Cliff Shin, USA
- **Quantitative research on the relationship between design elements and Kansei image of electric vehicle styling**
  - Mingzhu Li, Canqun He, Zhangping Lu, Liqing Huang, China
- **Research on modeling design of modern agricultural machinery based on soft system methodology**
  - Huabin Wang, Baoping Xu, China

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### Human Factors in Training, Education, and Learning Sciences

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- **Challenges in operator training for (semi-)autonomous systems**
  - Salman Nazir, Norway
- **The construction manager’s mask: A more purpose-fit selection for South Africa**
  - Andries van Heerden, Michelle Burger, Benita Zulch, South Africa
- **Developing an online community of learners for maritime training – a case study**
  - Amit Sharma, Salman Nazir, Norway
- **Curriculum infusion through case studies: Engaging undergraduate students in course subject material and influencing behavior change**
  - Ellen Bass, Holly Foster, Douglas Lee, Susie Bruce, R. Reid Bailey, USA
- **UI preferences for programming education**
  - Blessing Leonard, Giovanni Vincenti, USA
- **Directions towards sustainability through higher education**
  - Theresa Lobo, USA

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**Lunch Break 12:30 - 13:30 • Enjoy lunch at the restaurant of your choice**
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<th>Sensory Engineering and Emotion</th>
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<td><strong>13:30-15:30 - MORGAN</strong></td>
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<tr>
<td><strong>Evaluation of psychological emotions during fragrance exposure by chaotic analysis of fingertip plethysmography</strong></td>
<td>Tomofumi Sakata, Keiichi Muramatsu, Kazunori Kaede, Keiichi Watanuki, Japan</td>
<td><strong>Evaluation of emotions induced by 2D and 3D video systems in a two-dimensional emotion space</strong></td>
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<td><strong>Motion characteristics of elderly in handlebar operation of mobility scooter</strong></td>
<td>Kazunori Kaede, Masato Utsugi, Keiichi Muramatsu, Keiichi Watanuki, Japan</td>
<td><strong>Evaluation of difference in face color preference between humans and human-like agents</strong></td>
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<td><strong>The effects of neuromodulation on creative thinking</strong></td>
<td>Keiichi Muramatsu, Yoshimasu Tawatsuji, Kazunori Kaede, Eiichiro Tanaka, Tatsunori Matsui, Keiichi Watanuki, Japan</td>
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<td><strong>Motion characteristics of elderly in handlebar operation of mobility scooter</strong></td>
<td>Kazunori Kaede, Masato Utsugi, Keiichi Muramatsu, Keiichi Watanuki, Japan</td>
<td><strong>Neural bases of creative thinking</strong></td>
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<td><strong>Beyond physical domain, understanding workers cognitive and emotional status to enhance worker performance and wellbeing</strong></td>
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<td><strong>Machine-learning classifier for discerning performance levels of physicians evaluating MRI brain scans for early-stage Alzheimer’s disease</strong></td>
<td>Javed Mostafa, Yi Hong, Wang Yue, Daniel Kaufe, Prithima Mosaly, Lukasz Mazur, USA</td>
<td><strong>Application of functional near infrared spectroscopy (fNIRS) on speech and language research in children</strong></td>
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<td><strong>Performance and brain activity during a spatial working memory task: Application to pilot candidate selection</strong></td>
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<td><strong>A cross-sectional study using wireless electrocardiogram to investigate physical workload of wheelchair control in real world environments</strong></td>
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<td><strong>Hierarchical models of smartphone-derived signals to predict context</strong></td>
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<td><strong>Machine-learning classifier for discerning performance levels of physicians evaluating MRI brain scans for early-stage Alzheimer’s disease</strong></td>
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<td><strong>Predicting anthropometric measurements from 3D body scans: Methods and evaluation</strong></td>
<td>Peng Li, Steven Paquette, USA</td>
<td><strong>Application of multi-objective optimization on ergonomics in production – A case study</strong></td>
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<td><strong>Predictive assessments of spacesuit fit using a Monte-Carlo analysis</strong></td>
<td>K. Han Kim, Linh Vu, Elizabeth Benson, Richard Rhodes, Sudhakar Rajulu, USA</td>
<td><strong>From design sketch to immersive product experience: Exploration of a new competence portfolio</strong></td>
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<td><strong>Rigging and re-posing a human model from standing to cycling configuration</strong></td>
<td>Raman Garimella, Koen Beyers, Toon Huysmans, Stijn Verwulgen, India</td>
<td><strong>Rigging and re-posing a human model from standing to cycling configuration</strong></td>
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### 118 Virtual Reality
Co-Chairs: Paulo Noriega and Francisco Rebelo, Portugal

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<td>Ana Almeida, Francisco Rebelo, Paulo Noriega, Portugal</td>
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<td>Locomotion-in-place and teleport: Which is the best technique to be used in human behavior research using virtual reality?</td>
<td>Inês Galrão, Francisco Rebelo, Paulo Noriega, Portugal</td>
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<td>Influence of distance from observation point to hanging wall on feeling of depth of space behind wall</td>
<td>Daiya Nagakura, Yohsuke Yoshioka, Japan</td>
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<td>Openness feeling on height direction in high ceiling room and bending pattern of leading passage</td>
<td>Takuya Sugiyama, Yohsuke Yoshioka, Japan</td>
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<td>Exploratory study to investigate the influence of a third person on an individual emergency wayfinding decision.</td>
<td>Paulo Noriega, Elisângela Vilar, Francisco Rebelo, Nuno Graça, Portugal</td>
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<td>Emotion through narrative: Validation for user engagement in game context</td>
<td>Yanick Trindade, Francisco Rebelo, Paulo Nonege, Portugal</td>
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<td>How deep is a virtual reality experience: Virtual environments, emotions and physiological measures?</td>
<td>Paulo Noriega, Tiago Oliveira, José Carvalhais, Francisco Rebelo, Vanessa Cristina Gonçalves Lameira, Portugal</td>
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### 119 Communication Design
Co-Chairs: Daniel Raposo and Elsabete Rolo, Portugal

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<td>Inês Coimbra, Teresa Olazabal Cabral, Portugal</td>
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<td>Boundary dimension design of graphical symbols based on user preference</td>
<td>Zhongting Wang, Ling Luo, Linghua Ran, Liang Zhang, China</td>
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<td>An ergonomic assessment on the detectability design of the New Generation Currency (NGC) coin series and Bangko Sentral ng Pilipinas (BSP) coin series</td>
<td>Diane Denise Francisco, Patricia Michaela C. Gregorio, Ninna Ysabel G. Layug, Nikole Andrei B. Mallare, Philippines</td>
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<td>The brand mark competitors map as visual research tool. Using graphic and symbolic data in the brand visual identity project</td>
<td>Daniel Raposo, Rogério Ribeiro, Mariana Martins Amaral, Juan-R. Martin-Sanroman, Portugal</td>
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<td>A methodology for the analysis of brand visual identity of food products: comprehension and valuation of graphic signs</td>
<td>Daniel Raposo, Catarina Laginha, João Neves, Jose Silva, Fernando Moreira da Silva, Portugal</td>
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### 120 Innovative Methods and Approaches for System Interaction Design
Co-Chairs: Isabel L. Nunes and Maximilian Zarte, Portugal/Germany

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<td>Mohammed Aminu Sanda, Ghana/Sweden</td>
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<td>Vehicle multi-sensory user interaction design research based on the minds methods</td>
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<td>System-of-systems approach for sustainable production planning and controlling in manufacturing companies</td>
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<td>Set-top box automated lip-reading controller based on convolutional neural network</td>
<td>Yuan Yao Lu, Haiyang Jiang, China</td>
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<td>Prototyping in human computer interaction</td>
<td>Maryam Afzaal, Sidra Perveen, Khadija Akbar, Nazifa Nazir, Mahnoor Dar, Pakistan</td>
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<td>An evaluation of work posture by REBA: A case study in maintenance department</td>
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<td>Welders’ knowledge of personal protective equipment usage and occupational hazards awareness in the Ghanian informal auto-mechanic industrial sector</td>
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<td>Safety in date palm tree work in Algeria: The role of belt design and use</td>
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<td>The Sailport project: A trilateral approach to the improvement of workers’ safety and health in ports</td>
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<td>Human-system interaction design requirements to improve machinery and systems safety</td>
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<td>Hazard analysis of a gas-fired GMH8 Goodman furnace</td>
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<td>Influence of the upper limb position on the forearm EMG activity-Preliminary results</td>
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<td>Physical workload analysis in processing operations: Metal processing manufacturing</td>
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<td>The role of stakeholders in E-occupational health and safety system in Estonia</td>
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<td>The effects of different resting methods on musculoskeletal disorders after prolonged standing tasks</td>
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<td><strong>123</strong></td>
<td>Social and Occupational Ergonomics: Evaluation, Optimization and Job Design</td>
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<td>The ergonomics of sorting recyclable materials: A case study of a Brazilian cooperative</td>
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<td>Effectiveness of prosthetic adaptation and users’ satisfaction: Comparison between different technologies</td>
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<td>Handheld grass cutter machine with supporting wheel</td>
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<td>Ergonomic evaluation in the Ecuadorian workplace</td>
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<td>Path analysis of the antecedents and occupational stress among managers of the textile industries: a cross-sectional study from Pakistan using PLS-SEM</td>
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<td>Inclusion of the informal sector pension provision under the new pensions act</td>
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**Saturday, July 27, 2019**

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**13:30-15:30 - COLUMBIA 10**

- **Users preferences in land use and architecture of rural areas**
  - Wojciech Bonenberg, Mo Zhou, Xia Wei, Poland/China
- **Accessibility of the open public space in cities**
  - Alicja Maciejko, Roman Czajka, Poland
- **Architectural and urban spaces for creative thinking. Visual data and questionnaire analysis methods in support of design process**
  - Agata Bonenberg, Poland
- **Possibilities of using architecture in striving to maintain balance between natural and built environment. Architecture in the invisible borders of greenery**
  - Anna Wojtas-Haran, Poland
- **Functional and aesthetic aspects of modernization of large-panel residential buildings**
  - Przemyslaw Nowakowski, Poland
- **The influence factor for walkability of street furniture: In case of Turin**
  - Xiaolei Shi, Daniela Bosia, Lorenzo Savio, China

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**13:30-15:30 - COLUMBIA 11**

- **Obstacles for open design to be adapted by the masses**
  - Yongtao Zheng, Maiqi Lin, Hai Fang, China
- **Logic of behaviors and somaesthetics driven user experience research:**
  - Design and innovation in air energy products
  - Jiahuan Qiu, Jun Zhang, China
- **Iterative symbiosis between multi-role user requirements and data information visualization**
  - Luan Jiachen, Jun Zhang, China
- **Influence of the user experience in switching speed of the digital reading interface**
  - Chenyang Sun, Jun Zhang, China
- **User experience improvement design of shopping mall based on crowd classification research**
  - Chufan Jin, Jiamin Jiang, Dian Zhu, Xi Chen, China
- **Applying the technology acceptance model to consumer behavior towards virtual reality service**
  - Fei-Hui Huang, Taiwan
- **Understanding one-handed thumb interaction with a mobile touchscreen device:**
  - Effects of keyboard size, gap and button shape
  - Da Tao, Tieyan Wang, Haibo Tan, Jian Cai, Xu Zhang, China

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**13:30-15:30 - COLUMBIA 12**

- **Young Chinese users’ perception of passenger car form in front quarter view analyzed with quantitative and qualitative methods**
  - Chunrong Liu, Kui Gao, China
- **Gamification design of shared bicycle system based on Fogg behavior model**
  - Xin He, Hui Yan, Xinyue Gong, China
- **User experience research on the human-computer interaction system of connected car**
  - Han Gao, Bo Li, Ting Han, China
- **Spatial heuristic evaluation through way finding: A tale of two Indian cities**
  - Aditi Bhatt, Saptarshi Kolay, India
- **An ergonomic assessment of transmission, layout, and content of Philippine fast-food chains’ customer feedback surveys for effective data collection**
  - Dylan Dizon, Maria Sophia Ariola, Von Christiene Dela Vega, Keneth Sedilla, Philippines
- **GEST-DC: Unifying transportation and air quality information in an mHealth application**
  - Vivian Genaro Motti, Nilofar Kalantari, Pattiya Mahapasuthanon, Hui Zheng, USA
- **User emotional experience evaluation on bicycle design from a multi-sensory perspective**
  - Jo-Yu Kuo, Danni Chang, China
### 127 Management of Productivity in Smart Manufacturing/Industry 4.0
**Co-Chairs:** Tim Jeske and Benjamin Adrian, Germany

**HFSIM/SYSI**

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<td>Tim Jeske, Marc-André Weber, Frank Lennings, Sascha Stowasser, Germany</td>
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<td>Industry 4.0 technology and employees behavior interaction in Serbian industrial companies</td>
<td>Zorica Veljković, Vesna Spasojević Brkić, Andrija Petrović, Serbia</td>
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<td>Epistemic debt: A concept and measure of technical ignorance in smart manufacturing</td>
<td>Tudor Ionescu, Sebastian Schlund, Christina Schmidbauer, Austria</td>
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<td>Enabling smart workplaces by implementing an adaptive software framework</td>
<td>Peter Burggraf, Achim Kampker, Kai Kreisköther, Tobias Adlon, Aaron Riegaf, Benjamin Dorn,</td>
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<td>Patricia Casla, Angelo Marguglio, Giuseppe Donvito, Germany</td>
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<td>Automatic generation of methods-time measurement analyses for assembly tasks</td>
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<td>Analysing body motions using motion capture data</td>
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### 128 Education, Learning and Flipped Classroom
**Co-Chairs:** Agnese Brunzini and Tibor Barath, Italy/Hungary

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<td>Hanyang Qu, Dahai Xing, China</td>
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<td>Teaching learning aspects for current technical education</td>
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<td>Evangelos Markopoulos, Jarom Einolander, Hannu Vanharanta, Jussi Kantola, Ari Sivula,</td>
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<td>using fuzzy logic expert system metrics applications</td>
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<td>Agnese Brunzini, Alessandra Papetti, Eleonora Brandoni Serrani, Martina Scafà, Michele</td>
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### 129 Driving Behavior: Safety and Simulation
**Co-Chairs:** Alessandro Calvi and Songsu Son, Italy/USA

**RR**

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<td>Impact of aggressive driving behavior on intersection efficiency and traffic control</td>
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<td>Didier Valdès, Mike Knodler, Benjamin Colucci Rios, Alberto Figueroa, Maria Rojas, Enid</td>
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<td>and unfamiliar drivers from Puerto Rico and Massachusetts</td>
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<td>Learning drivers’ behavior using social networking service</td>
<td>Acyut Kaneria, Yueqing Li, Xiang Zhao, Vinaya Manchaiah, USA</td>
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<td>Driving at night: The effects of various colored windshield tints on visual acuity,</td>
<td>Elijah Gabalda, Jeonne Ramoso, Ma. Gilean Badilla, Keneth Sedilla, Philippines</td>
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<td>glare discomfort, and color perception</td>
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### 130 Advances in Simulation, Virtual and Augmented Reality

**Co-Chairs:** Teresita Sotomayor, Mark Mazzeo and Debbie Patton, USA

**HFSIM**

13:30-15:30 - GUNSTON EAST

**User-centric development and evaluation of a lateral canthotomy and cantholysis (LCC) part-task military medical training system**
- Margaret Bailey, Teresita Sotomayor, Ian Dykens, USA

**Long term follow-up of self-reported stress and anxiety following in-person and virtual world mindfulness training: A pilot study**
- Angela Jeter, Valerie Rice, Jessica Villarreal, Cory Overby, USA

**The medical synthetic training environment (mSTE): Supporting the Army’s STE Cross Functional Team (CFT)**
- Beth Pettit, Jack Norfleet, USA

**Optimizing occupational safety through 3D simulation and immersive virtual reality**
- Ebo Kwewyir-Afful, Maria Lindholm, Jussi Kantola, Sulaymon Tajudeen, Sara Tilabi, Finland

**Same task, different place: Developing novel simulation environments with equivalent task difficulties**
- Benjamin T. Files, Ashley H. Oiknine, Jerold Thomas, Peter Khooshabeh, Anne M. Sinatra, Kimberly A. Pollard, USA

**Controlling simulated entities generated by a virtual environment using a fuzzy logic-based system**
- Hung Tran, USA

**3D user interface for a multi-user augmented reality mission planning application**
- Simon Su, Vincent Perry, Heather Roy, Katherine Gamble, Sue Kase, USA

### 131 Design and Innovation for 3D Printing

**Co-Chairs:** Massimo Di Nicolantonio and Martijn ten Bhömer, Italy/China

**AMMSP**

13:30-15:30 - JAY

**Ma(r)kers: Digital fabrication as opportunity for enhancing territories through hacking, personalization, traces**
- Annapaola Vacanti, Xavier Ferrari, Raffaella Fagnoni, Andrea Vian, Italy

**Sustainable 3D Printing: Design opportunities and research perspectives**
- Emilio Rossi, Massimo Di Nicolantonio, Paola Barcarolo, Jessica Lagatta, Italy

**3D printing to innovate the guitar design**
- Antonio Manaro, Italy

**Artisan as a maker or artisan as not recognized co-designer?**
- Gabriele Goretti, Elisabetta Cianfanelli, Benedetta Terenzi, Margherita Tufarelli, Eleonora Trivellin, Italy

**Italian manufacturing: Between technological and social innovation**
- Marco Marseglia, Eleonora Trivellin, Elisabetta Cianfanelli, Margherita Tufarelli, Gabriele Goretti, Italy

**CAD/CAM technology application in treatment of complex craniofacial bone defects**
- Diana Navarro, Colombia

**Application of robust design techniques for 3D printing on textiles**
- Martijn ten Bhömer, Derrick Tate, Shixuan Wang, Filippo Campanile, Yaoyu Chen, China

### 132 Production Management and Process Control

**Co-Chairs:** Vanina Silva and Maria Marcela Solis-Quinteros, Brazil/Mexico

**APMPC**

13:30-15:30 - HOLMEAD EAST

**Analysis of the technological capability of linking SMEs in the electronic sector to integrate into the Maquiladora Industry Electronic sector in Tijuana, Baja California Mexico**
- Maria Marcela Solis-Quinteros, Luis Alfredo Avila Lopez, Carolina Zayas-Marquez, Teresa Carrillo-Gutierrez, Kanna Arredondo-Soto, Mexico

**Discussion on the iterative process in robust algorithm A**
- Zhang Fan, Yue Zhang, Zhao Chao, Jing Zhao, Gang Wu, Haitao Wang, Xinyu Cao, China

**Six Sigma-based optimization model in hauling cut and fill exploitation activities to reduce downtime in underground mines in Peru**
- Kevin Rojas, Vidal Aramburu, Carlos Raymundo, Javier M. Moguerza, Edgar Ramos, Peru

**Model for monitoring socioenvironmental conflicts in relation to the emission of particulate matter in the prehauling phase of a surface mine in Peru**
- Marco Flomeno, Josemaria Heracles, Vidal Aramburu, Carlos Raymundo, Javier M. Moguerza, Peru

**The difference between expert and non-expert skill in beauty services based on eye tracking technology**
- Kohei Okado, Kazuyuki Tanida, Hiroyuki Hamada, Akihiko Goto, Yuka Takai, Japan

**Three-dimensional motion analysis of Mochi pounding**
- Akihiko Goto, Naoki Sugiyama, Dago Goto, Tomoko Ota, Hiroyuki Hamada, Japan

**Design of a model of assignment of workers and operations that reduces the biomechanical danger in a panela productive unit of Colombia**
- Yenny Alexandra Paredes, Juan Pablo Caballero, Colombia
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<td>Zining Yang and Tim Lauer, USA/Germany</td>
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<td>Association matrix method and its applications in mining DNA sequences</td>
<td>Guojun Mao, China</td>
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<td>Siri, how to design a procedure? Applying machine learning &amp; natural language processing in procedure design</td>
<td>Nilesh Ade, Camille Peres, Noor Qudus, USA</td>
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<td>Deep-learning artificial intelligence and system-informational culture ergonomics</td>
<td>Nicolay Vasilyev, Vladimir Gromyko, Stanislav Anosov, Russia</td>
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<td>Deep learning-based real-time failure detection of storage devices</td>
<td>Chuan-Jun Su, Lien-Chung Tsai, Shi-Feng Huang, Yi Li, Taiwan</td>
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<td>Behavioral analysis of human-machine interaction in the context of demand planning decisions</td>
<td>Tim Lauer, Rebecca Welsch, S. Ramlah Abbas, Henke Michael, Germany</td>
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<td>Identifying touristic interest using big data techniques</td>
<td>Maritzol Tenemaza, Edison Loza, Myriam Peñafiel, Juan Pablo Zaldumbide, Angélica De Antonio, Jaime Ramirez, Ecuador</td>
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15:30-16:00 Refreshments will be provided in Columbia West (Terrace Level)

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<td>Neurobusiness Applications</td>
<td>Rajneesh Suri and Hasan Ayaz, USA</td>
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<td>Using fNIRS and EDA to investigate the effects of messaging related to a dimensional theory of emotion</td>
<td>Jan Watson, Amanda Sargent, Yigit Topoglu, Hongjun Ye, Wenting Zhong, Rajneesh Suri, Hasan Ayaz, USA</td>
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<td>The effects of advertising on cognitive performance</td>
<td>Hongjun Ye, Siddharth Bhatt, Wenting Zhong, Amanda Sargent, Jan Watson, Yigit Topoglu, Rajneesh Suri, Hasan Ayaz, USA</td>
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<td>The effects of incentives in a choice-based conjoint pricing study</td>
<td>Hongjun Ye, Siddharth Bhatt, Wenting Zhong, Jan Watson, Amanda Sargent, Yigit Topoglu, Rajneesh Suri, Hasan Ayaz, USA</td>
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<td>Electrodermal activity in ambulatory settings: A narrative review of literature</td>
<td>Yigit Topoglu, Jan Watson, Rajneesh Suri, Hasan Ayaz, USA</td>
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<td>Reliability of consumer choices for conflicting price promotions</td>
<td>Amanda Sargent, Jan Watson, Yigit Topoglu, Hongjun Ye, Wenting Zhong, Hasan Ayaz, Rajneesh Suri, USA</td>
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<td>The neuromodulation of attention: How to be a more effective speaker</td>
<td>Merrill Liechty, Robert Philips, Hasan Ayaz, Siddharth Bhatt, USA</td>
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<td>Ryan McKendrick, USA</td>
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<td>Twisted: Performance implications of presence and task difficulty in virtual command and control planning</td>
<td>Robert Noneman, Erin Cherry, USA</td>
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<td>Towards a model of mutualistic human-machine teaming</td>
<td>Ryan McKendrick, USA</td>
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<td>Designing a graphical user interface to allow users to accurately interpret fNIRS data with minimal training</td>
<td>Amanda Harwood, Norman Greenberg, Ryan McKendrick, Carmen Sims, USA</td>
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<td>Identifying groups of people with similar patterns of brain activation using fNIRS time series data and unsupervised machine learning</td>
<td>Brian Falcone, Bradley Feest, Amanda Harwood, Ryan McKendrick, USA</td>
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<td>S-SMART: Sliding-window spline-based motion artifact reconstruction technique for functional near infrared spectroscopy</td>
<td>Adrian Curtin, Hasan Ayaz, USA</td>
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<td>Non-visual human-robot communication for superior battlefield situation awareness</td>
<td>Ryan McKendrick, USA</td>
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<td>Human-machine sensory fusion for indoor localization with a hyper-reality helmet</td>
<td>Yang Cai, USA</td>
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136  User Research
Co-Chairs: Pedro Mendonca and Jarosław Tokarczyk, Portugal/Poland
ED

Saturday, July 27, 2019

16:00-18:00 - FAIRCHILD EAST

Research on human-computer interaction design of bed rehabilitation equipment for the elderly
Zhijuan Zhu, Wenzhen Pan, Xin Ai, Renjun Zheng, China

Comparative analysis of body measurement and morphology between subjects with different body mass index
Caelen Teger Silva, Maria Lucia Okimoto, Brazil

A new tool for cognitive workload assessment in system design prototypes
Pedro Mendonca, Manuel Abreu, Portugal

A study on the correlation of head and face data of Chinese adults
Linghua Ran, Chaoyi Zhao, Hong Luo, Xin Zhang, Taijie Liu, Huimin Hu, Zhongting Wang, China

Development of an ergonomically designed back pack for junior high school students
Emmanuel Oliver Porciuncula, Leonard Aquino, Daniel Araneta, Jeremiah Austria, Brant Angelo Censon, John Michael Cruz, Patrick Henry Fernandez, Kent Xaivery Moreno, Joshua Ng, Genhino Glenn Reyes, Aroma Santillan, Wendel Jimver De Guia, Philippines

Review of the research on car seating comfort
Xiaoli Fan, Chaoyi Zhao, Xuemei Chen, Yuwei Jiang, Yongjia Shen, Tong Shen, China

Ergonomics assessment criteria as a way to improve the quality and safety of people's transport in underground coal mines
Jaroslav Tokarczyk, Dariusz Michalak, Magdalena Rozmus, Kamil Szewerda, Leszek Zyrk, Gregor Zeleznik, Poland/Slovenia

137  Medical Device Development
Co-Chairs: Helen Fuller and Timothy Arnold, USA
EHMD

Saturday, July 27, 2019

16:00-18:00 - DU PONT

Multi-frameworks development for the medical device design process as a critical factor for innovation
Fabiola Cortes Chavez, Alberto Rossa-Sierra, Elvia Luz Gonzalez-Muñoz, Carlos Aceves-Gonzalez, Paulina Manzano-Hernandez, Mana Giovanna Trotta, Mexico

Research on sleeping posture recognition method based on pressure sensor
Huabin Wang, Wan Chang Yuan, China

Finding health care usability and safety issues in consumer product reviews
Helen Fuller, Timothy Arnold, USA

A guide to drive medical devices development through human factors inclusion: Building a value proposition for local projects.
Ilse Ivette Reyes Bautista, Gloria Adriana Mendoza Franco, Angel Luis Rodriguez Morales, Mexico

Preventing chemotherapy-induced onycholysis with the use of an active local cooling device
Muriel De Boeck, Jochen Vleugels, Marc Peeters, Guido De Druyne, Belgium

A national coalition to address safe integration of complex healthcare technology
James Piepenbrink, USA

138  Transportation: Aviation
Co-Chairs: Amelia Kinsella and Lauren Thomas, USA
AVI

Saturday, July 27, 2019

16:00-18:00 - COLUMBIA 1

Considering single piloted airliners for different flight durations: An issue of fatigue management
Daniela Schmid, Neville Stanton, Germany/UK

Ergonomic assessment of instructors’ capability to conduct personality-oriented training for air traffic control personnel
Oleksii Reva, Sergii Borsuk, Valeri Shulgin, Serhiy Nieday, Ukraine

The human element in performance based navigation: Air traffic controller acceptance of established on required navigation performance procedures
Lauren Thomas, Alicia Serrato, USA

How does national culture help pilots in navigating in different environment
Xiaoyu Wu, USA

Human reliability quantification in flight through a simplified CREAM method
Yundong Guo, Youchao Sun, China

An eye in the sky: Developing a novel framework for visual air traffic control tower tasks
Amelia Kinsella, Lori Smith, Rebecca Collins, Katherine Berry, USA

Monitoring performance measures for radar air traffic controllers using eye tracking techniques
Hong Jie Wee, Sun Woh Lye, Jean-Philippe Pinheiro, Singapore
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| 139     | Workplace Safety and Human Factors II | Douglas Minnema and Yang Song, USA/China | COLUMBIA 2 | 16:00-18:00 | Development of assistive technologies in additive manufacturing (AM) for people with disabilities  
Eloiza Aparecida Silva de Matos, Ângela Paloma Zelli Wiedemann, Brazil  
How ergonomics is contributing to overall equipment effectiveness: A case study  
Isabel Loureiro, Celina Leão, Nelson Costa, Mariana Rodrigues, Portugal  
A susceptibility model for organizational accidents  
Douglas Minnema, Monique Helfrich, USA  
Theory of safety quantification and equivalence oriented industrial system  
Yang Song, Xuefei Yang, China  
Determination of safe work practiced in a confine space work:  
A case study research of an organization in Onne, Nigeria  
Mercy Osato Omoifo-Irefo, Nigeria  
Management of atmospheric hazards in a confined work space in Nigeria:  
A case study research of an organization in River State, Nigeria  
Mercy Osato Omoifo Irefo, Nigeria  
Recognition and assessment of ergonomic stressors in VDT workstations  
Namrata Arora Charpe, Vandana Kaushik, India |
| 140     | Safety Culture, Climate, Training and Education | Jacky Yu Ki Ng and Barry Kirwan, China/France | COLUMBIA 3 | 16:00-18:00 | Aggregate-level data characteristics of safety climate with different Likert-type scales  
Siu Shing Man, Jacky Yu Ki Ng, Kar Ying Law, Alan Hoi Shou Chan, China  
Next generation safety culture  
Barry Kirwan, France  
Role of human safety intervention on the impact of safety climate on workers safety behaviours in construction projects: A conceptual model  
Emmanuel B. Boateng, Peter Davis, Manikam Pillay, Australia  
Developing a safety culture index for construction projects in developing countries: A proposed fuzzy synthetic evaluation approach  
Emmanuel Boateng, Manikam Pillay, Peter Davis, Australia  
Safety culture as a team sport: The football metaphor  
Frank Guldenmund, Dylan Smibert, The Netherlands  
Safety training and occupational accidents – is there a link?  
Susana Costa, Celina Leão, Portugal  
Process safety competence of vocational students  
Sari Tappura, Noora Nenonen, Sanna Nenonen, Jouni Kivistö-Rahnasto, Finland |
| 141     | Road and Rail: Usability | Sabrina Moran and Kirsten Revell, USA/UK | COLUMBIA 4 | 16:00-18:00 | Development of a prototype steering wheel for simulator-based usability assessment  
James Brown, Neville Stanton, Kirsten Revell, UK  
User-centered development of a public transportation vehicle operated in a demand responsive environment  
Alexander Mueller, Stefanie Beyer, Oliver Deisser, Gerhard Kopp, Germany  
Human factors concerns: drivers’ perception on electronic side view system in 21st century cars  
Bankole Fasanya, Yashwanth Avula, Kunta Sivaramakrishna, Bharath Kummari, Suprata Aragatru, Swetha Keshavula, USA  
Should I stay or should I go? - Influencing context factors for users’ decisions to charge or refuel their vehicles  
Ralf Philipsen, Teresa Brell, Hannah Bierrmann, Waldemar Brost, Teresa Eickels, Martina Ziefle, Germany  
Are you sitting comfortably? How current self-driving car concepts overlook motion sickness, and the impact this has on comfort and productivity  
Joseph Smyth, Paul Jennings, Stewart Birrell, UK |
### 142 Social and Occupational Factors of Comfort, Risk Assessment and Pain

**Co-Chairs:** Alessio Silvetti and Z. Shaghayegh Bagheri, Italy/Canada

**Session:** 16:00-18:00 - COLUMBIA 9

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<td>Alessio Silvetti, Elio Munafò, Alberto Ranavolo, Antonella Tatarella, Lorenzo Fiori, Sergio Iavicoli, Pasquale Di Palma, Francesco Draicchio, Italy</td>
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<td>Comparisons of three observational ergonomic tools for risk assessment on upper extremities in a pump assembly plant – a pilot study</td>
<td>Meng-Chuan Ho, Ei-Wen Lo, Taiwan</td>
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<td>Reducing the risk of falls by 78% with a new generation of slip resistant winter footwear</td>
<td>Z. Shaghayegh Bagheri, Jose Diaz Beltran, Paul Holyoke, Kenneth Hutchinson, Gioconda (Joco) Del Sole, Tilak Dutta, Canada</td>
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<td>Ergonomics during the construction of the stations and the drilling of the tunnel in the metro of the city of Quito</td>
<td>Esteban Carrera, Oswaldo Jara, Pablo Davila, Fanny Ballesteros, Pablo Suasnava, Ecuador</td>
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<td>Ergonomics issues in manual baked-corn manufacturing in central India</td>
<td>Dhritiman Bhaumik, Pappu Sharma, Laxmikant Patil, India</td>
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<td>Analysis of ergonomic risk factors among cloggers at Jabalpur, India</td>
<td>Pappu Sharma, Dhritiman Bhaumik, Anugrah Engras Bara, India</td>
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<td>The prediction models of the maximum power grip strength and pinch strength in Taiwan manufacturing workers</td>
<td>Shu-Min Chao, Ei-Wen Lo, Yi-Chen Chiu, Taiwan</td>
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### 143 Management of Productivity by Using Assistance Systems

**Co-Chairs:** Tim Jeske and Benjamin Adrian, Germany

**Session:** 16:00-18:00 - COLUMBIA 10

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<td>Method for measuring the application potential of assembly assistance systems</td>
<td>Sven Bendzioch, Benjamin Adrian, Sven Hinrichsen, Manfred Bornewasser, Germany</td>
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<td>Automatic particle classification through deep learning approaches for increasing productivity in the technical cleanliness laboratory</td>
<td>Ronny Zwinkau, Roman Möhle, Simon Frentrup, Jochen Deuse, Germany</td>
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<td>Digital assembly assistance systems - a case study</td>
<td>Alexander Nikolenko, Philip Sehr, Sven Hinrichsen, Sven Bendzioch, Germany</td>
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<td>How to combine lean, human factors and digital manufacturing - a teaching concept</td>
<td>Benjamin Adrian, Sven Hinrichsen, Alexander Nikolenko, Frederic Meyer, Germany</td>
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<td>Automation configuration evaluation in adaptive assembly systems based on worker satisfaction and costs</td>
<td>Peter Burggraef, Matthias Dannapfel, Tobias Adlon, Aaron Riegauf, Jessica Schmied, Germany</td>
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<td>Towards a mobile assistance system to raise productivity in maintenance</td>
<td>Michael Wächter, Thomas Löffler, Angelika C. Bullinger, Germany</td>
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<td>Smart devices evaluation and dynamic cognitive assistance system for repair processes in production</td>
<td>Rainer Müller, Leenhard Hoerauf, Attique Bashir, Christoph Speicher, Matthias Vette-Steinkamp, Ralf Mueller-Polyzou, Germany</td>
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### 144 Management and Leadership of Company and Organizational Cultures

**Co-Chairs:** Aleksandra Polak-Sopinska and Zbigniew Wisniewski, Poland

**Session:** 16:00-18:00 - COLUMBIA 11

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<td>Yulia Salnikova, Larisa Namestnikova, Inna Marahovskaya, Antonina Pakhomova, Russia</td>
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<td>Attracting tertiary international students to the EHEA: Does continent of origin matter?</td>
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<td>The role of leadership in organizations managed in conformity with ISO 9001 quality management system standard</td>
<td>Anna Walaszczyk, Aleksandra Polak-Sopinska, Poland</td>
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<td>Computer-aided occupational risk assessment of physical workload in the Logistics 4.0</td>
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<td>Resistance in the change process</td>
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<td>Assessing the sustainability of crowdfunding in social media and Google trends</td>
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<td>A back-end method realizing the ergonomic advantage of modularized battery systems: ICT equipment, electric vehicles and beyond</td>
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<td>Victor K. Y. Chan, Macau</td>
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<td>Conceptualizing a sharing economy service through information design approach</td>
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<td>Service model based on information technology outsourcing for the reduction of unfulfilled orders in an SME of the Peruvian IT sector</td>
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<td>Community slow transportation service system based on driverless vehicle</td>
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<td>Jintian Shi, Rensi Zheng, China</td>
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<td>Online service quality measurement utilizing psychophysiological responses</td>
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<td>Common ground and autonomy: Two critical dimensions of a machine teammate</td>
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<td>Corey Fallon, Leslie Blaha, Kristin Cook, Todd Billow, USA</td>
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<td>Exploring the effect of communication patterns and transparency on the attitudes towards robots</td>
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<td>The influence of signal presentation factors on the performance of an immersive, continuous signal detection task</td>
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<td>Rhyse Bendell, Gabrielle Vasquez, Florian Jentsch, USA</td>
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<td>A human factors approach to networked virtual reality and augmented reality interactions with physiologically-driven believable agents</td>
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<td>Caroline Kingsley, Michael Jenkins, USA</td>
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<td>Steady-state analysis of multi-agent collective behavior</td>
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<td>Xiaobao Yu, Qian Peng, China</td>
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<td>Kids at pre-school. Designing products and wayfinding systems to enhance kids’ skills, facilitating well-being through communication</td>
<td>Laura Giraldi, Elisabetta Benelli, Marta Maini, Francesca Morelli, Italy</td>
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<td>A comparative study on the language expressions of cultural and creative products in the east and west</td>
<td>Chen Cheng, Junnan Ye, Hui Gao, Guixiang Wu, China</td>
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<td>3D scanning and visual dimension - Technological and creative evolution</td>
<td>Lai Man Tin, Hong Kong</td>
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<td>Improvement of safety sign design based on analysis comprehensibility test result</td>
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<td>Evaluation of feel of fishing reel by elucidating relationship between tactile sensation and gear vibration</td>
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<td>Investigation of happiness index by Kansei engineering and positive psychology</td>
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<td>A study on the perception of wireless headphone form design based on Kansei engineering</td>
<td>Huan Lin, Shijian Luo, Fangtian Ying, Ping Shan, Wenyin Zou, Huimin Yi, Chen Zhu, Hongzhuang Ding, Xiaolei Deng, Li Lin, China</td>
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<td>Research on city brand identity design based on perception</td>
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<td>Virtual performance and evaluation system of garment design based on Kansei engineering</td>
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<td>Cognitive and emotional-motivational aspects of communication to improve work safety in production processes: case study</td>
<td>Joanna Sadłowska-Wrzesińska, Poland</td>
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<td>Benefits in the field of ergonomics and work safety from the development of the information system in the enterprise</td>
<td>Krzysztof Hankiewicz, Andrzej Lasota, Poland</td>
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**HFAT**

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<td>Voice technology for self-care in older adults with visual impairments</td>
<td>Hyung Nam Kim, USA</td>
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<td>Abstract vocabulary as base for training with pattern recognition EMG control</td>
<td>Erik Haring, Seth Van Akeleyen, Kristof Vaes, Steven Truijen, Stijn Verwulgen, Belgium</td>
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<td>An eye tracking system to perform the Wechsler Intelligence Scale for children (WISC-V) test</td>
<td>Karla Andrade, Omar Alvarado, Patricia Margarita Ortega Chasi, Martha Cobos, Ecuador</td>
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<td>Study of voice-based crowdsourcing platform for the enhancement of self-support for the visually impaired</td>
<td>Ga Ram Song, Jini Kim, Hyeong Kim, Eunseo Kim, South Korea</td>
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<td>Design of health control applied to elderly people’s resistance exercise device</td>
<td>Tang-Yung Hsu, Fong-gong Wu, Hsi-Jen Chen, Taiwan</td>
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### Affective Value and Kawaii Engineering

**APD**

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<td>Takashi Sakamoto, Toshikazu Kato, Japan</td>
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<td>Gender differences in the influence of interaction with product information on selection results</td>
<td>Yuri Hamada, Kenta Fukuda, Hiroko Shoji, Japan</td>
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<td>Communication in which ambiguity triggers value creation</td>
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<td>Evaluation of kawaii feelings caused by stuffed animals to reduce stress</td>
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<td>The analysis of kawaii fashion in Thailand and Japan using colorfulness metrics</td>
<td>Peeraya Sripian, Keiko Miyatake, Kejkaew Thanasuan, Michiko Ohkura, Japan</td>
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<td>Sensory engineering in the IoT connected society</td>
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### Transportation: Aviation and Space

**AVI**

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<td>Overwritten or unrecorded: A study of accidents &amp; incidents in which cockpit voice recorder data were not available</td>
<td>Simon Cookson, Japan</td>
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<td>Using human factors methods to optimise Sydney tower’s digitisation</td>
<td>Damien Armenis, Australia</td>
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<td>Applying virtual and augmented reality to train traffic controllers</td>
<td>Jason Kring, Rafael Patrick, Michael Sawyer, USA</td>
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<td>Predicting error on the flight deck: What can go wrong when dealing with an aircraft engine oil leak?</td>
<td>Victoria Banks, Katie Parnell, Katie Plant, Craig Allison, Neville Stanton, UK</td>
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<td>Flight Eye Tracking Assistant (FETA): Proof of concept</td>
<td>Christophe Lounis, Vsevolod Peysakhovich, Mickael Causse, France</td>
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<td>Cognitive architecture based mental workload evaluation for spatial fine manual control task</td>
<td>Yanfei Liu, Zhiqiang Tian, Yuzhou Liu, Jusong Li, Feng Fu, China</td>
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<td>Mental State Assessment I</td>
<td>Eye tracking-based workload and performance assessment for skill acquisition</td>
<td>Hasan Ayaz and Matthias Ziegler</td>
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<td>Promoting soldier cognitive readiness for battle tank operations through bio-signal measurements</td>
<td>Jari Laarni, Satu Pakarinen, Mika Bordi, Kari Kallinen, Johanna Näräväinen, Helena Kortelainen, Kristian Lukander, Kati Pettersson, Jaakko Havola, Kai Pihlainen, Finland</td>
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<td>A change in the dark room: Effects of human factors and cognitive loading issues for NextGen TRACON air traffic controllers</td>
<td>Sam Holley, Mark Miller, Bettina Mrusek, Linda Weiland</td>
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<td>Can you expand the mind? Examining the effectiveness of a digital cognitive intervention on working memory capacity and transfer to submarine tasks</td>
<td>Aaron Roberts, Neville Stanton</td>
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<td>Comparative analysis of machine learning techniques in assessing cognitive workload</td>
<td>Colin Elkin, Vijay Devabhaktuni</td>
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<td>City Planning</td>
<td>Design ergonomics for human beings and wild animals in densely populated cities: A design case in Hong Kong country parks</td>
<td>Kin Wai Michael Siu, Yi Lin Wong, Chi Hang Lo</td>
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<td>Influence of misdirecting of street orientation on identification speed of known street scape</td>
<td>Masaki Oshima, Yohsuke Yoshioka</td>
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<td>Body movement while walking and spatial frequencies of corridor wall texture</td>
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<td>Relationship with the self-position detection by using landmarks and peripheral vision</td>
<td>Mayu Kikuchi, Yohsuke Yoshioka</td>
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<td>Exploring design requirements of outdoor fitness equipment for young people</td>
<td>Aylin Karadeniz, Melis Dursun, Gül en Türe Yargin</td>
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<td>Research on guiding sign ergonomic setting based on visual sensitivity in long and narrow passageway</td>
<td>Ling Luo, Zhongtian Wang, Chuan Yu Zou, Hai mei Wu, Linghua Ran</td>
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<td>Patient Safety</td>
<td>Pattern of postural sway of diabetic peripheral neuropathy people</td>
<td>Byungjoon Kim</td>
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<td>Medical error disclosure: A Canadian perspective in improving quality of health care</td>
<td>Jay Kalra, Maria Campos-Baniak, Avani Saxena, Zoher Rafid-Hamed</td>
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<td>Quality assessment and management: An overview of concordance and discordance rates between clinical and autopsy diagnoses</td>
<td>Jay Kalra, Patrick Seitzinger</td>
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<td>An interactive device for reducing risk of infusion therapy and blood transfusions</td>
<td>Nicholas Caporusso</td>
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<td>Towards a deeper understanding of conceptual models that incorporate patient safety</td>
<td>Timothy Arnold, Helen Fuller</td>
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<td>Research issues in blood bank management: A review and reflection</td>
<td>Kriti Karmakar</td>
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<td>Analysis of the factors affecting occupational health of nursing personnel in Indian context</td>
<td>Rahul Mondal, Pradip Kumar Ray</td>
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### Social Design, Innovation and Ergonomics II

**Co-Chairs:** Nicos Souleles and Ana Margarida Ferreira, Cyprus/Portugal

#### 8:00-10:00 - COLUMBIA 2

**Threshold concepts and design for social change**
Nicos Souleles, Ana Margarida Ferreira, Stefania Savva, Cyprus/Portugal

**Sustainable collaborative design practices: Circular economy and the new context for a fashion designer**
Lucinda Morrissey, Roberta Barban Franceschi, Ana Margarida Ferreira, Spain/Portugal

**Cultural heritage, collaborative practices and sustainable fabric design: Ottoman sultans’ life stories on jacquard design**
Pinar Arslan, Ana Margarida Ferreira, Hatice Feriha Akpinarli, Turkey/Portugal

**The common-sense assessment of sustainability**
David Camocho, José Vicente, Ana Margarida Ferreira, Portugal

**Analysis of the short-term absences of poultry slaughterhouse workers in Brazil**
Natália Fonseca Dias, Adriana Seára Tirloni, Diogo Cunha dos Reis, Antônio Renato Pereira Moro, Brazil

**Construction ergonomics: Temporary works’ manufacturers’ perceptions and practices**
John Smallwood, South Africa

### Workplace Safety and Human Factors III

**Co-Chairs:** Nelson Costa and Bettina Mrusek, Portugal/USA

#### 8:00-10:00 - COLUMBIA 3

**Integrated management is disaster: A discussion of competences in a real simulation**
Salvador Ávila Filho, Ivone Cerqueira, Julio Nascimento, Pedro Arezes, Valter Conceição Mascarenhas Junior, Cassio Brunoro Ahumada, Camille Peres, Brazil

**Implementing the REPAIRER human factors safety reporting system through MRM(MxHF) to meet SMS compliance in aviation maintenance**
Bettina Mrusek, Mark Miller, USA

**Influence of the human factor on the risk of work on scaffolding**
Katarzyna Szaniawska, Krzysztof Czarnocki, Zbigniew Wisniewski, Małgorzata Wisniewska, Poland

**Occupational psychosocial toxicity in health workers of radiological units in Bogotá-Colombia**
Olga Helena Piñeros Mora, Carlos Armando Marin Valencia, Colombia

**Occupational exposure to heat in outdoor activities in building construction in southeastern Brazil**
Thais Santiago Barros, Adriana Amorim, Lucila Labaki, Paulo Maia, Alex Marcelo, Brazil

**Flow down of safety influenced by working on commercial construction projects**
Ann Marie Dale, Bradley A. Evanoff, USA

### Social and Occupational Ergonomics Stress, Mental Factors and Musculoskeletal Disorders

**Co-Chairs:** Francesco Draicchio and Ardiyanto Ardiyanto, Italy/USA

#### 8:00-10:00 - COLUMBIA 4

**The contribution of myoelectric parameters to biomechanical overload risk assessment in an industrial printing plant**
Lorenzo Fiori, Alessio Silvetti, Antonella Tatarelli, Francesco Draicchio, Italy

**Prevalence, risk factors and impact on low back pain among nurses in a Thai public hospital**
Manutchanok Jongprasithporn, Thailand

**The development of a comprehensive list of risk factors for hip work-related musculoskeletal disorders: Delphi survey**
Ardiyanto Ardiyanto, Steven Lavender, Stephanie Di Stasi, Carolyn Sommerich, USA

**Psychosocial risk and psychological attachment: The mediating role of job satisfaction**
Michael Ntow, Evans Sokro, Noble Osei-Bonsu, Ophelia Zungbey, Ghana

**Mobbing in service companies in Colombia. A silent enemy**
Carlos Armando Marin Valencia, Olga Helena Piñeros Mora, Colombia

**Neck and shoulder muscle fatigue in high performance aircraft pilots: A case study of effects of a training program**
Giorgia Chini, Alessio Silvetti, Marco Lucertini, Roberto Vitalone, Valeria Di Nuzio, Elena Lucertini, Francesco Draicchio, Italy

**Comparative analysis of the assessment methods of the rehabilitative-prosthetic path of the patient with lower limb prosthesis**
Francesco Draicchio, Antonella Tatarelli, Simona Castellano, Ida Poni, Lorenzo Fiori, Alessio Silvetti, Patrizio Rossi, Italy
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<td>The usability of interactive interfaces design of intelligent household appliances: Take smart sweeping robots as an example</td>
<td>Na Lin, Tong Shen, Chaoyi Zhao, China</td>
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<td>Research on emotional design of electric power products in experience economy era</td>
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<td>Siyi Wang, Chengqi Xue, Jing Zhang, Junkai Shao, China, China</td>
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<td>Paweł Pietras, Maciej Szczepańczyk, Poland</td>
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<td>Students' independent learning activity as an effective method of acquiring professional competencies</td>
<td>Yulia Salnikova, Margarita Salnikova, Valentina Stolyarova, Marina Soroka, Russia</td>
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<td>Analysis of types, positioning and appearance of visualizations in online teaching environments to improve learning experiences</td>
<td>Jessica Brandenburger, Manfred Constapel, Horst Hellbrück, Monique Janneck, Germany</td>
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**164 - Global and Industrial Perspectives on People-Centered Design**

- **A new approach for an inclusive yacht design**
  - Paolo Ferrari, Italy
- **Human centered design and quality function deployment: understanding needs on a multidisciplinary automotive research**
  - Gian Andrea Giacobone, Giuseppe Mincolelli, Italy
- **Accessibility evaluation of automated vending machines**
  - Nicholas Caporusso, Kingsley Udenze, Asibi Imaji, Spencer Romeiser, Yanjun Li, Yangyang Cui, USA
- **Design of a wheelchair for low-income countries, the second stage of a project**
  - Alberto Rossa-Sierra, Fabiola Cortes Chavez, David Vidana-Zavala, Maria Giovanna Trotta, Mexico
- **User attitudes towards wheelchairs - a Mexican case study with special focus on vulnerable wheelchair users and wheelchair assistants.**
  - Paulina Manzano-Hernandez, Fabiola Cortes Chavez, Maria Giovanna Trotta, Alberto Rossa-Sierra, Carlos Aceves-Gonzalez, Mexico
- **Inclusion of children with Down Syndrome through the creation and use of a learning object**
  - Rita Almendra, Mariana Elvas, Portugal
- **Understanding visual information processing for American vs. Saudi Arabian users**
  - Yahya Alqahtani, Michael McGuire, Joyram Chakraborty, Jinjuan Feng, USA

**165 - Applications in Software, Service and Systems Engineering II**

- **Evaluation of the Saudi construction industry for adoption of building information modeling**
  - Abdulaziz Banawi, Obaid Aljobaly, Saudi Arabia
- **Cognitive ergonomic evaluation metrics and methodology for information interactive system**
  - Yu Zhang, Ting Jiang, Jianhua Sun, China
- **Towards a coherent assessment of situational awareness to support system design in the maritime context**
  - Francesca de Rosa, Anne-Laure Jousselme, Italy
- **Parametric study of pin-fins microchannel heat exchanger**
  - Fadi Alnaimat, Bobby Mathew, Mohammed Ziauddin, UAE
- **Energy-efficient analysis in wireless sensor networks applied to routing techniques for internet of things**
  - Carolina Del-Valle-Soto, Gabriela Durán-Aguilar, Fabiola Cortes Chavez, Alberto Rossa-Sierra, Mexico
- **Modelling an adjustable autonomous multi-agent internet of things system for elderly smart home**
  - Salama A. Mostafa, Saraswathy Shamini Gunasekaran, Aida Mustapha, Mazin Abed Mohammed, Wafa Mustafa Abdullahl, Malaysia/Iraq
- **Internet of things: Analyzing the impact on businesses and customers**
  - Mandeep Pannu, Iain Kay, Canada

**166 - Communication Design II**

- **Digital generation's meaning-making in web-based communication activities**
  - Pui Wa Chau, China
- **Study on how television commercials affect the consumer reactions with specific visual strategies**
  - Pik Ki Fung, Amic Ho, China
- **The advertising effects of typotectural: Associated learning factors and emotions**
  - Man Yee Mak, Amic Ho, China
- **Viral marketing in political communication: Case study of John Tsang’s campaign in the 2017 Hong Kong chief executive election**
  - Poon Daren, Lam Sunny, Hong Kong
- **Research on branding of historic cities under the background of social change: A case study of Suzhou**
  - Shan Huang, China
| 167 | **Kansei Engineering II**  
Co-Chairs: Toshio Tsuchiya and Suresh Sethi, Japan/USA | KE |
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| **Five years of Hiroshima Kansei innovation council: Local government promotion activities of Kansei engineering and ergonomics to local industries**  
Shigekazu Ishihara, Hideki Harada, Daisuke Ochi, Yayoi Watanabe, Koji Hashimoto, Noritsune Yokoyama, Kunihiro Shibata, Tsukasa Watari, Akira Maekawa, Takahide Nouzawa, Japan |  
**2D FFT and AI-based analysis of wallpaper patterns and relations between Kansei**  
Shigekazu Ishihara, Mitsuo Nagamachi, Kosuke Morinaga, Keiko Ishihara, Taku Ishihara, Japan |  
**Role of narratives in visualizing product form**  
Suresh Sethi, USA |
| **Affective design of store window displays for selected Philippine retail brands: Guidelines for an affective visual merchandising**  
Mara Celine Salera, Eugene Julius Calva, Angelica Jean Mari Tajanera, Abigail Rose Tan, Keneth Sedilla, Philippines |  
**Improving garbage receptacles: Designing an affective garbage receptacle that influences human behavior towards littering**  
Marian Yaselle Zufiga, Billy Joe Balderas, Renzso Daniel Cabilzo, Keneth Sedilla, Philippines |  
**Kansei engineering and quality function deployment: Development of methodology for the identification of user-centralized project improvements**  
Waldemar Freitas Neto, António Ramos Pires, Portugal |
| **Research on dress style design for girls aged between 3 and 6 based on Kansei Engineering**  
Mei Xu, Yun Mu, Chenqi Yu, China |  
**Improving garbage receptacles: Designing an affective garbage receptacle that influences human behavior towards littering**  
Marian Yaselle Zufiga, Billy Joe Balderas, Renzso Daniel Cabilzo, Keneth Sedilla, Philippines |  
**Kansei engineering and quality function deployment: Development of methodology for the identification of user-centralized project improvements**  
Waldemar Freitas Neto, António Ramos Pires, Portugal |
| 168 | **Panel: Democratization of Augmented and Virtual Reality to Enable Mass Adoption**  
Co-Chairs: Nina M. Berry and Bill Prugh, USA | SYSI |
| **The virtual immersive teaching and learning (VITaL) initiative at San Diego State University**  
Sean Hauze, USA |  
**Democratization of augmented and virtual reality to enable mass adoption**  
Nina Berry, William Prugh, Leonel Garcia, USA |  
**Lessons learned from the initial usage of augmented reality**  
William Prugh, Nina Berry, Leonel Garcia, John Masterson, USA |
| **Vantage: Democratization of augmented and virtual reality to enable mass adoption**  
Jonathan Wilson, Joe Chimento, Drew Massey, USA |  
**THERA Inc. How virtual reality can be used for psychotherapy and prevention of mental health issues**  
Erin Bogdanski, USA |  
**THERA Inc. How virtual reality can be used for psychotherapy and prevention of mental health issues**  
Erin Bogdanski, USA |
| 169 | **Ergonomics Design of Wearables**  
Co-Chairs: Hassan Iftikhar and Yan Luximon, China | PEHF |
| **Exploring the balance between utilitarian and hedonic values of wearable products**  
Hassan Iftikhar, Parth Shah, Yan Luximon, China |  
**A comparison of traditional and 3D scanning measurement in ear anthropometry**  
Hassan Iftikhar, Parth Shah, Yan Luximon, China |  
**A novel hybrid personal cooling system incorporated with dry ice and ventilation fans to mitigate the heat strain of mascot performers in a hot and humid environment**  
Cathy Sin Wei Chow, Faming Wang, China |
| **Modern textile-based compression device for improving venous haemodynamics of lower extremities**  
Xinbo Wu, Rong Liu, China |  
**Modern textile-based compression device for improving venous haemodynamics of lower extremities**  
Xinbo Wu, Rong Liu, China |  
**Modern textile-based compression device for improving venous haemodynamics of lower extremities**  
Xinbo Wu, Rong Liu, China |
### Human Factors and Assistive Technology IV

**Co-Chairs:** Hongliu Yu and Maria Lucia Okimoto, China/Brazil

#### HFAT

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<th>Time</th>
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| 8:00-10:00    | HOLMEAD EAST      | Development of a hand rehabilitation therapy system with soft robotic glove  
Julio Cesar Cabrera Hidalgo, Nathalia Michelle Peralta Vásconez,  
Vladimir Robles-Bykbaev, Angel Andrés Pérez Muñoz, Marco Vásquez Cabrera,  
Marco Esteban Amaya Pinos, Hernán Tenorio Carpio, Ecuador  
Target of physiological gait: Realization of speed adaptive control for a prosthetic knee during swing flexion  
Hongliu Yu, Wujing Cao, China  
Including users in the evaluation process of assistive technology:  
Applied methods and techniques  
Kelli C. A. Silva Smythe, Maria Lucia Okimoto, Dominique Adam,  
Caelen Teger Silva, Brazil  
Research and development in assistive technology: Academic Experience  
Maria Lucia Okimoto, Kelli C. A. Silva Smythe, Dominique Adam,  
Caelen Teger Silva, Brazil  
The design of walking sticks: Use, manufacturing and abandonment  
Rebeca Cabral, Renata Vlanova, João Lutz, Luiza Rebello, Brazil  
Requirements to design of directional signs in VR: The case of people with low visual  
Sabrina Oliveira, Francisco Rebelo, Maria Lucia Okimoto, Brazil |
| 10:00-10:30   | Columbia West     | Refreshments will be provided in Columbia West (Terrace Level)           |
| 10:30-12:30   | MORGAN            | Design for children - ergonomics in a ceramic tile’s project  
Cristina Salvador, Portugal  
Role of ergonomics and biophilic design on perceived comfort and stress when reading, writing and sitting at workstations  
Andre Ferreira, Courtney Coston, Aditya Jayadas, USA  
Feasibility of low cost sensors to acquire 3D breast images  
Lucia Regina, Jose Aguiomar Foggiatto, Brazil  
Can the synthesized 20 sociotechnical principles discriminate between winning and losing teams: A collaborative design project case study  
Amangul Imanghaliyeva, UK  
Effects of distance between corner and step on pedestrian gazing pattern  
Kota Suzuki, Yohsuke Yoshioka, Japan |

### Ergonomics in Design: Applications I

**Co-Chairs:** Laura Giraldi and Aditya Jayadas, Italy/USA

#### ED

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| 10:30-12:30   | MORGAN            | Design for children - ergonomics in a ceramic tile’s project  
Cristina Salvador, Portugal  
Role of ergonomics and biophilic design on perceived comfort and stress when reading, writing and sitting at workstations  
Andre Ferreira, Courtney Coston, Aditya Jayadas, USA  
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Can the synthesized 20 sociotechnical principles discriminate between winning and losing teams: A collaborative design project case study  
Amangul Imanghaliyeva, UK  
Effects of distance between corner and step on pedestrian gazing pattern  
Kota Suzuki, Yohsuke Yoshioka, Japan |

### Design Methods and Creativity

**Co-Chairs:** João Brandão and Byungsoo Kim, Portugal/USA

#### ED

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<th>Time</th>
<th>Location</th>
<th>Schedule</th>
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</table>
| 10:30-12:30   | HOLMEAD WEST      | Human factors engineering research on folding umbrellas design  
Xiaohan Zhou, Xiaoping Hu, China  
The role of design in technology driven ergonomics product  
Byungsoo Kim, Sharon Joines, USA  
Design, objects and memory: a sustainability-oriented project itinerary  
Myrla Torres, Paulo Maldonado, Leonor Ferrão, Brazil  
Brand identity in motion. Structural models of brand identity on TV opening credits  
João Brandão, Ricardo Pestana, Daniel Raposo, Portugal  
Teenagers postural effects through videogames therapeutic approach  
Ernesto Filgueiras, Gustavo Desouzart, Ana Silva, Portugal  
Sociotechnical system methods review  
Amangul Imanghaliyeva, UK |
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<td>Agile Manufacturing and Competencies in Work Environment</td>
<td>Leif Goldhahn and Robert Eckardt, Germany</td>
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<td>Competency model for logistics employees in smart factories Markus Kohl, Carina Heimeldinger, Michael Briewe, Johannes Fottnier, Germany Competency profiles as a means of employee advancement for a resource-efficient chipping production Leif Goldhahn, Robert Eckardt, Christina Pietschmann, Sebastian Roch, Germany Reflections on production working environments in smart factories Sebastian Pimminger, Werner Kurschil, Mirjam Augstein, Thomas Neumayr, Christine Ebner, Josef Altmann, Johann Heinzelreiter, Austria Management system of intelligent, autonomous environment IAEMS: The methodological approach to designing the organizational structure of IAEMS Edmund Pawlowski, Krystian Pawlowski, Poland</td>
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<td>175</td>
<td>Safety Methods for Assessment and Evaluation</td>
<td>Jouni Kivistö-Rahnasto and Jerry Purswell, Finland/USA</td>
<td>SMHF</td>
<td>How workplaces actually carry out OSH-related risk assessment and management Noora Nenonen, Jouni Kivistö-Rahnasto, Sanna Anttila, Finland Risk assessment of upper limb musculoskeletal disorders in a poultry slaughterhouse Diogo Cunha dos Reis, Adriana Seára Tirloni, Antônio Renato Pereira Moro, Brazil Evaluation method for safety management characteristic of medical workers Haruna Yamazaki, Yusaku Okada, Kana Kimura, Risako Shiraishi, Japan Hazard analysis of a handheld angle grinder Francesca Montoya, Jerry Purswell, USA An ergonomic assessment of lighting conditions of the pedestrian overpasses in Commonwealth Avenue, Quezon City: Commuter’s perception of safety Hillary Chelsea Cruz, Alessandro Armani Aspi, Aurelio Banzon, Keneth Sedilla, Philippines</td>
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<td>Vulnerable Road Users</td>
<td>Rich McIlroy and Susanne Gruner, UK/Germany</td>
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<td>Sharing the road: Experienced cyclist and motorist knowledge and perceptions Mary Still, Jeremiah Still, USA Examination of corner shape for reducing mental stress by pedestrian appearing from blind spot of intersection Wataru Kobayashi, Yohsuke Yoshioka, Japan Facilitating cyclists’ commuter route choice into efficiency optimizations Susanne Grüner, Germany Pedestrian attitudes to shared-space interactions with autonomous vehicles – a virtual reality study Christopher Burns, Vivien Hung, Luis Oliviera, Peter Thomas, Stewart Birrell, UK</td>
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<td>177</td>
<td>Human Factors, Sustainable Urban Planning and Infrastructure II</td>
<td>Christianne Falcao and Joanna Jablonska, Brazil/Poland</td>
<td>SUPI</td>
<td>Village regeneration through cultural creativity. Polish case study Wojciech Bonenberg, Poland Synergistic processes in functional-spatial development of communes in a metropolitan area Hanna Borucinska-Bienkowska, Poland Planning regenerative infrastructure of the Szczecin Metropolitan Railway – Ad hoc urbanism and glocal activity development Leszek Siwatek, Poland Mountain home eco hotel - diversity and sustainability of green roofs Anjun Huang, Shengxuan Zhao, China The perception reshaping strategy of campus public space Huifang Shang, Maiqi Lin, Yongtao Zheng, China</td>
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<tr>
<td>Session</td>
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</table>
| 178    | System Interactions Design | Isabel L. Nunes and Kenneth Light | SYSI 3 | 10:30-12:30 | Huta Takeda, Manabu Kurosawa, Hiroshi Yajima, Japan  
Identifying design issues "beyond the checklist"  
Kenneth Light, USA  
Design and evaluation methodology for cockpit human factor of civil transport aircraft  
Jin Zhe Feng, Dong DaYong, Zhang Yinbo, Meng Hua, China  
Specificities of organizational communication in European universities' digitalized environments  
Olgur Burukina, Russia  
Towards the development of a universal testing environment for attention guiding techniques  
Max Bernhagen, Philipp Hein, Andre Dettmann, Angelika C. Bullinger-Hoffmann, Germany |
| 179    | Human Factors, Business Management and Society: Employment Views | Estela Rodríguez and Kazuhiro Fujimura | HFBMS 4 | 10:30-12:30 | Kazuhiro Fujimura, Japan  
Benefits of employees social network sites profiles for job applicants  
Tom Sander, Biruta Sloka, Henrijs Kalkis, Germany  
Econometric modeling of wage discrimination towards women in the accounting profession  
Estela Rodríguez, Cecilia Gallegos, Hanns De la Fuente-Mella, Chile  
A leadership and demographic view of the nexus between emotional intelligence and job satisfaction in Ghana’s banking sector  
Kwasi Dartey-Baah, Ghana  
High-performance work systems and employee turnover intentions: Moderation effect of psychological attachment  
Ophelia Zungbey, Noble Osei-Bonsu, Michael Ntow, Evans Sokro, Ghana |
| 180    | Instructional Design and Learning Strategies | Daniel Acosta-López and Joanna Bartnicka | TELS 9 | 10:30-12:30 | Oleksandr Burov, Olga Pinchuk, Svitlana Lytvynova, Ukraine  
Design of design: Learning dynamics in design  
Maria Delgado, Isabel Duarte de Almeida, Gianni Montagna, João Silva, Portugal  
Converge of goals on learning operations research, case of a Mexican institute  
Guadalupe Hernández-Escobedo, Arturo Realyvásquez, Karina Arredondo-Soto, Daniel Acosta-López, Maria Elena Hernández-Guevara, Mexico  
Educational training system for university students at initial levels through coaching strategies and student mentoring  
Ives Torriente, Rosa Inés Carrión, Eliane Fernández, Paulina Morales, Gardenia Silva, Ecuador  
The application of clustering analysis in the assessment of eye movements during flight training intervention  
Nima Ahmadi, USA |
## Designing for Inclusion in the Information Society

**Co-Chairs:** Giuseppe Mincolelli and Matteo Zallio, Italy/USA

**10:30-12:30 - COLUMBIA 10**

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<td>Defining a shared platform in China to propose a social, cultural and technological bridge</td>
<td>Avril Accolla, China</td>
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<td>Collaborative quality function deployment. A methodology for enabling co-design research practice</td>
<td>Giuseppe Mincolelli, Silvia Imbesi, Matteo Zallio, Italy</td>
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<td>Usability analysis of the payment method with an application of digital parking meters with younger and older users</td>
<td>Paula González-Torres, Ileana Chávez-Sánchez, Andrea Tejada-Gutiérrez, Claudia M. Fernández-Rivera, Carlos Aceves-González, Mexico</td>
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<tr>
<td>Methods and techniques used in the evaluation of interfaces in Brazilian studies focusing on visually impaired people</td>
<td>Dominique Adam, Mana Lucia Okimoto, Brazil</td>
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<td>The influence of screen brightness and moving speed of visual icons on visual acuity</td>
<td>Linghua Ran, Xin Wu, Hong Luo, Chaoyi Zhao, Xin Zhang, China</td>
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<td>Design of a 3D printed age simulator as a tool supporting the process of designing for seniors</td>
<td>Beata Fabisiak, Robert Klos, Poland</td>
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## Teamwork and Leadership Development

**Co-Chairs:** Salman Nazir and Leonie Webster, Norway/UK

**10:30-12:30 - COLUMBIA 11**

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<th>Session Title</th>
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<td>Evaluating the effectiveness of a novel team development intervention on teamwork</td>
<td>Leonie Webster, Aaron Roberts, Neville Stanton, UK</td>
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<td>A triangulated approach to measurement of teamwork</td>
<td>Sarah Twist, Aaron Roberts, Leonie Webster, Neville Stanton, UK</td>
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<td>ERP research on the influence of different types of leadership behavior on the performance of quality management</td>
<td>Yunhong Zhang, Zhaohong Zheng, Jian Kang, Chaoyi Zhao, Hong Luo, Aixian Li, Na Liu, China</td>
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<td>Mind matters 2: Engage and develop teams</td>
<td>Johan de Heer, Rafal Hryniewicz, Edward Faber, Thomas de Groot, Tije Oortwijn, The Netherlands</td>
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<td>Leader as an effective strategy implementer in public higher education institutions</td>
<td>Joanna Mnich, Zbigniew Wisniewski, Poland</td>
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<td>Leadership as a key component of competence model of medium-level managers in higher education institution</td>
<td>Anna Stankiewicz-Mróz, Poland</td>
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<tr>
<td>Leadership styles and workplace wellness among Ghanaian SME workers</td>
<td>Kwasi Dartey-Baah, Ghana</td>
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## Human Factors and Simulation: Transportation

**Co-Chairs:** Ellie Abdi and Xiaonan Yang, USA

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<td>Pupillary response and EMG predict upcoming responses to collision avoidance warning</td>
<td>Xiaonan Yang, Jung Hyup Kim, USA</td>
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<td>Gender differences measured on driving performances in an urban simulated environment</td>
<td>Chiara Ferrante, Valerio Veraldi, Maria Rosaria De Blasiis, Italy</td>
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<td>Evaluating rear-end vehicle accident using pupillary analysis in a driving simulator environment</td>
<td>Rui Tang, Jung Hyup Kim, China</td>
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<td>Study on operation simulation and evaluation method in the ship limited space</td>
<td>Zhang Yumei, Jiang Lei, Wang Songsha, Ding Li, China</td>
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<td>184</td>
<td>Human Factors in Virtual Environments III</td>
<td>Co-Chairs: Florentin Popescu and Jonathan Hurter, The Netherlands/USA</td>
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<td>Global virtual teams course at Arnhem Business School</td>
<td>Florentin Popescu, Rob Warmenhoven, The Netherlands</td>
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<td>A usability and workload investigation: Using video games to compare two virtual reality systems</td>
<td>Crystal Maraj, Jonathan Hurter, USA</td>
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<td>Virtual and augmented reality gamification technology on reinventing the F1 sponsorship model not purely focused on the team's and car's performance</td>
<td>Evangelos Markopoulos, Panagiotis Markopoulos, Mika Liimula, Yi Chi Chang, Vasu Aggarwal, Jumoke Ademola, UK</td>
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<td>Enhancing multimodal interaction for virtual reality using haptic mediation technology</td>
<td>Ahmed Farooq, Grigori Evreinov, Roope Raisamo, Finland</td>
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<td>Mapping the monetization challenge of gaming in various domains</td>
<td>Evangelos Markopoulos, Panagiotis Markopoulos, Mika Luimula, Younus Almufti, Vasu Aggarwal, UK</td>
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<td>Co-Chairs: Chor-Kheng Lim and Keun Park, Taiwan/South Korea</td>
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<td>Automatic design of 3D lightweight structures based on finite element mesh</td>
<td>Keun Park, Young-Eun Lim, Jung-Hwan Park, South Korea</td>
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<td>Kinematic optimization of a robot head movements for the evaluation of human-robot interaction in social robotics</td>
<td>Jorge Alvarez, Mireya Zapata, Dennys Paillacho, Ecuador</td>
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<td>EZ-print: Transparent string-like pottery design system</td>
<td>Chor-Kheng Lim, Taiwan</td>
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<td>3D printed hybrid flexible electronics with Direct Light Synthesis</td>
<td>Andrei-Alexandru Popa, Brian Zellers, Simon Iversen, Dillon Kennedy, Pedro Cortes, Jerome Jouffroy, Lars Duggen, Kirk Rogers, Brett Conner, Eric MacDonald, Denmark</td>
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<td>Personalized human factor and ergonomics: Usability design of 3D printed patient-specific fracture external fixator</td>
<td>Hongwei Li, Feng Qiao, Dichen Li, Liang Jixiang, China</td>
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<td>Jihyeon Yang, Hwisu Jeon, Muhammad Tufail, Kwanmyung Kim, South Korea</td>
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<td>Project pilot run: A sewn collaboration</td>
<td>Adam Feld, USA</td>
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<td>Discomfort with low-back pain relief exercise training for older adult women</td>
<td>Muhammad Tufail, Sangjin Park, Haebin Lee, Yang gyu Moon, Kwanmyung Kim, South Korea</td>
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<td>From digital to analogue: An interdisciplinary case study to enhance the communication of design products through physical constraints</td>
<td>Simge Esin Orhun, Turkey</td>
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<td>Innovative product design for hand-muscle weakness therapy in the elderly people</td>
<td>Parichart Rattanapal, Thailand</td>
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<td>The end of the freeze out: using digital modeling and rapid prototyping to mediate airflow in a cold studio environment</td>
<td>Adam Feld, Liane Hancock, Thomas Cline, USA</td>
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### 187 Design, Anthropometry and Posture  
**Co-Chairs:** Jaimin Patel and Stijn Verwulgen, USA/Belgium  
**PEHF**

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| 10:30-12:30 | GUNSTON EAST    | **Comparative assessment of classroom desk dimensions with respect to students anthropometry for females middle schools**  
Ahamed Altaboli, Aisha Akrim, Entsar Omar, Fatima Hamad, Sarah Ahmed, Libya  
Incidence and postural risk factors for low back pain among informal garment female workers  
Sunisa Chaiklieng, Thanyawat Homsombat, Thailand  
Ergonomic improvements in heavy duty four wheel cart with pelvis support  
Jaimin Patel, Guru Prasadhi Rao, Nader Madkour, Jay Jani, Pawankumar Sharma, Yueqing Li, USA  
The influence of the transformation between standing and cycling position on upper body dimensions  
Thomas Peeters, Jochen Vleugels, Stijn Verwulgen, Guido De Bruyne, Belgium  
A study on the correlation of foot data with body height and weight of Chinese Adults  
Linghua Ran, Hong Luo, Chaoyi Zhao, Xin Zhang, Huimin Hu, Zhongtang Wang, China |

### 188 Physical Ergonomics and Work-Related Musculoskeletal Disorders II  
**Co-Chairs:** Antônio Renato Pereira Moro and Wang Wei, Brazil/China  
**PEHF**

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| 10:30-12:30 | JAY             | **Preschool children’s product design based on heart flow theory**  
Wang Wei, Li Fangyu, China  
Ergonomic risk evaluation of the manual handling task of bovine quarters in a Brazilian slaughterhouse  
Adriana Seara Tirloni, Diogo Cunha dos Reis, Natalia Fonseca Dias,  
Antonio Renato Pereira Moro, Brazil  
To investigate the lower back muscle activity during cardiopulmonary resuscitation chest compression with or without exoskeleton  
Chun Lung Billy So, China  
Dynamic response of seated human body exposed to whole body vibration: influence of tractor ride conditions on ride comfort in harrowing operation  
Amandeep Singh, Sarbjit Singh, Harwinder Singh, Chander Prakash, Lakhwinder Pal Singh, India  
Whole body vibration exposure in powered two wheelers used for commuting; A study in India  
Sai Praveen Velagapudi, India |

### 189 Non-Traditional Sensing for Job Performance, Health and Well Being and Cognitive Constructs  
**Co-Chairs:** Matthias Ziegler and Hasan Ayaz, USA  
**CN**

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| 10:30-12:30 | HOLMEAD EAST    | **Predictions of job performance and cognitive constructs using a combination of individual, interpersonal and environmental sensors**  
Matthias Ziegler, Robert Ha, Amanda Kraft, Alison Perez, Alexander Danvers, Matthias Mehl, Esther Sternberg, Altaf Engineer, Erica Baranski, USA  
A smartphone application for multi-sensor large scale data collection  
Brad Galego, Matthew Gerber, Laura Barnes, Mehdi Boukhechba, Peter Rokowski, USA  
The use of human sensors in a human machine interface evaluation of a semi-autonomous vehicle  
Raquel Galvan, Sophia Mayne-DeLuca, Eric Shieh, USA  
Association between physicians’ burden and performance during interactions with electronic health records (EHRs)  
Natalie Grace Castellano, Lukasz Mazur, USA  
Assessment of interface driven task difficulty and mental effort during interaction with electronic health record system  
Prithima Reddy Mosaly, Lukasz Mazur, USA  
Towards better understanding of physician burnout: Can neurofeedback help?  
Alana Campbell, Lukasz Mazur, Mae Yefimov, Samantha Meltzer-Brody, Prithima Mosaly, Timothy Farrell, USA  
A systems engineering analysis approach to understanding provider burden and identifying short- and long-term interventions  
Sara Stokes, Lukasz Mazur, Samantha Meltzer-Brody, USA |

**Lunch Break 12:30 - 13:30 • Enjoy lunch at the restaurant of your choice**
## Detailed Technical Program

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<td>APD&lt;br&gt;Affective and Pleasurable Design&lt;br&gt;Co-Chairs: Eiichiro Tanaka and Lucas Paletta, Japan/Austria&lt;br&gt;<strong>13:30-15:30 - MORGAN</strong>&lt;br&gt;Analysis of color language in poster design&lt;br&gt;Qian Ji, Zhao Yiming, Lili Liu, China&lt;br&gt;Evaluating the interaction between human walking and two-dimensional emotion variation by using physiological signals&lt;br&gt;Jyun-Rong Zhuang, Guan-Yu Wu, Ya-Jing Guan, Keichi Muramatsu, Keichi Watanuki, Eiichiro Tanaka, Japan&lt;br&gt;The influence of culture in product form preference as momentary experience in online shopping&lt;br&gt;Chajoong Kim, Youngjun Park, James Self, South Korea&lt;br&gt;Emotion measurement from attention analysis on imagery in virtual reality&lt;br&gt;Lucas Paletta, Amir Dini, Martin Pszeida, Austria&lt;br&gt;Case study: How to combine components of a design plan and a business plan for crowdfunding purposes&lt;br&gt;Jose Rivera-Chang, USA&lt;br&gt;Engineering for tomorrow: Make it simpler and more enjoyable&lt;br&gt;Shuichi Fukuda, Japan&lt;br&gt;Gamified sharing economy: The role of game elements in sharing economy&lt;br&gt;Krity Gera, Peter Hasdell, China</td>
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<td>UUE&lt;br&gt;User Interface for Accessibility&lt;br&gt;Co-Chairs: Walter Correia and Jonysberg Quintino, Brazil&lt;br&gt;<strong>13:30-15:30 - HOLMEAD WEST</strong>&lt;br&gt;Being inclusive: Is it possible a blind person learn playing guitar in an [really] accessible app?&lt;br&gt;Walter Correia, Weynner Kenneth, Walter Lima, Rodrigo Oliveira, Jonysberg P. Quintino, Fernanda Pellegrini, Marcelo Anjos, Fabiana Florentini, Valeska Alves, Tatiane Levrero, Daniele Zandoná, André L. M. Santos, Fabio Q. B. Silva, Brazil&lt;br&gt;Virtual assistants: An accessibility assessment in virtual assistants for people with motor disability on mobile devices&lt;br&gt;Walter Franklin Marques Correia, Jefté De Assumpção Macêdo, Marcelo Penha, Jonysberg Quintino, Fernanda Pellegrini, Marcelo dos Anjos, Fabiana Florentini, André Santos, Fabio Q. Silva, Brazil&lt;br&gt;Disabled user role on mobile accessible application development&lt;br&gt;Bruno Ribeiro, Fernanda Pellegrini, Marcelo Anjos, Fabiana Florentini, Valeska Alves, Daniele Zandoná, Tatiane Levrero, Walter Correia, Jonysberg Quintino, Jefté Macêdo, Brazil&lt;br&gt;How to overcome the challenges of developing responsive and accessible websites - a case study&lt;br&gt;Fernanda Pellegrini, Marcelo dos Anjos, Fabiana Florentini, Bruno Ribeiro, Valeska Alves, Daniele Zandoná, Walter Franklin Marques Correia, Jonysberg Quintino, Jefté De Assumpção Macêdo, Brazil&lt;br&gt;How to prioritize accessibility in agile projects?&lt;br&gt;Fernanda Pellegrini, Marcelo Anjos, Fabiana Florentini, Bruno Ribeiro, Walter Correia, Jonysberg Quintino, Brazil&lt;br&gt;CasaE Xperience - creation method focused in accessibility&lt;br&gt;Aender Ferreira, Luciano do Nascimento, Vitorio Kuroda, Daniele Zandona, Marcelo dos Anjos, Bruno Ribeiro, Fernanda Pellegrini, Walter Correia, Jefté Macêdo, Jonysberg Quintino, Brazil</td>
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Co-Chairs: Manikam Pillay and Andrew Enya, Australia  
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<td>Ercan Sahin, USA</td>
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Co-Chairs: Sabrina Moran and James Brown, USA/UK  
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<td>Evaluating the impacts of real-time auditory travel information provision on driver cognition using EEG spectrum analysis</td>
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<td>Investigation of the effectiveness of autostereoscopic 3D displays for parking maneuver tasks with passenger cars</td>
<td>Andre Dettmann, Angelika C. Bullinger-Hoffmann, Germany</td>
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<td>Transport realities and challenges for low income peripheral located settlements in Gauteng province: Are we witnessing the genesis of a new transport</td>
<td>James Chakwizira, Peter Bikam, Thompson A. Adeboyjejo, South Africa</td>
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<td>Database driven ergonomic vehicle development via a fully parametric seating buck</td>
<td>Johannes Tiefnig, Mario Hirz, Wilhelm Dietrich, Austria</td>
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<td>Experimental investigation of the relationship between human discomfort and involuntary movements in vehicle seat</td>
<td>Junya Tatsuno, Japan</td>
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<td>Anna Patricia F. Martinez, Angela Jasmin B. Caingat, Raine Alexandra S. Robielos, Benette P. Custodio, Philippines</td>
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**EHMD**

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<td>Tina Medeiros, Karen Chitty, Fiona Haig, UK</td>
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<td>Determining patient’s interest in patient portal use in a primary care clinic to improve portal adoption</td>
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<td>Isabel Duarte de Almeida, Maria Joao Delgado, Portugal</td>
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<td>Modelling and analysis of prescription behaviour-based medicine inventory management systems</td>
<td>Esha Saha, Pradip Kumar Ray, India</td>
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<td>Interplay between usability and information system continuance: An extended model</td>
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<td>Does the survey method affect the net promoter score?</td>
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<td>Development of an accessible video game to improve the understanding of the test of Honey-Alonso</td>
<td>Luis Salvador-Ullauri, Patricia Acosta-Vargas, Janio Jadán-Guerrero, Cesar Guevara, Sandra Sanchez-Gordon, Tania Calle-Jimenez, Patricia Lara-Alvarez, Ecuador</td>
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<td>Accessibility assessment in mobile applications for Android</td>
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<td>Fuzzy model for back posture correction during the walk</td>
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<td>Building hybrid interfaces to increase interaction with young children and children with special needs</td>
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<td>Implementation of controls for insertion of accessible images in open online editors based on WCAG guidelines. Case studies: TinyMCE and Summernote</td>
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<td>Application to guide people with visual disability on Internal buildings, using Beacon Bluetooth positioning systems</td>
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<td>Development of a programming code for image processing of nodular cast iron</td>
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<td>Human-robot cooperation in manual assembly – interaction concepts for the future workplace</td>
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<td>Development of a standardized ergonomic assessment methodology for exoskeletons using both subjective and objective measurement techniques</td>
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<td>Understanding the preference of the elderly for companion robot design</td>
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<td>A nursing robot for social interactions and health assessment</td>
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**Co-Chairs:** Leonor Ferrão and João Neves, Portugal

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<td>Influence of the restrictions on the range of view from the cockpit in operation of a hydraulic excavator&lt;br&gt;Kazuuki Matsumura, Masaru Ito, Seiji Saiki, Yoichiro Yamazaki, Yuichi Kurita, Japan</td>
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<td>Color in glossolalia: Red in western culture (Part II)&lt;br&gt;Leonor Ferrão, Portugal</td>
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<td>Contribution of visual ergonomics to a holistic view of the symbols applied in touristic and cultural signage: The Portuguese case&lt;br&gt;João Neves, Fernando Moreira da Silva, Daniel Raposo, Jose Silva, Portugal</td>
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### Applications in Software, Service and Systems Engineering III

**Co-Chairs:** Ronda Caswell and Xiaoli Wu, USA/China

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<td>An IT project management methodology generator based on an agile project management process framework&lt;br&gt;Evangelos Markopoulos, UK</td>
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<td>Modelling decision-making with intelligent agents to aid rural commuters in developing nations&lt;br&gt;Patricio Jullán Gerpe, Evangelos Markopoulos, UK</td>
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<td>Human interaction with the output of information extraction systems&lt;br&gt;Erin Zaroukian, Justine Caylor, Michelle Vanni, Sue Kase, USA</td>
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### Physical, Mental and Social Effects in Simulation

**Co-Chairs:** Sylwia Kaduk and Martina Scafá, UK/Italy

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<td>Assessment of students’ cognitive conditions in medical simulation training: A review study&lt;br&gt;Martina Scafá, Eleonora Brandoni Serrani, Alessandra Papetti, Agnese Brunzini, Michele Germani, Italy</td>
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<td>Investigating human visual behavior by hidden Markov models in the design of marketing information&lt;br&gt;Jerzy Grobelny, Rafał Michalski, Poland</td>
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<td>Modeling of airflow and dispersion of aerosols in a thanatopraxy room&lt;br&gt;Jihen Chebil, Geneviève Marchand, Maximilien Debia, Loïc Wingert, Stéphane Hallé, Canada</td>
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<td>Dynamics of interactions&lt;br&gt;Zbigniew Wisniewski, Aleksandra Polak-Sopinska, Malgorzata Wisniewska, Marta Jedraszek-Wisniewska, Poland</td>
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<td>Three-dimensional finite element analysis of the finger exposed to handle vibration&lt;br&gt;Alphin Masilamany Santha, Jain A R Tony B, India</td>
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<td><strong>Ergonomic evaluation of pilot helmet and neck injury</strong></td>
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<td><strong>Eye tracking in the diagnosis of aggressive behaviors and emotions: A systematic review of the literature</strong></td>
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<td><strong>Integrating Markov chain model in wireless body sensor networks for improving patients’ remote monitoring systems</strong></td>
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<td>Rabee Raad Ali, Salama A. Mostafa, Saraswathy Shamini Gunasekaran, Mazin Abed Mohammed, Malaysia/Iraq</td>
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| 204     | **Human Reliability Analysis for Safety Critical Industries**       | **HERRP**         |                                                                                                            |
|         | Co-Chairs: Tun Liu and Ronald Boring, China                         |                   |                                                                                                            |
|         | **Experimental research on measurement of team situation awareness in nuclear power plants** | **GUNSTON WEST**  | Guimei Zuo, Jianhua Chen, Licao Dai, China                                                                |
|         | **A simulator experimental study on individual SA and Team SSA in digital MCRs of NPPs** |                   | Pengcheng Li, Xiao Jin, Yanxing Wang, Jianhua Chen, Licao Dai, China                                      |
|         | **Safety risk assessment of space launch site considering human reliability** |                   | Tun Liu, Wenjin Zhang, Xing Pan, Xiaoxia Wang, China                                                      |
|         | **Method for crew human reliability analysis based on CREAM**       |                   | Xiaoxia Wang, Wenjin Zhang, Xing Pan, Tun Liu, China                                                     |
|         | **A model for automatically detecting and classifying human errors with procedural basis in nuclear power plants** |                   | Jeeyea Ahn, Seung Jun Lee, South Korea                                                                  |

<p>| 205     | <strong>Macro 3D Printing</strong>                                              | <strong>AMMSP</strong>         |                                                                                                            |
|         | Co-Chairs: Hemang Kumar Jayant and Jonathon Piasente, India/USA     |                   |                                                                                                            |
|         | <strong>Evaluation of early-age concrete structural build-up for 3D concrete printing by oscillatory rheometry</strong> | <strong>EMBASSY</strong>       | Wilson Ricardo Leal da Silva, Herve Fryda, Thomas Juul Andersen, Per Norelius, Jean-Noel Boussseau, Denmark |
|         | <strong>Induction heating based 3D metal printing of eutectic alloy using vibrating nozzle</strong> |                   | Hemang Kumar Jayant, Manish Arora, India                                                                |
|         | <strong>Additive manufacturing of Portland cement based cementitious materials</strong> |                   | Jonathon Piasente, Aleksandra Radlinska, Maryam Hojati, USA                                             |
|         | <strong>Scaling from paste to mortar for 3D printing</strong>                   |                   | Scott Jones, Nicos Martyis, USA                                                                          |
|         | <strong>Safety and performance of reinforced concrete additive construction</strong> |                   | Eric Kreiger, Brandy Diggs-McGee, Tanner Wood, Bruce MacAllister, Megan Kreiger, USA                   |</p>
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| 206 | Human Aspects in Industrial Environment | Co-Chairs: Akihiko Goto and A. A. M. Macias, Japan/Mexico  
Cognitive analyses for the improvement of service orders completion in an information technology center: A case of study  
Aide Maldonado, Manuel Alejandro Barajas-Bustillos, Margarita Ortiz-Solís, Arturo Realyvásquez, Juan Luis Hernández-Arellano, Mexico  
Motion analysis of manufacturing of large “Echizen Washi” Japanese traditional paper  
Yuji Kawamori, Hiroyuki Nakagawa, Kozo Igarashi, Yoshikiyo Yamada, Naoki Sugiyama, Kauzaki Yamashiro, Akihiko Goto, Hiroyuki Hamada, Japan  
Cognitive and organizational criteria for workstation design  
Salvador Ávila Filho, Jade Avila, Beata Mrugalska, Magdalena K. Wyrwicka, Érica Cayres, Júlia Ávila, Maralsa Souza, Poland/Brazil  
Job strain index by gender among middle and high managers of the Maquiladora industry Ciudad Juarez, Mexico  
Aide Maldonado, Margarita Ortiz-Solís, Oziely Armenta-Hernández, Karla Hernández-Luna, Jorge García-Alcaraz, Mexico  
Organizational culture requirements for the achievement of world class manufacturing  
Zbigniew Wisniewski, Michal Paszkowski, Małgorzata Wisniewska, Poland  
Evaluation of “Jiai” of large “Echizen Washi” Japanese traditional paper  
Hiroyuki Nakagawa, Yuji Kawamori, Kozo Igarashi, Yoshikiyo Yamada, Mitsunori Suda, Naoki Sugiyama, Kazuaki Yamashiro, Hiroyuki Hamada, Akihiko Goto, Japan |
| 207 | Human Factors and Assistive Technology V | Co-Chairs: Stijn Verwulgen and Chor-Kheng Lim, Belgium/Taiwan  
The design of the paediatric prosthesis: Questionnaire assessment of stigma-inducing factors in primary children school  
Steven Truijen, Kristof Vaes, Erik Haring, Hilde Feys, Anouche Van den Eynde, Emilie Meyvis, Eric van Breda, Evi Schaerlaken, Stijn Verwulgen, Belgium  
Design of a low cost 3d scanner for anthropometric measurements  
Pablo Davila, Esteban Carrera, Oswaldo Jara, Horfayt Bassantes, Ecuador  
Human factors product design for a prototype of hair loss prevention machine for cancer patients during chemotherapy treatments  
Nantakrit Yodpijit, Manutchanok Jongprasithporn, Thailand  
An ergonomic assessment of accessible pedestrian signal sound types for the University of the Philippines Diliman  
Evander Del Rosario, Camilla Isabel Suarez, Alexander Go Tian, Philippines  
Pillow fight: Application of conductive fabric technology in activities for dementia  
Chor-Kheng Lim, Taiwan |
| 208 | Artificial Intelligence and Social Computing II | Co-Chairs: Rita Yi Man Li and Xinyu Cao, China  
Fourth industrial revolution: An impact on health care industry  
Prisilla Jayanthi, V. Murali Krishna Iyyani, Aruna Mothkuri, Prakruthi Vadakattu, India  
Detection of cutaneous tumors in dogs using deep learning techniques  
Cesar Guevara, Matilde Lorena Zapata Saavedra, Ivan Ramirez-Morales, Fernando Aguilar-Galvez, Lorena Elizabeth Chalco Torres, Ecuador  
Human-AI collaboration development: Interim communication rivalry of generation  
Olga Burukina, Finland/Russia  
Multicriteria analysis in the proposed environmental management regulations for construction in Aurora, Guayas, Ecuador  
Christian Zambrano Munillo, Jesús Rafael Hechavarría Hernández, Maikel Leyva Vázquez, Ecuador  
Random samplings using Metropolis Hastings algorithm  
Miguel Arcos-Aruguño, Rodolfo Bojorque, Andrea Plaza, Ecuador  
The research on automatic acquisition of the domain terms  
Liangliang Liu, Haitao Wang, Zhang Fan, Jing Zhao, Zhao Chao, Gang Wu, Xinyu Cao, China |
### 15:30-16:00 Refreshments will be provided in Columbia West (Terrace Level)

#### 210 Virtual Reality and Machine Learning for Neuroergonomics  
Co-Chairs: Hasan Ayaz and Adrian Curtin, USA  

**Integration of virtual reality and motor imagery based brain computer interface**  
Callan Powell, Hasan Ayaz, USA  

**A test setting to compare spatial awareness on paper and in virtual reality using EEG signals**  
Sander Van Goethem, Kimberly Adema, Britt van Bergen, Emilia Viaene, Eva Wenborn, Stijn Verwulgen, Belgium  

**Multimodal fNIRS-EEG classification using deep learning algorithms for brain-computer interfaces purposes**  
Marjan Saadati, Jill Nelson, Hasan Ayaz, USA  

**Convolutional neural network for hybrid fNIRS-EEG mental workload classification**  
Marjan Saadati, Jill Nelson, Hasan Ayaz, USA  

**Impacts of the time interval on the choice blindness persistence: A visual cognition test-based study**  
Qiuzhu Zhang, Yi Lu, Huayan Huangfu, Shan Fu, China

#### 16:00-18:00 - MORGAN

#### 211 Ergonomics in Design: Applications II  
Co-Chairs: Luciana Cruz and Yumeng Zhang, Brazil/China

**Service mapping: Case study of university waste management system**  
Flávia Azevedo, Luciana Cruz, Brazil  

**Current theoretical developments and applications of Fitts’ Law: A literature review**  
Rong Jiang, Zhenyu Gu, China  

**Ergonomic research in Civil aircraft external service design**  
Yu Chen, China  

**Research on ergonomic design and evaluation of office backrest curve**  
Yumeng Zhang, Ling Luo, China  

**A synthesis of sociotechnical principles for system design**  
Amangul Imanghaliyeva, Pauline Thompson, Paul Salmon, Neville Stanton, UK

#### 16:00-18:00 - HOLMEAD WEST

#### 212 Cross-Cultural Decision Making II  
Co-Chairs: Atsuo Murata and Noriko Okabe, Japan

**Cross-cultural motivations for information sharing in incident management at major events**  
Guadalupe Hernández-Escobedo, David K. Allen, Alan D. Pearman, Claudia Alejandra Ituarte-González, Mexico  

**Cross-cultural difference of free agent system between MLB and NPB (Nippon Professional Baseball)**  
Atsuo Murata, Japan  

**Design benchmarking study between Alessi products and Chinese commodities**  
Lixia Hua, Junnan Ye, China  

**Language and cultural learning in a short-term study abroad: An Investigation of Japanese sojourners in Canada**  
Chihiro Tajima, Japan  

**English education for young learners in China and Europe**  
Jiali Du, Pingfang Yu, China
### Detailed Technical Program

**Sunday, July 28, 2019**

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<td>ICEEP</td>
<td><strong>DU PONT</strong></td>
<td>16:00-18:00</td>
<td>Peter Thorvald, Jessica Lindblom, Ari Kolbeinsson, Sweden&lt;br&gt;Giorgio Romero, Nikko Marcelo Palomares, Jean Louise Victor, Philippines&lt;br&gt;Sara Ali, Mohammad Samad, Faisal Mehmood, Yasar Ayaz, Wajahat Mehmood Qazi, Muhammad Jawad Khan, Umer Asgher, Pakistan&lt;br&gt;Fang Guo, Zaili Yang, Ian Jenkinson, Johanna Ender, UK&lt;br&gt;Sara Ali, Faisal Mehmood, Yasar Ayaz, Umer Asgher, Muhammad Jawad Khan, Pakistan</td>
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<td>William Prugh, USA&lt;br&gt;Sean Hauze, USA&lt;br&gt;Jonathan Wilson, Drew Massey, Joe Chimento, USA&lt;br&gt;Tam Le, USA</td>
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<td><strong>COLUMBIA 2</strong></td>
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<td>Co-Chairs: Christianne Falcao and Eduardo Navarro, Brazil/UK</td>
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<td>Eduardo Navarro, Graeme Bowles, Guy Walker, UK</td>
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<td><strong>Current situation and countermeasures of Chinese street furniture design in intelligent development context</strong></td>
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<td><strong>Research on the transformation model of spiritual requirement in elderly-oriented design</strong></td>
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<td>Maiqi Lin, Huifang Shang, Chuanshun Wang, Yongtao Zheng, China</td>
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<td><strong>The various factors affecting occupants’ satisfaction in the open-plan shared office</strong></td>
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<td><strong>Effects of the urban form on the external thermal comfort in low-income settlements of Guayaquil, Ecuador</strong></td>
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<td><strong>Identification of residential well-being factors in urban community design</strong></td>
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<td>Xintong Wei, Guangtian Zou and Kin Wai Michael Siu, China</td>
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<td>Jiashan Pan, Tao Xi, Rong Jiang, China</td>
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<td><strong>Personalized design of food packaging driven by user preferences</strong></td>
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<td><strong>The new thinking in emotional user experience: From visual metaphor to interactive affordance</strong></td>
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<td><strong>Let’s make this personal: Improving the user experience on support portals through personalization</strong></td>
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<td>Jon Temple, Kenn Roberson, Paula Nezbedova, USA</td>
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<td><strong>System of recommendation and automatic correction of web accessibility using artificial intelligence</strong></td>
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<td>Paulina Morillo, Diego Chicaiza Herrera, Diego Vallejo-Huanga, Ecuador</td>
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<td><strong>Entrepreneurship education and digitization</strong></td>
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<td>Martin Kröll, Germany</td>
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<td><strong>Entrepreneurship education for fashion design</strong></td>
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<td>Graziela Sousa, Ines Simoes, Paulo Maldonado, Portugal</td>
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<td><strong>Analyzing phonological factor criteria by measuring information processing traits contributed to effectiveness through educational support system</strong></td>
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<td><strong>Educational strategies for coping with problems of stay up late based on the psychological characteristics of contemporary Chinese college students</strong></td>
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<td><strong>Manguinhos’ shanty-town: Investigating low income students’ education problems and their environmental and social context</strong></td>
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### 225  Human Systems Engineering and User Centered Design  
**Co-Chairs:** C. J. Hutto and Tanya Andrews, USA  
**HFSSSE**  

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<td>A system for user centered classification and ranking of points of interest using data mining in geographical data sets</td>
<td>Maximilian Barta, Dena Farooghi, Dietmar Tutsch, Germany</td>
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<td>Model-based human systems engineering for HSI: Decision support for analysis of alternatives in the manpower, personnel, and training domains</td>
<td>C. J. Hutto, USA</td>
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<td>NASA Marshall Space Flight Center human factors engineering analysis of various hatch sizes</td>
<td>Tanya Andrews, Becky Stewart, Walter Deitzler, USA</td>
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<td>Improving the Blockchain user experience - An approach to address Blockchain mass adoption issues from a human-centred perspective</td>
<td>Leonhard Giomann, Maximilian Schmid, Nika Kitajewa, Germany</td>
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<td>An alternative graphic and mathematical method of dimensional analysis: Its application on 71 constructive models of social housing in Guayaquil</td>
<td>Byron Almeida, Pamela Bermeo, Jesús Rafael Hechavarria Hernández, Jesús Anaya, Boris Forero, Ecuador</td>
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### 226  Mental State Assessment II  
**Co-Chairs:** José León-Carrión and Ryan McKendrick, Spain/USA  
**CN**  

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<td>JAY</td>
<td>The neuromodulative effects of tiredness and mental fatigue on cognition, and the use of medication</td>
<td>Jose Leon-Carrión, Umberto Leon-Dominguez, Maria del Rosario Dominguez-Morales, Spain</td>
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<td>Affective state estimation for neuroergonomic applications with fNIRS and EEG: A narrative review of the literature</td>
<td>Nina Rothstein, John Kounios, Hasan Ayaz, USA</td>
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<td>Advanced and objective real-time drowsiness monitoring enables a new generation of fatigue risk management systems (FRMS)</td>
<td>Clementine Francois, Eva Hansenne, Philippe Cabon, Jerome Wertz, Belgium</td>
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<td>Time pressure: Effects of mental workload on mental effort mobilization and behavioral adaptability, a cardiovascular approach</td>
<td>Charlotte Mallat, Julien Cegarra, Christophe Calmettes, Rémi Capa, France</td>
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<td>Pilot workload during simulated remotely piloted aircraft: A multi-modal sensing approach</td>
<td>Denny Yu, Chantale Wilson, Fredrick Webber, Eric Watz, Christopher Stevens, Wink Bennett, USA</td>
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<td>A cognitive analysis suite for enhancing recruitment and training of the cyber warfighter</td>
<td>Ryan McKendrick, USA</td>
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### 227  Digital Human Modeling and Applied Optimization III  
**Co-Chairs:** Sudhakar Rajulu and André Kaiser, USA/Germany  
**DHMAO**  

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<td>HOLMEAD EAST</td>
<td>Quantification of buttock deformation on a rigid seat</td>
<td>Michael Harry, Russell Marshall, Michael Fray, UK</td>
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<td>Dynamical model of muscle fatigue and recovery considering the roles of slow-twitch and fast-twitch muscles</td>
<td>Hayato Miura, Isamu Nishida, Keiichi Shirase, Japan</td>
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<td>Virtual human hand: grasps and fingertip deformation</td>
<td>Esteban Peña-Pitarch, Neus Tico Falguera, Anas Al Omar, Iñaki Alcelay-larión, Jordi Vives Costa, Spain</td>
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<td>Prediction of human maximum forces – a comparison of four approaches to calculate muscle-torque</td>
<td>André Kaiser, Angelika C. Bullinger, Germany</td>
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<td>Assessment of upper body posture with garment-embedded flexible strain sensors</td>
<td>Linh Vu, Yaritza Hernandez, Elizabeth Benson, Eduardo Beltran, Han Kim, Sudhakar Rajulu, USA</td>
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<td>Digital human updated: Merging the thermal layer with the 3D anthropometric model</td>
<td>Consuelo Latorre Sánchez, Andrés Soler, Eduardo Parrilla, Jose Laparra, Jose Solaz, Alfredo Ballester, Spain</td>
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Posters will be displayed Friday, July 26, Saturday, July 27, and Sunday, July 28, 2019, during the designated timeslots listed below. Posters should be positioned 30 minutes prior to the designated start of the session and removed no later than 30 minutes after the end of the session.

A1. Visions, concepts and applications in additive manufacturing for yacht design
Massimo Musio-Sale, Paolo Licinio Nazzaro, Eric Peterson, Italy/USA

A2. Trends of crash mitigation at high crash intersections in Nevada, US based on highway safety improvement program
Wanmin Ge, Haiyuan Li, USA

A3. Antenna technology in wireless biometric human systems
Rafal Przesmycki, Marek Bugaj, Marien Wnuk, Poland

A4. A pilot study of a hygienic mask sheet pattern to prevent airflow through gaps
Mika Morishima, Tamaki Mitsuno, Japan

A5. Comparative assessment of the risk of manual patient handling between standard method and job analysis
Pier Luigi Pavanelli, Silvio Falco, Giovanni La Valle, Cristiano Roscio, Giulia Ricciardi, Italy

A6. Risk factors identification for metal washing process based on QOC matrix the workers’ voice and ergonomic mapping
Brenda Trujillo-Sandoval, Martha Roselia Conreras Valenzuela, Mexico

A7. Linguistic approach to support human reliability analysis and validation work in advanced radiotherapy technologies
Mariarosa Giardina, Pietro Buffa, Pablo Cirrone, Luigi Raffaele, Vincenzo Salamone, Italy

A8. Research on sampling inspection procedures for bank service time based on Bayes method
Jingjing Wang, Haitao Wang, Fan Zhang, Chao Zhao, Gang Wu, Jing Zhao, China

A9. Effects of mobile application icon complexity and border on college students’ cognition
Yaqin Cao, Yi Ding, Yiming Deng, Xuefeng Zhang, China

A10. Ergonomic study in the productive process in civil construction in the external plastering activity
Ariel Michaloski, Juliano Stradioto, Antonio Xavier, Brazil

A11. Error in turnaround maintenance operations in the chemical and process industries (oil and gas sector)
Godswill Ekpe, Esther Ventura-Medina, Leo Lue, UK

A12. Driving Segway: A musculoskeletal investigation
Zavier Berti, Peter Rasche, Robert Chauvet, Matthias Wille, Vera Rick, Laura Barton, Tobias Hellig, Katharina Schäfer, Christina Bröhl, Sabine Theis, Christopher Brandl, Verena Nitsch, Alexander Mertens, Germany

A13. Training caregivers to reduce spine flexion using biofeedback
Megan Kamachi, Mohammad Owlia, Tilak Dutta, Canada

A14. Injury severity analysis of cyclists in two wheeler to taxi crashes: An application of vehicle black box data
Seonjung Kim, Younshik Chung, South Korea

A15. A study on exit strategies to enhance applications of new technology to safety management activity
Haruna Yamazaki, Naoko Sakata, Yusaku Okada, Risako Shiraishi, Japan

A16. A musculoskeletal discomfort survey for the visually impaired masseurs
Cheng-Lung Lee, Shu-Zon Lou, Peng-Cheng Sung, Yi-Tsong Pan, Taiwan

A17. Self-leadership development program in elite youth soccer players in Japan
 Yasuyuki Hachi, Yasuyuki Yamada, Takumi Iwaasa, Tomoki Ebato, Takuya Ohsiro, Motoki Mizuno, Japan

A18. The effect of risk triggered commentary driving for preventing excessive speed
Ayanori Sato, Japan
POSTER/DEMONSTRATION SESSIONS, FRIDAY, JULY 26
Time: 10:00 - 12:30
Room: Columbia West (Terrace Level)

A19. Improving illumination to lower slip-trip-fall injury risk for mobile surface mining equipment
Alan Mayton, USA

A20. The lean solution of hospice service design in the “internet+” era
Yang Zhao, Chengcheng Liu, China

A21. Failure classification: An exploratory auto-ethnographic case study of human factors in the
K-12 classroom for resilient human-system integration
Nathan Sonnenfeld, USA

A22. Useful textile goods: Employing physical fit test results for hand-sewn facemasks -Proposal
of material for teaching and manufacturing
Mika Morishima, Asuka Shibuya, Tamaki Mitsuno, Japan

A23. Study of 3D modeling and printing molded cup bra based on the chest feature curve
Mei Zhang, Jun Wang, China

A24. Analysis of driver’s behavior on warning signals for take-over of automated driving vehicles
Jonghwa Kim, South Korea

A25. A study on the classification and standard body shape three-dimensional modeling of
female adolescents in northeast China
Chun Yuan Zhang, Jun Wang, China

A26. Human factors and safety perspectives on the evolving rules for use of dockless e-Scooters
Raina Shah and Brian C. Grieser, USA

A27. Measurement for communication of intention by eye rotation
Hisaya Tanaka, Tomomi Ohkawa, Japan

A28. Validity of cognitive function decline level using BCI
Akihiro Fukushima, Hisaya Tanaka, Haruo Hanyu, Akito Tsugawa, Japan

A29. Advancement in orthopedics through an accessible wearable device
Troy Kelly, Jr., Behzad Mottahed, Ryan Integlia, USA

A30. Research on ride comfort of wheelchairs by difference of running side
Shoichiro Fujisawa, Katsuya Sato, Shin-ichi Ito, Jyunji Kawada, Jiro Morimoto,
Mineo Higuchi, Masayuki Booka, Japan

A31. Prediction of ergonomic risks occurred by repetitive movements of the upper limbs through
infrared thermography: A work in progress
André Luiz Soares, Antonio Xavier, Ariel Orlei Michaloski, Brazil

A32. Factors affecting physical activity among surgical nurses of University Hospital in Japan:
Case study using plural wearable sensors
Hidenori Hayashi, Takumi Iwaasa, Yasuyuki Yamada, Yasuyuki Hachi, Motoki Mizuno,
Japan

A33. An empirical study on special needs education coordinators at a school in Japan
Sugiura Takanori, Takumi Iwaasa, Motoki Mizuno, Japan

A34. A study on the roles of student coach in university baseball
Koya Kanno, Motoki Mizuno, Jun Egawa, Japan

A35. The design process of an ergonomic housing prototype
Francesco Spagnoli, Italy
The effect of anthropomorphization and gender of a robot on human-robot interactions
Hongjun Ye, Haeyoung Jeong, Wenting Zhong, Siddharth Bhatt, Kurtulus Izzetoglu, Hasan Ayaz, Rajneesh Suri, USA

Anthropometric analyses of head and face shape to design protective head gear for U.S. Army personnel
Hyejoo Choi, Todd Garrie, Joseph Parham, USA

Proposal for empowering teams for the purpose of identification of deviations and elimination of accidents
Ricardo Sousa, Diego Sousa, Cristiane Maia, Brazil

A study of the correlation between payload and whole-body vibration of a scooter rider
Shih-Yi Lu, Yen-Hui Lin, Taiwan

The effect of visual cue on the sense of presence and simulator sickness in a flight simulator
Jiwon Kim, Jinhyung Kim, Taezoon Park, South Korea

Ejection seat posture modeling: Constructing fidelity profiles for verified JPATS manikins in the RAMSIS digital human modeling system
Jeffrey Hudson, Jennifer Whitestone, Max Grattan, Lori Brattin, Andrew Koch, USA

The investigation of developing a computer detective game for science education
Fu-Hsing Tsai, Taiwan

Empirical validation of a checklist for heuristic evaluation of automated vehicle HMIs
Yannick Forster, Sebastian Hergeth, Frederik Naujoks, Josef Krems, Andreas Keinath, Germany

Improvement of pointing operation ability of the cerebral palsies by adjustment of D/C ratio
Hiromi Nishiguchi, Japan

Adaptive Serious Gaming for the acquisition of cognitive skills
Gabrielle Teyssier-Roberge, Sébastien Tremblay, Canada

Improvements in a wearable device for sign language translation
Francesco Pezzuoli, Dario Corona, Maria Letizia Corradini, Italy

Self-monitoring of blood glucose device interaction: The elderly user experience and clinicians perspective.
Stephanie Daphne Prado-Jimenez, Rosa Rosales-Cinco, Carlos Aceves-Gonzalez, Alexandra Lang, Mexico/UK

Integrated sensor platform for human-centric performance measurement in cyber operations
Harry Li, Sarah McGuire, Vincent Mancuso, Paul Picciano, Diane Staheli, USA

Mechanical mismatch in modern human simulants
Emily Eckhoff, Kimberly Hallett, Rod Jose, USA

The influence of noise-stress factor in the environment on the human body
Larisa Hambardzumyan, Armenia

Evaluation of range of motion and muscle performance while wearing different fire fighters station uniform
Su-Young Son, Yutaka Tochihara, South Korea

The application of lifecycle design strategy in interaction design
Chengcheng Liu, Yang Zhao, China

A new evaluation method for conceptualization and abstract reasoning using near infra-red spectroscopy
Kota Kano, Hisaya Tanaka, Japan

An interaction evaluation of brain-computer interface using correlation analysis on information transfer rate and motor operating feeling
Yuki Shimizu, Hisaya Tanaka, Japan

The relationship with communication network and healthy state using voice and attribute information in the nursing organization
Yuki Mizuno, Motoki Mizuno, Yasuyuki Yamada, Yasuyuki Hochi, Emiko Togashi, Hidenori Hayashi, Kentaro Inaba, Hideko Aida, Aya Okada, Japan
B21. Developing a prototype of training task for acquiring knowledge for extracting hazards
Takayuki Masuda, Ayanori Sato, Japan

B22. Changes and differences in mental status of nurses: Using mind monitoring system by voice
Takumi Iwaasa, Yasuyuki Yamada, Yasuyuki Hocchi, Yuki Mizuno, Emiko Togashi, Hidenori Hayashi, Aya Okada, Motoki Mizuno, Japan

B23. An empirical study of information visualization for decision support in an emergency department information system
Quaneisha Jenkins-Penha and Steven Jiang, USA

B24. Explicit forward glance duration hidden Markov model for inference of spillover detection
Hyoshin Park, Nigel Pugh, Larkin Folsom, Justice Darko, Siby Samuel, USA

B25. Influence of location and frequency variations of binaural electrostimulation on heart rate variability
Jing-Shia Tang, Nan-Ying Yu, Fang-Hsin Lee Lee, Chi-Wen Lung, Liang-Cheng Lee, Ben-Yi Liu, Chien-Liang Chen, Taiwan

B26. Test-retest differences in vigilance outcomes: Session effects on performance, stress, cerebral hemovelocity, and workload
Samantha Smith, William Helton, Gerald Matthews, Greg Funke, USA

B27. Graphic-semantic expressions map: A new tool on design teaching
Cátia Rijo, Portugal

B28. A measurement system for delay-time of gait event due to a dual task during walking
Jinseung Choi, Jeongwoo Seo, Jinsoo Lee, Gunggil Kim, Taeho Kim, Gyerae Tack, South Korea

B29. Prefilled pen for convenient self-injection by patients with rheumatoid arthritis: Results of a usability study and compliance survey
Tomohiko Yoshida, Akira Sagawa, Iikuko Masuda, Takaaki Fukuda, Toshihiko Hibino, Japan

B30. A research on floor slip resistance of long-term care institution in Taiwan
Chingchung Chen, Zhi Xuan Chen, Chih-Yong Chen, Liwen Liu, Ei-Wen Lo, Taiwan

B31. Characterization of trunk movement patterns in warehouse workers using wearable inertial measurement units: A case study
Micaela Porta, Simone Arena, Pier Francesco Orrù, Massimiliano Pau, Italy

B32. The effects of university student’s physical activity experience on communication skills and anxiety
Jun Egawa, Yasuyuki Hocchi, Takumi Iwaasa, Emiko Togashi, Kentaro Inaba, Motoki Mizuno, Japan

B33. Review of followership in sports
Kentaro Inaba, Takumi Iwaasa, Motoki Mizuno, Japan

B34. Communication skill and form of nursing organization in Japan
Motoki Mizuno, Yuki Mizuno, Yasuyuki Yamada, Yasuyuki Hocchi, Emiko Togashi, Takumi Iwaasa, Aya Okada, Japan
C1. Self-similarity based multi-layer DEM image upsampling algorithm
   Xin Zheng, Ziyi Chen, Qinzhe Han, Xiaodan Deng, Xiaoxuan Sun, Qian Yin, China

C2. Organizational resilience model in a nuclear power plant
   Licao Dai, China

C3. Affective design of a tailor made product led by insights from big data
   Yan Li, Pei Liang, Peiguo Wang, Daming Shi, Kai Cheng, China

C4. Designing telemedicine technology to improve medication adherence for elderly cancer patients
   Karthik Adapa, Lukasz Mazur, Prithima Mosley, USA

C5. Physiological indicators of mental workload in visual display terminal work
   Yi Ding, Yaqin Cao, Yi Wang, China

C6. Simulated marksmanship performance methodology: Assessing lethality, mobility, and stability across the preparation, execution and recovery stages of a military field training exercise
   Stephanie A. T. Brown, Jose Villa, Erika Hussey, John Ramsay, K. Blake Mitchell, USA

C7. Study on interaction design of SANGFOR Institute based on mental model
   Honglei Wang, Long Ren, Chenyu Sun, Hongzhi Pan, Jieli Zhang, China

C8. Universal signaling based on the articulation between the ergonomic practices and the perception of the visually impaired
   Luís Rocha, Thaíla dos Santos Lima, Brazil

   Maryam Attef, Eileen Harris, Canada

C10. Preliminary development of an integrated mobility, lethality, and survivability soldier performance testing platform
    Stephanie Brown, K. Blake Mitchell, USA

C11. Professional portfolio of the preschool teacher: What is the real content?
    Petra Trávníčková, Czech Republic

C12. Study on the perception characteristics of different populations to thermal comfort
    Wang Rui, Wei Li, Chaoyi Zhao, Qi Yun, China

C13. Social media competition for user satisfaction: A niche analysis of Facebook, Instagram, YouTube, Pinterest, and Twitter
    Sang Hee Kweon, Boyoung Kang, Se-Jin Kim, Liyao Ma Ma, South Korea

C14. Physiological evaluation of a non-invasive wearable vagus nerve stimulation (VNS) device
    Park Se Jin, Hong Seung Hee, Kim Da Mee, Seo Young, Iqram Hussain, Min Kyu Kim, South Korea

C15. Research on thermal comfort equation of comfort temperature range based on Chinese thermal sensation characteristics
    Wang Rui, Chaoyi Zhao, Wei Li, Qi Yun, China

C16. Mapping digital media content
    Stella Angova, Svetla Tsankova, Martin Ossikovski, Maria Nikolova, Ivan Valchanov, Bulgaria

C17. Smartphone map application for preventing distracted walking in towns
    Mitsuhiko Karashima, Tomoki Kamiyama, Hiromi Nishiguchi, Japan

C18. Applied cognitive ergonomics to human error reduction in the supply chain: The case of the picking operation of a food distribution company
    Martha Caro, Leonardo Quintana, Juan Castillo, Colombia

C19. Follow me - Collaboration between human workers and autonomous transport vehicles for better process integration
    Thomas Kirks, Jana Jost, Jan Finke, Preity Gupta, Germany

C20. Injury severity analysis in truck-involved crashes using ordered probit model
    Chanmo Kang, Younshik Chung, South Korea

C21. A data mining and knowledge discovery model for improving strategic decisions in education sector: Jordan case
    Suad Alramouni, Saudi Arabia

Interactive Poster Demonstrations

POSTER/DEMONSTRATION SESSIONS, SATURDAY, JULY 27
Time: 10:00 - 12:30
Room: Columbia West (Terrace Level)
C22. Experience of the development of computer break reminders for prolonged-sitting computer users.
   Sy-Chyi Wang, Jin-Yuan Chern, Taiwan
C23. Impact of origami/kirigami light-filtering blinds on user cognition and affect
   Denise A. Baker, Samuel Cacy, Emily Jeanise, USA
C24. An eye tracking study on gender aspects in the ergonomics of human-computer interaction
   Jenny Stein, Lilia Lajmi, Germany
C25. Microstructure and mechanical properties of additively manufactured hierarchical Fe-Cr-Mn alloys
   Byoungchul Hwang, South Korea
C26. Identification of the relationships between a vocal attribute and a personality
   Kimberly Brotherton, Jangwoon Park, Dugan Um, Mehrube Mehrubeoglu, USA
C27. Development of a sleep monitoring system by using a depth sensor: A pilot study
   Jangwoon Park, Jungyoon Kim, Jaehyun Park, Alaa Sheta, Christina Murphey, Dugan Um, USA
C28. Future research methods of landscape design based on big data
   Jingcen Li, China
C29. Promoting the international competitiveness of Beijing cultural brands: The place-of-origin perspective
   Maggie Wenjing Liu, China
C30. Assessment of wellbeing parameters in the factories of the future – Comparison between levels of automation and activity level
   Maria Kreusslein, Sebastian Mach, Franziska Schmalfuß, Michael Bojko, Ralph Riedel, Matthias Beggiato, Josef Krems, Germany
C31. Facial recognition on cloud for android based wearable devices
   Zeeshan Shaukat, Chuangbai Xiao, M. Saqlain Aslam, Qurat ul Ain Farooq, Sara Aiman, China
C32. A study on exposure of workers to the risks arising from physical agents in the olive sector in Andalusia (South Spain)
   Raquel Nieto-Álvarez, María Dolores Martínez-Aires, Diego P. Ruiz, María Luisa de la Hoz-Torres, Antonio J. Aguilar-Aguilera, Spain
C33. Perceptions of multilevel safety and health outcomes in two rail company divisions differentiated by novel objective safety indicators
   Michael Steer, James Morgan, Matteo Curcuruto, UK
C34. Accident analysis of human causal factors in the oil and gas industry from 2013 to 2017 using the HFACS-OGI framework
   Chizaram Nwankwo, UK
D1. Fuzzy modeling for decision-making of behaviors corresponding to industrial accidents involving hazardous materials
   Jianfeng Zhou, China

D2. Ontological description of the basic skills of surgery
   Kazuhiko Shinohara, Japan

   Tzu-Ying Chuang, Shih-Yi Lu, Yen-Hui Lin, Taiwan

D4. Robotic monocular SLAM in wastewater treatment plants with a sampling device
   Edmundo Guerra, Yolanda Bolea, Rodrigo Munguia, Antoni Grau, Spain/Mexico

D5. The influence of mixed reality applied to industrial design education for students’ different learning styles
   Po Ying Chu, Li-chieh Chen, Kuan-Ming Wang, Taiwan

D6. A study on tea drinking experience factors of Kong Fu tea in Southern Fujian Province of China
   Biyun Hong, Taiwan

D7. Automated design of competence-oriented student models using the tutoring integrated expert systems
   Galina Rybina, Elena Fontalina, Russia

D8. A study of user experience of angle recognition designed to correct people's poor posture when using smart phones
   Shuyuan Zhang, Zhanxun Dong, China

D9. The ergonomic design of wearable robot based on the shoulder kinematic analysis by walking speed
   Seung-Min Mo, Jaejin Hwang, Jae Ho Kim, Myung-Chul Jung, South Korea

D10. Usability evaluation of different interaction modes based on washing machine controlled area
    Yuan Cao, Renke He, China

D11. Countries development status and driver behavior
     Manon Limousis-Gayda, Rami Hashish, Felix Lee, USA

D12. Influence of work boot style on stair climbing
     Lydia Kocher, Jonisha Pollard, USA

D13. Effects of working posture on force perception during manual pushing tasks
     Atsushi Sugama, Akiko Takahashi, Akhiko Seo, Japan

D14. Application of economic and legal instruments at the stage of transition to bioeconomy
     Nazariy Popadynets, Valentyna Yakubiv, Olena Panukhnyk, Yana Fedotova, Iryna Hryhoruk, Yulia Maksymiv, Svitlana Shultz, Iryna Bilyk, Rostyslav Bilyk, Ukraine

D15. Use of active test objects in security systems
     Marina Boronenko, Yuri Boronenko, Vladimir Zelenskiy, Elizabeth Kiseleva, Russia

D16. Satisfying product features of a dementia care support smartphone app and potential users’ willingness to pay: Web-based survey among older adults
     Robert Chauvet, Peter Rasche, Zavier Berti, Matthias Wille, Laura Barton, Katharina Schäfer, Christina Bröhl, Sabine Theis, Christopher Brandl, Verena Nitsch, Alexander Mertens, Germany

D17. Application of SHERPA in boarding procedure of blind passengers in airports
     Natalha Carvalho, Rapinder Sawhney, Claudia Lysia Araujo, Bernardo da Fonseca, Nelson Matias, Brazil

D18. Exploring the relationship between shape of smartphone and identity
     Koki Chiba, Namgyu Kang, Japan

D19. Identification of cognitive feature functions according to changes of vibration stimuli
D20. The power of game in inclusive education
Mi-hyun Choi, South Korea

D21. NAVAIR human systems 4.6 digital human modeling project update
Francesca Bozza, Italy
Lori Brattin Basham, Andrew Koch, Barry S. Shender, Jeffrey Hudson,
Jennifer Whitestone, Max Grattan, USA

D22. Effect of working posture and mental workload on computer workers physiological responses
Hsieh-Ching Chen, Taiwan

D23. Proposal of information analysis system on latent human error
Tatsuya Shimada, Riku Tsunori, Kasumi Koike, Yusaku Okada, Japan

D24. The teacher’s role before the new era of technology in education
Selene Margarita Vázquez Soto, Miguel Ángel Cruz Domínguez Hernández,
Abelardo Rivera Corsi, Mexico

D25. Evaluating human factors for drone operations using simulations and standardized tests
Daniela Doroftei, Hans De Smet, Belgium

D26. Social and economic principles of single mothers’ support in Ukraine
Oxana Kravchenko, Natalia Koliada, Alla Voitovska, Ukraine

D27. Invasive medical device for cardiovascular surgery
Ene Alexandra, Carmen Mihai, Romania

D28. A method for the inclusion of human factors in system design via use case definition
Christina Dent, Shahram Sarkani, Thomas Mazzuchi, USA

D’arcy Picton-Barnes, David Lyall, Manikam Pillay, Australia

D30. Study on the changes of physical status under the condition of lacking food and water on oxygen-deficient plateau
Xingwei Wang, Lue Deng, Hailiang Zhou, Qin Yao, Heqing Liu, Weiping Bu,
Yongchang Luo, China

D31. A featured based approach to assess visual discriminate capability for industrial applications
Enas Aref, Tycho Fredericks, Lee Wells, USA

D32. Effects of non-driving-related tasks on driver fatigue in automated driving
Sang Min Ko, Jong Kyu Choi, Yong Gu Ji, South Korea

D33. Assessment of the hospital disaster staffing plan: Vactors affecting purposeful/involuntary absence and late arrival
Taro Kanno, Kazumi Kajiyama, Ryoko Ikari, Sachika Shokuryu, Japan

D34. Automatic assessment of upper limb work-related musculoskeletal risk based on wearable sensors data
Marcela Aguirre, Alejandro Lavado, Mauricio Cerda, Chile
E1. The development of the theory of quality assessment of the information, taking into account its structural component
   Olga Popova, Boris Popo, Yury Shevtsov, Vladimir Karandey, Vladimir Klyuchko, Russia

E2. Blindsided by music: A driving simulator study employing eye tracking with music background
   Dana Olivieri, Eugene Chekaluk, Warren Brodsky, Israel

E3. Design and research of outdoor rescue products based on vital signs and cognitive orientation
   Wenjing Wang, China

E4. Design research on storage space product service system for automobile passenger transport
   Wanqiang Li, Jie Zhou, China

E5. Robots and human interaction in a furniture manufacturing industry - risk assessment
   Ana Colim, Susana Costa, André Cardoso, Pedro Arezes, Cláudia Silva, Portugal

E6. Quality of labor life in workers of the informal economy in Guadalajara, Mexico
   Raquel Gonzalez-Baltazar, Monica I. Contreras-Estrada, Silvia G. Leon-Cortes, Brenda J. Hidalgo-Gonzalez, Gustavo Hidalgo-Santacruz, Mexico

E7. Identifying influencing factors affecting pedestrians' willingness to interact with driverless vehicles
   Mattie Milner, Scott Winter, Stephen Rice, Connor Rice, Nadine Ragbir, Bradley S. Baugh, USA

E8. “Should we allow him to pass?” Increasing cooperation between truck drivers using anthropomorphism
   Jana Fank, Leon Santen, Christian Knies, Frank Diermeyer, Germany

E9. The diffusion of news applying sentiment analysis and impact on human behavior through social media
   Myriam Peñañuel, Rosa Navarrete, Maritzol Tenemaza, Stefanie Vasquez, Diego Vásquez, Sergio Luján-Mora, Ecuador

E10. Gait monitoring system for stroke prediction of aging adults
    Hongkyu Park, Seunghee Hong, Iqram Hussain, Damee Kim, Young Seo, Se Jin Park, South Korea

E11. Mental health, trust, and robots: Towards understanding how mental health mediates human-automated system trust and reliance
    Jordan Reece Crawford, Ella-Mae Hubbard, Yee Mey Goh, UK

E12. Driving simulator validation of surface electromyography controlled driving assistance for bilateral transhumeral amputees
    Edric John Nacpil, Tsutomu Kaizuka, Kimihiko Nakano, Japan

E13. Text entry performance on an expandable socket attached smartphone in stationary and mobile settings
    Satvik Kulshreshtha, Ahmed Arif, USA

E14. The role of individual differences in cognitive focus and control on medication procedural performance following clinical task interruptions
    Craig Williams, Phillip Morgan, UK

E15. Clarifying the concept of OHS culture: Literature review and concept map
    Geneviève Jourdain, Canada

E16. Digital-age consumers’ retail brand loyalty: Do physical stores matter?
    Benjamin Larson, Wi-Suk Kwon, USA

E17. Aircraft systems and passenger willingness to fly in autonomous air taxis
    Kenneth Ward, Scott Winter, Stephen Rice, USA

E18. The effect of various handling tasks for musculoskeletal system of care workers
    Shu-Zon Lou, Cheng-Lung Lee, Jia Yuan You, YuChi Chen, Taiwan
E19. The evolution of pre-school and elementary school teachers’ career trajectories – career beginnings and ambitions
   Beata Deutscherova, Adriana Wiegerova, Czech Republic

E20. A study on the accuracy improvement of traffic flow estimation using ADAS cameras with VISSIM
   Hoe Kyoung Kim, Minjeong Kim, Dae Han Jeong, Kim Ah Reum, South Korea

E21. The importance of didactic toys in kindergarten educational process
   Barbora Petru Puhrová, Hana Navratilova, Czech Republic

E22. Fictional space in movies and video-games: Similarities and approaches in their fictional world’s conception
   Carlos Figueiredo, Inês Coimbra, Portugal

E23. Development of ergonomic swimming goggles based on benchmarking and 3D facial scan
   Jangwoon Park, Waranya Khamnasak, Jared Crawford, Justin Bonds, Elys Hernandez, Mehrube Mehrubeoglu, USA

E24. Crisis management and human resource development: Towards research agenda
   Nor Amira Syairah Zulkarnaini, Roziana Shaari, Azlineer Sarip, Malaysia

E25. NeuroSquare: A flow-based visual programming tool for neurofeedback application development
   Ajay Mehul, Bryan Hernandez, Chris Crawford, USA

E26. Validation of employee engagement framework
   Abdulmohsan Almotawa, Roziana Shaari, Malaysia

E27. Spatial degradation of color discrimination in augmented reality
   Brian Flowers, Arthur Wollocko, Caroline Kingsley, Elizabeth Thiry, Michael Jenkins, USA

E28. A framework to improve evaluations of novel decision support tools
   Jesslyn Alekseyev, USA

E29. Visionaria. An open design approach for the regeneration of historical urban heritage
   Daniele Rossi, Michele Calvano, Davide Paciotti, Italy

E30. Towards an accessible UX for people with disabilities in open educational resources websites
   Rosa Navarrete, Myriam Peñañuelas, Maritzol Tenemaza, Sergio Luján-Mora, Ecuador

E31. “Possible but improbable spaces:” From interior design experience to jewelry creation
   Mónica Romãozinho, Portugal

E32. In-class competition-based assessment for effective learning
   Mei King Yang, Ki Lam, China

E33. Serrated and finned glazed facades’ impact on the user’s visual comfort
   Marcin Brzezicki, Poland

E34. How ergonomics is contributing to overall equipment effectiveness: A case study
   Isabel Loureiro, Celina Leão, Nelson Costa, Mariana Rodrigues, Portugal
This set of 25 volumes gathers the proceedings of the 10th International Conference on Applied Human Factors and Ergonomics (AHFE 2019) and the Affiliated Conferences, held July 24-28, 2019, at Washington Hilton, Washington D.C. USA. By highlighting the latest theories and models, as well as cutting-edge technologies and applications, and by combining findings from a range of disciplines including engineering, design, robotics, healthcare, transportation, simulation, management and computer science, the set provides researchers and practitioners alike with a comprehensive, timely guide on human factors research and applications. It also offers an excellent source of innovative ideas to stimulate future discussions, collaborations and developments.

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  Chen, Jessie (Ed.)

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  Di Buccianico, Giuseppe (Ed.)

- **Advances in Communication of Design**
  Ho, Amic G. (Ed.)
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<td>M. Femino</td>
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<td>E. Gaia</td>
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<td>S. Hauplick</td>
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<td>K. Latorrella</td>
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<td>K. Nieuwenhuis</td>
<td>The Netherlands</td>
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<td>R. Ricci</td>
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<td>A. Salatino</td>
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<td>I. Schlacht</td>
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<td>D. Tedone</td>
<td>Italy</td>
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Technical Program Chairs and Boards

Cognitive Computing and Internet of Things

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M. Stenkilde, Sweden
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<th>Conference Track</th>
<th>Chair/Co-Chairs</th>
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<tr>
<td>1st International Conference on Industrial Cognitive Ergonomics and Engineering Psychology</td>
<td>U. Asgher</td>
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<tr>
<td>1st International Conference on Human Factors for Apparel and Textile Engineering</td>
<td>G. Montagna, C. Carvalho</td>
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<tr>
<td>2nd International Conference on Human Factors in Artificial Intelligence and Social Computing</td>
<td>T. Ahram</td>
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<tr>
<td>2nd International Conference on Human Factors in Kansei Engineering</td>
<td>M. Nagamachi, S. Ishihara</td>
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<tr>
<td>2nd International Conference on Interdisciplinary Practice in Industrial Design</td>
<td>C. Shin, S. Shin</td>
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<tr>
<td>2nd International Conference on Human Factors in Aging and Gerontology</td>
<td>J. Kalra</td>
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<tr>
<td>2nd International Conference on Additive Manufacturing, Modeling Systems and 3D Prototyping</td>
<td>M. Di Nicolantonio, E. Rossi</td>
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<tr>
<td>2nd International Conference on Advanced Production Management and Process Control</td>
<td>B. Mrugalska</td>
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<tr>
<td>2nd International Conference on Human Factors and Assistive Technology</td>
<td>M. Okimoto</td>
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<tr>
<td>3rd International Conference on Human Factors and Wearable Technologies</td>
<td>T. Ahram, C. Falcao</td>
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<tr>
<td>3rd International Conference on Human Error, Reliability, Resilience, and Performance</td>
<td>R. L. Boring, A. G. Ho</td>
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<td>3rd International Conference on Human Factors in Communication of Design</td>
<td>C. Falcao</td>
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<td>3rd International Conference on Human Factors in Virtual Environments and Game Design</td>
<td>D. Cassenti</td>
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<td>4th International Conference on Human Factors and Simulation</td>
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<td>4th International Conference on Cognitive Computing and Internet of Things</td>
<td>G. Di Bucchianico</td>
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<td>4th International Conference on Human Factors in Management and Leadership</td>
<td>S. Nazir</td>
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<td>5th International Conference on Human Factors in Cybersecurity</td>
<td>T. Ahram</td>
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<td>5th International Conference on Human Factors, Business Management and Society</td>
<td>J. Kantola, V. Salminen</td>
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<td>5th International Conference on Human Factors and Systems Interaction</td>
<td>I. L. Nunes</td>
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<td>5th International Conference on Human Factors in Robots and Unmanned Systems</td>
<td>J. Chen</td>
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<td>5th International Conference on Human Factors in Sports, Injury Prevention and Outdoor Recreation</td>
<td>R. H. M. Goossens</td>
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<tr>
<td>5th International Conference on Human Factors in Energy: Oil, Gas, Nuclear and Electric Power Industries</td>
<td>P. Fechtelkotter</td>
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<td>5th International Conference on Human Factors in Training, Education, and Learning Sciences</td>
<td>S. Nazir</td>
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<tr>
<td>6th International Conference on Safety Management and Human Factors</td>
<td>P. Arezes</td>
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<td>6th International Conference on Human Factors in Service, Software and Systems Engineering</td>
<td>T. Ahram</td>
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<tr>
<td>6th International Conference on Human Factors, Sustainable Urban Planning and Infrastructure</td>
<td>J. Charytonowicz, C. Falcão</td>
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<tr>
<td>7th International Conference on Affective and Pleasurable Design</td>
<td>S. Fukuda</td>
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<td>7th International Conference on Ergonomics In Design</td>
<td>M. Soares, F. Rebelo</td>
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<td>7th International Conference on Human Factors in Transportation</td>
<td>N. Stanton</td>
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<td>7th International Conference on Human Factors in Transportation: Space</td>
<td>G. Musso, N. Currie-Gregg</td>
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<td>8th International Conference on Human Factors and Ergonomics in Healthcare and Medical Devices</td>
<td>N. Lightner</td>
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<td>8th International Conference on Cross-Cultural Decision Making</td>
<td>A. Murata</td>
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<td>8th International Conference on Digital Human Modeling and Applied Optimization</td>
<td>T. Alexander, S. Rajulu</td>
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<td>10th International Conference on Physical Ergonomics and Human Factors</td>
<td>R. Goonetilleke</td>
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<td>10th International Conference on Usability &amp; User Experience</td>
<td>C. Falcao, T. Ahram</td>
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<tr>
<td>10th International Conference on Neuroergonomics and Cognitive Engineering</td>
<td>H. Ayaz</td>
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<td>10th International Conference on Social &amp; Occupational Ergonomics</td>
<td>R. Goossens</td>
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<tr>
<td>20th International Conference on The Human Aspects of Advanced Manufacturing (HAAMHAI): Manufacturing Enterprises in a Digital World</td>
<td>S. Trzcielinski, W. Karwowski</td>
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Exhibition Schedule

Exhibition Setup:
Thursday, 25 July, 12:00 to 16:00
Friday, 26 July, 8:00 - 10:00

Exhibition Hours:
Thursday, 25 July, 19:00 to 21:00 (Optional)
Friday, 26 July, 10:00 to 17:00
Saturday, 27 July, 10:00 to 17:00
Sunday, 28 July, 10:00 to 14:00

Exhibition Closing/Dismantle:
Sunday, 28 July, 14:00 to 16:00

All conference exhibits, posters/demonstrations, and conference refreshment breaks will be held in the Columbia West (Terrace Level) at Washington Hilton.
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