



**Virtual**

# 2020 **AHFE** International

## 11<sup>th</sup> International Conference on Applied Human Factors and Ergonomics

jointly with

Global Issues: Human Factors in Disease Control and Pandemic Prevention

1st International Conference on Creativity, Innovation and Entrepreneurship

2nd International Conference on Industrial Cognitive Ergonomics and Engineering Psychology

2nd International Conference on Human Factors for Apparel and Textile Engineering

3rd International Conference on Human Factors in Artificial Intelligence and Social Computing

3rd International Conference on Kansei Engineering

3rd International Conference on Additive Manufacturing, Modeling Systems and 3D Prototyping

3rd International Conference on Advanced Production Management and Process Control

3rd International Conference on Interdisciplinary Practice in Industrial Design

3rd International Conference on Human Factors in Aging and Special Needs

3rd International Conference on Human Factors and Assistive Technology

4th International Conference on Human Factors and Wearable Technologies

4th International Conference on Human Error, Reliability, Resilience, and Performance

4th International Conference on Human Factors in Communication of Design

4th International Conference on Human Factors in Virtual Environments and Game Design

5th International Conference on Design for Inclusion

5th International Conference on Cognitive Computing and Internet of Things

5th International Conference on Human Factors and Simulation

5th International Conference on Human Factors in Management and Leadership

6th International Conference on Human Factors in Cybersecurity

6th International Conference on Human Factors and Systems Interaction

6th International Conference on Human Factors in Robots, Drones and Unmanned Systems

6th International Conference on Human Factors in Sports, Injury Prevention and Outdoor Recreation

6th International Conference on Human Factors, Business Management and Society

6th International Conference on Human Factors in Energy

6th International Conference on Human Factors in Training, Education, and Learning Sciences

7th International Conference on The Human Side of Service Engineering

7th International Conference on Human Factors, Software and Systems Engineering

7th International Conference on Architecture, Sustainable Urban Planning and Infrastructure

7th International Conference on Safety Management and Human Factors

8th International Conference on Affective and Pleasurable Design

8th International Conference on Human Factors in Transportation

8th International Conference on Ergonomics in Design

9th International Conference on Cross-Cultural Decision Making

9th International Conference on Human Factors and Ergonomics in Healthcare and Medical Devices

9th International Conference on Digital Human Modeling and Applied Optimization

11th International Conference on Physical Ergonomics and Human Factors

11th International Conference on Usability & User Experience

11th International Conference on Neuroergonomics and Cognitive Engineering

11th International Conference on Social & Occupational Ergonomics

21st International Conference on The Human Aspects of Advanced Manufacturing: Managing Enterprise of the Future

# Final Program

## 16-20 July, 2020

### Virtual Conference, USA

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## DETAILED TECHNICAL PROGRAM

### SATURDAY, JULY 18

8:00 - 10:00 10

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13:30 - 15:30 21

16:00 - 18:00 27

### SUNDAY, JULY 19

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13:30 - 15:30 45

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### MONDAY, JULY 20

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## POSTER/DEMONSTRATION SESSIONS

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# Opening

## Plenary Session and Keynote Address

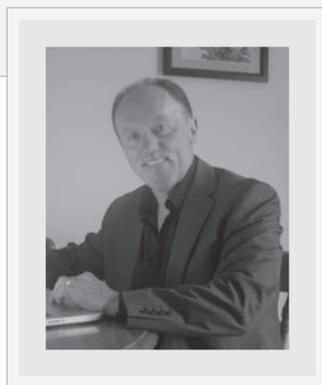
Date: Friday, July 17 • 17:00 - 19:00  
Virtual Room: IBM Watson Digital

### INTRODUCTORY REMARKS

Waldemar Karwowski - General Conference Chair

### HUMAN SYSTEMS INTEGRATION IN CHANGING TIMES: HOMO SEDENS REVISITED

**Dr. Robert S. Bridger**  
United Kingdom



#### About the speaker

Dr. Bob Bridger is a consultant in Human Factors and Ergonomics and Director of his own company. He is author of the textbook 'Introduction to Human Factors and Ergonomics', now in its fourth edition and a new book 'A Guide to Active Work in the Modern Office: Homo Sedens in the 20th Century'. He is Past President of the Chartered Institute of Ergonomics and Human Factors.

### Access to the Virtual Conference Scientific and Technical Program will be Available through the AHFE 2020 Submission System

Detailed Access for all sessions will be sent to Registered Participants

Virtual Conference program schedule is listed in  
Eastern Daylight Time (EDT) - New York Timezone

### CONFERENCE SPONSORS

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Chugoku-Shikoku Branch

[www.ahfe.org](http://www.ahfe.org)

# Tutorials

Virtual Conference program schedule is listed in Eastern Daylight Time (EDT) - New York Timezone

## PRE-CONFERENCE TUTORIALS

Half-Day tutorials at introductory, intermediate, and advanced levels, covering the entire spectrum of the conference. Tutorial will be offered on Thursday, July 16 and Friday, July 17, 2020. Tutorial registration is required.

### THURSDAY, JULY 16

8:00 - 12:00		BREAK AT 10:30	Room
T-2	<b>Fundamentals in Data Visualization and Interface Design</b> Presenter: Abbas Moallem, San Jose State University		AHFE 1
T-3	<b>Design, User Experience and Usability</b> Presenter: Javed Sheikh, University of Sialkot		AHFE 2
13:00 - 17:00		BREAK AT 15:30	Room
T-4	<b>How to Design for Great User Experience</b> Presenter: Everett McKay, UX Design Edge		AHFE 1
T-6	<b>1D to 4D Anthropometry with the Open Platform DINED</b> Presenter: Toon Huysmans, Delft University		AHFE 2

### FRIDAY, JULY 17

8:00 - 12:00		BREAK AT 10:30	Room
T-8	<b>Effective Design Reviews</b> Presenter: Everett McKay, UX Design Edge		AHFE 1
T-9	<b>Prototyping HMI for Partially and Highly Automated Vehicles: A Balanced Human Systems Integration Approach</b> Presenters: Marcel Baltzer, Frank Flemisch, RWTH-Aachen and Fraunhofer		AHFE 2
13:00 - 17:00		BREAK AT 15:30	Room
T-10	<b>Critical Safety Systems: Designing Warning Strategies and Requirements</b> Presenter: Eric Vorm, Navy Aerospace Experimental		AHFE 1
T-11	<b>User-Centered Design: Creating Effective Personas</b> Presenter: Everett McKay, UX Design Edge		AHFE 2
T-12	<b>Data Science: Python for Predictive Analytics</b> Presenter: Javed Sheikh, University of Sialkot		AHFE 3

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#	SESSION TITLE	ROOM	TRACK
Session Time: 8:00 - 10:00 (pages 10 - 14)			
1	Plenary: Neuroergonomics and Cognitive Engineering	AHFE 7	CN
2	Plenary: Human Factors in Robots, Drones, and Unmanned Systems	AHFE 2	HFRDUS
3	HSSE Opening Session: Welcome, Opening Talk, Discussants	AHFE 1	HSSE
4	Affective Value and Kawaii Engineering	AHFE 15	APD
5	Artificial Intelligence and Social Computing I	AHFE 10	AISC
6	Design for Visibility and Comfort	AHFE 8	ED
7	Future Strategies and Challenges of Design for Inclusion	AHFE 12	DI
8	High-Reliability Organization Development	AHFE 14	EHMD
9	Creativity, Innovation and Entrepreneurship	AHFE 13	CIE
10	Interdisciplinary Approach to Industrial Design Process	AHFE 9	IPID
11	Emerging Technologies and Topics in Workplace Ergonomics	AHFE 11	PEHF
12	Driver Behavior and Performance	AHFE 3	RR
13	Workplace Design	AHFE 16	SOE
14	Human-Systems Design	AHFE 4	SYSI
15	Healthcare Education Challenges and Mobile Learning Systems	AHFE 5	TELS
16	Usability Evaluation and Interface Design	AHFE 6	UUE
Session Break: 10:00 - 10:30			
Session Time: 10:30 - 12:30 (pages 14 - 21)			
18	Research Approaches to Service Innovation: Organizational Perspectives	AHFE 1	HSSE
19	Exploiting Contemporary Technology in Flight Deck Design to Improve Flight Safety	AHFE 10	AVI/SPACE
20	Human Factors and Simulated Agents	AHFE 12	HFSIM/ HFRDUS
21	Eye Gaze and Monitoring Human Performance Under Highly Ecological Settings	AHFE 7	CN
22	Digital Human Modeling by Women	AHFE 11	DHMAO
23	Innovation Design in Ergonomics	AHFE 8	ED
24	Mining Industry	AHFE 2	HFBMS
25	Socio-Political Modeling	AHFE 13	HFSIM
26	Applications in Software, Service and Systems Engineering I	AHFE 14	HFSSE
27	Human Factors and Wearable Technologies I	AHFE 15	HFWT
28	An Interdisciplinary Approach to Design Practice	AHFE 9	IPID
29	Accidents	AHFE 3	RR
30	Musculoskeletal System and Posture	AHFE 16	SOE
31	Architecture for People - Present and Future	AHFE 17	SUPI
32	Transportation, User Experience, Affordance and Technology Applications	AHFE 4	SYSI
33	Analysis of Learning Strategies and Learning Performance	AHFE 5	TELS
Session Break: 12:30 - 13:30			

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#	SESSION TITLE	ROOM	TRACK
Session Time: 13:30-15:30 (pages 21 - 27)			
35	Applying Service Design Techniques to Healthcare	AHFE 1	HSSE
36	Artificial Intelligence and Social Computing II	AHFE 10	AISC
37	Advanced Studies in Additive Manufacturing	AHFE 6	AMMSP
38	Cross-Cultural Decision Making I	AHFE 16	CCDM
39	Design for Disability and Social Inclusion	AHFE 12	DI
40	Design and Service Strategy	AHFE 8	ED
41	Patient Safety	AHFE 14	EHMD
42	Human Oriented Ecosystem Development and Community	AHFE 2	HFBMS
43	Human-AI-Robot Teaming	AHFE 7	HFRDUS
44	Kansei Engineering and Extension to IT & VR	AHFE 11	KE
45	Transportation: Maritime I	AHFE 17	MAR
46	Comfort	AHFE 3	RR
47	Ergonomics and Safety Management	AHFE 15	SMHF
48	Human Aspects in Industrial Manufacturing and Service Systems	AHFE 13	APMPC
49	Mobile Applications and Accessibility	AHFE 4	SYSI
Session Break: 15:30-16:00			
Session Time: 16:00-18:00 (pages 27 - 32)			
52	Emerging Research Innovations in AI, User Experience and Design: Education	AHFE 1	HSSE
53	Competency Achievement Through Interactive Multimedia and Gamification	AHFE 5	TELS
54	Human Factors on Security and Crises Management	AHFE 4	SYSI
55	Human Factors in Architecture, Sustainable Urban Planning and Infrastructure	AHFE 17	SUPI
56	Teaming with Robots and Artificial Intelligence	AHFE 7	CN
57	3D Anthropometry and Shape Modeling and Applied Optimization	AHFE 11	DHMAO
58	Education and Gamification	AHFE 8	ED
59	Human Factors in Energy: Oil, Gas, Nuclear and Electric Power Industries I	AHFE 6	ENERGY
60	Resilience and Recovery	AHFE 12	HERRP
61	Human Factors and Assistive Technology I	AHFE 14	HFAT
62	Textile, Fashion, Apparel Design and Engineering	AHFE 15	HFATE
63	Human and Social Capital	AHFE 2	HFBMS
64	Human Factors in Game Design	AHFE 13	HFGD
65	Human-Technology Approach to Governance and Job Satisfaction	AHFE 16	HFML
66	Human Factors Research Methods for Glove and Hand Tool Design	AHFE 9	IPID
67	Human Machine Interaction	AHFE 3	RR

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#	SESSION TITLE	ROOM	TRACK
Session Time: 8:00 - 10:00 (pages 33 - 39)			
69	Emerging Research Innovations in AI, User Experience and Design: Industry	AHFE 1	HSSE
70	Production System Design and Information Technology Applications	AHFE 13	APMPC
71	Applications in Software, Service and Systems Engineering II	AHFE 14	HFSSE
72	Brain-Machine Interface and Artificial Intelligence (AI) systems	AHFE 16	ICEEP
73	Design and VR Serious Game for Education for Behavior Change	AHFE 8	ED
74	Sales and Marketing	AHFE 2	HFBMS
75	Entrepreneurship and Innovative Product Design	AHFE 10	CIE
76	Kansei Design	AHFE 9	IPID
77	Posture Assessment and Musculoskeletal Disorders	AHFE 11	PEHF
78	Assessing Risks	AHFE 15	SMHF
79	Ergonomics in Urban Design	AHFE 17	SUPI
80	Management of Productivity in Smart Manufacturing/Industry 4.0	AHFE 4	SYSI
81	Driving Simulators	AHFE 12	HFSIM
82	Advanced Learning Technologies	AHFE 5	TELS
83	Usability and User-Centered Design I	AHFE 6	UUE
84	Sensory Engineering and Emotion	AHFE 3	APD
Session Break: 10:00 - 10:30			
Session Time: 10:30 - 12:30 (pages 39 - 44)			
86	Digital Services for Product Innovation	AHFE 1	HSSE
87	Usability and User-Centered Design II	AHFE 6	UUE
88	Teaming With Autonomous Systems for Medical System Design, or Training and Delivery of Care	AHFE 7	CN
89	Products and Services for an Inclusive Society	AHFE 12	DI
90	Implementation of Technology for Training and Certification	AHFE 5	TELS
91	Clinical Care and Prosthetics	AHFE 14	EHMD
92	Business Development	AHFE 2	HFBMS
93	Interdisciplinary Design Education	AHFE 9	IPID
94	Transportation: Maritime II	AHFE 10	MAR
95	Ergonomics Design and Analysis	AHFE 11	PEHF
96	Driving Automation I	AHFE 3	RR
97	Safety Management I	AHFE 15	SMHF
98	Analysis, Methods and Tools	AHFE 16	SOE
99	Ergonomics in Building and Architecture	AHFE 17	SUPI
100	Ergonomics, Human Factors and Safety in Production Management	AHFE 13	APMPC
101	Assistive Technologies and Accessibility	AHFE 4	SYSI
Session Break: 12:30 - 13:30			

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#	SESSION TITLE	ROOM	TRACK
Session Time: 13:30-15:30 (pages 45 - 50)			
103	AI Designed to Support Healthy Aging	AHFE 1	HSSE
104	Artificial Intelligence and Social Computing III	AHFE 10	AISC
105	Competencies and Culture for Smart Manufacturing/Industry 4.0	AHFE 4	SYSI
106	Aviation I	AHFE 8	AVI
107	Physical Ergonomics and Work-Related Musculoskeletal Disorders	AHFE 11	PEHF
108	Awareness, Training and Education	AHFE 9	CYBER
109	Usability and User Experience Applications I	AHFE 6	UUE
110	Cognitive Factors in Human Performance	AHFE 12	HERRP
111	Accessibility, Safety and Clinical Adaptations	AHFE 13	HFAS
112	Sustainability	AHFE 2	HFBMS
113	Human Interaction with Manned and Unmanned Aerial Vehicles	AHFE 7	HFRDUS
114	Applications in Software, Service and Systems Engineering III	AHFE 14	HFSSE
115	Human Factors and Wearable Technologies II	AHFE 15	HFWT
116	Neurocomputing and Neuroinformatics	AHFE 16	ICEEP
117	Driving Automation II	AHFE 3	RR
118	Ergonomics in Building, Material and Architecture	AHFE 17	SUPI
Session Break: 15:30-16:00			
Session Time: 16:00-18:00 (pages 51 - 56)			
120	Knowledge Science in Practical Service Situations	AHFE 1	HSSE
121	Artificial Intelligence and Social Computing IV	AHFE 10	AISC
122	Production System Design: Modelling, Analysis, Design and Implementations I	AHFE 13	APMPC
123	Aviation II	AHFE 5	AVI
124	Creativity, Design and Entrepreneurship in Education	AHFE 7	CIE
125	Equipment and Space Design	AHFE 8	ED
126	Virtual and Smart Technology for Apparel Ergonomics and Engineering	AHFE 17	HFATE
127	Human Factors and Assistive Technology II	AHFE 14	HFAT
128	Education	AHFE 2	HFBMS
129	Web, Media and Communication	AHFE 9	HFCD
130	Human Factors in Virtual Environments I	AHFE 15	HFGD
131	Management and Leadership in Maritime Domain and Organizational Environment	AHFE 11	HFML
132	Interaction Design in Educational Applications	AHFE 4	SYSI
133	Driver/Rider Training and Vulnerable Road Users	AHFE 3	RR
134	Usability and User Experience Applications II	AHFE 6	UUE
135	Cognitive Neuroscience and Neuroadaptive Technologies	AHFE 16	ICEEP

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#	SESSION TITLE	ROOM	TRACK
Session Time: 8:00 - 10:00 (pages 57 - 63)			
137	Service Ethics, Trusted AI, and Service Robotics	AHFE 1	HSSE
138	Artificial Intelligence and Social Computing V	AHFE 10	AISC
139	Production System Design: Modelling, Analysis, Design and Implementations II	AHFE 13	APMPC
140	Innovation and Systems Design	AHFE 17	CIE
141	Neurobusiness Applications	AHFE 7	CN
142	New Findings and Methods in Human Performance	AHFE 11	HERRP
143	Cognition, Strategies and Alterations	AHFE 8	HFAS
144	Cross-Cultural Decision Making II	AHFE 16	CCDM
145	Human Factors and Assistive Technology III	AHFE 5	HFAT
146	Culture, Design and Social Communication	AHFE 4	HFCD
147	Virtual Reality and Game Design Application	AHFE 15	HFGD
148	Healthcare, Occupational and Cognitive Processes	AHFE 12	HFSIM
149	Applications in Software, Service and Systems Engineering IV	AHFE 14	HFSSE
150	An Interdisciplinary Approach to Digital Design	AHFE 9	IPID
151	User Interface for Accessibility	AHFE 6	UUE
152	Cybersecurity Tools and Analytics	AHFE 2	CYBER
Session Break: 10:00 - 10:30			
Session Time: 10:30 - 12:30 (pages 63 - 69)			
154	Empowerment of Citizens, Public Sector Employees and Other Stakeholders in the Digital Age	AHFE 1	HSSE
155	Coordinating for Emotional Satisfaction I	AHFE 17	APD
156	User Experience and HMI	AHFE 6	UUE
157	Systemic-Structural Activity Theory and Review of Neuroergonomics Applications	AHFE 7	CN
158	Cognitive, Social, Economic and Behavioral Aspects of Cybersecurity	AHFE 14	CYBER
159	DHM Applications and Motion Capture and Analysis	AHFE 11	DHMAO
160	User Research	AHFE 8	ED
161	Improving Quality	AHFE 2	HFBMS
162	Intelligent Agents and Human-Robot Interaction	AHFE 13	HFRDUS
163	Training and Simulation	AHFE 12	HFSIM
164	Design for Cognition and Optimization	AHFE 16	ICEEP
165	An Interdisciplinary Approach to Innovation	AHFE 9	IPID
166	Transport Planning and Infrastructure Design	AHFE 3	RR
167	Safety Management II	AHFE 15	SMHF
168	Complex Human-System Interaction	AHFE 4	SYSI
169	Student/Environment Interaction	AHFE 5	TELS
Session Break: 12:30 - 13:30			

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#	SESSION TITLE	ROOM	TRACK
Session Time: 13:30-15:30 (pages 69 - 75)			
171	Service Science and Knowledge Science in the AI Era	AHFE 1	HSSE
172	Artificial Intelligence and Social Computing VI	AHFE 10	AISC
173	Aviation III	AHFE 17	AVI
174	Cognitive Function Assessment	AHFE 7	CN
175	Human Factors in Energy: Oil, Gas, Nuclear and Electric Power Industries II	AHFE 13	ENERGY
176	Design, Experiments and Innovative Issues in Additive Manufacturing Domain	AHFE 12	AMMSP
177	Advances in Medical Devices and Diagnosis Techniques	AHFE 14	EHMD
178	Human Factors for Textile and Society	AHFE 8	HFATE
179	Data and Analysis	AHFE 2	HFBMS
180	Human Factors in Virtual Environments II	AHFE 15	HFGD
181	Case Studies of Physical Ergonomics	AHFE 11	PEHF
182	Sociotechnical Approach to Road Safety (STARS) Project	AHFE 3	RR
183	Studies on Impact and Trends in Occupational and Social Ergonomics	AHFE 16	SOE
184	Implementation of Technology in Health and Special Education	AHFE 5	TELS
185	DHM and Application in Military	AHFE 9	DHMAO
186	Usability and User Experience Applications III	AHFE 6	UUE
Session Break: 15:30-16:00			
Session Time: 16:00-18:00 (pages 75 - 79)			
188	HSSE Closing Session: Best Paper Awards, Thank-you's, Planning Next HSSE	AHFE 1	HSSE
189	Coordinating for Emotional Satisfaction II	AHFE 17	APD
190	Machine Learning in Cognitive Neuroimaging	AHFE 7	CN
191	Design for Inclusion in the Living Environment	AHFE 13	DI
192	Anthropometric Design	AHFE 8	ED
193	Human Factors, Business Management and Efficiency	AHFE 2	HFBMS
195	An Interdisciplinary Approach to Design Manufacturing	AHFE 9	IPID
196	Kansei Engineering	AHFE 10	KE
197	Physical Workload Assessment Methods and Techniques	AHFE 11	PEHF
198	Route Choice, Navigation and Wayfinding	AHFE 3	RR
199	Safety Management Potpourri	AHFE 15	SMHF
200	Social Aspects and Occupational Ergonomics	AHFE 16	SOE
201	Teaching/Learning Interaction	AHFE 5	TELS
202	Software Applications	AHFE 14	EHMD
203	Usability and User Experience Applications IV	AHFE 6	UUE

# Conference at a Glance

ACRONYM	TRACK
DCPP	Global Issues: Human Factors in Disease Control and Pandemic Prevention
CIE	1st International Conference on Creativity, Innovation and Entrepreneurship
ICEEP	2nd International Conference on Industrial Cognitive Ergonomics and Engineering Psychology
HFATE	2nd International Conference on Human Factors for Apparel and Textile Engineering
AMMSP	3rd International Conference on Additive Manufacturing, Modeling Systems and 3D Prototyping
APMPC	3rd International Conference on Advanced Production Management and Process Control
HFAT	3rd International Conference on Human Factors and Assistive Technology
HFAS	3rd International Conference on Human Factors in Aging and Special Needs
AISC	3rd International Conference on Human Factors in Artificial Intelligence and Social Computing
IPID	3rd International Conference on Interdisciplinary Practice in Industrial Design
KE	3rd International Conference on Kansei Engineering
HERRP	4th International Conference on Human Error, Reliability, Resilience, and Performance
HFGD	4th International Conference on Human Factors in Game Design and Virtual Environments
HFWT	4th International Conference on Human Factors and Wearable Technologies
HFGD	4th International Human Factors in Communication of Design
CCIoT	5th International Conference on Cognitive Computing and Internet of Things
DI	5th International Conference on Design for Inclusion
HFSIM	5th International Conference on Human Factors and Simulation
HFML	5th International Conference on Human Factors in Management and Leadership
SYSI	6th International Conference on Human Factors and Systems Interaction
CYBER	6th International Conference on Human Factors in Cybersecurity
ENERGY	6th International Conference on Human Factors in Energy: Oil, Gas, Nuclear and Electric Power Industries
HFRDUS	6th International Conference on Human Factors in Robots, Drones and Unmanned Systems
SIPOR	6th International Conference on Human Factors in Sports, Injury Prevention and Outdoor Recreation
TELS	6th International Conference on Human Factors in Training, Education, and Learning Sciences
HFBMS	6th International Conference on Human Factors, Business Management and Society
HSSE	7th International Conference on The Human Side of Service Engineering
HFSSE	7th International Conference on Human Factors, Software and Systems Engineering
SUPI	7th International Conference on Human Factors, Architecture, Sustainable Urban Planning and Infrastructure
SMHF	7th International Conference on Safety Management and Human Factors
APD	8th International Conference on Affective and Pleasurable Design
ED	8th International Conference on Ergonomics in Design
AVI/MAR/RR/SPACE	8th International Conference on Human Factors in Transportation: Aviation, Maritime, Road & Rail, Space
EHMD	9th International Conference on Human Factors and Ergonomics in Healthcare and Medical Devices
CCDM	9th International Conference on Cross-Cultural Decision Making
DHMAO	9th International Conference on Digital Human Modeling and Applied Optimization
CN	11th International Conference on Neuroergonomics and Cognitive Engineering
PEHF	11th International Conference on Physical Ergonomics and Human Factors
SOE	11th International Conference on Social & Occupational Ergonomics
UUE	11th International Conference on Usability & User Experience
MFG	21st International Conference on The Human Aspects of Advanced Manufacturing (HAAMAHA): Manufacturing Enterprises in a Digital World

1	<b>Plenary: Neuroergonomics and Cognitive Engineering</b> Chair: Hasan Ayaz, USA	CN
8:00-10:00 AHFE 7	Responsible brain-system integration Banu Onaral, USA	
2	<b>Plenary: Human Factors in Robots, Drones, and Unmanned Systems</b> Chair: Matteo Zallio, USA/Italy	HFRDUS
8:00-10:00 AHFE 2	The social psychology of human-agent interaction Jonathan Gratch, USA	
3	<b>HSSE Opening Session: Welcome, Opening Talk, Discussants</b> Co-Chairs: Christine Leitner and Jim Spohrer, UK/USA	HSSE
8:00 - 10:00 AHFE 1	Service engineering design for healthy aging Don Norman, USA Toward a computable scholarly record Victoria Stodden, USA	
4	<b>Affective Value and Kawaii Engineering</b> Co-Chairs: Michiko Ohkura and Hiroko Shoji, Japan	APD
8:00-10:00 - AHFE 15	Analysis of factors affecting luxury of images of cooked dishes Yuri Hamada, Yumi Takei, Hiroko Shoji, Japan Differences of image words for clothes depending on fashion brands Yuri Hamada, Takahiro Tanaka, Hiroko Shoji, Japan Preliminary study on color therapy effect evaluation by emotion estimation method using biological signals Yohei Kawakami, Makoto Komazawa, Chen Feng, Midori Sugaya, Japan Comparing subjective and objective evaluations of the ratio of visible green Momoko Kawakami, Masayoshi Tanishita, Michiko Ohkura, Japan Color analysis of popular lipstick brands Peeraya Sripan, Keiko Miyatake, Kejkaew Thanasuan, Michiko Ohkura, Japan	
5	<b>Artificial Intelligence and Social Computing I</b> Co-Chairs: Sylvain Hourlier and Jason Telner, France/USA	AISC
8:00-10:00 - AHFE 10	A human-robot interaction architecture to support ethical actions derived from folk morality and expert opinion Ronald Arkin, Alan Wagner, Jason Borenstein, Cameron Taylor, USA For our complex future, don't give us AI, give us Intelligent Assistance (IA): The case for avionics Sylvain Hourlier, France Development of a holistic method to implement artificial intelligence in manufacturing areas Bastian Pokorni, Moritz Hämmerle, Fabian Volz, Jan Zwerina, Germany Conversational advisors – Are these really what users prefer? User preferences, lessons learned and design recommended practices Jason Telner, Jon Temple, USA Future trends in voice user interfaces Jason Telner, USA Tracking people using ankle-level 2D LiDAR for gait analysis Mahmudul Hasan, Junichi Hanawa, Riku Goto, Hisato Fukuda, Yoshinori Kuno, Yoshinori Kobayashi, Japan Robust and fast heart rate monitoring based on video analysis and its application Kouyou Otsu, Qiang Zhong, Das Keya, Hisato Fukuda, Antony Lam, Yoshinori Kobayashi, Yoshinori Kuno, Japan	

<b>6</b>	<b>Design for Visibility and Comfort</b> Co-Chairs: Hiroataka Aoki and Yue He, Japan/China	<b>ED</b>
8:00-10:00 - AHFE 8	<p><b>Hybrid approach for evaluation of visibility of platform display: Subjective ratings combined with gaze behavior elicited from eye movement data</b>                      Hiroataka Aoki, Naoto Koizumi, Japan</p> <p><b>A study on the influence of refrigerator lighting layout on visual comfort</b>                      Jian Wu, Linghua Ran, Lin Gui, Zhen Wang, Zhongting Wang, Haimei Wu, China</p> <p><b>A study on the lighting visual comfort for refrigerators with different volumes</b>                      Linghua Ran, Jian Wu, Lin Gui, Zhen Wang, Zhongting Wang, Yongjia Shen, China</p> <p><b>The influence of reading and writing table lamp lighting parameters on visual fatigue</b>                      Jiyao Lu, Linghua Ran, Lixue Zhang, Yue He, China</p> <p><b>Support factor of upholstered seat cushions</b>                      Yunlong Zhu, Liming Shen, Onder Tor, Jilei Zhang, Ling Liu, Xiaohong Yu, Lingling Hu, China</p> <p><b>Design of a mobile support application for teenagers suffering from depression in Zapopan, México</b>                      Nora Paulina González-Cabrera, Ana Victoria Aragon, Gabriela Durán-Aguilar, Alberto Rossa-Sierra, Mexico</p> <p><b>Strategies for urban furniture color planning</b>                      Margarida Gamito, Fernando Moreira Da Silva, Portugal</p>	
<b>7</b>	<b>Future Strategies and Challenges of Design for Inclusion</b> Co-Chairs: Avril Accolla and Daniele Busciantella Ricci, China/Italy	<b>DI</b>
8:00-10:00 - AHFE 12	<p><b>Exploring boundaries and synergies between inclusive design and service design</b>                      Daniele Busciantella Ricci, Libertad Rizo, Carlos Aceves-Gonzalez, Italy</p> <p><b>Evaluating possibilities in Chinese market and media for strategic design of sustainable development and inclusion</b>                      Avril Accolla, China</p> <p><b>Employing the inclusive design process to design for all</b>                      Jenna Mikus, Victoria Høisæther, Carmen Martens, Ubaldo Spina, Janice Rieger, Australia</p> <p><b>Using AI to enable design for diversity: A perspective'</b>                      Fang Li, Hua Dong, Long Liu, China</p> <p><b>Design for inclusion and diversity: Developing social competencies in engineering education</b>                      Claudia Lizette Garay-Rondero, David Ernesto Salinas-Navarro, Ericka Zulema Rodriguez Calvo, Mexico</p> <p><b>Building communities through digital data sharing</b>                      Graziella Roccella, Barbara Melis, Elena Fabris, Alan Marcus, Valeria Bruni, Soroosh Nazem, Italy</p> <p><b>How to democratize Internet of Things devices. A participatory design study to improve digital literacy</b>                      Matteo Zallio, John McGrory, Damon Berry, USA</p>	
<b>8</b>	<b>High-Reliability Organization Development</b> Co-Chairs: Helen Fuller and Tim Arnold, USA	<b>EHMD</b>
8:00-10:00 - AHFE 14	<p><b>Design of a fellowship learning-by-teaching experience for reflecting on safety and change</b>                      Timothy Arnold, Helen Fuller, Tandi Bagian, William Gunnar, USA</p> <p><b>A human factors framework and heuristics for diffusion of innovations</b>                      Helen Fuller, Timothy Arnold, Tandi Bagian, William Gunnar, USA</p> <p><b>Systems engineering for healing healthcare: The journey from compliance to resilience</b>                      Tandi M. Bagian, Helen J. A. Fuller, Timothy Arnold, USA</p> <p><b>Virtual reality (VR) in nursing education: Jordan case study</b>                      Fuad El-Qirem, Ayman Bani Salameh, Malakeh Malak, Jordan</p> <p><b>Demonstrating wellbeing and healthcare HCI through multidisciplinary innovation and experiential prototyping</b>                      Wei Liu, Xin Zhao, Wenjie Pan, Dan Qin, Menghua Tan, China</p>	

9	<b>Creativity, Innovation and Entrepreneurship</b> Co-Chairs: Evangelos Markopoulos and Tero Reunanen, UK/Finland	CIE
8:00-10:00 - AHFE 13	<p><b>Democratizing innovation. A Geo-entrepreneurial analysis and approach through the company democracy model</b>          Evangelos Markopoulos, Georgios Markopoulos, Hannu Vanharanta, UK</p> <p><b>Pink ocean strategy: Democratizing business knowledge for social growth and innovation</b>          Evangelos Markopoulos, Maria Barbara Ramonda, Lisa Marie Carolin Winter, Hannu Vanharanta, UK</p> <p><b>Virtual reality (VR) safety education for ship engine training on maintenance and safety (ShipSEVR)</b>          Evangelos Markopoulos, Mika Luimula, Pasi Porramo, Tayfun Pisirici, Aleks Kirjonen, UK</p> <p><b>Analysis of the cognitive processes underlying discussions in complex problem solving</b>          Yingting Chen, Taro Kanno, Kazuo Furuta, Japan</p> <p><b>Balancing innovation and tangibility using the Spiraled Agile Design Sprinting approach</b>          Sylvain Bruni, USA</p> <p><b>Engineering design thinking and making: Online transdisciplinary teaching and learning in a Covid-19 context</b>          Jinge Huang, Wenjie Pan, Yao Liu, Xiaohan Wang, Wei Liu, China</p>	
10	<b>Interdisciplinary Approach to Industrial Design Process</b> Co-Chairs: Yong-Gyun Ghim and Cliff Shin, USA	IPID
8:00-10:00 - AHFE 9	<p><b>Redefining user needs</b>          James Rudolph, USA</p> <p><b>The role of design in consumer behaviour: How design can influence consumer decision making at a point of purchase</b>          Ruzbeh Irani, Lois Frankel, Canada</p> <p><b>Designing an experience ecosystem on campus</b>          Scott Shim, USA</p> <p><b>Ageless design: A design method of product longevity for cross-generation</b>          Yong-Gyun Ghim, Cliff Shin, USA</p> <p><b>Collaboration to improve experience in hospital environments</b>          Kayla Daigle, Lois Frankel, Canada</p> <p><b>Emotional interaction design in landscape installation</b>          Yuhao Jiang, China</p>	
11	<b>Emerging Technologies and Topics in Workplace Ergonomics</b> Co-Chairs: Satoshi Muraki and Ping Yeap Loh, Japan	PEHF
8:00-10:00 - AHFE 11	<p><b>Augmentative technology for human in physical work: A perspective from ergonomics</b>          Satoshi Muraki, Jeewon Choi, Wen Liang Yeoh, Yuanyuan Wang, Nursalbiah Binti Nasir, Ping Yeap Loh, Seiji Saito, Osamu Fukuda, Japan</p> <p><b>Ultrasound assessment of median nerve compression at office workstation</b>          Ping Yeap Loh, Shin Takesue, Wen Liang Yeoh, Satoshi Muraki, Japan</p> <p><b>Effects of arm posture and grip force during handle vibration on the development of hand-arm fatigue</b>          Josefa Angelie Revilla, Ping Yeap Loh, Satoshi Muraki, Japan</p> <p><b>Investigation into force increase by assistance lost during isometric force control</b>          Jeewon Choi, Ping Yeap Loh, Satoshi Muraki, Japan</p> <p><b>BACKS 2020: Criteria for occupational spine disease in a social security compensation system</b>          Jenn Zhueng Tam, Azlan Darus, Zuraida Mohamed, Nizam Jamaluddin, Mohammed Azman A. Mohammed, Malaysia</p> <p><b>Subjective and objective measures to assess postural instability: Their linear correlations and abilities to detect effects of work-related factors</b>          Liangjie Guo, Junhui Kou, Shuping Xiong, China</p> <p><b>Modeling the joint stiffness change by pelvic tightening based on alignment of lumbar and pelvis</b>          Michihiro Yoshida, Tanaka Takayuki, Yoshio Tsuchiya, Yuto Kaneko, Japan</p>	

<b>12</b>	<b>Driver Behavior and Performance</b> Co-Chairs: Mark Wiggins and Anika Boelhouwer, Australia/Netherlands	<b>RR</b>
8:00-10:00 - AHFE 3	<p><b>Cue utilization and cognitive load during breaks from sustained attention tasks</b> Mark Wiggins, Australia</p> <p><b>Determining infrastructure- and traffic factors that increase the perceived complexity of driving situations</b> Anika Boelhouwer, Marieke Martens, Mascha Van Der Voort, Arie Paul Van Den Beukel, Netherlands</p> <p><b>Development of statistical models for predicting automobile seat fit of drivers</b> Baekhee Lee, Kihyo Jung, Jangwoon Park, USA</p> <p><b>How personal identity influences the driving behavior – Correlation analysis with naturalistic driving data</b> Cäcilia von Lienen, Lars Hannawald, Fabian Schwarzenberger, Günther Prokop, Jana-Sophie Effert, Germany</p> <p><b>Assessment of driver distraction caused by social networking activities using the smartphone: a driving simulator study</b> Fabrizio D'Amico, Alessandro Calvi, Chiara Ferrante, Luca Bianchini Ciampoli, Italy</p> <p><b>Personalized driver state profiles: A naturalistic data-driven study</b> Arash Tavakoli, Mehdi Boukhechba, Arsalan Heydarian, USA</p>	
<b>13</b>	<b>Workplace Design</b> Co-Chairs: Karen Laroza and Kine Reegård, Philippines/Norway	<b>SOE</b>
8:00-10:00 - AHFE 16	<p><b>Incidence of varicose veins and associated risk factors among factory workers to develop an ergonomically sound workplace</b> Karen Laroza, John Paolo Isip, Paula Vicente, Shella Marie Almazan, Peren Landayan, Dan Joshua Gascon, Jairah Heidilene Jose, Philippines</p> <p><b>Workplace design and ergonomic analysis for workers with disabilities</b> Natasa Vujica-Herzog, Borut Buchmeister, Slovenia</p> <p><b>Situational assessment of noise and ergonomic factors in welding activities: Implications on the well-being of Ghanaian informal auto-mechanics</b> Mohammed Aminu Sanda, Juliet Nugble, Ghana</p> <p><b>An empirical investigation of factors influencing energy saving behavior in the workplace</b> Kine Reegård, Asgeir Droivoldsmo, Norway</p> <p><b>Ergonomic issues in manual baked-corn manufacturing in central India</b> Laxmikant Patil, Dhritiman Bhaumik, India</p>	
<b>14</b>	<b>Human-Systems Design</b> Co-Chairs: Mohammed-Aminu Sanda and Maximilian Zarte, Ghana/Germany	<b>SYSI</b>
8:00-10:00 - AHFE 4	<p><b>Employees perception of the implementation of information technology systems in the Ghanaian public sector</b> Mohammed Aminu Sanda, Ghana</p> <p><b>Principles for human-centered system design in industry 4.0 – a systematic literature review</b> Maximilian Zarte, Agnes Pechmann, Isabel I. Nunes, Germany/Portugal</p> <p><b>Economic implications of innovative visual guidance system for crane cabins</b> Vesna Spasojevic Brkic, Nikola Dondur, Aleksandar Brkic, Martina Perisic, Serbia</p> <p><b>Green work environments and workforce productivity among energy organizations in Ghana</b> Rufai Kilu, Mohammed-Aminu Sanda, Ghana</p> <p><b>Research on eye movement parameters of command and control system operator based on Emma model</b> Ning Li, Tuoyang Zhou, Jinshou Shi, Ziang Chen, Jincal Huang, Yanghe Fen, China</p>	

15	<b>Healthcare Education Challenges and Mobile Learning Systems</b> Co-Chairs: Bankole Fasanya and Adam Szromek, USA/Poland	TELS
8:00-10:00 - AHFE 5	<p><b>Mobile app for psycho-statistics learning</b>                      Carlos Ramos-Galarza, Mónica Acosta-Rodas, Mónica Bolaños-Pasquel, Jorge Cruz-Cárdenas, Ecuador</p> <p><b>Mobile phones and Laboratory: Effects on laboratory users performances</b>                      Bankole Fasanya, Jesus De La Cruz, Karen T. Abad Navarrete, Shuyu Wang, Wenyi Wang, USA</p> <p><b>Improving children’s STEAM education and their global competence through collaborative cooking</b>                      Mohadeseh Khazaei, Layla Sabourian, USA</p> <p><b>The sustainable business model of health resort enterprise and the role of education in pro-ecological behavior</b>                      Adam Szromek, Poland</p> <p><b>The effects of the exposure to an aromatic environment on students during university engineering final exam – a pilot study</b>                      Gabriela G. Reyes-Zárate, Miguel X. Rodríguez-Paz, Jorge A. González Mendivil, Mexico</p>	
16	<b>Usability Evaluation and Interface Design</b> Co-Chairs: María Chaparro and Heesung Park, USA/South Korea	UUE
8:00-10:00 - AHFE 6	<p><b>Improving the usability of a digital neurobehavioral assessment</b>                      María Chaparro, Meredith Carroll, Julie Hook, USA</p> <p><b>Progress bar effects as a time clue for the touch-sensitive user interface of a smart microwave oven</b>                      Hongyu Li, Chien-Hsiung Chen, Taiwan</p> <p><b>Designing the AI developing system through ecological interface design</b>                      Daehee Park, Heesung Park, Scott Song, South Korea</p> <p><b>Analysis of children's content on YouTube channel by parents</b>                      Lívia Barcellos, Ekaterina Barcellos, Ana Silvia Médola, Galdenoro Botura, Jr., Brazil</p> <p><b>Scent interfaces definition – Diffuser devices interaction and control</b>                      Miguel Bual, Portugal</p> <p><b>Factor analysis of jewelry design based on consumer behavior research and DEMATEL method</b>                      Ting Liu, Jian Shi, China</p>	
Session Break: 10:00 - 10:30		
18	<b>Research Approaches to Service Innovation: Organizational Perspectives</b> Co-Chairs: Yuriko Sawatani, Kelly Lyons and Laura Anderson, Japan/Canada/USA	HSSE
10:30-12:30 - AHFE 1	<p><b>Research approaches to service innovation: Organizational perspectives</b>                      Laura C. Anderson, Kelly Lyons, Yuriko Sawatani, Japan</p> <p><b>Effectuation model for large companies</b>                      Yuriko Sawatani, Japan</p> <p><b>Innovation-as-a-service: Emergent lessons from an AI innovation management project</b>                      Christine Wolf, Jeanette Blomberg, USA</p> <p><b>Barriers to Service Innovation using Data Science</b>                      Rohan Alexander, Kelly Lyons, Canada</p> <p><b>Service design approaches to drive employee engagement</b>                      Laura C. Anderson, Cheryl A. Kieliszewski, USA</p> <p><b>Methodological reinforcements: Investigating work through trace data and text</b>                      Corey Jackson, Laura C. Anderson, Cheryl A. Kieliszewski, USA</p> <p><b>Methods for analyzing service innovation in software development</b>                      Kelly Lyons, Canada</p>	

<p><b>19</b></p>	<p><b>Exploiting Contemporary Technology in Flight Deck Design to Improve Flight Safety</b> Co-Chairs: John Huddlestone and Charlotte Collins, UK</p>	<p><b>AVI/ SPACE</b></p>
<p>10:30-12:30 - AHFE 10</p>	<p><b>Visualising V1 – Using augmented reality to enhance aircraft take-off safety</b> John Huddlestone, Rod Sears, UK</p> <p><b>Envisioning mixed realities on the flight deck</b> James Blundell, John Huddlestone, Steve Scott, Rod Sears, Anastasios Plioutsias, Charlotte Collins, UK</p> <p><b>Aircraft haptic cueing: A literature review</b> Charlotte Collins, John Huddlestone, James Blundell, UK</p> <p><b>Supporting astronaut autonomous operations in future deep space missions</b> M. Natalia Russi-Vigoya, Donna Dempsey, Brandin Munson, Alonso Vera, Bernard Adelstein, Shu-Chieh Wu, Kritina Holden, USA</p> <p><b>Habitability experiment for the space station’s colour design</b> Ao Jiang, Xiang Yao, Irene Schlacht, Giorgio Musso, Tang Tang, Stephen Westland, UK</p>	<p><b>HFSIM/ HFRDUS</b></p>
<p>10:30-12:30 - AHFE 12</p>	<p><b>Human Factors and Simulated Agents</b> Co-Chairs: Julia Wright and Bradley Hayes, USA</p> <p><b>Trustworthy human-centered automation through explainable AI and high-fidelity simulation</b> Bradley Hayes, Michael Moniz, USA</p> <p><b>Towards improving human systems integration through a systems engineering perspective</b> Ranjeev Mittu, USA</p> <p><b>A framework for human-robot interaction in unstructured and extreme environments</b> Robin Murphy, S. Camille Peres, Ranjana Mehta, USA</p> <p><b>Conducting polyphonic human-robot communication: Mastering crescendos and diminuendos in transparency</b> Ryan W. Wohleber, Kimberly Stowers, Jessie Y. C. Chen, Michael Barnes, USA</p> <p><b>User-centered hardware and software interaction design approach to enhance accessibility and utility of embodied social robots for older populations</b> Caroline Kingsley, Andrew Stout, Nicolas Herrera, James Niehaus, USA</p> <p><b>An extended framework for context modeling</b> Daichi Mitsuhashi, Taro Kanno, Satoru Inoue, Daisuke Karikawa, Kohei Nonose, Kimitaka Asatani, Kazuo Furuta, Japan</p> <p><b>Comparison of underground illumination models using virtual reality simulations</b> Doga Demirkan, Sebnem Duzgun, USA</p>	

<p><b>21</b></p>	<p><b>Eye Gaze and Monitoring Human Performance Under Highly Ecological Settings</b> Co-Chairs: Frederic Dehais and Daniel Callan, France/Japan</p>	<p>CN</p>
<p>10:30-12:30 - AHFE 7</p>	<p><b>The influence of role assignment and automation on pilots' pupil dilation</b> Julia Behrend, Etienne Geoffret, Frederic Dehais, France</p> <p><b>Brain processes underlying airplane landing performance</b> Daniel Callan, Frédéric Dehais, Japan</p> <p><b>A neuroergonomics approach to measure pilot's cognitive incapacitation in the real world with EEG</b> Frederic Dehais, Bertille Somon, Daniel Callan, Tim Mullen, France</p> <p><b>Analysis of ERP on drivers in traffic accidents by sudden vehicle</b> Guilei Sun, Guangxia Hu, Yanhua Meng, China</p> <p><b>Augmenting traditional performance analyses with eye tracking metrics</b> Ciara Sibley, Cyrus Foroughi, Noelle Brown, Sabrina Drollinger, Henry Phillips, Joseph Coyne, USA</p> <p><b>Research and analysis on the influence factors of visual reaction time</b> Minxia Liu, China</p> <p><b>Human performance with complex technology: How visual cognition is critical to enhanced performance with aided target recognition (AiTR)</b> Gabiella Larkin, Michael Geuss, Alfred Yu, Chloe Callahan-Flintoft, Joe Rexwinkle, Chou Hung, Brent Lance, USA</p>	
<p><b>22</b></p>	<p><b>Digital Human Modeling by Women</b> Co-Chairs: Sofia Scataglini, Hyeg Joo Choi and Silvia Imbesi, Belgium/USA</p>	<p>DHMAO</p>
<p>10:30-12:30 - AHFE 11</p>	<p><b>How to enhance aging people's wellness by means of human centered and co-design methodology</b> Silvia Imbesi, Giuseppe Mincoelli, Filippo Petrocchi, Italy</p> <p><b>An exploratory analysis of user needs and design issues of wearable technology for monitoring running performances</b> Sofia Scataglini, Eline Cools, Johan Neyrinck, Stijn Verwulgen, Belgium</p> <p><b>SOOMA - new developments on automation of digital model cleaning</b> Flavia Hofstetter Pastura, Gabriel Mendonça, Tales Costa, Thatiane Lopes, Maria Cristina Palmer Lima Zamberlan, Brazil</p> <p><b>Potentials and limitations in the application of virtual ergonomics: A review of empirical studies</b> Byungjoon Kim, Jinkun Lee, Emma Kloth, USA</p> <p><b>Analysis of surface segments deviations between different female body types based on 3D flattening method</b> Maja Mahnic Naglic, Slavenka Petrak, Croatia</p>	
<p><b>23</b></p>	<p><b>Innovation Design in Ergonomics</b> Co-Chairs: Daniel Raposo, João Neves and José Silva, Portugal</p>	<p>ED</p>
<p>10:30-12:30 - AHFE 8</p>	<p><b>Visual identity design as a cultural interface of a territory</b> Daniel Raposo, João Neves, Mariana Martins Amaral, Jose Silva, Portugal</p> <p><b>Study on the design of asymmetric breast correction product</b> Bo XinYue, Ding-Bang Luh, China</p> <p><b>Research project management in communication design: Methodology proposal</b> Daniela Oliveira, João Neves, Jose Silva, Daniel Raposo, Portugal</p> <p><b>Innovation in traditional productive sectors - visual curation in design</b> Jose Silva, Rogério Ribeiro, Daniel Raposo, João Neves, Isabel Marto, Portugal</p> <p><b>Promotion and valorization of the International Tagus Natural Park: A projectual approach to Holistic Design</b> João Neves, Celestino Almeida, Domingos Santos, Daniel Raposo, Portugal</p> <p><b>Rethinking drawing role in nowadays design process</b> Ana Moreira da Silva, Portugal</p> <p><b>Implementation goals for multimodal interfaces in human-computer interaction</b> Sónia Rafael, Victor Almeida, Portugal</p>	

<b>24</b>	<b>Mining Industry</b> Co-Chairs: Carlos Raymundo and Antoni Castillo Rodil, Peru	<b>HFBMS</b>
10:30-12:30 - AHFE 2	<p><b>Filling method implementing hydraulic lime for reusing mine tailings and improve sustainability in conventional Peruvian underground mines</b>                  Carlos Raymundo, Pablo Altamirano, Jorge Supa-Urrutia, Humberto Pehovaz, Vidal Aramburu, Ciencias Aplicadas, Francisco Dominguez, Nestor Mamani-Macedo, Peru</p> <p><b>A cyanide tailings management method using pseudomonas fluorescens to improve conventional treatments for progressive closure at small gold mines</b>                  Carlos Raymundo, Yanet Vasquez, Naysha Blas-Trujillo, Erika Barrezueta-Delgado, Javier M. Moguerza, Nestor Mamani-Macedo, Peru</p> <p><b>Fundamental criteria for methodology of blasting engineering in mining grains to reduce mineral dilution in Peruvian polymetallic underground mining</b>                  Carlos Raymundo, Nayrim Fuentes, Luis Arauzo, Guillermo Diaz, Javier M. Moguerza, Nestor Mamani-Macedo, Peru</p> <p><b>Method for the interpretation of RMR variability using Gaussian simulation to reduce the uncertainty in estimations of geomechanical models of underground mines</b>                  Carlos Raymundo, Juliet Rodriguez-Vilca, José Paucar-Vilcañaupa, Humberto Pehovaz, Javier M. Moguerza, Nestor Mamani-Macedo, Peru</p> <p><b>SCAT model based on Bayesian networks for lost-time accident prevention and rate reduction in Peruvian mining operations</b>                  Carlos Raymundo, Ana Ziegler, Daniel Mera-Barco, Vidal Aramburu, Francisco Dominguez, Nestor Mamani-Macedo, Peru</p> <p><b>Hydrabolt and split set rock bolt selection method under the Bieniawski rock mass rating for improving horizontal access support in Peruvian mid-scale mining activities</b>                  Carlos Raymundo, Humberto Pehovaz, Antoni Castillo Rodil, Carlos Toscano Alor, Javier M. Moguerza, Nestor Mamani-Macedo, Peru</p> <p><b>Mathematical model of a drilling mesh to reduce dilution in the Sublevel Stopping method in Peru's Underground mines</b>                  Carlos Raymundo, Luis Arauzo, Guillermo Diaz, Yadira Zelaya, Javier M. Moguerza, Nestor Mamani-Macedo, Peru</p>	
<b>25</b>	<b>Socio-Political Modeling</b> Co-Chairs: Zining Yang and Valerie Rice, USA	<b>HFSIM</b>
10:30-12:30 - AHFE 13	<p><b>Negotiating an inefficient market: An agent-based model approach to property insurance claim negotiations</b>                  Joseph Immormino, Youngsun Hwang, Manish Shrivastav, Kristine Webster, USA</p> <p><b>Hidden Markov Models for visual processing of marketing leaflets</b>                  Jerzy Grobelny, Rafał Michalski, Poland</p> <p><b>Overcoming inconvenience: How society can incentivize individual recycling behavior: An agent-based model</b>                  Joseph Klein, Ana Ortiz Salazar, Zhamilia Klycheva, USA</p> <p><b>Identifying new team trust and team cohesion metrics that support future human-autonomy teams</b>                  Alyssa Milner, Dae Han Seong, Ralph W. Brewer, Anthony L. Baker, Andrea Krausman, David Chhan, Robert Thomson, Ericka Rovira, Kristin E. Schaefer, USA</p> <p><b>Feature selection modeling on predicting EV charging station coverage rate in Southern California</b>                  Zining Yang, Ruiqian Li, USA</p> <p><b>Gender effects for perceived stress and coping among U. S. Military active duty and veteran service members</b>                  Valerie J. Rice, Paul J. Schroeder, Stephen C. Allison, USA</p> <p><b>The anatomy of a Trojan Horse: The relationship between City Information Modeling (CIM) and the design narrative</b>                  Gonçalo Falcão, José Beirão, Portugal</p> <p><b>A social network analysis approach to study the relationship between FDI and inequality</b>                  Dandan Kowarsch, USA</p>	

<p><b>26</b></p>	<p><b>Applications in Software, Service and Systems Engineering I</b> Co-Chairs: Suguru Kanoga and Dosun Shin, Japan/USA</p>	<p>HFSSE</p>
<p>10:30-12:30 - AHFE 14</p>	<p><b>Deep neural networks for grid-based elusive crime prediction using a private dataset obtained from Japanese municipalities</b> Suguru Kanoga, Naruki Kawai, Kota Takaoka, Japan</p> <p><b>Design future workstation: Enhancing health and wellbeing on the job</b> Dosun Shin, Matthew Buman, Pavan Turaga, Assegid Kidane, Todd Ingalls, USA</p> <p><b>Generation of plausible incident stories by using recurrent neural networks</b> Toru Nakata, Japan</p> <p><b>Risk analysis for ethical, legal and social implications of information and communication technologies in the forestry sector</b> Oliver Brunner, Katharina Schäfer, Alexander Mertens, Verena Nitsch, Christopher Brandl, Germany</p> <p><b>Rural public space evolution research - based on the perspective of social capital</b> Zhang Hua, Wuzhong Zhou, China</p> <p><b>Discussion features of public participation in space governance in network media -- taking Yangzhou Wetland Park as an example</b> Zhang Hua, China</p> <p><b>Physical approach to stress analysis of horizontal axis wind turbine blade using finite element analysis</b> Samson Ugwuanyi, Timothy Laseinde, Lagouge Tartibu, South Africa</p>	
<p><b>27</b></p>	<p><b>Human Factors and Wearable Technologies I</b> Co-Chairs: Jeff Feng and Suresh Sethi, USA</p>	<p>HFWT</p>
<p>10:30-12:30 - AHFE 15</p>	<p><b>Wearable real-time monitoring system based on Fiber Bragg Grating Pressure Sensor for compression therapy applications</b> Ziyang Xiang, Jianxun Liu, Zidan Gong, Zhengyi Ma, Zhuxin Zhou, Chi Chiu Chan, Jie Zhang, China</p> <p><b>Smart digital assistance devices for the support of machine operation processes at future production workplaces</b> Julia Czerniak-Wilmes, Christopher Brandl, Alexander Mertens, Verena Nitsch, Germany</p> <p><b>A way of motivating patient in rehabilitation – Case study of a motion tracking wearable device</b> Jeff Feng, Rajeshree Jaiswal, USA</p> <p><b>Is that what I think it is? Impact of screen size on user ability to identify human activities</b> Ronnie Bush, Sheiloh Carlos, Earl Dean, Eric Kim, Amy Miranda, Rob Semmens, Lawrence Shattuck, John Dillard, Alejandro Hernandez, USA</p> <p><b>Swear: Sensing using wearables - Generalized human crowdsensing on smartwatches</b> Mehdi Boukhechba, Laura Barnes, USA</p> <p><b>Human-centered design for the spacesuit development: A case study of the Feitian EVA spacesuit</b> Jianping Luo, Wei Liu, Songhe Ye, China</p> <p><b>A study on the size of head and face of Chinese minors</b> Linghua Ran, Chaoyi Zhao, Hong Luo, Xin Zhang, Taijie Liu, China</p>	

<p><b>28</b></p>	<p><b>An Interdisciplinary Approach to Design Practice</b> Co-Chairs: Chih-Fu Wu and Dawson Clark, Taiwan/Canada</p>	<p><b>IPID</b></p>
<p>10:30-12:30 - AHFE 9</p>	<p><b>Analysis of design elements of automatic household food waste composting machine based on perceptual engineering</b> Chuyi Zhao, Huabin Wang, China</p> <p><b>Have the display illumination design misled customers on color perception?</b> <b>A study on differences of color caused by LED lighting on leather products</b> Cong Xu, Chih-Fu Wu, Dan-Dan Xu, Ying-Shan Lai, Taiwan</p> <p><b>The development trend of personalized bank card design from a new perspective</b> Jingyang Du, Xinxiong Liu, China</p> <p><b>A conceptual model for designing sustainable city development</b> Amira Ashraf, Thomas Garvey, Canada</p> <p><b>The challenges of interdisciplinary participation and anti-oppressive principles</b> Dawson Clark, Lois Frankel, Canada</p> <p><b>A dimensional themes' matrix for identifying design problem structure</b> Dabin Lee, Sangjin Joo, Soyoon Park, Hwang Kim, Kwanmyung Kim, South Korea</p> <p><b>Steps to safer and more sustainable industrial design studios</b> George Chow, USA</p> <p><b>How co-design helps to reduce the ethical risks in preserving intangible cultural heritage: A case study of Huayao hand-made cross-stitch</b> Zhen Qin, China</p>	
<p><b>29</b></p>	<p><b>Accidents</b> Co-Chairs: Alessandro Calvi and Ashraf Labib, Italy/UK</p>	<p><b>RR</b></p>
<p>10:30-12:30 - AHFE 3</p>	<p><b>Analysis of human factors failures in an incident of self-driving car accident</b> Ashraf Labib, Sara Hadleigh-Dunn, Yoskue Nagase, UK</p> <p><b>Assessing the effectiveness of augmented reality cues in preventing rear-end collisions: A driving simulator study</b> Alessandro Calvi, Fabrizio D'Amico, Chiara Ferrante, Luca Bianchini Ciampoli, Italy</p> <p><b>Operational and geometrical conditions of accident occurrence and severity at signalized intersections</b> Mohamed Shawky, Abdulla Alghafli, Egypt</p> <p><b>Effects of a background arrangement on collision-prediction accuracy for approaching objects</b> Yohsuke Yoshioka, Hinako Tanaka, Japan</p> <p><b>Physiological changes reflecting carsickness symptoms occurrence in real driving conditions</b> Eléonore Henry, Clement Bougard, Naman Negi, Lionel Bringoux, Christophe Bourdin, France</p> <p><b>Influence of passive fatigue and take-over request lead time on drivers' take-over performance</b> Ali Muhammad Hadi, Qingkun Li, Wenjun Wang, Quan Yuan, Cheng Bo, China</p>	

<b>30</b>	<b>Musculoskeletal System and Posture</b> Co-Chairs: Iuliana Nastasia and Saikrishna Gubbala, Canada/USA	SOE
10:30-12:30 - AHFE 16	<p><b>Supervisor's roles and responsibilities in preventing prolonged disability in workers with musculoskeletal disorders</b> Iuliana Nastasia, Marie-France Coutu, Romain Rives, Jessica Dubé, Sarah Gaspard, Canada</p> <p><b>Occupational risk assessment of municipal solid waste collectors in a city subdivision in the Philippines</b> Jose Raymund Jr. Apostol, Jerika Danielle Clemente, Adrienne Camille Diaz De Rivera, Joaquin Miguel Javier, Benette Custodio, Philippines</p> <p><b>An investigation in muscle activity of student's neck and back in various university rooms</b> Elahé Abbasi, Pruthviraj Morbale, Saikrishna Gubbala, Yueqing Li, Brian Craig, USA</p> <p><b>Analysis of moisture and sebum of the skin for monitoring wound healing in older nursing home residents</b> Wei-Cheng Shen, Yih-Kuen Jan, Chi-Wen Lung, Aqo Anastian, Chang-Wei Hsieh, Hsu-Tang Cheng, Yin-Yin Liao Liao, Ben-Yi Liao, Taiwan</p> <p><b>Human factors in Ecuadorian institutions of higher education and their control agencies</b> Arturo Clery, Ana Tapia, Susana Molina, Soraya Linzán, Andrés Padilla, Maritza Pérez, Viena Muirragui, Félix Tigreiro, Ecuador</p>	
<b>31</b>	<b>Architecture for People - Present and Future</b> Co-Chairs: Joanna Jabłońska and Jerzy Charytonowicz, Poland	SUPI
10:30-12:30 - AHFE 17	<p><b>Green areas plan with native and/or endemic plants for mitigation of heat island in Letamendi Parish, Guayaquil</b> Jackeline Salinas, Jesús Rafael Hechavarría Hernández, Gabriela Vega, Ecuador</p> <p><b>Environmental certification proposal for sustainable buildings in the satellite parish La Aurora, Guayas, Ecuador</b> Christian Zambrano, Maikel Leyva, Jesús Rafael Hechavarría Hernández, Ecuador</p> <p><b>Explore urban sustainable ecology construction from bio-design perspective</b> Fan Wu, Jun Zhang, China</p> <p><b>The experience of glass architecture – a case study</b> Joanna Krajewska, Poland</p> <p><b>Adaptive reuse of bank buildings towards promoting sustainability environment</b> Krystyna Strumiłło, Poland</p> <p><b>The relationship between human factors and construction environment among guiding design of comprehensive transportation junction</b> Yi Su, Gang Liu, Fan Zhang, Jianping Luo, China</p> <p><b>Songkram River Basin: Floating vernacular architecture</b> Sarawuth Pintong, Thailand</p>	
<b>32</b>	<b>Transportation, User Experience, Affordance and Technology Applications</b> Co-Chairs: Soo Yun Kim and Claude Elie, USA	SYSI
10:30-12:30 - AHFE 4	<p><b>Using high fidelity interactive prototypes for effective communication to create an enterprise mobile application</b> Soo Yun Kim, Youn Lee, USA</p> <p><b>What am I looking for? Improving user sentiment by enhancing search and the overall end user experience in the mobile environment</b> Soo Yun Kim, Jon Temple, Claude Elie, USA</p> <p><b>No, we're driving! Steer or be steered. How to keep UX front and center during a vendor's demo</b> Phyllis Mancino, Sandy Bjorkback, USA</p> <p><b>Human systems design: Towards an integrative conceptual framework</b> Didier Fass, Franck Gechter, Christian Bastien, France</p> <p><b>Assessing cognitive processing and human factors challenges in NextGen air traffic control tower team operations</b> Sam Holley, Mark Miller, Bettina Mrusek, Linda Weiland, USA</p> <p><b>Multimodal in-vehicle touchscreens interactive system's design and evaluation</b> Jingyue Zheng, Wei Zhang, China</p> <p><b>Using VR generated pedestrian behaviors in autonomous vehicle simulations</b> Christopher R. Hudson, Shuchisnidha Deb, Christopher Goodin, Daniel Carruth, USA</p>	

<p><b>33</b></p>	<p><b>Analysis of Learning Strategies and Learning Performance</b>                  Co-Chairs: Andries (Hennie) Van Heerden and Jussi Okkonen, New Zealand/Finland</p>	<p>TELS</p>
<p>10:30-12:30 - AHFE 5</p>	<p>Visual scanning and reading speed following 5-days of mindfulness-based stress reduction: A pilot study                  Valerie Rice, Leah Enders, Angela Jeter, USA</p> <p>Ethical considerations on using learning analytics in Finnish higher education                  Jussi Okkonen, Finland</p> <p>The rise of communication design in Portugal: An overview of the higher education teaching methodologies                  Eliana Penedos-Santiago, Nuno Martins, Susana Barreto, Cláudia Lima, Heitor Alvelos, Portugal</p> <p>Educational deprivation in Latin America: Structural inequality beyond borders                  Harvey Sanchez-Restrepo, Portugal</p> <p>Research on the reform of higher engineering education from the prospective of smart service management --- Based on the program comparison between USA's MIT and China's Tianjin University                  Wenjuan Zhan, Xinyan Zhang, Ying Yu, China</p> <p>Collaborative cognitive training game to enhance selective sustained attention in preschoolers                  Carlos Arce-Lopera, Mateo Torres, Steven Vacilescu, Colombia</p>	
<p>12:30-13:30 Session Break (1 hour)</p>		
<p><b>35</b></p>	<p><b>Applying Service Design Techniques to Healthcare</b>                  Co-Chairs: Markus Warg and Andreas Zolnowski, Germany</p>	<p>HSSE</p>
<p>13:30-15:30 - AHFE 1</p>	<p>Architecture and its multifaceted roles in enabling value co-creation in the context of human-centered service design                  Markus Warg, Germany</p> <p>Value co-creation as the core of service innovation: Impacts of a case study of a fully digitized health insurance company                  Roman Rittweger, Peter Weiss, Anselm Kronibus, Germany</p> <p>Improving the user experience for healthcare professionals using a conversational agent to complete business intelligence analysis                  Dorian Miller, Becky Niehus, Robert Moore, USA</p> <p>Design principles for health service innovations: Nudges from the IBM health records service platform                  Ingo Bahrs, Ronald Fritz, Martin Semmann, Germany</p> <p>A conceptual framework for workforce management: Impacts from service science and S-D logic                  Markus Frosch, Markus Warg, Germany</p> <p>Microfoundations for building systems of engagement: enable actor engagement using service dominant architecture                  Peter Weiss, Germany</p> <p>Analyzing the role of artificial intelligence in the development of human centered service                  Andreas Zolnowski, Dietmar Frey, Germany</p>	

<b>36</b>	<b>Artificial Intelligence and Social Computing II</b> Co-Chairs: Tian Wang and Christopher Gomez, USA	<b>AISC</b>
13:30-15:30 - AHFE 10	<p><b>A study of social media behaviors and mental health wellbeing from a privacy perspective</b> Tian Wang, Masooda Bashir, USA</p> <p><b>Fighting cyberbullying: An analysis of algorithms used to detect harassing text found on YouTube</b> Christopher Gomez, Rachel Trana, Rachel Adler, USA</p> <p><b>Investigating users' perceived credibility of real and fake news posts in Facebook's news feed: UK case study</b> Neil Bates, Sonia Sousa, Cyprus/Estonia</p> <p><b>New trend of standard: Machine executable standard</b> Haitao Wang, Gang Wu, Chao Zhao, Fan Zhang, Jing Zhao, Changqing Zhou, Wenxing Ding, Xinyu Cao, China</p> <p><b>Recognition method of feature word terms in Chinese named entities</b> Xinyu Cao, Jing Zhao, Fan Zhang, Gang Wu, Chao Zhao, Haitao Wang, China</p> <p><b>Machine learning analysis of EEG measurements of stock trading performance</b> Edgar Torres, Edgar A. Torres, Myriam Hernandez-Alvarez, Sang Yoo, Ecuador</p> <p><b>Individual differences in human-autonomy-teaming</b> Michael Lewis, Nina Lauharatanahirun, Katia Sycara, Dana Hughes, Huao Li, Addison Bohannon, Derek Spangler, USA</p>	
<b>37</b>	<b>Advanced Studies in Additive Manufacturing</b> Co-Chairs: Daniel Saloni and Carlos Helguero, USA/Ecuador	<b>AMMSP</b>
13:30-15:30 - AHFE 6	<p><b>Bioplastic modified with woodflour for additive manufacturing</b> Kristen McLaughlin, Allison Webb, Kaitlin Br tt, Daniel Saloni, USA</p> <p><b>A review of sustainable materials used in thermoplastic extrusion and powder bed melting additive manufacturing</b> Nicole Mervine, Kaitlin Brätt, Daniel Saloni, USA</p> <p><b>Quantifying discrepancies at positioning custom 3D-printed surgical guides for bone tumor resection</b> Carlos Helguero, Fausto Maldonado, Emilio Ramírez, Paulina Arnés, Jorge Hurel, Jorge Amaya, Ecuador</p> <p><b>The human integration into sustainable 3D printing systems part I: Methodological setting and human-system integration strategy</b> Emilio Rossi, Massimo Di Nicolantonio, UK</p> <p><b>The human integration into sustainable 3D printing systems part II: Design experimentation</b> Emilio Rossi, Massimo Di Nicolantonio, Italy</p>	
<b>38</b>	<b>Cross-Cultural Decision Making I</b> Co-Chairs: Atsuo Murata and Toshihisa Doi, Japan	<b>CCDM</b>
13:30-15:30 - AHFE 16	<p><b>Comparative analysis of website usability between United States and Japan</b> Toshihisa Doi, Atsuo Murata, Japan</p> <p><b>Attitude toward long working hours from the perspectives of cross-cultural difference of viewing things and scarcity-slack relation</b> Atsuo Murata, Toshihisa Doi, Japan</p> <p><b>A mixed methods case study: Japanese sojourners' intercultural awareness</b> Chihiro Tajima, Japan</p> <p><b>Effects of spectral distribution in light sources and physical properties of discrimination samples on discrimination of depth</b> Toshiyuki Wakimizu, Atsuo Murata, Toshihisa Doi, Japan</p> <p><b>Creating a design-led guideline on cultural heritage for a new concept of Korean tea house in overseas market</b> Yujin Joung, South Korea</p>	

<p><b>39</b></p>	<p><b>Design for Disability and Social Inclusion</b> Co-Chairs: Chi Hang Lo and Tania Calle-Jimenez, China/Ecuador</p>	<p>DI</p>
<p>13:30-15:30 - AHFE 12</p>	<p><b>Balance of considerations between technological and social factors: A case study on Smartrack™ for the visually impaired persons</b> Yi Lin Wong, Kin Wai Michael Siu, Chi Hang Lo, China</p> <p><b>Designing accessible maps on mobile devices for blind and visually impaired users</b> Tania Calle-Jimenez, Sergio Luján-Mora, Hugo Arias-Flores, Carlos Ramos-Galarza, Isabel L. Nunes, Ecuador/Portugal</p> <p><b>Dairy methods used in research on visually impaired people</b> Dawoon Jeong, Sung H. Han, South Korea</p> <p><b>Design and development of an all-terrain wheelchair for rural areas in Mexico, the first stage of the project</b> Alberto Rossa-Sierra, Ana Paula Diaz-Pinal, Fabiola Cortes Chavez, Félix Maldonado De La Fuente, Gilberto Antonio Carrillo Alvarado, Mexico</p> <p><b>Design for Inclusion in the nautical field: DfA guideline for small motorboats</b> Jessica Lagatta, Italy</p> <p><b>Contribution of ergonomics as social inclusion and the development of products for changing bodies</b> Artemisia Caldas, Miguel Carvalho, Portugal</p> <p><b>Talking about inclusiveness: how inclusive are transportation app services?</b> Adriana Rodríguez-Villaseñor, Patricia Guadalupe Reyna-López, Alber E. Duque-Alvarez, Libertad Rizo, Carlos Aceves-Gonzalez, Mexico</p> <p><b>Emotional design and human factors design as tools for understanding efficiency in information design process for medical documents</b> Fabiola Cortes Chavez, Alberto Rossa-Sierra, Elvia Luz González-Muñoz, Carlos Aceves-Gonzalez, Mariel Garcia-Hernandez, Marco Antonio Marin Alvarez, Mexico</p>	
<p><b>40</b></p>	<p><b>Design and Service Strategy</b> Co-Chairs: Anna Szopa and João Brandão, USA/Portugal</p>	<p>ED</p>
<p>13:30-15:30 - AHFE 8</p>	<p><b>Graphic-Semantic Expressions Map: A new tool on the brand mark creation</b> Cátia Rijo, Portugal</p> <p><b>Inclusive readability: Recommended typographic criteria for reading improvement in students with learning disabilities</b> João Brandão, Sara Paulo, Portugal</p> <p><b>Modularity and grids in letterforms across calligraphy, conventional type and geometric type teaching</b> João Brandão, João Gomes, Portugal</p> <p><b>A critical overview of modular and geometric type design categorization in typographic taxonomy systems</b> João Brandão, Jorge Duarte, João Gomes, Portugal</p> <p><b>Research on the design of smart waste classification and collection service system</b> Yiting Zhao, Jun Zhang, China</p> <p><b>Research on user experience of garbage tricycle based on logic of behaviors and operation characteristics of village cleaners</b> Danping Zhou, Jun Zhang, China</p> <p><b>Research on social innovation and S. PSS apply to waste sorting and recycling system design in plateau area</b> Chang Xu, Jun Zhang, China</p> <p><b>Research on information architecture and design strategy of AR-HUD in urban rail information displayed system</b> Yujing Cao, Jun Zhang, China</p>	

41	<b>Patient Safety</b> Co-Chairs: Kazumi Watanabe and Manami Nozaki, Japan	EHMD
13:30-15:30 - AHFE 14	<p><b>Systematic prevention and treatment of undernourishment: A case of collaboration needs across healthcare levels</b>          Kine Reegård, Mikael Rosenqvist, Norway</p> <p><b>Disclosure of medical error: A necessary step in healthcare improvement</b>          Jay Kalra, Zoher Rafid-Hamed, Patrick Seitzinger, Canada</p> <p><b>The Gap between Japanese medical professionals and foreign patients</b>          Manami Nozaki, Kazumi Watanabe, Miyoko Okamoto, Yui Matsuda, Japan</p> <p><b>Situational awareness of expert nurses on the process of weaning off a ventilator</b>          Kazumi Watanabe, Manami Nozaki, Masami Ishihara, Hidenobu Takao, Japan</p> <p><b>Exploring hospital wayfinding systems: Design guidelines for wayfinding interfaces</b>          Christy Harper, Tyler Duke, Angela Avera, Andrea Crosser, Spencer Jefferies, Daniela Vazquez Klisans, USA</p>	
42	<b>Human Oriented Ecosystem Development and Community</b> Co-Chairs: Vesa Salminen and Heikki Ruohomaa, Finland	HFBMS
13:30-15:30 - AHFE 2	<p><b>Open ecosystem for smart mobility system operation and maintenance</b>          Jukka Pulkkinen, Atte Partanen, Jari Jussila, Heikki Ruohomaa, Finland</p> <p><b>5G as a driver for transition of digitalization in ecosystem based development</b>          Heikki Ruohomaa, Vesa Salminen, Niklas Lähteenmäki, Finland</p> <p><b>Ecosystem of ecosystems in intercity biking</b>          Heikki Ruohomaa, Vesa Salminen, Jukka Pulkkinen, Finland</p> <p><b>Collaboration network creation and utilization in a digital bioeconomy ecosystem</b>          Iivari Kunttu, Finland</p> <p><b>Open data ecosystems in public service development</b>          Minna Tarkkala, Joni Kukkamäki, Jari Jussila, Iivari Kunttu, Juuso Heinisuo, Finland</p> <p><b>Public-private partnerships (PPPs) in energy: Identifying the key dimensions from two different bibliometric analyzes</b>          Giovanna Andrea Pinilla De La Cruz, Jussi Kantola, Rodrigo Rabetino Sabugo, Finland</p> <p><b>Rural tourism development proposal for the Palmar Commune-Canton Santa Elena, 2020</b>          Fernando García, Ecuador</p>	
43	<b>Human-AI-Robot Teaming</b> Chair: Elizabeth Frost, USA	HFRDUS
13:30-15:30 - AHFE 7	<p><b>Tasking, teaming, swarming: Design patterns for human delegation of unmanned vehicles</b>          Axel Schulte, Felix Heilemann, Sebastian Lindner, Diana Donath, Germany</p> <p><b>An interaction taxonomy of human-agent teaming in next generation combat vehicle systems</b>          Craig Johnson, Glenn Lematta, Lixiao Huang, Eric Holder, Shawaiz Bhatti, Nancy Cooke, USA</p> <p><b>Human-autonomy teaming for unmanned vehicle control: Examination of the role of operator individual differences</b>          Elizabeth Frost, Heath Ruff, Gloria Calhoun, USA</p> <p><b>The new science of autonomous human-machine teams (A-HMT): Interdependence theory scales</b>          William Lawless, USA</p> <p><b>Verifying automation trust in automated driving system from potential user's perspective</b>          Jue Li, Chun Meng, Long Liu, China</p>	

<b>44</b>	<b>Kansei Engineering and Extension to IT &amp; VR</b> Co-Chairs: Mitsuo Nagamachi and Shigekazu Ishihara, Japan	<b>KE</b>
13:30-15:30 - AHFE 11	<p><b>Kansei engineering and the extension to AI &amp; VR</b> Mitsuo Nagamachi, Shigekazu Ishihara, Japan</p> <p><b>Semantic Kansei analysis of SNS on Kure City sightseeing events</b> Shigekazu Ishihara, Mitsuo Nagamachi, Keiko Ishihara, Japan</p> <p><b>Pilot study of Kansei human machine interface for prevention system of unintended acceleration</b> Toshio Tsuchiya, Kanon Watanabe, Mizuki Hirano, Kotaro Kuma, Shintaro Wakamatsu, Japan</p> <p><b>Meaning and approach of new product designing through Kansei engineering</b> Yuuki Shigemoto, Japan</p>	
<b>45</b>	<b>Transportation: Maritime I</b> Co-Chairs: Katie Aylward and Scott MacKinnon, Sweden	<b>MAR</b>
13:30-15:30 - AHFE 17	<p><b>Preventing unruly technologies in maritime navigation: A systems approach</b> Katie Aylward, Scott N MacKinnon, Monica Lundh, Sweden</p> <p><b>Artificial intelligence in maritime navigation: A human factors perspective</b> Scott N. MacKinnon, Reto Weber, Fredrik Olinderson, Monica Lundh, Sweden</p> <p><b>The anchoring effect of technology in navigation teams</b> Vitor Fernando Plácido da Conceição, Carlos Teles, Joakim Dahlman, Portugal</p> <p><b>Validation of virtual command bridge training environment - comparing the VR-training with ship bridge simulation</b> Jenny Lauronen, Werner Ravyse, Mirva Salokorpi, Mika Luimula, Finland</p> <p><b>Addressing gaps in offshore emergency egress training using virtual environments</b> Jennifer Smith, Mashrura Musharraf, Brian Veitch, Canada</p>	
<b>46</b>	<b>Comfort</b> Co-Chairs: James Jackson and Francesco D'Amore, Spain/UK	<b>RR</b>
13:30-15:30 - AHFE 3	<p><b>Investigation on driving posture and operating habits of heavy truck drivers</b> Junmin Du, Haoshu Gu, Weiyu Sun, Xin Zhang, Huimin Hu, Yang Liu, China</p> <p><b>A theoretical framework for occupant comfort in future shared autonomous vehicles</b> James Jackson, Davide Salanitri, Spain</p> <p><b>Research on the comfortable joint angle for Chinese automobile drivers</b> Linghua Ran, Yang Gao, Weinan Ju, Zhao Chaoyi, He Zhao, China</p> <p><b>Detection and classification of unconscious movements with body pressure distribution measurement for ride comfort evaluation in vehicle seat</b> Junya Tatsuno, Koki Suyama, Hitomi Nakamura, Setsuo Maeda, Japan</p> <p><b>An ergonomic analysis of the new E-Traysikel</b> Nouriet San Juan, Kristiana Abaa, Daniel Alto, Enrico Jr. Fernando, Benette Custodio, Philippines</p>	

<p><b>47</b></p>	<p><b>Ergonomics and Safety Management</b>                  Co-Chairs: Eduardo Santos, Chuliporn Sopajareeya, Xiangcheng Meng and Anna Nagyova, Portugal/Thailand/China/Slovakia</p>	<p>SMHF</p>
<p>13:30-15:30 - AHFE 15</p>	<p><b>Application of the PRECEDE-PROCEED model to design a program for prevention of low back pain in a Thai community hospital</b>                  Chuliporn Sopajareeya, Chompunut Sopajaree, OiSaeng Hong, Thailand</p> <p><b>The role of human factors and ergonomics professionals on sustainable development</b>                  Eduardo Santos, Karine Borges De Oliveira, Gustavo Martinez, Messias Borges Silva, Brazil</p> <p><b>Human factors impact on smart cities construction: The case of Lisbon city and dwelling suburbs</b>                  Cristina Caramelo Gomes, Portugal</p> <p><b>Influence of improper workload on safety consciousness and safety citizenship behavior of construction workers</b>                  Xiangcheng Meng, Alan Chan, China</p> <p><b>Human failures on production line as a source of risk of non-conformity occurrence</b>                  Anna Nagyova, Zuzana Kotianova, Juraj Glatz, Juraj Sinay, Slovakia</p> <p><b>The relationship between organizational survival, site risk and accidents in construction sector</b>                  Jose M. Carretero-Gomez, Francisco J. Forteza, Barbara Estudillo-Gil, Spain</p> <p><b>A mediation analysis of the relationship between safety climate and work abilities of Hong Kong construction workers</b>                  Jacky Yu Ki Ng, China</p>	
<p><b>48</b></p>	<p><b>Human Aspects in Industrial Manufacturing and Service Systems</b>                  Co-Chairs: Yusuf Tansel Ic and Beata Mrugalska, Turkey/Poland</p>	<p>APMPC</p>
<p>13:30-15:30 - AHFE 13</p>	<p><b>Quality circles and Kaizen Award Evaluation Process improvement in KALDER: application of multi-criteria decision making techniques</b>                  Neslisah Albayrak, Baris Kececi, Turkey</p> <p><b>Factory change agent combining lean manufacturing concept with environmental management in construction production</b>                  Krzysztof Sterna, Magdalena K. Wyrwicka, Beata Mrugalska, Poland</p> <p><b>A Kanban implementation study in a production line</b>                  Yusuf Tansel Ic, Mustafa Yurdakul, Mehmet Gulsen, Turkey</p> <p><b>Instruments for shaping the quality of production processes in the conditions of coepetition of enterprises</b>                  Jozef Frasz, Krzysztof Czyrka, Poland</p> <p><b>Activity process analysis in automobile sheet metal dent repair</b>                  Yuka Takai, Japan</p> <p><b>A new mathematical solution for packaged food thermal processing</b>                  William Rolando Miranda Zamora, Susana Soledad Chinchay Villarreyes, Nelly Luz Leyva Povich, Leandro Alonso Vallejos More, Manuel Jesús Sánchez Chero, Cynthia Milagros Apaza Panca, María Verónica Seminario Morales, Peru</p>	

<p><b>49</b></p>	<p><b>Mobile Applications and Accessibility</b> Co-Chairs: Patricia Acosta-Vargas and Janio Jadán-Guerrero, Ecuador</p>	<p><b>SYSI</b></p>
<p>13:30-15:30 - AHFE 4</p>	<p><b>Evaluation of open source mobile phone weather applications</b> Katuska Alexandrino, Jorge-Luis Pérez-Medina, Patricia Acosta-Vargas, Mario Gonzalez, Rasa Zalakeviciute, Ecuador</p> <p><b>Accessibility assessment of mobile meteorological applications for users with low vision</b> Patricia Acosta-Vargas, Belén Salvador-Acosta, Mario Gonzalez, Rasa Zalakeviciute, Katuska Alexandrino, Jorge-Luis Pérez-Medina, Yves Rybarczyk, Ecuador</p> <p><b>The portable document format: An analysis of PDF accessibility</b> Patricia Acosta-Vargas, Mario Gonzalez, Maria Rosa Zambrano, Ana Medina, Luis Salvador-Ullauri, Noah Zweig, Ecuador</p> <p><b>Web accessibility analysis of a telerehabilitation platform: The physiotherapist perspective</b> Patricia Acosta-Vargas, Mario Gonzalez, Jorge-Luis Pérez-Medina, Karina Jimenes-Vargas, Gloria Acosta-Vargas, Belén Salvador-Acosta, Yves Rybarczyk, Ecuador</p> <p><b>Interactive storytelling books for fostering inclusion of children with special needs</b> Janio Jadán-Guerrero, Sandra Sanchez-Gordon, Patricia Acosta-Vargas, Cleofe Genoveva Alvites-Huamaní, Isabel L. Nunes, Ecuador/Portugal</p> <p><b>Improve accessibility and visibility of selected university websites</b> Patricia Acosta-Vargas, Carlos Ramos-Galarza, Luis Salvador-Ullauri, Gabriel Elías Chanchí G., Janio Jadán-Guerrero, Ecuador</p> <p><b>Toward accessible mobile application development for users with low vision</b> Luis Serrano-Costales, Luis Salvador-Ullauri, Mario Gonzalez, Isabel I. Nunes, Patricia Acosta-Vargas, Ecuador/Portugal</p>	
<p>Session Break: 15:30-16:00</p>		
<p><b>52</b></p>	<p><b>Emerging Research Innovations in AI, User Experience and Design: Education</b> Chair: Debra Satterfield, USA</p>	<p><b>HSSE</b></p>
<p>16:00-18:00 - AHFE 1</p>	<p><b>Thoughts on design education’s future</b> Sunghyun Kang, USA</p> <p><b>Locked out: Engaging design students in UX and access design processes to address homelessness in Los Angeles</b> Tom Tredway, Jose Rivera-Chang, Debra Satterfield, David Teubner, Wesley Woelfel, USA</p> <p><b>A new approach for experience design education: Developing conceptual framework with storytelling</b> Sang-Duck Seo, USA</p> <p><b>Creating socially conscious designers through the lens of empathy</b> Kimberly Mitchell, USA</p>	

<b>53</b>	<b>Competency Achievement Through Interactive Multimedia and Gamification</b> Co-Chairs: Charlott Sellberg, Kazuhiro Fujimura and Jordan Haggit, Sweden/Japan/USA	<b>TELS</b>
16:00-18:00 - AHFE 5	<p>Developing a model on the effects of management games for human resource development: From a benefit delay and acquisition perspective Kazuhiro Fujimura, Fumiyo Ozaki, Japan</p> <p>From technical and non-technical skills to hybrid minds: Reconceptualizing cognition and learning in semi-automated environments Charlott Sellberg, Martin Viktorelius, Sweden</p> <p>Quantifying video gaming expertise Lisa Elliott, Tyler Hampton, Jessica Mccoy, Kathryn Kriebs, Melissa Rowlison, Autumn Waite, Abigail Blackwell, USA</p> <p>Development of video games to improve the learning of data structures Luis Salvador-Ullauri, Belén Salvador-Acosta, Carlos Ramos, Patricia Acosta-Vargas, Spain</p> <p>The practice of TBL+ Flip classroom in the music aesthetics course under the music gesture theory Haiyang Qu, Dahai Xing, China</p> <p>Development of a game-based learning platform for U. S. Navy netted force concepts Jordan Haggit, Rod Ford, Ryan Meyer, Dan Roseman, Marc Gacy, Terence Andre, Anna Grome, Peter Simon, Michael Arnold, Elijah Lofgren, USA</p>	
<b>54</b>	<b>Human Factors on Security and Crises Management</b> Co-Chairs: Mário Simões-Marques and Keiko Tsujioka, Portugal/Japan	<b>SYSI</b>
16:00-18:00 - AHFE 4	<p>Design of a Disaster Management Intelligent System - a review of the applied UCD methods Mario Marques, Anacleto Correia, Isabel I. Nunes, Portugal</p> <p>A programmable coprocessor model of human cognition: Implications for human factors, systems interaction, and healthcare John Celona, USA</p> <p>Developing a serious game to support disaster management preparedness - a design thinking approach Mario Marques, Duarte Moreno, Anacleto Correia, Portugal</p> <p>Virtual reality in support of maritime rescue training Anacleto Correia, Tiago Luzes, Mario Marques, Portugal</p> <p>Automatic classification of incidents in coastal zones Anacleto Correia, Rafael Graça, Mario Marques, Portugal</p> <p>Combinatorial optimization focused on Co and T factors for interactive communication in collaborative learning Keiko Tsujioka, Japan</p>	
<b>55</b>	<b>Human Factors in Architecture, Sustainable Urban Planning and Infrastructure</b> Co-Chairs: Christianne Falcao and Freddy Orozco, Brazil/Ecuador	<b>SUPI</b>
16:00-18:00 - AHFE 17	<p>Improvement of public transport routes with ArcGIS Network Analyst. Case study: Urban center of Milagro, Ecuador Freddy Orozco, Jesús Rafael Hechavarría Hernández, Ecuador</p> <p>Proposal for a master plan of green area in the second step of the El Recreo citadel, Canton Duran, Ecuador Gilson Arreaga, Gabriela Vega, Jesús Rafael Hechavarría Hernández, Ecuador</p> <p>Proposed strategic plan to delimit the historic center of Babahoyo. A case study in Los Ríos province, Ecuador Raul Icaza, Jesús Rafael Hechavarría Hernández, Ecuador</p> <p>Validation of an acoustic model for four prototypes sectors in Guayaquil City Laura Calero, Marcial Calero, Carlos Pamiño, Eva Velez, Jesús Rafael Hechavarría Hernández, Ecuador</p>	

56	<b>Teaming with Robots and Artificial Intelligence</b> Co-Chairs: Frank Krueger and Ewart de Visser, USA	CN
16:00-18:00 - AHFE 7	<p>Future horizons with human-machine teaming and leadership at the U. S. Air Force Academy Ewart De Visser, USA</p> <p>Exploring robotic moral competence through role ethics Ruchen Wen, USA</p> <p>Examining the potential role of a robot in promoting the norm of honesty Boyoung Kim, USA</p> <p>Observing the brain-on-task using functional optical brain monitoring Hasan Ayaz, USA</p> <p>Toward a unified approach for studying long-term bonding between humans and autonomy Frank Krueger, USA</p> <p>Human-machine interaction efficiency factors in flight simulator training towards Chinese pilots Qiang Li, Binbin Li, Nan Wang, Wenxi Li, Zhengfang Lyu, Yancong Zhu, Wei Liu, China</p>	
57	<b>3D Anthropometry and Shape Modeling and Applied Optimization</b> Co-Chairs: Rajulu Sudhakar and Sofia Scataglini, USA/Belgium	DHMAO
16:00-18:00 - AHFE 11	<p>Online management and query of multimodal human motion and shape data Huaining Cheng, Eric Ennis, Kathleen Robinette, USA</p> <p>Dimension reduction of anthropometric measurements with support vector machine for regression: Application to a French military personnel database Pierre Puchaud, Simon Kirchhoffer, Nicolas Bideau, Georges Dumont, Charles Pontonnier, France</p> <p>A methodology to create 3D body models in motion Sandra Alemany, Eduardo Parrilla, Ana Ruescas, Juan Antonio Solves, Alfredo Ballester, Beatriz Nacher, Spain</p> <p>How the artificial neural network solves the muscle redundancy problem during pedaling motion? Michihiko Fukunaga, Japan</p> <p>An experimental investigation of preferred seat pressure distribution Xuguang Wang, Léo Savonnet, Georges Beurier, Jean Marc Obadia, France</p> <p>Robust markerless 3D head tracking of a vehicle occupant using OpenPose Daniel Park, Sheila Ebert, Carl Miller, Matthew Reed, USA</p>	
58	<b>Education and Gamification</b> Co-Chairs: Elisangela Vilar, Carlos Figueiredo and Francisco Rebelo, Portugal	ED
16:00-18:00 - AHFE 8	<p>Human centered design – the importance of usability tests in the development of technological objects Álvaro M. Sampaio, Rita Goncalves, Paulo Simões, António J. Pontes, Portugal</p> <p>Design education: Human factors at the core of a co-working self-determined new design learning approach Fernando Mendes, Carlos Duarte, Katja Tschimmel, Portugal</p> <p>Hierarchy of users around the birthing bed, analysis for furniture redesign Fabiola Cortes-Chavez, Ana Diaz-Pinal, Alberto Rossa-Sierra, Carlos Garnier, Elvia Luz Gonzalez-Muñoz, Mexico</p> <p>Fictional worlds in cinema and games: Affinities in their conceptions, creation and goals Carlos Figueiredo, Portugal</p> <p>Design of an intuitive control concept for lifting operations using the example of forklifts Leonhard Feiner, Johannes Fottner, Germany</p> <p>Return to manual control after monitoring automated systems: Effects of different levels of reliability Eugénie Avril, Jordan Navarro, Lien Wioland, Julien Cegarra, France</p>	

<p><b>59</b></p>	<p><b>Human Factors in Energy: Oil, Gas, Nuclear and Electric Power Industries I</b> Co-Chairs: Katya Le Blanc and Casey Kovesdi, USA</p>	<p><b>ENERGY</b></p>
<p>16:00-18:00 - AHFE 6</p>	<p>Applying deep learning to solve alarm flooding in digital nuclear power plant control rooms Jens-Patrick Langstrand, Hoa Nguyen, Robert McDonald, Norway</p> <p>Design principles for a new generation of larger operator workstation displays Alf Ove Braseth, Robert McDonald, Norway</p> <p>Tablet-based functionalities to support control room operators when process information becomes unreliable or after control room abandonment Espen Nystad, Magnhild Kaarstad, Christer Nihlwing, Robert McDonald, Norway</p> <p>Promoting operational readiness of control room crews through biosignal measurements Satu Pakarinen, Jari Laarni, Kristian Lukander, Ville-Pekka Inkilä, Tomi Passi, Marja Liinasuo, Tuisku-Tuuli Salonen, Finland</p> <p>Adopting the AcciMap methodology to investigate a major power blackout in the United States: Enhancing electric power operations safety Maryam Tabibzadeh, Shashank Lahiry, USA</p> <p>Systematic investigation of pipeline accidents using the AcciMap methodology: The case study of the San Bruno gas explosion Maryam Tabibzadeh, Viak R. Challa, USA</p>	
<p><b>60</b></p>	<p><b>Resilience and Recovery</b> Co-Chairs: Tina Miyake and Salvador Avila Filho, USA/Brazil</p>	<p><b>HERRP</b></p>
<p>16:00-18:00 - AHFE 12</p>	<p>Forward and backward error recovery factors in digital human-system interface design Torrey Mortenson, USA</p> <p>A discussion of quantitative stress analysis in long-term embarked work Salvador Ávila Filho, Ronald Boring, Brazil</p> <p>Preventing time-on-task performance deterioration in monotonous driving with secondary tasks and breaks Rainer Zeller, Rena Friswell, Ann Williamson, Australia</p> <p>Implications of narcissistic personality disorder on organizational resilience Ronald Boring, USA</p> <p>The impact of agile project management model on the performance of technology teams Ismail Ekmekci, Akif Onur, Turkey</p>	
<p><b>61</b></p>	<p><b>Human Factors and Assistive Technology I</b> Co-Chairs: Carsten Röcker and Sebastian Kampa, Germany</p>	<p><b>HFAT</b></p>
<p>16:00-18:00 - AHFE 14</p>	<p>Intelligent homecare systems: An exploration of system requirements from a user's perspective Carsten Röcker, Germany</p> <p>MagicContact Web: A multiplatform application for augmentative and alternative communication Cristiano Patrício, Tiago Lucas, Celestino Goncalves, Nuno Pinto, Daniel Freitas, Luis Figueiredo, Portugal</p> <p>Determination of the perception threshold between conscious and subconscious sitting discomfort Peter Gust, Sebastian Kampa, Frank Mersch, Marco Kuhlmeier, Germany</p> <p>A research about personalized tickets' pattern and color design based on computer-aided technology Miao Liu, Xinye Xu, China</p> <p>Molecular production system - flexible and attractive manufacturing systems of the future Bastian Pokorni, Germany</p> <p>Drivers for change: Initial insights from mapping half a century of inclusive paediatric mobility design Cara O'sullivan, Farnaz Nickpour, UK</p>	

<b>62</b>	<b>Textile, Fashion, Apparel Design and Engineering</b> Co-Chairs: Carla Morais and Ana Cristina Broega, Portugal	<b>HFATE</b>
16:00-18:00 - AHFE 15	<p><b>Underwear in personal wardrobe – a study about consumption and disposal</b>                      Carla Morais, Gianni Montagna, Ana Sousa, Portugal</p> <p><b>The senior target audience: When the body does not keep up with the youthful spirit, the clothing design gives a reply through comfort</b>                      Ana Cristina Broega, Marizilda Dos Santos Menezes, Mariana Dias Almeida, Brazil</p> <p><b>Active sportswear for older consumers</b>                      Laura Piccinini, Gianni Montagna, Cristina Carvalho, Portugal</p> <p><b>Hierarchical model of feeling of luxury: Genuine and artificial leather case study</b>                      Shuhei Watanabe, Takahiko Horiuchi, Japan</p> <p><b>Innovative filtering systems for high temperature chemical processes</b>                      Carmen Mihai, Alexandra Gabriela Ene, Romania</p> <p><b>Unique natural fibers: Physicochemical characteristics of lignin-cellulosic fibers from Aechmea Bromeliifolia leaves</b>                      Ana Cristina Broega, Rayana Santiago De Queiroz, António Pedro Souto, Portugal</p> <p><b>Historical sustainability and innovative textile products</b>                      Eleonora Trivellini, Elisa Matteucci, Claudia Morea, Irene Fiesoli, Margherita Vacca, Francesco Cantini, Marco Marseglia, Alessio Tanzini, Lu Ji, Giuseppe Lotti, Italy</p>	
<b>63</b>	<b>Human and Social Capital</b> Co-Chairs: Jussi Kantola and Timo Holopainen, Finland	<b>HFBMS</b>
16:00-18:00 - AHFE 2	<p><b>Leadership competencies for digital transformation: Evidence from multiple cases</b>                      Faisal Imran, Khuram Shahzad, Aurangzeab Aurangzeab Butt, Jussi Kantola, Finland</p> <p><b>Dynamics of personal social capital and its influence on employee growth in organizations: A cross sectorial analysis</b>                      Mohammed Aminu Sanda, Ghana</p> <p><b>Tomorrow's digital worker: A critical review and agenda for building digital competency models</b>                      Federica Polo, Jussi Kantola, Finland</p> <p><b>Competences in expert sales</b>                      Jukka Rantala, Maria Yllikäinen, Timo Holopainen, Finland</p> <p><b>Social capital: Theory, principles and value boarding for a potential deep transition on Mexican artisans sector</b>                      Elena Montserrath Rodríguez Muñoz, María de la Luz Fernández Barros, Mexico</p> <p><b>A scientific policy guidance with system dynamics modeling: The case study of Alabama</b>                      Yuan Yuan Lee, Yi Ling Chang, USA</p>	
<b>64</b>	<b>Human Factors in Game Design</b> Co-Chairs: Lina Girdauskiene and Mayra Carrión, Lithuania/Ecuador	<b>HFGD</b>
16:00-18:00 - AHFE 13	<p><b>Linkage between gamification and moral organisational climate</b>                      Lina Girdauskien , Asta Savanevi ien , Olga Denisova, Lithuania</p> <p><b>Designing a serious game for labor inclusion of people with intellectual disabilities using iPlus methodology</b>                      Mayra Carrión, Marco Santórum, Carlos Sampredro, Andrés Paredes, Yolanda Ortiz, Pilar Samaniego-Santillán, Jorge-Luis Pérez-Medina, Patricia Acosta-Vargas, Carlos Corrales-Gaitero, Verónica Maldonado-Garcés, Ecuador</p> <p><b>Serious games-based exercises for arthroplasty rehabilitation</b>                      Jorge-Luis Pérez-Medina, Patricio-David Espinoza-Alvarez, Karina Jimenes~Vargas, Patricia Acosta-Vargas, Yves Rybarczyk, Ecuador</p> <p><b>Stratagems: Embedding cognitive training in game-based environments</b>                      Emily Newsome, Laura Militello, Sowmya Ramachandran, USA</p> <p><b>Engagement in the cinematography of videogames: Proposal of an algorithm for colors and foci of attention analysis</b>                      Carolina Del-Valle-Soto, Jesus Gomez Romero-Borquez, Mexico</p>	

<b>65</b>	<b>Human-Technology Approach to Governance and Job Satisfaction</b> Co-Chairs: Benita Zulch and Christian Vocke, South Africa/Germany	<b>HFML</b>
16:00-18:00 - AHFE 16	<p><b>Meta-analysis of job satisfaction amongst different occupations</b> Kapo Wong, Alan Chan, China</p> <p><b>Leadership in ensuring positive socio-psychological experiences of employees</b> Asta Savanevi ien , Lina Girdauskiene, Lithuania</p> <p><b>Retaining steel tips: Motivation of construction managers in South Africa</b> Andries (Hennie) Van Heerden, Mostafa Jelodar, Michelle Burger, Benita Zulch, New Zealand/South Africa</p> <p><b>Emotional work, mental health and organizational management, determinants in high performance teams. Results in Colombian companies</b> Carlos Armando Marin Valencia, Olga Helena Piñeros Mora, Colombia</p> <p><b>Integrated human-centered performance management on the shop floor</b> Thomas Hellebrandt, Jasmin Ohlig, Patrick Poetters, Ina Heine, Bert Leyendecker, Robert H. Schmitt, Germany</p> <p><b>The future of innovation management – symbiotic interaction between humans and cognitive systems</b> Christian Vocke, Wilhelm Bauer, Germany</p> <p><b>Is self-concept related to organizational and job-related commitment among combat medic trainees?</b> Valerie J. B. Rice, Paul Schroeder, Gary L. Boykin, Stephen C. Allison, USA</p>	
<b>66</b>	<b>Human Factors Research Methods for Glove and Hand Tool Design</b> Co-Chairs: Susan Sokolowski and Linsey Griffin, USA	<b>IPID</b>
16:00-18:00 - AHFE 9	<p><b>Lend a hand for 3D scans: Scanning methodology and data collection for tool and glove design</b> Bethany Juhnke, Colleen Pokorny, Linsey Griffin, Susan Sokolowski, USA</p> <p><b>Qualitative survey methodology and data collection for performance glove design and fit</b> Susan Sokolowski, Linsey Griffin, Bethany Juhnke, Colleen Pokorny, Chrissy Bettencourt, USA</p> <p><b>How sport-specific hand positioning can inform glove and mitt design</b> Susan Sokolowski, Carly Anderson, Sarah Klecker, USA</p> <p><b>A visible functional grasp to measure the complete hand</b> Colleen Pokorny, Bethany Juhnke, Linsey Griffin, USA</p> <p><b>Investigation of 3D functional grip shape to design products for dog walking and hiking</b> Susan Sokolowski, Chrissy Bettencourt, Jennifer Null, USA</p> <p><b>Human factors design of digital information systems for inspection body (IB) in industry 4.0 era</b> Manutchanok Jongprasithporn, Danitar Tontoh, Teppakorn Sittiwanchai, Nantakrit Yodpijit, Thailand</p> <p><b>Sustainable 3D printing mid-sole for functional footwear</b> Ling Jenny Cheung, Keng Po Roger Ng, Tze Chung Jim Luk, Chui Shan Rainbow Lee, Hong Kong</p>	
<b>67</b>	<b>Human Machine Interaction</b> Co-Chairs: Marcel Baltzer and Bankole Fasanya, Germany\USA	<b>RR</b>
16:00-18:00 - AHFE 3	<p><b>How important is the plausibility of test scenarios within usability studies for AV HMI?</b> Nadja Schömig, Katharina Wiedemann, Alexandra Neukum, Frederik Naujoks, Sebastian Hergeth, Andreas Keinath, Germany</p> <p><b>Employing natural finger positioning strategy for improving blind-positioning of steering wheel mounted switches</b> T. K. Philip Hwang, Yao Ting Huang, Pin Chieh Kuo, Taiwan</p> <p><b>Future transportation service technology platform system based on Internet of vehicles</b> Ying Cao, Jiaxin Liu, Li Ziyun, China</p> <p><b>Research on public views of electronic side view mirror system (ESMS) in the 21st century cars</b> Bankole K. Fasanya, Skandip Anand, Guna Sreeja Kallepalli, USA</p> <p><b>Towards a truly cooperative guidance and control: Generic architecture for intuitive human-machine cooperation</b> Marcel Usai, Ronald Meyer, Hiroshi Nagahara, Yusaku Takeda, Frank Flemisch, Germany</p> <p><b>New technology implementation in high-risk organizations - The application of HRO principles in new technology implementation in railroad industry</b> Yalda Khashe, Najm Meshkati, USA</p>	

<b>69</b>	<b>Emerging Research Innovations in AI, User Experience and Design: Industry</b> Chair: Debra Satterfield, USA	HSSE
8:00-10:00 - AHFE 1	<p><b>AI is the new UX: emerging research innovations in AI, user experience, and design as they apply to industry, business, and education, and ethics</b> Debra Satterfield, Troy Abel, USA</p> <p><b>Mitigating misinformation: Using simulations to examine the effectiveness of potential strategies</b> Ryan Kirk, USA</p> <p><b>Picking apart the black box: Sociotechnical contours of accessibility in AI/ML software engineering</b> Christine Wolf, USA</p> <p><b>Validating and improving the smart Servicescape wheel: A qualitative video analysis</b> Hyo-Jin Kang, Jieun Han, Bokyung Yun, Gyu Hyun Kwon, South Korea</p>	
<b>70</b>	<b>Production System Design and Information Technology Applications</b> Co-Chairs: Edgar Ramos and Frank Bodendorf, Peru/Germany	APMPC
8:00-10:00 - AHFE 13	<p><b>User-oriented service systems in resource efficient production networks</b> Cordula Czwick, Stefan Kugler, Reiner Anderl, Germany</p> <p><b>Technology-based lifecycle assessment of software components in automotive product planning</b> Frank Bodendorf, Joerg Franke, Germany</p> <p><b>Expert systems in the reengineering of technological equipment</b> Kamil Wróbel, Poland</p> <p><b>A practical review of inventory models in supply chain: A special focus in agri-business</b> Nicole Barrientos, Luz Tapia, Edgar Ramos, Steven Dien, Kelsey Provost, Peru/USA</p> <p><b>Developing a two-echelon inventory framework in pharmaceutical supply chain: An empirical review</b> Kevin Arana, Katherine Flores, Edgar Ramos, Ron Mesia, Peru</p> <p><b>Development of HACCP as a quality tool in a hybrid agribusiness system: A case study in Piura, Peru</b> Pedro Infantes, Leonardo Torres, Edgar Ramos, Fernando Sotelo, Steven Dien, Peru/USA</p> <p><b>Influence of refined pulping and environmental exposure time on the color of mango (mangifera indica) purée creole variety of Chulucanas</b> Ernesto Hernández Martínez, Miguel Hernández Martínez, Tania Jakeline Choque Rivera, Zury Mabell Sócola Juárez, Peru</p>	
<b>71</b>	<b>Applications in Software, Service and Systems Engineering II</b> Co-Chairs: Rajiv Sanchez and Luis Flores, Peru	HFSSE
8:00-10:00 - AHFE 14	<p><b>Modeling the supplier relationship management in agribusiness supply chain</b> Rajiv Sanchez, Bryan Reyes, Edgar Ramos, Steven Dien, Peru</p> <p><b>Blockchain applied in agribusiness supply chain management: A traceability perspective</b> Luis Flores, Yoseline Sanchez, Edgar Ramos, Fernando Sotelo, Nabel Hamoud, Peru</p> <p><b>Application of the computer vision system to the measurement of the CIE L*a*b* color parameters of fruits</b> Manuel Jesús Sánchez Chero, William Rolando Miranda Zamora, José Antonio Sánchez Chero, Susana Soledad Chinchay Villarreyes, Peru</p> <p><b>Cold supply chain logistics model applied in raspberry: An investigation in Perú</b> Mijail Tardillo, Jorge Torres, Edgar Ramos, Fernando Sotelo, Steven Dien, Peru</p> <p><b>Consumer perception applied to remanufactured products in a product-service system model</b> Alejandro Jiménez-Zaragoza, Karina Arredondo-Soto, Guillermo Cortes-Robles, Marco A. Miranda-Ackerman, Mexico</p> <p><b>Efficient FPGA implementation of direct digital synthesizer and digital up-converter for broadband multicarrier transmitter</b> Cristian Peñaherrera, Mireya Zapata, Ecuador</p> <p><b>Application of fuzzy cognitive maps in critical success factors. Case study: resettlement of the population of the Tres Cerritos Enclosure, Ecuador</b> Lileana Saavedra, Maikel Leyva Vázquez, Jesús Rafael Hechavarría Hernández, Ecuador</p>	

<b>72</b>	<b>Brain-Machine Interface and Artificial Intelligence (AI) systems</b> Chair: Umer Asgher and Sofia Scataglini, Pakistan/Belgium	ICEEP
8:00-10:00 - AHFE 16	<p><b>An experimental study of influence of post lunch brief nap on intellectual concentration</b> Nur Hasfiana Hamuddin, Kimi Ueda, Daisuke Miyazaki, Wakako Takekawa, Hiroshi Shimoda, Hirotake Ishii, Fumiaki Obayashi, Kyoko Ito, Japan</p> <p><b>The effect of chart height and color saturation and lightness to graph comprehension</b> Rosemary Seva, Natasha Andrea Ebor, Lorelie Elaine Sorongon, Regina Marie Manucom, Philippines</p> <p><b>Comparing effect of active vs. Passive robotic interaction on joint attention of children with ASD</b> Faisal Mehmood, Sara Ali, Yasar Ayaz, Muhammad Jawad Khan, Umer Asgher, Pakistan</p> <p><b>Efficient extreme learning machine (ELM) based algorithm for electrocardiogram (ECG) heartbeat classification</b> Khurram Khalil, Umer Asgher, Yasar Ayaz, Riaz Ahmad, Salman Nazir, Sara Ali, Sofia Scataglini, Noriyuki Oka, Pakistan/Norway/Belgium/Japan</p> <p><b>Investigation of EEG correlate in NIRS signal for BCI</b> Ahmed Husnain Johar, Talha Yousuf, Umer Asgher, Yasar Ayaz, Salman Nazir, Muhammad Jawad Khan, Khurram Khalil, Pakistan/Norway</p> <p><b>A methodology for integrating project based learning outcomes and attributes via questionnaire</b> Sara Ali, Muhammad Sajid, Yasar Ayaz, Umer Asgher, Pakistan</p> <p><b>Detection of subject attention in an active environment through facial expressions using deep learning techniques and computer vision</b> Naqash Gerard, Faisal Shafait, Adnan Ul Hasan, Muhammad Imran Malik, Ahmed Husnain Johar, Talha Yousuf, Umer Asgher, Pakistan</p>	
<b>73</b>	<b>Design and VR Serious Game for Education for Behavior Change</b> Co-Chairs: Francisco Rebelo and Carlos Figueiredo, Portugal	ED
8:00-10:00 - AHFE 8	<p><b>Expected architects acceptance of a BIM tool to optimize the building energetic performance</b> Francisco Rebelo, Paulo Noriega, Daniela Santos, Carlos Figueiredo, Portugal</p> <p><b>Designers and repertoire: Considerations on the importance of expanding design students' knowledge base</b> Francisco de Assis Lobo, Galdenoro Botura, Jr., João Carlos r Placido da Silva, Brazil</p> <p><b>Design education-a strategy to change the perception of students: Case study Ciudad Juárez</b> Erika Rogel, Alberto Rossa-Sierra, Mexico</p> <p><b>Color and emotion: a literature review to apply in virtual reality environments</b> Marilia Porto, Paulo Noriega, Francisco Rebelo, Elisângela Vilar, Brazil</p> <p><b>Augmented reality and use of alternative communication for children with autism spectrum disorder: A literature review</b> Aline Neves, Marcelo Soares, Brazil</p> <p><b>Efficacy of VR-based Reminiscence Therapy in improving autobiographical memory for Chinese patients with AD</b> Jiaxin Xu, Baosheng Wang, China</p>	

74	<b>Sales and Marketing</b> Co-Chairs: Timo Holopainen and Marcus Penttinen, Finland	HFBMS
8:00-10:00 - AHFE 2	<p><b>B2B marketing method adapted to sales improvement through the implementation of ABC Classification tool and inbound marketing in SMEs</b>                      Erika Galvez-Torres, Milagros Cruz-Alfaro, Carlos Cespedes-Blanco, Carlos Raymundo, Nestor Mamani-Macedo, Francisco Dominguez, Peru</p> <p><b>Econometric modeling of the performance in the City Council of Chile</b>                      Hanns de la Fuente-Mella, Mauricio Alvarado, Claudio Elórtegui Gómez, Matías Guajardo, Chile</p> <p><b>Factors affecting the behavior of financial markets in the light of financial risks</b>                      Zahra Hamdani, Aicha Dif, Zairi Belkacem, Abdelbaki Benziane, Mohamed Hamdani, Algeria</p> <p><b>Sales process evolution</b>                      Timo Holopainen, Jukka Rantala, Mandi Virtanen, Tuula Korhonen, Finland</p> <p><b>The effects of leadership and management to organizational atmosphere and the impact to cash flow earnings: A study from SME-companies in Finland</b>                      Marcus Penttinen, Lauri Raitala, Tero Reunanen, Jussi Kantola, Finland</p> <p><b>The dividers for continuum of business in business transfer situations and impacts to cash flow earnings: A study from SME-companies in Finland</b>                      Marcus Penttinen, Timo Holopainen, Lauri Raitala, Lassi Rosala, Jussi Kantola, Finland</p> <p><b>From sales funnel to customer journey</b>                      Timo Holopainen, Jukka Rantala, Alina Venermo, Finland</p>	
75	<b>Entrepreneurship and Innovative Product Design</b> Co-Chairs: Sandrine Fischer, Yan Luximon, Qiong Peng and Florentin Popescu, USA/Hong Kong/Netherlands	CIE
8:00-10:00 - AHFE 10	<p><b>Personal experiences in concept generation of new products</b>                      Suresh Sethi, Simrun Sethi, USA</p> <p><b>Designing for unpredictable households: Furniture design requests for a flexible use of dwellings</b>                      Rute Gomes, Portugal</p> <p><b>Intuitive product design and the twin challenges of innovation and adoption: An application</b>                      Sandrine Fischer, USA</p> <p><b>Exploration of bio-based materials and sustainable product design—a case study of bioplastic preparation and design</b>                      Jiajia Song, China</p> <p><b>Social entrepreneurship in cross-cultural context: Multiple value creation</b>                      Florentin Popescu, Ingrid Van Rompay-Bartels, Annet de Lange, Jorcho van Vlijmen, Koos Wagenveld, Netherlands</p> <p><b>Contribution of open source software to the management of inclusive entrepreneurships</b>                      Esteban Crespo-Martínez, Diego S. Suarez, Fabian Carvajal, Juan Pablo Carvallo, Rosalva Vintimilla, Pedro Mogrovejo Q, Ecuador</p> <p><b>Tool development in support of story-planning for design pitching</b>                      Qiong Peng, Jean-Bernard Martens, Netherlands</p>	
76	<b>Kansei Design</b> Co-Chairs: Namgyu Kang and Suzuki Sadahiro, Japan	IPID
8:00-10:00 - AHFE 9	<p><b>Kansei evaluation based on quantifying the identity of smartphone shape</b>                      Koki Chiba, Namgyu Kang, Jiuqiang Fu, Dongjin Seo, Khongthat Thongphun, Liu Jiehong, Mohd Khairul Hussin, Japan</p> <p><b>Proposal of system based on Kansei evaluation of influence of the margin ratio of plates</b>                      Ono Shunsuke, Namgyu Kang, Japan</p> <p><b>Verification of effectiveness with sound using metaphor for typing on keyboard</b>                      Noriki Fukatsu, Namgyu Kang, Japan</p> <p><b>Proposal of Kansei communication tool for SNS based on combining verbal and non-verbal communication</b>                      Suzuki Sadahiro, Namgyu Kang, Japan</p> <p><b>Proposal and Kansei evaluation of a garbage can to change human behaviour based on fun theory</b>                      Masayuki Takahashi, Namgyu Kang, Japan</p> <p><b>Designer thinking, a unique combination of cognitive modes</b>                      Paul Skaggs, USA</p> <p><b>Design for dignity: Research methods to facilitate conversation</b>                      Kelly Umstead, USA</p>	

<b>77</b>	<b>Driver Training, Education and Hazards</b> Co-Chairs: Mohammed Al Eisaei and Minerva Rajendran, UAE/India	<b>PEHF</b>
8:00-10:00 - AHFE 11	<p><b>Posture assessment and subjective scale agreement in picking tasks with low masses</b> Olfa Haj Mahmoud, Charles Pontonnier, Georges Dumont, Stéphane Poli, Franck Multon, France</p> <p><b>Comparison of joint angle measurements from three types of motion capture systems for ergonomic postural assessment</b> Woojoo Kim, Chunxi Huang, Donghyeok Yun, Daniel Saakes, Shuping Xiong, South Korea</p> <p><b>Quantitative assessment of trunk flexion in nurses using wearable inertial sensor: A pilot study</b> Micaela Porta, Marcello Campagna, Giovanni Marco Mura, Massimiliano Pau, Italy</p> <p><b>Comparing the ergonomics of gestural interfaces while running on a treadmill</b> Matthieu Vallat, Alessandro Silacci, Maurizio Caon, Omar Abou Khaled, Elena Mugellini, Giuseppe Fedele, Switzerland/Italy</p> <p><b>On the analysis of the relationship between alkaline water usage and muscle fatigue recovery</b> Vitoantonio Bevilacqua, Giacomo Losavio, Domenico Buongiorno, Antonio Brunetti, Giacomo Donato Cascarano, Irio De Feudis, Bernadette Tamma, Angelo Abbattista, Sabina Ilaria Tatò, Italy</p> <p><b>Prevalence and risk factors associated with musculoskeletal disorders among cashew-nut shelling workers in India</b> Krishna Chaitanya Mallampalli, Debayan Dhar, Swati Pal, India</p> <p><b>Effects of reduced work pace on the risk of developing upper-limb musculoskeletal disorders in a poultry slaughterhouse</b> Diogo Cunha Dos Reis, Adriana Seára Tirloni, Antônio Renato Pereira Moro, Brazil</p>	
<b>78</b>	<b>Assessing Risks</b> Co-Chairs: Tony Venditti and Claudia Pereira, Canada/Portugal	<b>SMHF</b>
8:00-10:00 - AHFE 15	<p><b>Investigation of human psychology and behaviors in the emergency of subway</b> Ping Zhang, Lizhong Yang, Siuming Lo, Yuxing Gao, Fangshu Dong, Fei Peng, Danyan Huang, Han Cheng, Maoyu Li, Jiajia Jiang, China</p> <p><b>Risk assessment in operations of static large format out of home (OOH) billboards for advertising</b> Oca Malagueño, Isachar Bernaldez, Mariam Idica, Philippines</p> <p><b>Risk level assessment to develop a hand disorder in a bag sealing process</b> Luis Cuautle, Luis Alberto Uribe, Jesús Juárez, Mexico</p> <p><b>Safety analysis of an industrial system using Markov reliability diagram with repair</b> Tony Venditti, Nguyen Duy Phuong Tran, Anh-Dung Ngô, Canada/Vietnam</p> <p><b>Evidence of the use of fuzzy techniques in occupational safety</b> Celina Leão, Susana Costa, Portugal</p> <p><b>Approaches to human performance modeling of electric grid operators</b> Ruixuan Li, Katya Le Blanc, USA</p>	

<b>79</b>	<b>Ergonomics in Urban Design</b> Co-Chairs: Mo Zhou and Miroslav Panik, Poland/Slovakia	<b>SUPI</b>
8:00-10:00 - AHFE 17	<p><b>Application of BIM simulation and visualization in landscape architecture design</b> Xia Wei, Wojciech Bonenberg, Mo Zhou, Jinzhong Wang, China</p> <p><b>Smart mobility in urban development</b> Julius Golej, Miroslav Panik, Daniela Spirkova, Andrej Adamuscin, Slovakia</p> <p><b>Revival of Rågsved valley, an exploration in introducing human factors in sustainable urban planning</b> Shiyao Qin, Zhenyu Gu, Dong Wang, China</p> <p><b>Negative effects of urban sprawl</b> Daniela Spirkova, Andrej Adamuscin, Julius Golej, Miroslav Panik, Slovakia</p> <p><b>Proposal for a green area master plan. Case of study: Nueva Aurora cooperative, Daule, Ecuador</b> Cyntia Alava, Jesús Rafael Hechavarría Hernández, Ecuador</p> <p><b>The study on adaptation of vernacular architecture in modern rural architecture design during the process of rural revitalization</b> Mo Zhou, Wojciech Bonenberg, Xia Wei, Ling Qi, Poland</p> <p><b>Comparison of regeneration mechanism on public and private subject of small-scale historical blocks in Chinese city</b> Yin Shun, Yao Weiwei, China</p> <p><b>Research on branding of historic cities under the background of social change: A case study of Suzhou</b> Shan Huang, China</p>	
<b>80</b>	<b>Management of Productivity in Smart Manufacturing/Industry 4.0</b> Co-Chairs: Tim Jeske and Marc-André Weber, Germany	<b>SYSI</b>
8:00-10:00 - AHFE 4	<p><b>Achievements and opportunities of digitalization in productivity management</b> Tim Jeske, Marlene Würfels, Frank Lennings, Marc-André Weber, Sascha Stowasser, Germany</p> <p><b>How to configure assembly assistance systems - Results of a laboratory study</b> Sven Bendzioch, Sven Hinrichsen, Germany</p> <p><b>Operating assistance system for machine tools</b> Alexander Mattes, Thore Gericke, Germany</p> <p><b>Human-robot-collaboration in the context of productivity development and the challenges of its implementation: A case study</b> Yannick Peifer, Marc-André Weber, Tim Jeske, Sascha Stowasser, Germany</p> <p><b>App development via low-code programming as part of modern industrial engineering education</b> Benjamin Adrian, Sven Hinrichsen, Alexander Nikolenko, Germany</p> <p><b>The use of AI-based assistance systems in the service sector: Opportunities, challenges and applications</b> Maike Link, Claudia Dukino, Walter Ganz, Karin Hamann, Kathrin Schnalzer, Germany</p> <p><b>Optimizing inspection process severity by machine learning under label uncertainty</b> Lukas Schulte, Jacqueline Schmitt, Florian Meierhofer, Jochen Deuse, Germany</p>	

<p><b>81</b></p>	<p><b>Driving Simulators</b> Co-Chairs: Ralph Brewer and Catherine Neubauer, USA</p>	<p>HFSIM</p>
<p>8:00-10:00 - AHFE 12</p>	<p><b>Psychophysiological predictors of motion sickness in the driving simulator</b> Sylwia Kaduk, Aaron Roberts, Neville Stanton, UK</p> <p><b>Characterizing driver workload and attention in a simulated automated vehicle</b> Brittany Holthausen, Bruce Walker, USA</p> <p><b>Comparative analysis to the performance of three mobile ad-hoc network routing protocols in time-critical events of search and rescue missions</b> Salama A Mostafa Alabdullah, Aida Mustapha, Azizul Azhar Ramli, Mohammed Ahmed Jubair, Mustafa Hamid Hassan, Ali Hashim Abbas, Malaysia</p> <p><b>How to measure driving skills in the context of autonomous mobility</b> Darina Havlíková, Petr Zámečník, Michal Šimek, Sára Klečková, Czech Republic</p> <p><b>Validation of immersive design parameters in driving simulation environments</b> Yvonne Lyga, Rainer Stark, Merle Lau, Germany</p> <p><b>Driving simulator validation of machine learning classification for a surface electromyography-based steering assistance interface</b> Edric John Nacpil, Kimihiko Nakano, Japan</p> <p><b>Building narrative scenarios for human-autonomous vehicle interaction research in simulators</b> Xiaohua Sun, Yiwen Zhang, Wenjie Zhou, China</p>	
<p><b>82</b></p>	<p><b>Advanced Learning Technologies</b> Co-Chairs: Hamid Parsaei and Cesar Guevara, Qatar/Ecuador</p>	<p>TELS</p>
<p>8:00-10:00 - AHFE 5</p>	<p><b>VR in education: Ergonomic features and cybersickness</b> Olha Pinchuk, Oleksandr Burov, Svitlana Ahadzhanova, Victoriya Logvinenko, Yana Dolgikh, Tetyana Kharchenko, Olena Hlazunova, Andrii Shabalin, Ukraine</p> <p><b>Multisensory learning system applying augmented reality</b> Cesar Guevara, Dennys Mauricio Coronel Vallejo, Ecuador</p> <p><b>E-learning as a strategic solution for the preservation and revitalization of disappearing industrial cultures in Portugal</b> Nuno Martins, Heitor Alvelos, Susana Barreto, Abhishek Chatterjee, Eliana Penedos-Santiago, Cláudia Lima, Mariana Quintela, Portugal</p> <p><b>Preparing students for the challenging job markets over the next decade</b> Albertus Retnanto, Hamid Parsaei, Boback Parsaei, Qatar</p> <p><b>AHP for a comparative study of tools used for programming learning</b> Monica Daniela Gomez Rios, Doris Castillo Herrera, Karla Narváez Lucio, Maikel Leyva, Ecuador</p>	
<p><b>83</b></p>	<p><b>Usability and User-Centered Design I</b> Chair: Manfred Thüring, Germany</p>	<p>UUE</p>
<p>8:00-10:00 - AHFE 6</p>	<p><b>Subjectively experienced time in human-computer interaction: The role of passage of time in user experience</b> Anna K. Trukenbrod, Manfred Thüring, Germany</p> <p><b>Storyboarding the virtuality: Methods &amp; best practices to depict scenes &amp; interactive stories in virtual &amp; mixed reality</b> Thomas Brett Talbot, Elizabeth Thiry, Michael Jenkins, USA</p> <p><b>Scent as a modality – Study on the olfactory sense in multisensorial design</b> Miguel Bual, Portugal</p> <p><b>Towards understanding customer co-creation experience for mass customization</b> Mehmet Ozdemir, Alexander Van Gastel, Arthur Verburgh, Xander De Buysscher, Vincent Delrue, Joke Verlinden, Sander Van Goethem, Italy/Belgium</p> <p><b>A methodology for data analytics based on organizational characterization through a user-centered design - A systematic literature review</b> Boris Astudillo, Marco Santórum, Jose Aguilar, Ecuador</p> <p><b>User experience design trend of mobile E-commerce vlog application on information product</b> Zishun Su, Jianxin Cheng, Xinying Wu, Qiaoling Zou, China</p>	

<b>84</b>	<b>Sensory Engineering and Emotion</b> Co-Chairs: Keiichi Muramatsu and Kazutaka Ueda, Japan	<b>APD</b>
8:00-10:00 - AHFE 3	<p><b>Evaluation of the attention effect of the Fraser-Wilcox illusion in a visual discrimination task</b> Kota Tokonabe, Keiichi Watanuki, Kazunori Kaede, Keiichi Muramatsu, Japan</p> <p><b>Visualization of features in multivariate gait data: Use of a deep learning for the visualization of body parts and their timing during gait training</b> Yusuke Osawa, Keiichi Watanuki, Kazunori Kaede, Keiichi Muramatsu, Japan</p> <p><b>Comparison of object-based three-dimensional sound and ambient sound for straight walking</b> Keiichi Muramatsu, Shigekimi Tsukada, Kazunori Kaede, Keiichi Watanuki, Japan</p> <p><b>Chaotic analysis of finger plethysmogram during aroma exposure for evaluating emotions and examination of optimal analysis method</b> Tomofumi Sakata, Keiichi Watanuki, Keiichi Muramatsu, Kazunori Kaede, Japan</p> <p><b>Cognitive and neural model of aesthetic sensitivity</b> Kazutaka Ueda, Japan</p> <p><b>The influence of video barrage on the emotion of young users</b> Shanang He, Fumie Muroi, China</p> <p><b>A comparative study on the communication effect of stage performance promotion platforms based on user experience</b> Juingyi Ji, RongRong Fu, Jianxin Cheng, China</p> <p><b>Exploring user experience of music social mode - take NetEase Cloud Music as an example</b> Han Wang, Rongrong Fu, China</p>	
<b>Session Break: 10:00 - 10:30</b>		
<b>86</b>	<b>Digital Services for Product Innovation</b> Co-Chairs: Christian Zagel and Freimut Bodendorf, Germany	<b>HSSE</b>
10:30-12:30 - AHFE 1	<p><b>Identifying trendsetters in online social networks – a machine learning approach</b> Martina Fricke, Freimut Bodendorf, Germany</p> <p><b>Consume less, create more – Digital services in the context of sustainability</b> Rebecca Fischer, Lena Pieper, Germany</p> <p><b>Innovation? Yes, I can! – individually perceived creative self-efficacy as an effect of vividness targeting creativity methods</b> Lena Pieper, Rebecca Fischer, Hauke Hasenknopf, Germany</p> <p><b>Service innovations for cyborgs – human augmentation as a self-experiment</b> Christian Zagel, Germany</p> <p><b>Influence of survey link locational placement on the user rating</b> Adelka Niels, Germany</p> <p><b>Why do you listen to this? Experiencing black metal</b> Hauke Hasenknopf, Nassrin Hajinejad, Lena Pieper, Rebecca Fischer, Germany</p>	
<b>87</b>	<b>Usability and User-Centered Design II</b> Co-Chairs: T. K. Philip Hwang and Shunta Tomimatsu, Taiwan/Japan	<b>UUE</b>
10:30-12:30 - AHFE 6	<p><b>Framework based on Gestalt principles to design mobile interfaces for a better user experience</b> Daniel Ripalda, Cesar Guevara, Ecuador</p> <p><b>Reflections on the concepts of informational ergonomics and their compatibility with user experience</b> João Carlos R Placido Da Silva, Francisco De Assis Lobo, Luis Carlos Paschoarelli, Valeria Ramos Friso, Vanessa Maiara Domingues De Oliveira, Roger Morgado Curiel, Brazil</p> <p><b>Progressive disclosure options for improving choice overload on home screen</b> T. K. Philip Hwang, Guan Jun Ding, Pin Chieh Kuo, Taiwan</p> <p><b>An exploratory analysis of technical issues in remote education between international medical institutions</b> Shunta Tomimatsu, Kuriko Kudo, Shuji Shimizu, Tomohiko Moriyama, Shintaro Ueda, Yasuyuki Hirai, Japan</p> <p><b>Easy identity management and enhanced security in account linking</b> Dahey Yoo, Jin Ra, Bora Kang, South Korea</p> <p><b>Evaluating user-elicited gestures for physical peripheral interaction with smart devices</b> Yiqi Xiao, Renke He, China</p>	

<b>88</b>	<b>Teaming With Autonomous Systems for Medical System Design, or Training and Delivery of Care</b> Co-Chairs: Angela Harrivel and Bettina L. Beard, USA	CN
10:30-12:30 - AHFE 7	Teaming with autonomous systems for medical system design, or training and delivery of care Angela Harrivel, USA Developing a tDCS-enhanced dual-task flight simulator for evaluating learning Jesse Mark, Hasan Ayaz, Daniel Callan, USA Development of a demonstrator system for online measurement of soldier cognitive readiness in field and in simulator environments Johanna Närväinen, Jari Laarni, Kristian Lukander, Joona Rissanen, Jaakko Havola, Ville-Pekka Inkilä, Kai Pihlainen, Kari Kallinen, Satu Pakarinen, Finland Cognitive task analysis and knowledge elicitation to inform medical workstation requirements for long duration space missions Ronald Daiker, Angela Harrivel, Rania Ghatas, Renee Lake, Suzanne Maddock, USA Mapping the neurodynamics of 'realistic' and 'real' healthcare performance along the biometric time scale of teamwork Ronald Stevens, Trysha Galloway, Ann Willemsen-Dunlap, USA Envisioning the future role of an exploration clinical decision support system Bettina Beard, Brian Russell, William Toscano, Barbara Burian, Michael Krihak, Sandeep Shetye, Tianna Shaw, USA	
<b>89</b>	<b>Products and Services for an Inclusive Society</b> Co-Chairs: Giuseppe Mincoelli and Giuseppe Di Bucchianico, Italy	DI
10:30-12:30 - AHFE 12	Human centered design methodologies applied to complex research projects: First results of the PLEINAIR project Giuseppe Mincoelli, Gian Andrea Giacobone, Silvia Imbesi, Michele Marchi, Italy Envisioning the future and going back: A human-centered strategy to develop the styling of a sports car Gian Andrea Giacobone, Giuseppe Mincoelli, Italy The DfA quality label: Design for all practical evaluation experiences for inclusive design solutions Giuseppe Di Bucchianico, Italy Social innovation in fashion design: Can design provide opportunities of inclusion to refugees in Greece? Giovanni Maria Conti, Mariangela Panagiotidou, Italy Fashion and inclusive design: Assistive technologies applied to clothing Graziella Aguiar, Leonardo Rincon, Miguel Carvalho, Christian Mailer, Fabieli Breier, Brazil Analysis of the sensorial characteristics of materials for inclusive design Stefania Camplone, Emidio Antonio Villani, Italy User friendly eco bag for everyday life Giuseppe Di Bucchianico, Stefania Camplone, Grazia Ventrella, Italy	
<b>90</b>	<b>Implementation of Technology for Training and Certification</b> Co-Chairs: Salman Nazir, Jussi Okkonen and Martin Kröll, Norway/Finland/Germany	TELS
10:30-12:30 - AHFE 5	Using AI to decrease demand and supply mismatch in ITC labour market Jussi Okkonen, Harri Ketamo, Hanna Lindsten, Teemu Rauhala, Jarmo Viteli, Finland Innovations, agile management methods and personnel development Martin Kröll, Germany From tacit knowledge to visual expertise: Eye-tracking support in maritime education and training Rikard Eklund, Charlott Sellberg, Anna-Lisa Osvalder, Sweden What the maritime industry can learn from safety training in the process industry and why non-technical skills are indispensable for mariners in critical situations Marina Klostermann, Sebastian Brandhorst, Annette Kluge, Germany Using virtual worlds as an integrated part of virtual distance learning (VDL) networks in simulator-based education Per Haavardtun, Steven Mallam, Amit Sharma, Salman Nazir, Norway The influence of multi-media related to creative learning Pui Wa Chau, Amic Ho, Hong Kong Review of German master craftsman qualification certificate examination Guanni Dong, Guojun Chen, Bin Liu, China	

<b>91</b>	<b>Clinical Care and Prosthetics</b> Co-Chairs: Martina A. Clarke and Jeff Feng, USA	<b>EHMD</b>
10:30-12:30 - AHFE 14	<p><b>High accuracy multi-channel surface EMG acquisition system for prosthetic devices control</b>                  Luis Serpa-Andrade, Daniel Proano-Guevara, Ecuador</p> <p><b>Patronized sEMG acquisition system proposal using patient journey mapping for upper limb prosthesis</b>                  Luis Serpa-Andrade, Daniel Proano-Guevara, Ecuador</p> <p><b>Uncanny valley effect on upper limb prosthetic devices on the Ecuadorian context: study proposal</b>                  Daniel Proano-Guevara, Luis Serpa-Andrade, Ecuador</p> <p><b>Real-time video analytics for measuring colonoscopy performance</b>                  Yang Cai, USA</p> <p><b>High fidelity and objectivity in balance assessment -A comparative study of the 6-degree motion tracking for body balance assessment to the conventional paper test</b>                  Antoinette Louw, Jeff Feng, Pei-Fen Chang, USA</p> <p><b>A unified framework for human centered design of a substance use, abuse, and recovery support system</b>                  Ben Schooley, Sue Feldman, Bradley Tipper, USA</p> <p><b>Structural anatomical study of the upper limb to design a transhumeral prosthesis</b>                  Ronald Pucha-Ortiz, John Romero-Bacuilima, Luis Serpa-Andrade, Ecuador</p> <p><b>Mechatronic design of trans-humeral prosthesis based on a goniometry and anthropometry study</b>                  John Mario Romero Bacuilima, Ronald Israel Pucha Ortiz, Luis Serpa-Andrade, Ecuador</p>	
<b>92</b>	<b>Business Development</b> Co-Chairs: Tero Reunanen and Wei Ding, Finland/China	<b>HFBMS</b>
10:30-12:30 - AHFE 2	<p><b>Concurrent research and decentralized decision making as an accelerator from idea to business—case Turku, Finland</b>                  Tero Reunanen, Elina Kontio, Janne Lahtiranta, Finland</p> <p><b>Correlations in time management and organizational commitment</b>                  Tero Reunanen, Jarno Einolander, Finland</p> <p><b>Lack of authority, failure of leadership—Burden of not being led</b>                  Tero Reunanen, Eyal Eckhaus, Finland</p> <p><b>A new operation model for property management based on lessons learned from the oil and gas industry</b>                  Grete Rindahl, Asgeir Droivoldsmo, Norway</p> <p><b>Digital disruption in Retail: Management strategies for South African shopping centers</b>                  Michelle Burger, Andries (Hennie) Van Heerden, Norman Masebe, Malose Maseneke, South Africa</p> <p><b>Research and practice of brand design method of local specialty products in developing regions under the concept of service design</b>                  Wei Ding, Xiaolin Li, Junnan Ye, China</p> <p><b>“Millennipreneurship” vs entrepreneurship: Exploring emerging dynamics in entrepreneurial competencies among generational cohorts</b>                  Reginald Arthur, Olivia Anku-Tsedede, Michael Asiedu Gyensare, Ghana</p>	

<b>93</b>	<b>Interdisciplinary Design Education</b> Co-Chairs: Joyce Thomas and Benjamin Bush, USA	<b>IPID</b>
10:30-12:30 - AHFE 9	<p><b>Grit assessment of first year design students</b> Benjamin Bush, Chris Arnold, USA</p> <p><b>Identity, wayfinding and construction for an underserved population in Ecuador</b> David Smith, USA</p> <p><b>ID case study: The value of intellectual property in innovative product development</b> Joyce Thomas, USA</p> <p><b>PET: Polyethylene terephthalate – The ubiquitous 500 ml water bottle</b> Clark Lundell, Joyce Thomas, USA</p> <p><b>Leveraging design competitions to enhance learning goals and student motivation within a studio project</b> Wendell Wilson, Young Mi Choi, USA</p> <p><b>Strategic pathways for interdisciplinary design education</b> William Bullock, USA</p> <p><b>Student driven model for creative pedagogy</b> Angie Fahlman, Lois Frankel, Canada</p>	
<b>94</b>	<b>Transportation: Maritime II</b> Co-Chairs: Daniel Fay and Kiome Pope, UK	<b>MAR</b>
10:30-12:30 - AHFE 10	<p><b>Maritime resource management in the marine engineering and nautical science education – attitudes and implication for training and evaluation</b> Gesä Praetorius, Carl Hult, Jan Snöberg, Sweden</p> <p><b>Development of a SAGAT query and simulator experiment to measure situation awareness in maritime navigation</b> Bjørn-Morten Batalden, Hui Xue, Norway</p> <p><b>Testing of a novel target motion analysis interface – pilot results</b> Daniel Fay, Aaron Roberts, Neville Stanton, UK</p> <p><b>Assessing situation awareness across different submarine control room layouts</b> Kiome Pope, Aaron Roberts, Daniel Fay, Neville Stanton, UK</p>	
<b>95</b>	<b>Ergonomics Design and Analysis</b> Co-Chairs: Yi Liu and Rosangela Santos, USA/Brazil	<b>PEHF</b>
10:30-12:30 - AHFE 11	<p><b>Determining performance between a standard gaming mouse and vertical gaming mouse, and its effects on the wrist muscles</b> Vignesh Mathiyazhagan, Yuvanshankar Anandakrishnan, Ashraf Almgadi, Yueqing Li, USA</p> <p><b>Design and analysis of chest of drawers from the perspective of child safety</b> Zinxiong Liu, Yao Li, China</p> <p><b>Women's footwear sole for the elderly produced with sustainable material: Friction coefficient analysis</b> Rosangela Santos, João Eduardo Guarnetti Dos Santos, Ademir Marques Junior, Flávio Cardoso Ventura, João Victor Gomes Dos Santos, Pedro Yuri Kovatch, Luis Carlos Paschoarelli, Fausto Orsi Medola, Brazil</p> <p><b>Estimation of forearm, deltoid, and trapezius muscle activities due to overuse of smartphone with and without armrest</b> Yi Liu, Yueqing Li, Brian Craig, USA</p> <p><b>Improved design of household kitchen waste composting machine based on human factors engineering</b> Jing Qiu, Huabin Wang, China</p> <p><b>Foot morphology and contact pressure from footwear during gait</b> Shin Takesue, Ping Yeap Loh, Satoshi Muraki, Hiroshi Furutachi, Hajime Mochida, Noriyuki Kado, Kouichi Ikegami, Kenki Wada, Japan</p> <p><b>Information acquisition strategies to reduce falls risk among vision impaired people</b> Tadashi Uno, Masanari Asano, Ping Yeap Loh, Satoshi Muraki, Japan</p>	

96	<b>Driving Automation I</b> Co-Chairs: Johanna Woerle and Saeed Vasebi, Germany/USA	RR
10:30-12:30 - AHFE 3	<p><b>The new paradigm for coloring automated driving with human emotions. The SUaaVE approach</b>          Juan Manuel Belda-Lois, Sofia Iranzo, Begoña Mateo, Jose Laparra, Jose Solaz, Elisa Signes, Nicolás Palomares, Sandra Alemany, Spain</p> <p><b>Online feedback control for driver-vehicle interaction in automated driving</b>          Khazar Dargahi Nobari, Franz Albers, Katharina Bartsch, Torsten Bertram, Germany</p> <p><b>Automated driving on the motorway: A users' perspective on conditional versus high automation</b>          Johanna Woerle, Barbara Metz, Aaron Lutz, Marcus Schmitt, Germany</p> <p><b>Driver's visual attention analysis in smart car with FHUD</b>          Yanjun Zhang, Tian Yang, Xia Zhang, Yongjin Zhang, Youchao Sun, China</p> <p><b>Human car-following behavior: Parametric, machine-learning, and deep-learning perspectives</b>          Saeed Vasebi, Yeganeh Hayeri, Jing (Peter) Jin, USA</p> <p><b>Alert! Autonomous vehicle (AV) system failure - drivers' reactions to a sudden, total automation disengagement</b>          Sarah El-Dabaja, Deborah McAvoy, Bhaven Naik, USA</p> <p><b>Vehicle-to-infrastructure and human-to-infrastructure models for smart civil infrastructure systems</b>          Sara Mostowfi, William Buttlar, USA</p>	
97	<b>Safety Management I</b> Co-Chairs: Fatemeh Davoudi Kakhki and Hana Pacaiova, USA/Slovakia	SMHF
10:30-12:30 - AHFE 15	<p><b>Psychosocial risk and turnover intention: moderating effect of psychological wellbeing</b>          Michael Ntow, David Kwaku Abraham, Noble Osei-Bonsu, Evans Sokro, Ophelia Zungbey, Ghana</p> <p><b>The role of workers' representative and OHS performance: An interpretative framework</b>          Paolo Trucco, Rossella Onofrio, Raffaella Cagliano, Italy</p> <p><b>Utilization of machine learning in analyzing post-incident state of occupational injuries in agro-manufacturing industries</b>          Fatemeh Davoudi Kakhki, Steven A. Freeman, Gretchen A. Mosher, USA</p> <p><b>Safety management in accordance with Industry 4.0 requirements: analysis and evaluation of the level of digitalization in the Slovak companies</b>          Hana Pacaiova, Renata Turisova, Anna Nagyova, Milan Oravec, Slovakia</p> <p><b>Links between knowledge transmission programs and the preservation of occupational health and safety</b>          Claudia Pereira, Marta Santos, Catherine Delgoulet, Portugal</p> <p><b>The characteristics of industrial safety risk management</b>          Gyula Szabo, Hungary</p> <p><b>The required coefficient of friction in different age group labors with different carrying jobs</b>          Chingchung Chen, Zhi Xuan Chen, Liwen Liu, Chih-Yong Chen, Taiwan</p>	
98	<b>Analysis, Methods and Tools</b> Co-Chairs: Pappu Sharma and Anugrah Engras Bara, India	SOE
10:30-12:30 - AHFE 16	<p><b>OMAX and fuzzy logic as productivity tools and ergonomic analysis in automotive maintenance</b>          Lidilia Cruz-Rivero, Daniel Angeles-Herrera, María Leonor Méndez-Hernández, César David Rivera-Toscano, Carlos Eusebio Mar-Orozco, Mexico</p> <p><b>Analysis of ergonomic risk factors among cobblers at Jabalpur, India</b>          Pappu Sharma, Anugrah Engras Bara, India</p> <p><b>Determination of assessment elements that restrict the REBA implementation within aseptic areas. A study case</b>          Victor Hugo Madrid-Mendoza, Maria Del Carmen Torres-Salazar, Areli Rizo-Aguilar, Viridiana Aydee León Hernández, Martha Roselia Contreras Valenzuela, Mexico</p> <p><b>The effects of recovery method and refractive status on the recovery process of visual fatigue</b>          Xinran Xu, Xiangchuan Wang, Ruifeng Yu, China</p> <p><b>Effect of air quality alerts on intended behavior change</b>          Megan Peaslee, Lukas Sexton, Ellen Reed, Joshua Nelson, USA</p>	

<b>99</b>	<b>Ergonomics in Building and Architecture</b> Co-Chairs: Jerzy Charytonowicz and Elzbieta Trocka-Leszczynska, Poland	SUPI
10:30-12:30 - AHFE 17	<p><b>Public space for active senior</b> Joanna Jablonska, Elzbieta Trocka-Leszczynska, Poland</p> <p><b>Ergonomics of architectural-acoustic solutions in contemporary offices</b> Elzbieta Trocka-Leszczynska, Joanna Jablonska, Poland</p> <p><b>Ergonomic design of private outdoor living spaces</b> Przemyslaw Nowakowski, Poland</p> <p><b>Geodesic domes in built environments</b> Waldemar Bober, Poland</p> <p><b>Micro-units and co-living spaces in post-industrial surroundings. The human dimension in adaptive reuse projects of historic buildings converted into new-generation student residence in European cities</b> Elzbieta Komarzynska-Swiesciak, Krystyna Kirschke, Pawel Kirschke, Poland</p> <p><b>Study of informal human settlements in Picoazá Parish, Portoviejo Canton: Towards a bioclimatic housing approach</b> Juan Briones, Jesús Rafael Hechavarría Hernández, Ecuador</p>	
<b>100</b>	<b>Ergonomics, Human Factors and Safety in Production Management</b> Co-Chairs: Salvador Ávila Filho and Shuichi Fukuda, Brazil/Japan	APMPC
10:30-12:30 - AHFE 13	<p><b>A mathematical model for ergonomic job rotation scheduling to balance the workload of employees in assembly Lines</b> Esra Dinler, Selin Isik, Turkey</p> <p><b>Dynamic view of human elements design and projection of human factors in critical task operation using Bayesian networks</b> Salvador Ávila, Jade Ávila, Lucas Pereira, Elvis Renan Fagundes Lima, Brazil</p> <p><b>Simulated ergonomics evaluation using modern multi-task evaluation models</b> Murray Gibson, Robert Seseck, Poland</p> <p><b>From working for others to working for yourself</b> Shuichi Fukuda, Japan</p> <p><b>Mixed reality for visualization of operating data and semantic self-descriptions of machines using OPC UA</b> Johannes Olbort, Heiko Herden, Vladimir Kutscher, Reiner Anderl, Germany</p> <p><b>Model-based interconnection of digital and physical twins using OPC UA</b> Vladimir Kutscher, Johannes Olbort, Carsten Steinhauer, Reiner Anderl, Germany</p> <p><b>Educational effects by formalizing of traditional backing techniques in Japan</b> Akihiko Goto, Iwataro Oka, Yuka Takai, Japan</p>	
<b>101</b>	<b>Assistive Technologies and Accessibility</b> Co-Chairs: Sandra Sanchez-Gordon and Ricardo Vigário, Ecuador/Portugal	YSYI
10:30-12:30 - AHFE 4	<p><b>Model for generation of profiles for persons with disabilities in e-Learning environments</b> Sandra Sanchez-Gordon, Janio Jadán-Guerrero, Hugo Arias-Flores, Isabel I. Nunes, Ecuador/Portugal</p> <p><b>Speech training system for hearing impaired individuals based on automatic lip-reading recognition</b> Yuanyao Lu, Shenyao Yang, Zheng Xu, Jingzhong Wang, China</p> <p><b>Contributions to improve accessibility and usability of academic journal management systems. Case Study: OJS</b> Hugo Arias-Flores, Tania Calle-Jimenez, Sandra Sanchez-Gordon, Isabel L. Nunes, Ecuador</p> <p><b>Using expert evaluation to assess the usability of an educational mobile game for cognitive skills training</b> Jorge-Luis Pérez-Medina, Patricia Acosta-Vargas, Carlos Sampedro, Andrés Paredes, Mayra Carrión, Marco Santorum, Ligia-Pilar Samaniego-Santillán, Verónica-Gabriela Maldonado-Garcés, Carlos Corrales-Gaitero, Nelly-Yolanda Ortiz-Carranco, Ecuador</p> <p><b>Assessing visual engagement for visuomotor skills rehabilitation training in infants</b> Pedro Dias, Ana Ferreira, Cláudia Quaresma, Carla Quintão, Ricardo Vigário, Portugal</p>	

## 12:30-13:30 Session Break (1 hour)

<b>103</b>	<b>AI Designed to Support Healthy Aging</b> Co-Chairs: Ho-Cheol Kim and Camille Nebeker, USA	HSSE
13:30-15:30 - AHFE 1	<p><b>AI designed to support healthy aging</b> Ho-Cheol Kim, Camille Nebeker, USA</p> <p><b>Predicting future accident risks of older drivers by speech data from a voice-based dialogue system: A preliminary result</b> Yasunori Yamada, Kaoru Shinkawa, Akihiro Kosugi, Masatomo Kobayashi, Hironobu Takagi, Miyuki Nemoto, Kiyotaka Nemoto, Tetsuaki Arai, Japan</p> <p><b>Predictive analytics and the return of "research" information to participants</b> Shengzhi Wang, Ellen E. Lee, Benjamin Zywicki, Ho-Cheol Kim, Dilip Jeste, Camille Nebeker, USA</p> <p><b>AI and mental health factors for supporting healthy aging</b> Dilip Jeste, USA</p> <p><b>Moving from data to behavior change in healthy aging</b> Colin Depp, USA</p>	
<b>104</b>	<b>Artificial Intelligence and Social Computing III</b> Co-Chairs: Sebastian Crespo and Ruth Wario, Ecuador/South Africa	AISC
13:30-15:30 - AHFE 10	<p><b>A review of sign Language hand gesture recognition algorithms</b> Casam Nyaga, Ruth Wario, South Africa</p> <p><b>Artificial intelligence enabled user experience research</b> Sarrah Zaghoudi, Leonhard Glomann, Tunisia</p> <p><b>AI-driven worker assistance system for additive manufacturing</b> Benjamin Roehm, Leo Goegelein, Stefan Kugler, Reiner Anderl, Germany</p> <p><b>Using semantic networks for question answering - case of low-resource language such as Swahili</b> Barack Wanjawa, Lawrence Muchemi, Kenya</p> <p><b>Study on design of weaken learning costs for business intelligence data platforms</b> Yao Wang, Renjie Yang, Chen Mao, Jun Zhang, China</p> <p><b>Top-level design of intelligent video surveillance system for abandoned objects</b> Chengwei Zhang, Wenhan Dai, China</p> <p><b>LA homelessness</b> Dandan Kowarsch, USA</p>	
<b>105</b>	<b>Competencies and Culture for Smart Manufacturing/Industry 4.0</b> Co-Chairs: Martina Frost and Benjamin Adrian, Germany	SYSI
13:30-15:30 - AHFE 4	<p><b>Leadership and corporate culture as key factors for thriving digital change</b> Martina Frost, Tim Jeske, Nicole Ottersböck, Germany</p> <p><b>Systematic competence building as a success factor for establishing hybrid business models</b> Nicole Ottersböck, Martina Frost, Tim Jeske, Veit Hartmann, Germany</p> <p><b>How to teach digital tools for process automation in industrial engineering education</b> Alexander Nikolenko, Sven Hinrichsen, Frederic Meyer, Germany</p> <p><b>Evaluation of augmented reality technologies in manufacturing – A literature review</b> Tanja Zigart, Sebastian Schlund, Austria</p> <p><b>Organizational justice: Does "IT" matter? empirical analysis of the influence of information technology on employee justice perceptions</b> Maud Adjeley Ashong Elliot, Reginald Arthur, Ghana</p>	

<b>106</b>	<b>Aviation I</b> Co-Chairs: Divya Chandra and Christian Niermann, USA/Germany	<b>AVI</b>
13:30-15:30 - AHFE 8	<p><b>What-if analysis in total airport management</b>                      Reiner Suikat, Sebastian Schier, Nils Carstengerdes, Yves Günther, Sandro Lorenz, Florian Piekert, Germany</p> <p><b>Pilot tailored helicopter systems</b>                      Christian Niermann, Germany</p> <p><b>Effect of anticipatory conditions towards pilot performance in encountering stall: A study of a flight simulator</b>                      Meilisa Hajriani, Hardianto Iridiastadi, Indonesia</p> <p><b>Operational complexity in performance-based navigation arrival and approach flight operations</b>                      Divya Chandra, Andrea Sparko, Andrew Kendra, Janeen Kochan, USA</p> <p><b>Towards a glossary of aviation communication factors</b>                      Simon Cookson, Japan</p> <p><b>Integrating human factors in the design of flight-deck applications: An oil leak example</b>                      Katie Parnell, Rachael Wynne, Katie Plant, Peter Beecroft, Neville Stanton, UK</p>	
<b>107</b>	<b>Physical Ergonomics and Work-Related Musculoskeletal Disorders</b> Co-Chairs: Zenija Roja and Henrijs Kalkis, Latvia	<b>PEHF</b>
13:30-15:30 - AHFE 11	<p><b>Causes of work related musculoskeletal disorders in the textile industry</b>                      Henrijs Kalkis, Zenija Roja, Vaisla Gunta, Inara Roja, Latvia</p> <p><b>Physical load and preventive measures in metal manufacturing industry</b>                      Henrijs Kalkis, Kristine Andza, Zenija Roja, Latvia</p> <p><b>Evolution of a work-related musculoskeletal disorder risk assessment tool. The case of CERA</b>                      Gyula Szabo, Hungary</p> <p><b>The effect of real-time biofeedback on VDT operators' neck-shoulder workload</b>                      Hsieh-Ching Chen, Yi-Ling Liu, Yung-Ping Liu, Taiwan</p> <p><b>A convolutional neural network model to classify the effects of vibrations on biceps muscles</b>                      Jen-Yung Tsai, Yih-Kuen Jan, Ben-Yi Liau, Raden Bagus Reinaldy Subiakto, Chih-Yang Lin, Rimuljo Hendradi, Yi-Chuan Hsu, Quanxin Lin, Hsin-Ting Chang, Chi-Wen Lung, Taiwan</p> <p><b>Research on the influence of physical environment in civil aircraft cabin on seat comfort</b>                      Jian Ping Chen, Jin-Yi Zhi, Zhi-Ruo Lin, Jin Wang, Li-Li Zhang, China</p> <p><b>The effects of chemical protective clothing on manual dexterity</b>                      Peng-Cheng Sung, Yuan-Shyi Peter Chiu, Yung-Ping Liu, I-Lung Chen, Taiwan</p> <p><b>The significance of space organisation in the realisation of movement and mobility for people with visual disability</b>                      Malgorzata Telesinska, Poland</p>	
<b>108</b>	<b>Awareness, Training and Education</b> Co-Chairs: Tianhao Xu and Ryan Mullins, USA	<b>CYBER</b>
13:30-15:30 - AHFE 9	<p><b>Hook, line and sinker: Determining psycholinguistic features of deceptive phishing messages for targeted training</b>                      Tianhao Xu, Prashanth Rajivan, USA</p> <p><b>Understanding and enabling tactical situational awareness in a security operations center</b>                      Ryan Mullins, Adam Fouse, Ben Nargi, USA</p> <p><b>Developing digital awareness at school: A fundamental step for cybersecurity education</b>                      Isabella Corradini, Enrico Nardelli, Italy</p> <p><b>Cybersecurity risks and situation awareness: Audit committees' appraisal</b>                      Didier Fass, Stephanie Thiery, France</p> <p><b>Addressing human factors in the design of cyber hygiene self-assessment tools</b>                      Jacob Esparza, Nicholas Caporusso, Angela Walters, USA</p> <p><b>Habituation: A possible mitigation of a wicked problem</b>                      Kirsten Richards, USA</p>	

<b>109</b>	<b>Usability and User Experience Applications I</b> Co-Chairs: Cesar Guevara and Lei Wu, Ecuador/China	<b>UUE</b>
13:30-15:30 - AHFE 6	<p><b>An application of Bayesian regression in ergonomics</b> Ashok Singh, Rohan Dalpatadu, USA</p> <p><b>Editorial design of interactive picture book with mobile application based on UxD user experience design</b> Cesar Guevara, Carlos Borja, Mirian Elizabeth Amagua Simbaña, Ecuador</p> <p><b>The digital divide: How low-literate freshman search for information</b> Noel Alton, USA</p> <p><b>Human factors guideline in the human machine interface design of datalink system</b> Lei Wu, China</p> <p><b>Technology as a tool to improve student understanding of assessment questions</b> Marie Lonergan, Lizette De Wet, Andries Burger, South Africa</p> <p><b>Factors affecting low response effort in online survey tasks for passive stakeholders: Insights from a design ethnography research</b> Qishen Duan, Zhengyu Tan, China</p> <p><b>The effect of touch screen size on pattern experiments</b> Lung-wen Kuo, Ming-Chi Hsieh, Chih-chun Lai, Taiwan</p>	
<b>110</b>	<b>Cognitive Factors in Human Performance</b> Co-Chairs: Pengcheng Li and Thomas Ulrich, China/USA	<b>HERRP</b>
13:30-15:30 - AHFE 12	<p><b>Is there a notable comprehension difference between abbreviations and spelled-out words?</b> Tina Miyake, Katya Le Blanc, USA</p> <p><b>Operator's human error features in compensatory tracking task based on cognitive process</b> Jintao Wu, Yan Lv, Weicai Tang, Qianxiang Zhou, Yi Xiao, China</p> <p><b>Cognitive performance after repeated exposure to transcranial direct current stimulation (tDCS) during sleep deprivation</b> Lindsey McIntire, R. Andy McKinley, Charles Goodyear, John McIntire, Justin Nelson, USA</p> <p><b>A fuzzy logic model for quantifying the likelihood of human decision-making in nuclear emergency situations</b> Young A Suh, Jaewhan Kim, South Korea</p> <p><b>Human response characteristics according to the location of visual stimuli</b> Kwangtae Jung, Yejin Lee, Hyunuchul Lee, South Korea</p>	
<b>111</b>	<b>Accessibility, Safety and Clinical Adaptations</b> Co-Chairs: Kai Chieh Lin and Huajie Wang, Taiwan/China	<b>HFAS</b>
13:30-15:30 - AHFE 13	<p><b>Aging-people accessibility to urban garden: A case study in Turin</b> Lorenzo Savio, Daniela Bosia, Silvia Tedesco, Elena Montacchini, Italy</p> <p><b>Research on the design of medical self-service terminal for the elderly</b> Xiacong Shi, Huifang Shang, Chuanshun Wang, China</p> <p><b>Design of the public travel reservation system for the elderly based on empathy research map</b> Huajie Wang, Jianxin Cheng, China</p> <p><b>Driver persistence, safety and older adult self-efficacy: Addressing driving challenges using innovative multimodal communication concepts</b> Joan Cahill, Katie Crowley, Sam Cromie, Alison Kay, Ciaran Doyle, Eamonn Kenny, Sonja Hermann, Robert Ross, Michael Gormley, Ann Hever, Ireland</p> <p><b>Analysis and design of the psychological factors affecting senior's participation in health promotion courses</b> Kai Chieh Lin, Chih-Fu Wu, Guan-Ying Li, Taiwan</p> <p><b>A system supporting intergenerational storytelling for older adults</b> Cun Li, Jun Hu, Bart Hengeveld, Caroline Hummels, Netherlands</p> <p><b>Research on the interactive system of long-distance relationships for elderly users</b> Yue Sun, Ding-Bang Luh, China</p> <p><b>Should electronic medical records be an alternative to reference intervals for interpretation of laboratory results in geriatric subjects?</b> Sudip Datta, India</p>	

<b>112</b>	<b>Sustainability</b> Co-Chairs: Yilian Hao and Oskar Juszczyk, China/Finland	<b>HFBMS</b>
13:30-15:30 - AHFE 2	<p><b>Service design under the form of “Micro Public Benefit” - Taking the surplus food sharing app as an example</b> Xin Song, Xin He, China</p> <p><b>Financing of social housing investments in South Africa</b> Michelle Burger, Andries (Hennie) Van Heerden, Adrian Mazhinduka, South Africa</p> <p><b>The sustainable potential development of aquaponics in Portugal: An exploratory study on the stakeholders perceptions</b> Helena Nobre, Maria José Palma Lampreia Dos Santos, Daniela Silva, Portugal</p> <p><b>Research on urban waste service system based on Shanghai waste classification</b> Yilian Hao, Zhang Zhang, Jingyang Wang, Zixian Wan, China</p> <p><b>Factors influencing households’ intention to adopt Solar PV: A systematic review</b> Shah Rukh Shakeel, Arto Rajala, Finland</p> <p><b>Comparative analysis of barriers for renewable energy technologies diffusion in Finland and Poland</b> Oskar Juszczyk, Shah Rukh Shakeel, Finland</p>	
<b>113</b>	<b>Human Interaction with Manned and Unmanned Aerial Vehicles</b> Co-Chairs: Anna Trujillo and Matteo Zallio, USA	<b>HFRDUS</b>
13:30-15:30 - AHFE 7	<p><b>Differences between manned and unmanned pilots flying a UAV in the terminal area</b> Anna Trujillo, Roy Roper, Sagar Kc, USA</p> <p><b>Obtaining public opinion about sUAS activity in an urban environment</b> Lynne Martin, Caterina Grossi, Cynthia Wolter, USA</p> <p><b>Learn on the fly</b> Yang Cai, USA</p> <p><b>Boeing 737 MAX: Expectation of human capability in highly automated systems</b> Zachary Spielman, Katya Le Blanc, USA</p> <p><b>Reducing drone incidents by incorporating human factors in the drone and drone pilot accreditation process</b> Daniela Doroftei, Geert De Cubber, Hans De Smet, Belgium</p> <p><b>Use a UAV system to enhance port security in unconstrained environment</b> Ruobing Zhao, Zhanbo Zhu, Yueqing Li, Jing Zhang, Xiao Zhang, USA</p>	
<b>114</b>	<b>Applications in Software, Service and Systems Engineering III</b> Chair: Tania Calle-Jimenez, Ecuador	<b>HFSSE</b>
13:30-15:30 - AHFE 14	<p><b>Analysis of the gentrification phenomenon using GIS to support local government decision making</b> Boris Orellana, Tania Calle-Jimenez, Ecuador</p> <p><b>EMG signal interference minimization proposal using a high precision multichannel acquisition system and an auto-calibrated adaptive filtering technique</b> Santiago Felipe Luna Romero, Luis Serpa-Andrade, Ecuador</p> <p><b>Low-cost embedded system proposal for EMG signals recognition and classification using ARM microcontroller and a high-accuracy EMG acquisition system</b> Santiago Felipe Luna Romero, Luis Serpa-Andrade, Ecuador</p> <p><b>Decision Model for QoS in Networking based on hierarchical aggregation of information</b> Maikel Leyva Vázquez, Miguel Angel Quiroz Martinez, Jorge Luis Aguilera Balseca, Josseline Haylis Diaz Sanchez, Ecuador</p> <p><b>Acceleration of evolutionary grammar using an MISD architecture based on FPGA and Petalinux</b> Mireya Zapata, Bernardo Vallejo-Mancero, Ecuador</p> <p><b>Cryptocurrencies: A futuristic perspective or a technological strategy</b> Carolina Del-Valle-Soto, Alberto Rossa-Sierra, Mexico</p>	

<b>115</b>	<b>Human Factors and Wearable Technologies II</b> Co-Chairs: Roland Paul Nazareth and Yang Cai, USA	<b>HFWT</b>
13:30-15:30 - AHFE 15	<p><b>AR-based assembly assistance system with efficient evaluation of misalignment between virtual and real objects</b>                      Ting-Hao Li, Hiromasa Suzuki, Yutaka Ohtake, Tatsuya Yatagawa, Shinji Matsuda, Japan</p> <p><b>The impact of eye tracking technology</b>                      Roland Paul Nazareth, Jung Hyup Kim, USA</p> <p><b>Interactive indoor localization on helmet</b>                      Yang Cai, Florian Alber, Sean Hackett, USA</p> <p><b>Why would you? Looking into applicable motives to use life-logging</b>                      Chantal Lidynia, Philipp Brauner, Laura Burbach, Martina Ziefle, Germany</p> <p><b>Applying 3D parametric human body models for customized design of smart clothing</b>                      Bor-Shyh Lin, I-Jan Wang, Chia-Hung Yeh, Shu-Ting Hsu, Taiwan</p> <p><b>Technology as an interface of wear: Wearables and the irreversible human-computer interaction</b>                      Dib Karam Junior, Andressa Gonçalves, Brazil</p> <p><b>An augmented reality command and control sand table visualization on top of an advanced user interface display on large touch table interface</b>                      Bryan Croft, Jeff Clarkson, Eric Voncollin, Alex Campos, Scott Patten, Rickard Rotts, USA</p>	
<b>116</b>	<b>Neurocomputing and Neuroinformatics</b> Co-Chairs: Hasan Ayaz and Umer Asgher, USA/Pakistan	<b>ICEEP</b>
13:30-15:30 - AHFE 16	<p><b>Cognitive dynamics of gender in individuals' activity goal classification and formation processes, activity strategy and decision outcome expectation</b>                      Mohammed Aminu Sanda, Ghana</p> <p><b>Cognitive modeling and model-based performance evaluation on collaborative decision and control task</b>                      Xin Wang, Liang Zhang, Zhiqiang Tian, Yuzhou Liu, Junsong Liu, Zhen Liao, Yanfei Liu, China</p> <p><b>Research on design method of color matching in commanding cabin based on color perception</b>                      Sheng Su, Zhiqiang Song, Rong Wei, Sen Gu, Miao Chu, China</p> <p><b>An objective and quantitative evaluation of intermittent aroma stimuli on intellectual concentration</b>                      Kimi Ueda, Wakako Takekawa, Hiroshi Shimoda, Hirotake Ishii, Fumiaki Obayashi, Hirokazu Kumazaki, Japan</p> <p><b>Changes in prefrontal cortex and skeletal muscle metabolism associated with muscle fatigue: An fNIRS study</b>                      Noriyuki Oka, Umer Asgher, Japan/Pakistan</p> <p><b>Detecting semantic and non-semantic images by elderly mobile device users and non-users</b>                      Wei-Ru Chen, Min-Sheng Chen, Taiwan</p> <p><b>Prefrontal and vestibular cortex activation during overground and treadmill walking</b>                      Brian Sylcott, Mark Hinderaker, Mason Smith, John Willson, Chia-Cheng Lin, USA</p>	

<b>117</b>	<b>Driving Automation II</b> Co-Chairs: Katie Plant and Siobhan Merriman, UK	RR
13:30-15:30 - AHFE 3	<p><b>On the road again - Explanatory factors for the users' willingness to replace private cars by autonomous on-demand shuttle services</b>          Ralf Philipson, Teresa Brell, Hannah Biermann, Martina Ziefle, Germany</p> <p><b>Relation between personality and driver trust in automated driving</b>          Jiawen Liang, Wenmin Li, Yanwei Shi, Mowei Shen, Zaifeng Gao, China</p> <p><b>Training implications for drivers of automated vehicles</b>          Siobhan Merriman, Neville Stanton, Kirsten Revell, Katie Plant, UK</p> <p><b>How visual cues on steering wheel improve users' trust, experience, and acceptance in automated vehicles additional authors</b>          Arun Muthumani, Frederik Diederichs, Melanie Galle, Sebastian Schmidlorch, Christian Forsberg, Harald Widroither, Alexander Feierle, Klaus Bengler, Sweden/          Germany</p> <p><b>The role of attentional networks in secondary task engagement in the context of partially automated driving</b>          Rui Lin, Yuchen Xu, Wei Zhang, China</p> <p><b>Analysis of public transport ridership during a heavy snowfall in Seoul</b>          Seonyeong Lee, Minsu Won, Seunghoon Cheon, South Korea</p>	
<b>118</b>	<b>Ergonomics in Building, Material and Architecture</b> Co-Chairs: Joanna Jablonska and Elzbieta Trocka-Leszczynska, Poland	SUPI
13:30-15:30 - AHFE 17	<p><b>The Karkonosze network of swimming pools - a consensus of tradition and modernity</b>          Anna Wojtas-Haran, Poland</p> <p><b>The specificity of the sports facilities' concepts in the Karkonosze - a harmonious arrangement with the landscape</b>          Anna Wojtas-Haran, Poland</p> <p><b>Human factors in Shakespearean theatre architecture</b>          Pawel Amalowicz, Poland</p> <p><b>The contribution of the built environment to the success of learning: The role of colour in the ergonomics of educational spaces</b>          Denise Gaudiot, João Pernão, Brazil</p> <p><b>Students' approach to recycling and sustainability: a design study on affordable container houses</b>          Salih Ceylan, Turkey</p> <p><b>Identifying best practices for the construction of residential basements in Fargo, North Dakota, USA using building information modeling (BIM)</b>          Abdulaziz Banawi, Cyril Ahiable, Zhili Gao, Bin Bi, USA</p> <p><b>Private environment of a house with a courtyard: an example of house located in Kemer in Turkey</b>          Alicja Maciejko, Jerzy Charytonowicz, Poland</p>	
<b>Session Break: 15:30-16:00</b>		

<b>120</b>	<b>Knowledge Science in Practical Service Situations</b> Co-Chairs: Youji Kohda and Pavinee Rerkjirattikal, Japan	<b>HSSE</b>
16:00-18:00 - AHFE 1	<p><b>A framework for a practical nurse scheduling approach: A case of operating room of a hospital in Thailand</b>          Pavinee Rerkjirattikal, Sun Olapiriyakul, Thepchai Supnithi, Van-Nam Huynh, Japan</p> <p><b>A new interpretable system for knowledge exploration and classification: ICU sepsis data case study</b>          Thanh Phu Nguyen, Van-Nam Huynh, Japan</p> <p><b>Barriers for service innovations in B2B context: Agile software development adoption and rejection in Japanese organizations</b>          Nobuhiko Seki, Youji Kohda, Japan</p> <p><b>Analysis and feedback of movement in manual assembly process</b>          Raveekiat Singhaphandu, Van-Nam Huynh, Warut Pannakkong, Japan</p> <p><b>Towards an application of remote sensing technology for decision making during natural disaster</b>          Hideomi Gokon, Japan</p> <p><b>Revisiting internal mechanism of HRM practices in creating values for product innovation: an application of fuzzy set QCA</b>          Kimseng Tieng, Youji Kohda, Chawalit Jeenanunta, Cambodia</p> <p><b>Case study on applicability of artificial intelligence for IT service project managers with multi value systems in the digital transformation era</b>          Hiroyuki Endo, Youji Kohda, Japan</p>	
<b>121</b>	<b>Artificial Intelligence and Social Computing IV</b> Co-Chairs: Meilin Ding and Rodrigo Dominguez, South Korea/Chile	<b>AISC</b>
16:00-18:00 - AHFE 10	<p><b>Building updated research agenda by investigating papers indexed on Google Scholar: A natural language processing approach</b>          Rita Yi Man Li, China</p> <p><b>Detection of human trafficking ads in Twitter using natural language processing and image processing</b>          Myriam Hernandez-Alvarez, Sergio Granizo, Ecuador</p> <p><b>Text mining in smart cities to identify urban events and public service problems</b>          Juan Viana-Barrero, Mario Gonzalez, Patricia Acosta-Vargas, Ecuador</p> <p><b>Application-oriented approach for detecting cyberaggression in social media</b>          Kurt Englmeier, Josiane Mothe, Germany</p> <p><b>Deep learning-based creative intention understanding and color suggestions for illustration</b>          Juexiao Qin, Xiaohua Sun, China</p> <p><b>Remote sensing, heat island effect and housing price prediction via AutoML</b>          Rita Yi Man Li, Kwong Wing Chau, Herru Ching Yu Li, Fanjie Zeng, Beiqi Tang, Meilin Ding, China</p> <p><b>Consistency index based faulty sensor detection and mitigation system</b>          Jeonghun Choi, Seung Jun Lee, South Korea</p>	

<b>122</b>	<b>Production System Design: Modelling, Analysis, Design and Implementations I</b> Co-Chairs: Beata Mrugalska and Stijn Verwulgen, Poland/Belgium	<b>APMPC</b>
16:00-18:00 - AHFE 13	<p><b>Success factors impacting nowadays technologically driven medical devices</b> Omar Kheir, Alexis Jacoby, Stijn Verwulgen, Belgium</p> <p><b>Design and implementation of a wastewater heat recovery system prototype for electric showers in Quito-Ecuador</b> Byron Remache-Vinueza, Gustavo Espín Calderón, Mireya Zapata, Ecuador</p> <p><b>Effect of movement of light source on defect detection in appearance inspection utilizing peripheral vision</b> Ryosuke Nakajima, Yuuki Kojima, Takuya Hida, Toshiyuki Matsumoto, Japan</p> <p><b>Research on the relationship between chemical composition of tobacco and field type bases on the multivariate statistical analysis</b> Zhao Chao, Jing Zhao, Zhang Fan, Gang Wu, Haitao Wang, Xinyu Cao, Fengguang Wu, China</p> <p><b>Research on the effect of chemical composition on tobacco grading</b> Xuan Zhang, Chao Zhao, Fan Zhang, Gang Wu, Haitao Wang, Xinyu Cao, Jing Zhao, China</p> <p><b>Approach for a digital operator support system for manual machine setup</b> Florian Maier, Martin Ihle, Tina Paschke, Vlad Valea, Germany</p> <p><b>A research framework for human aspects in the internet of production – an intra-company perspective</b> Philipp Brauner, Florian Brillowski, Hannah Dammers, Peter Königs, Frauke Kordtomeikel, Henning Petruck, Anne Kathrin Schaar, Seth Schmitz, Linda Steuer-Dankert, Alexander Mertens, Thomas Gries, Carmen Leicht-Scholten, Saskia Nagel, Verena Nitsch, Günther Schuh, Martina Ziefle, Germany</p> <p><b>A detailed investigation of apparent and root causes of accidents in manufacturing</b> Lucia Botti, Riccardo Melloni, Simone Mosconi, Maniva Oliva, Italy</p>	
<b>123</b>	<b>Aviation II</b> Co-Chairs: Richard Mogford and Shelley Kelsey, USA/Canada	<b>AVI</b>
16:00-18:00 - AHFE 5	<p><b>Urban air mobility fleet manager gap analysis and system design</b> Richard Mogford, Dan Peknik, Jake Zelman, Cody Evans, USA</p> <p><b>Aircraft accommodation for people living with obesity: A call for a review of existing seating, safety and emergency regulations</b> Shelley Kelsey, Chantal Trudel, Dawson Clark, Kayla Daigle, Canada</p> <p><b>Predictive safety through survey interviewing - Developing a task-based hazard identification survey process in offshore helicopter operations</b> Felipe Augusto Coutinho Nascimento, Arnab Majumdar, Washington Yotto Ochieng, UK</p> <p><b>Helicopter noise footprint depiction during simulated flight for training</b> Anna Trujillo, Daniel Hill, Eric Greenwood, USA</p> <p><b>Investigation of commercial aircraft's cargo luggage dash impact on passenger during emergency evacuating</b> Li Wen Wu, China</p>	

<b>124</b>	<b>Creativity, Design and Entrepreneurship in Education</b> Chair: Katriina Heljakka, Finland	<b>CIE</b>
16:00-18:00 - AHFE 7	<p>Research and construction of the innovation and entrepreneurship collaborative education pattern of design discipline Wei Ding, Hu Wenxin, Ye Junnan, China</p> <p>Playful approaches to entrepreneurial competencies in university teaching-Introducing the 4Cs model Katriina Heljakka, Riikka Franzén, Lenita Nieminen, Finland</p> <p>Research on the kernel and model of Shanghai design science development Wei Ding, Zhang Zhang, Bingyao Xu, China</p> <p>Developing a method for understanding how to empower creativity through digital technologies: The case of artificial intelligence. Carmen Bruno, Marita Canina, Italy</p> <p>Hotspots and trends in creativity and design research: A knowledge graph analysis Yao Song, Yan Luximon, Hong Kong SAR China</p> <p>Brain dominance and learning style preference of quantity surveying students in South Africa and Malaysia Andries (Hennie) Van Heerden, Michelle Burger, Elzane Van Eck, New Zealand</p>	
<b>125</b>	<b>Equipment and Space Design</b> Co-Chairs: Huimin Hu and YuJing Cao, China	<b>ED</b>
16:00-18:00 - AHFE 8	<p>Backpack carrying health impacts on children Huimin Hu, Shaorong Ni, Sining Li, China</p> <p>The accessibility design and evaluation of civil aircraft cockpit Hongyu Zhu, Xinyang Zhu, Meng Hua, Zhang Yinbo, China</p> <p>Analysis and design of high-heel shoes' side curve based on Kansei engineering Zehao Zhu, Weng Chenglong, Zhang Zhang, Tianhong Fang, China</p> <p>Design strategies for a more sustainable and optimized interaction Cristina Salvador, Portugal</p> <p>Strategia: A framework that assumes design as a strategic approach André Neves, Silvio Meira, Clarissa Sóter, Leonardo Medeiros, Virginia Heimann, Pedro Cavalcanti, Sergio Cavalcanti, Brazil</p> <p>An investigation of the garment pressure for developing yoga sports bras in ergonomic design Hyunjung Lee, Su-Jeong Shin, USA</p>	
<b>126</b>	<b>Virtual and Smart Technology for Apparel Ergonomics and Engineering</b> Co-Chairs: Gianni Montagna and Carla Morais, Portugal	<b>HFATE</b>
16:00-18:00 - AHFE 17	<p>5D virtual model for thermal comfort and ergonomics assessment applied in clothing industries Consuelo Latorre Sánchez, Mateo Izquierdo, Alejandro Conde, Eduardo Parrilla, Alfredo Ballester, Jose Laparra, Juan Carlos Gonzalez, Spain</p> <p>The virtualization of fashion products Luís Santos, Gianni Montagna, Maria João Neto Pereira, Portugal</p> <p>Virtual human requirements for the retail use case Carol McDonald, Elizabeth Stefanka, USA</p> <p>Smart sportswear design issues for Down Syndrome patients Ying-Chia Huang, Jen-Hau Chen, Guan-Yin Chen, Kai Fang Tung, Taiwan</p> <p>Effect of the size of the covered area of the chest surface on the pressure sensation Tamaki Mitsuno, Tomomi Aruga, Japan</p> <p>Research on the body shape of clothing for Chinese adult Linghua Ran, Chaoyi Zhao, Hong Luo, Xin Zhang, Taijie Liu, China</p>	

<b>127</b>	<b>Human Factors and Assistive Technology II</b> Co-Chairs: Dosun Shin and Kuo-Chen Kao, USA/Taiwan	<b>HFAT</b>
16:00-18:00 - AHFE 14	<p><b>Applying facial expression of augmented reality for teaching students with autism spectrum disorders</b> Kuo-Chen Kao, Lai-chung Lee, Taiwan</p> <p><b>Evaluation of cognitive load and its relationship with physical ability on walking support using pneumatic artificial muscle (PAM) driver</b> Tipporn Laohakangvalvit, Haruki Toda, Tsubasa Maruyama, Yuichi Kurita, Mitsunori Tada, Japan</p> <p><b>Integrated learning and assistance systems for manual work in production - proposal for a systematic approach to technology selection and design</b> Tina Haase, Justina Radde, Alinde Keller, Dirk Berndt, Michael Dick, Germany</p> <p><b>Assistive device design for animal needs in human society</b> Dosun Shin, USA</p> <p><b>Experimental evaluation of an interactive workspace for helping the visually impaired in learning linear algebra</b> Rached Zantout, Islam Elkabani, Lama Hamandi, Bassam Al Masri, Lebanon</p> <p><b>Remote home healthcare services and tools for supporting aging in place</b> Helene Fournier, Heather Molyneaux, Irina Kondratova, Canada</p>	
<b>128</b>	<b>Education</b> Co-Chairs: Florentin Popescu and Marcin Geryk, Netherlands/Poland	<b>HFBMS</b>
16:00-18:00 - AHFE 2	<p><b>Comprehensive internationalization at HAN University of Applied Sciences. Faculty Policies and Practices</b> Florentin Popescu, Netherlands</p> <p><b>Development of psychological readiness of the high school students to enter higher educational establishments</b> Oksana Kravchenko, Nataliia Shelenkova, Marina Mishchenko, Ukraine</p> <p><b>Sustainable development in higher education</b> Marcin Geryk, Poland</p> <p><b>International university leadership development</b> Florentin Popescu, Netherlands</p> <p><b>International entrepreneurship: "Glocal" business creation, development and sustainable employability</b> Florentin Popescu, Netherlands</p> <p><b>Youth workers and innovative development of social work</b> Oksana Kravchenko, Nataliia Koliada, Nataliia Levchenko, Ukraine</p> <p><b>Using effect size in evaluating academic engagement and motivation in a private business school</b> Jarno Einolander, Hannu Vanharanta, Jussi Kantola, Evangelos Markopoulos, Finland</p>	
<b>129</b>	<b>Web, Media and Communication</b> Co-Chairs: William Lai Chi Fu and Amic Ho, China/Hong Kong	<b>HFCD</b>
16:00-18:00 - AHFE 9	<p><b>Research on the influencing factors of the communication effect of Tik Tok intangible cultural heritage short videos</b> Siqi Wang, RongRong Fu, China</p> <p><b>The invisible art of storytelling and media production</b> David Yip, China</p> <p><b>Reviewing the usability of mosaic artwork simulation systems</b> Chi Fu William Lai, Jeff K. T. Tang, China</p> <p><b>Documentation and scientific archiving: Digital repository</b> Priscila Verdugo, Catalina Astudillo-Rodriguez, Jackelín Verdugo, Fernando Lima, Santiago Cedillo, Ecuador</p> <p><b>A technique and method for mixed reality performance with digital augments, gestural data, and living plants</b> Rewa Wright, Simon Howden, Australia</p>	

130	<b>Human Factors in Virtual Environments I</b> Co-Chairs: Woojoo Kim and Alexandra Voinescu, South Korea/UK	HFGD
16:00-18:00 - AHFE 15	<p><b>VRMouse: Mouse emulation with the VR controller for 2D selection in VR</b> Woojoo Kim, Junyoung Jung, Shuping Xiong, South Korea</p> <p><b>The effect of ocular dominance on decision making in a virtual environment</b> Hae Jung Suk, S. J. Kim, South Korea</p> <p><b>Exploring attention in VR: Effects of visual and auditory modalities</b> Alexandra Voinescu, Liviu Fodor, Daniel David, Danae Stanton Fraser, UK</p> <p><b>The impact of augmented reality on learning ability of children's Chinese self-learning</b> Hui Yan, Xin He, China</p> <p><b>The use of immersive technologies for concept design</b> Sander Van Goethem, Arne Dethoor, Rik Van Boxem, Kaz Van Zegveld, Stijn Verwulgen, Belgium</p> <p><b>Ergonomics study on taking and putting objects based on subjective evaluation and virtual simulation</b> Huimin Hu, Aiping Yang, Xin Zhang, Cao Zixiong, China</p>	
131	<b>Management and Leadership in Maritime Domain and Organizational Environment</b> Co-Chairs: Momoko Kitada and Salman Nazir, Sweden/Norway	HFML
16:00-18:00 - AHFE 11	<p><b>The governance of inclusive maritime higher education in the Philippines</b> Cleto Del Rosario, Momoko Kitada, Sweden</p> <p><b>Negotiating Gender Identities from Ship to Shore</b> Momoko Kitada, Sweden</p> <p><b>Internationalization agendas in higher education. A Dutch – Russian perspective</b> Roman Iskandaryan, Florentin Popescu, Dmitry Shtykhno, Marjon Elshof, Russia</p> <p><b>Rethinking higher education through sustainable development goals (SDGs.) A Russian perspective</b> Roman Iskandaryan, Russia</p> <p><b>Exploring the Critical Success Factors for safety management of tanker vessels</b> Amit Sharma, Tae Eun Kim, Gesa Praetorius, Salman Nazir, Norway</p> <p><b>Ergonomics management model with a focus on resilience engineering</b> Priscila Fernandes, Eduardo Concepcion Batiz, Brazil</p> <p><b>Digital technology. A tool for development of human capital in Mexican industry (theoretical approach)</b> Patricia Castillo-Galván, León Martín Cabello Cervantes, Mexico</p>	
132	<b>Interaction Design in Educational Applications</b> Co-Chairs: Lorena Olmos Pineda and Konomu Dobashi, Mexico/Japan	SYSI
16:00-18:00 - AHFE 4	<p><b>Analysis of the behavior of a user's sensory mechanisms during the interaction processes with an object of the new media and its work system</b> Lorena Olmos Pineda, Jorge Gil, Mexico</p> <p><b>Development of real-time learning analytics using scraping and pivot tables</b> Konomu Dobashi, Japan</p> <p><b>Phonological awareness intervention and basic literacy skill development with Kiteracy-PiFo</b> Janio Jadán-Guerrero, Carlos Ramos-Galarza, María de los Angeles Carpio Brenes, Tania Calle-Jimenez, Luis Salvador-Ullauri, Isabel L. Nunes, Ecuador/Portugal</p>	

<b>133</b>	<b>Driver/Rider Training and Vulnerable Road Users</b> Co-Chairs: Rich Mclroy and Maria Rosaria De Blasiis, UK/Italy	RR
16:00-18:00 - AHFE 3	<p><b>Effects on driver's yielding behavior of a pedestrian collision warning system in different road environments</b>          Francesco Bella, Chiara Ferrante, Manuel Silvestri, Maria Rosaria De Blasiis, Italy</p> <p><b>A grounded theory approach to cycling safety and participation barriers</b>          Matthew Webster, Katie Plant, Neville Stanton, Rich Mclroy, UK</p> <p><b>Cross-modal intervention to improve cyclist awareness levels</b>          Katie Plant, Matthew Webster, Rich Mclroy, Neville Stanton, UK</p> <p><b>Identified risk factors among truck drivers circulating in France</b>          Anabela Simoes, Patricia Delhomme, Portugal</p> <p><b>Distinguishing car sickness sensitivity based on passengers' posture analysis according to vehicle dynamics</b>          Clement Bougard, Eleonore Henry, Naman Negi, Lionel Bringoux, Christophe Bourdin, France</p>	
<b>134</b>	<b>Usability and User Experience Applications II</b> Co-Chairs: Manhua Wang and Dian Zhu, USA/China	UUE
16:00-18:00 - AHFE 6	<p><b>An improvement on the progress bar: Make it a story, make it a game</b>          Wenmin Li, Manhua Wang, Wei Li, Beibei Cai, Yaoxi Shi, USA</p> <p><b>Duolun road cultural street: Study of cultural and creative products based on user portraits</b>          Dian Zhu, Zishan Song, Jingran He, China</p> <p><b>Research on customer relationship management system based on cognitive psychology theory: Analysis and research of the world business website</b>          Catherine Huang, Tao Xi, China</p> <p><b>How can we improve the driving experience with human-machine-interface for automated driving?</b>          Miguel Luzuriaga, Seda Aydogdu, Germany</p> <p><b>Applying DEMATEL to identify critical factors of Chinese urban residents' participation in domestic garbage classification</b>          Minghua Zhang, Qing Xu, China</p> <p><b>Research on availability of campus vending machines: Example for Xuhui campus of East China University of Technology</b>          Miao Liu, Silu Liu, China</p> <p><b>A MATLAB-based tool usability evaluation for 3D reconstruction environments</b>          David Pozo-Espin, David Ponce, Kevin Jaramillo, Jorge-Luis Pérez-Medina, Ecuador</p>	
<b>135</b>	<b>Cognitive Neuroscience and Neuroadaptive Technologies</b> Chair: Umer Asgher, Pakistan	ICEEP
16:00-18:00 - AHFE 16	<p><b>Ergonomic analysis of sit - stand workstations installed at university offices</b>          Varatharaj Varatharaj, Gerald C. Chen, Emily Hunt, Daniel Raju, USA</p> <p><b>Evaluation of the effectiveness of an interpretive nutrition label format in improving healthy food discrimination using signal detection theory</b>          Wen-Yu Chao, Mark Lehto, Brandon J. Pitts, Zachary Hass, USA</p> <p><b>Experts displayed better prediction for unexpected basketball made shots by using ball clues</b>          Yawei Li, Tian Feng, China</p> <p><b>An empirical study on organizational socialization and its relationship with employees' age and the knowledge management</b>          Khurram Khalil, Umer Asgher, Mahmooona Khalil, Kausar Khawaja, Yasar Ayaz, Salman Nazir, Noriyuki Oka, Jose Arzola Ruiz, Pakistan/Norway/Japan/Cuba</p> <p><b>Feature based comparative analysis of online malware scanners (OMS)</b>          Akash Gerard, Nawal Athar, Ahmed Husnain Johar, Umer Asgher, Pakistan</p> <p><b>Effect of paired stimuli on joint attention of children with ASD</b>          Sara Ali, Faisal Mehmood, Yasar Ayaz, Muhammad Jawad Khan, Umer Asgher, Pakistan</p> <p><b>Detection and prevention of a malicious activity in industrial federated cloud computing paradigm</b>          Akash Gerard, Rabia Latif, Waseem Iqbal, Naqash Gerard, Ahmed Husnain Johar, Umer Asgher, Pakistan</p>	

<b>137</b>	<b>Service Ethics, Trusted AI, and Service Robotics</b> Co-Chairs: Jim Spohrer and Shrikant Parikh, USA/India	<b>HSSE</b>
8:00-10:00 - AHFE 1	<p>The use of digital technologies and the transformation of work in a hemodialysis clinic          Saturnina Martins, Marcia Terra Da Silva, Ivonaldo Vicente Da Silva, Brazil</p> <p><b>Evolution of smart service architectures through cognitive co-creation</b>          Alfred Zimmermann, Kurt Sandkuhl, Rainer Schmidt, Dieter Hertweck, Alexander Rossmann, Germany</p> <p><b>AI, ethics, and service</b>          Paul Maglio, Christoph Breidbach, USA</p> <p><b>Design of an ethical and humane rural public health system</b>          Shrikant Parikh, India</p>	
<b>138</b>	<b>Artificial Intelligence and Social Computing V</b> Co-Chairs: Roberto García-Vélez and Diego Quisi-Peralta, Ecuador	<b>AISC</b>
8:00-10:00 - AHFE 10	<p><b>Comparison of probability distributions for evolving artificial neural networks using Bat algorithm</b>          Adeel Shahzad, Hafiz Tayyab Rauf, Tayyaba Asghar, Pakistan</p> <p><b>Product sampling based on remarks of customs in online shopping websites for quality evaluation</b>          Haitao Wang, Jing Zhao, Gang Wu, Fan Zhang, Chao Zhao, Xinyu Cao, China</p> <p><b>Automating the generation of study teams through genetic algorithms based on learning styles in higher education</b>          Roberto García-Vélez, Diego Quisi-Peralta, Bryam David Moreno Vega, David Andress Morales Rivera, Esteban David Rosero Perez, Angel Daniel Ruiz Ichazu, Ecuador</p> <p><b>Automatic generation of a thesaurus for language and communication disorders based on natural language processing and ontologies</b>          Diego Quisi-Peralta, Vladimir Robles-Bykbaev, Roberto García-Vélez, Luis Serpa-Andrade, Eduardo Pinos, Ecuador</p> <p><b>AHP applied to the prioritization of recreational spaces in green areas. Case study: Urban area of the El Empalme Canton, Ecuador</b>          Lizbeth Toapanta, Maikel Leyva Vázquez, Jesús Rafael Hechavarría Hernández, Ecuador</p> <p><b>Evaluation system of GIS partial discharge based on convolutional neural network</b>          Lihuo Wang, Zengbin Wang, Lingqi Tan, China</p> <p><b>IoT and AI in precision agriculture: Designing smart system to support illiterate farmers</b>          Javed Sheikh, Sehrish Munawar Cheema, Muhammad Ali, Zohaib Amjad, Jahan Zaib Tariq, Ammerha Naz, Pakistan</p>	

<b>139</b>	<b>Production System Design: Modelling, Analysis, Design and Implementations II</b> Co-Chairs: Edgar Ramos and Esteban Crespo-Martínez, Peru/Ecuador	<b>APMPC</b>
8:00-10:00 - AHFE 13	<p><b>Modeling the integration in the Peruvian quinoa supply chain: A sustainability perspective</b>          Edgar Ramos, Ivonne E. Roman Acuna, Manuel J. Ramirez Mego, Monika Flanigan, Andrea S. Patrucco, Peru/USA</p> <p><b>Demand management in the supply chain: A focus on agribusiness</b>          Edgar Ramos, Rossana Flores, Eileen Lazaro, Kelsey Provost, Mamun Habib, Peru/USA/Bangladesh</p> <p><b>Application of an ABC costing model to an MSME company in the manufacturing sector into the UDA ERP administrative system</b>          Esteban Crespo-Martínez, Catalina Astudillo-Rodríguez, Gabriela Chica-Contreras, Andres Patino, Ecuador</p> <p><b>Readiness and maturity of manufacturing enterprises for industry 4.0</b>          Beata Mrugalska, Anna Stasiuk-Piekarska, Poland</p> <p><b>Discussion on the homogeneity test for microbiological reference materials</b>          Fan Zhang, Jing Zhao, Chao Zhao, Gang Wu, Xinyu Cao, Haitao Wang, China</p> <p><b>The influence of human capital management on implementation of industry 4.0</b>          Stefan Trzcielinski, Poland</p> <p><b>Management of intelligent autonomous environment in a context of competitive forces. The case of Polish market</b>          Kruszynski Miroslaw, Edmund Pawlowski, Poland</p> <p><b>Internet of things in the enterprise as a production process control system</b>          Michal Trziszka, Poland</p>	
<b>140</b>	<b>Innovation and Systems Design</b> Co-Chairs: Meg Schwellnus, Lu Xiaoxian and Varit Intrama, Canada/China/Thailand	<b>CIE</b>
8:00-10:00 - AHFE 17	<p><b>Life sciences product and service development process: Lesson learned from Thailand Center of Excellence for Life Sciences (Public Organization)</b>          Varit Intrama, Thailand</p> <p><b>A study on gamification product service system design of an intelligent parking management system</b>          Jie Xiao, Shuhan Luo, Jue Li, Long Liu, China</p> <p><b>E-sports hotel, a brand new personalized hotel in the age of e-sports</b>          Lu Xiaoxian, China</p> <p><b>The global constraints of South African automotive industry and a way forward</b>          John M. Ikome, Timothy Laseinde, South Africa</p> <p><b>Digital innovation management: An integrated role of Blockchain technology and organizational characteristics in business model innovation</b>          Khuram Shahzad, Finland</p> <p><b>Design for social innovation: Redefining the concept</b>          Meg Schwellnus, Canada</p> <p><b>The cork thread, a sustainable material: branding and marketing implications from a cultural perspective</b>          Theresa Lobo, William A. Cantú, Nelson P. Gomes, Portugal</p>	

<p><b>141</b></p>	<p><b>Neurobusiness Applications</b> Co-Chairs: Rajneesh Suri and Hasan Ayaz, USA</p>	<p>CN</p>
<p>8:00-10:00 - AHFE 7</p>	<p><b>Evaluating effects of environmental and financial-savings messaging on decision-making using electrodermal activity</b> Yigit Topoglu, Amanda Sargent, Jan Watson, Hongjun Ye, Rajneesh Suri, Hasan Ayaz, USA</p> <p><b>Neurobusiness vs. traditional research: Ingenuity and insights from use cases</b> Hongjun Ye, Siddharth Bhatt, Amanda Sargent, Jan Watson, Yigit Topoglu, Jintao Zhang, Hasan Ayaz, Rajneesh Suri, USA</p> <p><b>The effects of color congruence on advertisement evaluation</b> Jintao Zhang, Hongjun Ye, Amanda Sargent, Yigit Topoglu, Jan Watson, Hasan Ayaz, Rajneesh Suri, USA</p> <p><b>The effects of matching brand color on attention to the brand's taglines: An eye-tracking study</b> Hongjun Ye, Jintao Zhang, Jan Watson, Yigit Topoglu, Amanda Sargent, Hasan Ayaz, Rajneesh Suri, USA</p> <p><b>Can situation awareness be measured physiologically?</b> Bethany Bracken, Mica Endsley, Sean Tobyne, Calvin Leather, Mike Farry, USA</p> <p><b>How music meter facilitates processing of numbers: A neuroimaging study</b> Siddharth Bhatt, Rajneesh Suri, Hasan Ayaz, USA</p>	
<p><b>142</b></p>	<p><b>Human Computer Interaction in e-Health and Environmental Applications</b> Co-Chairs: Jorge Luis Pérez Medina and Patricia Acosta-Vargas, Ecuador</p>	<p>HERRP</p>
<p>8:00-10:00 - AHFE 11</p>	<p><b>Research on prevention and control countermeasures of team situation awareness errors in digital nuclear power plants</b> Pengcheng Li, Xiaofang Li, Licao Dai, China</p> <p><b>How do pilots and controllers manage routine contingencies during RNAV arrivals?</b> Lawrence Prinzel, Jon Holbrook, Michael Stewart, Daniel Kiggins, USA</p> <p><b>Credible evidence continues to surface regarding a likely friendly fire incident along the Sesame Street and Shrine Corridor area on June 30, 2013</b> Fred Schoeffler, Lance Honda, Joy A. Collura, USA</p> <p><b>A study of crew error analysis on the interface between passive side stick and electronic flight control system in cockpit of civil aircraft</b> Zhang Yinbo, Zhu Yao, Zhou Yang, Lu Shasha, Meng Hua, China</p> <p><b>Dynamic modeling of field operators in human reliability analysis: An EMERALD and GOMS-HRA dynamic model of FLEX operator actions</b> Thomas Ulrich, Torrey Mortenson, Ronald Boring, Steven Prescott, USA</p> <p><b>Validating a human performance crew model without a complete system</b> Richard Steinberg, Jade Driggs, Alice Jackson, USA</p> <p><b>Identification of collectible items in the Rancor Microworld Simulator compared to full-scope studies</b> Jooyoung Park, Thomas Ulrich, Ronald Boring, Lee Suncheon, Jonghyun Kim, USA</p>	

<b>143</b>	<b>Cognition, Strategies and Alterations</b> Co-Chairs: Jay Kalra and Patricia Acosta-Vargas, Canada/Ecuador	HFAS
8:00-10:00 - AHFE 8	<p><b>Characterization and socio-cognitive needs of people with intellectual disabilities</b> Verónica-Gabriela Maldonado-Garcés, Carlos Corrales, Nelly-Yolanda Ortiz-Carranco, Mayra Carrión, Marco Santórum, Ligia-Pilar Samaniego-Santillán, Jorge-Luis Pérez-Medina, Patricia Acosta-Vargas, Ecuador</p> <p><b>Employment barriers questionnaire: Development and determining reliability and validity among people with disabilities</b> Navah Ratzon, Tal Starik, Maya Huber, Gabi Zeilig, Israel</p> <p><b>Correlation between hearing aid use and cognitive impairment in the elderly</b> Lucia Longo, Andrea Lucchetti, Mattia Pasqualotto, Raffaele Mariconte, Claudia Giliberti, Italy</p> <p><b>Analysis of tactile display designs on Philippine money for the blind and visually impaired</b> Lana Eunice Lee, Luis Miguel Consulta, Marc Philip Alaurin, Benette Custodio, Philippines</p> <p><b>The value of medical autopsy as a quality improvement tool in modern diagnostic medicine</b> Patrick Seitzinger, Zoher Rafid-Hamed, Jay Kalra, Canada</p> <p><b>An App design for stroke rehabilitation</b> Fanxing Zou, Danni Chang, Fanghao Song, China</p> <p><b>The influence of school bags different design and working conditions on children's back pressure</b> Yunhong Zhang, Lu Yuxin, Feng Si, Jintian Qi, Ling Luo, China</p> <p><b>Do perceived stress and coping strategies differ by generation in U. S. military active duty and veterans?</b> Gary L. Boykin, Sr., Stephen C. Allison, Valerie J. Rice, USA</p>	
<b>144</b>	<b>Cross-Cultural Decision Making II</b> Co-Chairs: Peter Picucci and Masooda Bashir, USA	CCDM
8:00-10:00 - AHFE 16	<p><b>The path to relevance</b> Corey Lofdahl, Peter Picucci, USA</p> <p><b>Positive emotions of human service employees</b> Noriko Okabe, Japan</p> <p><b>Analysis of the dissemination of Chinese New village culture based on "Operation Hammer" -- Taking Siburan Village as an example</b> Yee Man Lau, Tang Zong Ying, Malaysia</p> <p><b>The reality of the globalizing world and shaping the professional identity of an individual in the world of boundless careers</b> Agnieszka Cybal-Michalska, Poland</p> <p><b>Investigating the differences in privacy news based on grounded theory</b> Qingxiao Zheng, Masooda Bashir, USA</p>	
<b>145</b>	<b>Human Factors and Assistive Technology III</b> Co-Chairs: Yuki Gorospe and Rossella Onofrio, USA/Italy	HFAT
8:00-10:00 - AHFE 5	<p><b>The effect of tactile biofeedback on the wrist to suppress hand tremors</b> Yuki Gorospe, USA</p> <p><b>Reflections on an interdisciplinary approach: Integrating assistive technologies and experience-based knowledge in maintenance</b> Mareike Luise Gerhardt, Tina Haase, Michael Dick, Germany</p> <p><b>Virtual rehabilitation platform for left-handed people working in industrial environments</b> Paulina Morillo, Mateo Chantera, Diego Vallejo-Huanga, Ecuador</p> <p><b>Acceptance model of an innovative assistive technology by neurological patients with a motor disability of their upper limb</b> Rossella Onofrio, Emanuele Lettieri, Marta Gandolla, Alessandra Laura Giulia Pedrocchi, Italy</p> <p><b>Comparative studies of the behavior of sensory mechanisms in a weak - visual person and a normal - vision person with an object of the new media</b> Jorge Gil Tejada, Lorena Olmos Pineda, Mexico</p>	

<b>146</b>	<b>Culture, Design and Social Communication</b> Chair: Amic Ho, Hong Kong	<b>HFCD</b>
8:00-10:00 - AHFE 4	<p><b>Wayfinding systems: Digital versus analogical media</b> Maria Luísa Costa, Portugal</p> <p><b>Practical application of bullet point systems for constructing an information hierarchy</b> Amic Ho, Hong Kong</p> <p><b>Visual elements and design principles in media production</b> David Yip, Hong Kong</p> <p><b>Research on the design strategy of green packaging from the perspective of Chinese young consumers</b> Jiaqian Xu, Ziwei Chen, Bing Xiao, China</p> <p><b>The influence of emotional experience related to communication from a typographic perspective</b> Amic Ho, Hong Kong</p> <p><b>Guidelines for promoting Thai television program production in response to the notion of creative economy</b> Sasithon Yuwakosol, Thailand</p>	
<b>147</b>	<b>Virtual Reality and Game Design Application</b> Co-Chairs: Yeyi Hong and Chia-Chi Mao, China/Taiwan	<b>HFGD</b>
8:00-10:00 - AHFE 15	<p><b>The research on critical factors affecting the game experience of daily quests system in mobile game</b> Qing Xu, Minghua Zhang, China</p> <p><b>The effect of augmented reality on the memorization in history and humanities education</b> Yeyi Hong, Xin He, China</p> <p><b>Evaluation of vehicles' best route in virtual tactical teaching environment based on machine-learning techniques</b> Chia-Chi Mao, Taiwan</p> <p><b>Bringing virtual reality into military mental health education: A pilot study on stress management course</b> Shih-Ting Chen, Pao-Lung Chiu, Chia-Chi Mao, Taiwan</p> <p><b>Evaluation of virtual reality concepts for rapid prototyping of gears using additive layer technology</b> Timothy Laseinde, South Africa</p> <p><b>Virtual Reality as a factor to improve productivity in learning processes</b> Jorge A. González Mendivil, Miguel X. Rodríguez-Paz, Gabriela G. Reyes-Zárate, Mexico</p>	
<b>148</b>	<b>Healthcare, Occupational and Cognitive Processes</b> Co-Chairs: Ben Lester and Laurie Wilson, USA	<b>HFSIM</b>
8:00-10:00 - AHFE 12	<p><b>Tangible VR multi-user simulation methodology for a balanced human system integration</b> Daniel López, Konrad Bielecki, Robin Schmidt, Marten Bloch, Marcel Caspar Attila Baltzer, Frank Flemisch, Germany</p> <p><b>MiNDesign: Toward a modeling, simulation and evaluation platform for human cognitive performance</b> Zhiqiang Tian, Liang Zhang, Xin Wang, Yuzhou Liu, Junsong Liu, Zhen Liao, Yanfei Liu, China</p> <p><b>Perception of terrain slope in real and virtual environments</b> Ben Lester, Rob Larson, Ike Dosch, Graeme Fowler, Robert Rauschenberger, USA</p> <p><b>Gamification of hazard recognition in mining with a tabletop card game</b> Laurie Wilson, Leonard Brown, Rustin Reed, Jefferey L. Burgess, USA</p> <p><b>Simulation-based safety training for plant maintenance in virtual reality</b> Ebo Kwegyir-Afful, Jussi Kantola, Finland</p> <p><b>Biomechanical modeling and 3D simulation of firefighting tasks</b> Susan Xu, Michael Hu, Jeffrey Powell, Ziqing Zhuang, USA</p>	

149	<b>Applications in Software, Service and Systems Engineering IV</b> Co-Chairs: Rosa Navarrete and Diego Vallejo-Huanga, Ecuador	HFSSE
8:00-10:00 - AHFE 14	<p><b>Renewable energy system design for electric power generation on urban historical heritage places in Ecuador</b>                  Blanca Topón, Mireya Zapata, Rayd Macías, Ecuador</p> <p><b>Nondeterministic finite automata for modeling an Ecuadorian sign language interpreter</b>                  Jose Guerra, Diego Vallejo-Huanga, Nathaly Jaramillo, Richard Macas, Daniel Dieaz, Ecuador</p> <p><b>Establishing and verifying the ergonomic evaluation metrics of spacecraft interactive software interface</b>                  Jianhua Sun, Yu Zhang, Ting Jiang, Chunlin Qian, China</p> <p><b>Systematic mapping on embedded semantic markup validated with data mining techniques</b>                  Rosa Navarrete, Carlos Montenegro, Lorena Recalde, Ecuador</p> <p><b>A Framework for Selecting Machine Learning Models Using TOPSIS</b>                  Maikel Leyva Vázquez, Luis Briones, Steven Sanchez, Miguel Angel Quiroz Martinez, Ecuador</p> <p><b>Selection of LPWAN technology for the adoption and efficient use of the IoT in the rural areas of the province of Guayas using AHP method</b>                  Miguel Angel Quiroz Martinez, Gonzalo Antonio Loza González, Monica Daniela Gomez Rios, Maikel Leyva Vázquez, Ecuador</p>	
150	<b>An Interdisciplinary Approach to Digital Design</b> Co-Chairs: Zhanwen Gan and Nantakrit Yodpijit, China/Thailand	IPID
8:00-10:00 - AHFE 9	<p><b>Application of typical technical features in industry 4.0 for product innovation design</b>                  Huabin Wang, Zhanwen Gan, China</p> <p><b>Effects of industry 4.0 on human factors/ergonomics design in the 21st century</b>                  Manutchanok Jongprasithporn, Yotsuda Buranasing, Chanakamon Phaisanthanaphark, Teppakorn Sittiwanchai, Nantakrit Yodpijit, Thailand</p> <p><b>Human-machine interaction design process for complex product systems as spacesuits</b>                  Gang Liu, Li Huang, Mengyin Jiang, Yi Su, China</p> <p><b>Integration of multi-domain-simulation into the design of cyber-physical systems</b>                  Yübo Wang, Tanja Steinbach, Reiner Anderl, Vladimir Kutscher, Germany</p> <p><b>Integrated keyword mapping process: Bridging user research to style concept development</b>                  Sangjin Joo, Dabin Lee, Soyeon Park, Hwang Kim, Kwanmyung Kim, South Korea</p> <p><b>Emotional interaction design for driverless food truck under campus scenarios</b>                  Ming Yan, Jianmin Wang, Wenjuan Wang, China</p> <p><b>Project Pilot Run 2. ZeRo</b>                  Adam Feld, USA</p>	
151	<b>User Interface for Accessibility</b> Co-Chairs: Jon Temple and Jacqueline Urakami, USA/Japan	UUE
8:00-10:00 - AHFE 6	<p><b>The effect of Peephole interaction mode and user experience on wayfinding performance</b>                  Xiao Li, Chien-Hsiung Chen, Taiwan</p> <p><b>Identifying and improving usability problems of cryptocurrency exchange mobile applications through heuristic evaluation</b>                  Hyeji Jang, Sung Han, Kimin Kwon, JuHwan Kim, South Korea</p> <p><b>Designing universal icons: An explorative study</b>                  Jacqueline Urakami, Anne Morgen Mark, Japan</p> <p><b>Enhancing webpage navigation with a Novel scrollbar design</b>                  Andrew Miller, Nicholas Caporusso, Jonathan Miller, USA</p> <p><b>The importance of computer auto personalization</b>                  Anna Szopa, Gregg Vanderheiden, USA</p> <p><b>Research on the user experience of educational app in the context of intangible cultural heritage”</b>                  Jingmiao Guo, Huai Cao, China</p>	

<b>152</b>	<b>Cybersecurity Tools and Analytics</b> Co-Chairs: Enrico Nardelli and Salsabil Hamadache, Italy/Germany	<b>CYBER</b>
8:00-10:00 - AHFE 2	<p><b>Generation of user profiles in UNIX scripts applying evolutionary neural networks</b> Cesar Guevara, Jairo Vladimir Hidalgo Guijarro, Marco Antonio Yandun Velastegui, Ecuador</p> <p><b>Detecting identity deception in online context: A practical approach based on keystroke dynamics</b> Matteo Cardaioli, Merylin Monaro, Giuseppe Sartori, Mauro Conti, Italy</p> <p><b>An analysis of phishing emails and how the human vulnerabilities are exploited</b> Tanusree Sharma, Masooda Bashir, USA</p> <p><b>Use mouse ballistic movement for user authentication based on Hilbert-Huang Transform</b> Yigong Zhang, Shiquan Xiong, Jijia Li, Shuping Yi, China</p> <p><b>Creative manual code obfuscation as a countermeasure against software reverse engineering</b> Salsabil Hamadache, Malte Elson, Germany</p> <p><b>Does the propensity to take risks influence human interactions with autonomous systems?</b> Priscilla Ferronato, Masooda Bashir, USA</p>	
<b>Session Break: 10:00 - 10:30</b>		
<b>154</b>	<b>Empowerment of Citizens, Public Sector Employees and Other Stakeholders in the Digital Age</b> Co-Chairs: Christine Leitner and Walter Ganz, UK/Germany	<b>HSSE</b>
10:30-12:30 - AHFE 1	<p><b>Open banking and PSD 2: The promise of transforming banking by 'empowering customers'</b> Christian Stiefmueller, UK</p> <p><b>Multi-contextual view to smart city architecture</b> Leonard Wallezky, Luca Carrubbo, Mouzhi Ge, Angeliki Maria Toli, Frantiska Romanovska, Czech Republic</p> <p><b>The impact of fraternity and sorority participation on NAE's Engineer of 2020 Outcomes for civil engineering undergraduates</b> Denise Simmons, Anh Chau, USA</p> <p><b>Empowering European Mobile Youth: Case studies from Austria and Estonia</b> Christine Leitner, Mohammad Allagha, Jelizaveta Krenjova, Christian Stiefmueller, Kristina Reinsalu, UK</p> <p><b>Typology-based analysis of artificial intelligence in service companies</b> Walter Ganz, Thomas Meiren, Germany</p> <p><b>Artificial intelligence as driver for business model innovation in smart service systems</b> Jens Neuhüttler, Holger Kett, Sandra Frings, Jürgen Falkner, Walter Ganz, Florian Urmetze, Germany/UK</p>	
<b>155</b>	<b>Coordinating for Emotional Satisfaction I</b> Co-Chairs: Shuichi Fukuda and Teruaki Ito, Japan	<b>APD</b>
10:30-12:30 - AHFE 17	<p><b>From control to coordination</b> Shuichi Fukuda, Japan</p> <p><b>Color in Glossolalia: Green in Western Culture (Part I)</b> Leonor Ferrão, Portugal</p> <p><b>Predicting Attitudes Towards Advertisement Strategy Based On Personality</b> Ezekiel Skovron, Kim-Phuong Vu, USA</p> <p><b>Research and Practice on the design method of cultural output for small commodities based on "without thought design"</b> Ye Junnan, Siyao Zhu, Menglan Wang, Jingyang Wang, Xu Liu, China</p> <p><b>The creation of aesthetic conception on landscape space through information technology</b> Zhao Shuwang, China</p> <p><b>Evaluation of sense of discrepancy to operation response using electroencephalogram</b> Kazutaka Ueda, Hideyoshi Yanagisawa, Japan</p>	

<b>156</b>	<b>User Experience and HMI</b> Co-Chairs: Zishan Song and Annapaola Vacanti, China/Italy	UUE
10:30-12:30 - AHFE 6	<p>Study on influencing factors of user experience of In-Vehicle Infotainment System based on DEMATEL method Zishan Song, China</p> <p>Visual elements for the design of a Robotic Head in SiRobotics project Niccolò Casiddu, Francesco Burlando, Claudia Porfirione, Annapaola Vacanti, Italy</p> <p>Design principles and strategies of interface in extra vehicular activity spacesuit Jianping Luo, Wei Liu, Songhe Ye, Jun Cai, Tanqiu Li, China</p> <p>Development of gender-sensitive questionnaire for transport and mobility surveys Eva Adamovska, Lucie Vondrackova, Petr Zamecnik, Czech Republic</p> <p>Improved design of distance measuring wheel for measuring traffic accidents Peng Jyun Liu, Zhi Jun Wu, China</p> <p>Design and research on the parent-child indoor environment of Chinese middle-and-upper income families Hongjun Qiu, Linong Dai, China</p>	
<b>157</b>	<b>Systemic-Structural Activity Theory and Review of Neuroergonomics Applications</b> Co-Chairs: Jose Leon-Carrion, Hasan Ayaz, Inna S. Bedny and Alexander M. Yemelyanov, Spain/USA	CN
10:30-12:30 - AHFE 7	<p>A review on applications of soft computing techniques in neuroergonomics during the last decade Erman Çakıt, Waldemar Karwowski, Turkey/USA</p> <p>Neuroethics and biomarkers Jose Leon-Carrion, Spain</p> <p>Assessment of human-likeness and anthropomorphism of robots: A literature review Nina Rothstein, Hasan Ayaz, John Kounios, Ewart de Visser, USA</p> <p>Instrumental and value rationality of the self-regulation model of decision-making Alexander M. Yemelyanov, Inna S. Bedny, USA</p> <p>Modeling &amp; estimation of physiological, psychological and sensory indicators for working capacity Sergey Lytaev, Russia</p> <p>Decision support and error analysis of difficult decisions in clinical medicine Alexander M. Yemelyanov, J. Andrew Berry, Alina A. Yemelyanov, USA</p>	
<b>158</b>	<b>Cognitive, Social, Economic and Behavioral Aspects of Cybersecurity</b> Co-Chairs: Wayne Patterson, April Edwards and Phoebe Asquith, USA/UK	CYBER
10:30-12:30 - AHFE 14	<p>Economic prospect theory applied to cybersecurity Wayne Patterson, Marton Gergely, USA</p> <p>Trust in news and information in social media Abbas Moallem, USA</p> <p>Representing a human-centric cyberspace Phoebe Asquith, Phillip Morgan, UK</p> <p>Is data protection a relevant indicator for measuring corporate reputation? Isabella Corradini, Enrico Nardelli, Italy</p> <p>Cyberbullying perceptions and experiences in diverse youth April Edwards, Lynne Edwards, Alec Martin, USA</p> <p>The impact of fake news on the African-American community Wayne Patterson, Cynthia Winston-Proctor, Augustine Orgah, Suryadip Chakraborty, USA</p> <p>Ethics, economics, and ransomware: How human decisions grow the threat John Bambenek, Masooda Bashir, USA</p>	

<b>159</b>	<b>DHM Applications and Motion Capture and Analysis</b> Co-Chairs: Rajulu Sudhakar and Sofia Scataglini, USA/Belgium	<b>DHMAO</b>
10:30-12:30 - AHFE 11	<p><b>Goalkeeper's performances assessed with action cameras based Mocap system</b> Andrea Vitali, Filippo Colombo Zefinetti, Daniele Regazzoni, Giorgio Colombo, Italy</p> <p><b>The correlation between frontal area and joint angles during cycling</b> Thomas Peeters, Elias Francken, Senne Henderieckx, Lukas Van Nunen, Stijn Verwulgen, Raman Garimella, Belgium</p> <p><b>A new assessment for monitoring performance in pianists</b> Tom Defour, Sofia Scataglini, Liora Peres, Nick Meertens, Stijn Verwulgen, Steven Truijen, Belgium</p> <p><b>Evaluation of golden gait approximation using smart clothing</b> Sofia Scataglini, Abran Guillaume, Eddy Roosens, Damien Van Tiggelen, Robby Haelterman, Stijn Verwulgen, Belgium</p> <p><b>Cognitive load and stress assessment of medical high-fidelity simulations for emergency management</b> Agnese Brunzini, Alessandra Papetti, Luca Formenti, Aurora Luciani, Daniele Messi, Erica Adrario, Pamela Barbadoro, Italy</p> <p><b>Extraordinary automated driving situations: Probabilistic analytical modeling of human-systems-integration (HSI) and the role of trust</b> Ephraim Suhr, Sofia Scataglini, USA/Belgium</p>	
<b>160</b>	<b>User Research</b> Co-Chairs: Xiangjuan Min and Raffaella Maddaluno, China/Portugal	<b>ED</b>
10:30-12:30 - AHFE 8	<p><b>Design and research of tools for auxiliary bra wearing</b> Ding-Bang Luh, Yu-Lin Zhao, China</p> <p><b>Ergonomic and social considerations in public design for country parks: A case study on refuse collection facilities against wildlife's raids</b> Kin Wai Michael Siu, Yi Lin Wong, Chi Hang Lo, China</p> <p><b>Improved design of She people's "Cai-Dai" weaving loom based on the protection of the intangible cultural heritage in China</b> Miao Liu, Xiangjuan Min, China</p> <p><b>Discussing research through co-design in policy-making</b> Daniele Busciantella Ricci, Sofia Scataglini, Italy</p> <p><b>The washing machine and the freed time: The modernization of a social rite and the aesthetic conquest of a model made in Italy</b> Raffaella Maddaluno, Maria João Neto Pereira, Portugal</p> <p><b>The role of virtual package shapes in digital product presentation</b> Rafał Michalski, Poland</p> <p><b>Use of rubber fibers to prepare of impact resistant concrete in factory slabs</b> Fernando Andres Moscoso Novillo, Santiago Felipe Luna Romero, Luis Serpa-Andrade, Ecuador</p>	

<p><b>161</b></p>	<p><b>Improving Quality</b> Co-Chairs: Carlos Raymundo and Asgeir Droivoldsmo, Peru/Norway</p>	<p>HFBMS</p>
<p>10:30-12:30 - AHFE 2</p>	<p><b>Quality management model based on Lean Six Sigma for reducing returns of defective clothing articles in SMEs from the clothing industry</b> Carlos Raymundo, Maday Pacheco-Bonilla, Carlos Cespedes, Francisco Dominguez, Nestor Mamani-Macedo, Peru</p> <p><b>Agile inventory management model under a digital transformation approach for stockout reduction in chemical industry's MSE</b> Carlos Raymundo, Virginia Garamendi, Mercedes Cano-Lazarte, Nestor Mamani-Macedo, Francisco Dominguez, Peru</p> <p><b>Lean manufacturing model of production management under the focus on maintenance planned to improve the capacity used in a plastics industry SME</b> Carlos Raymundo, Diana Fernández-Marca, Karla Mostacero-Rojas, Victor Nuñez, Nestor Mamani-Macedo, Javier M. Moguerza, Peru</p> <p><b>Purchasing and quality management lean manufacturing model for the optimization of delivery times in SMEs in the food sector</b> Carlos Raymundo, Jasmin Caldas-Miguel, Claudia León-Chavarri, Edgardo Carvallo, Francisco Dominguez, Nestor Mamani-Maced, Peru</p> <p><b>Defining organizational capabilities in an electric power distribution grid operator to meet future demands</b> Kine Reegård, Asgeir Droivoldsmo, Jan Erik Farbrot, Norway</p> <p><b>Successful development of virtual teams in a geographically dispersed electric power grid company</b> Asgeir Droivoldsmo, Per Goran Bergerud, Norway</p>	
<p><b>162</b></p>	<p><b>Intelligent Agents and Human-Robot Interaction</b> Co-Chairs: Giuseppe Mincolelli, Eric Holder and Maia Cook, Italy/USA</p>	<p>HFRDUS</p>
<p>10:30-12:30 - AHFE 13</p>	<p><b>Human-robot Interaction via a virtual twin and OPC UA</b> Christoph Zieringer, Benedict Bauer, Nicolaj Stache, Carsten Wittenberg, Germany</p> <p><b>Humanoid robotics: A UCD review</b> Niccolò Casiddu, Francesco Burlando, Annapaola Vacanti, Claudia Porfirione, Italy</p> <p><b>Influence of two industrial overhead exoskeletons on perceived strain – A field study in the automotive industry</b> Michael Hefferle, Marc Snell, Karsten Kluth, Germany</p> <p><b>Interactions between humans and intelligent agents: Explainable AI, bidirectional communications, and transparent interfaces</b> Eric Holder, USA</p> <p><b>Self-assessment of proficiency of intelligent systems: Challenges and opportunities</b> Alvika Gautam, Jacob Crandall, Michael Goodrich, USA</p> <p><b>Evaluating a mini-dashboard display for scaling anomaly management in multiple unmanned vehicle monitoring</b> Randy Tran, Cory Rieth, Maia Cook, USA</p> <p><b>New metaphors for designing swarm user interfaces: a human interaction &amp; visualization environment (HIVE) for swarms</b> Dirk Beer, Randy Tran, Mark St. John, Ted Chu, Maia Cook, USA</p>	

<b>163</b>	<b>Training and Simulation</b> Co-Chairs: Anne M. Sinatra and Kimberly A. Pollard, USA	<b>HFSIM</b>
10:30-12:30 - AHFE 12	<p><b>Utilizing simulation to train decision making with conflicting information</b> Meredith Carroll, Paige Sanchez, Donna Wilt, Summer Rebensky, USA</p> <p><b>Considerations in adding adaptive training to existing virtual environments</b> Anne Sinatra, Kimberly Pollard, Benjamin Files, Ashley Oiknine, Debbie Patton, USA</p> <p><b>Evoking stress reactivity in a virtual dance competition</b> Lotte Van Dammen, Neil Barnett, Roselynn Conrady, Lucas Wright, Bradon Thymes, Elizabeth Shirtcliff, USA</p> <p><b>Visualizing quantitative uncertainty: A review of common approaches, current limitations, and use cases</b> Tiffany Raber, Kimberly Pollard, Mark Dennison, Benjamin Files, Ashley Oiknine, USA</p> <p><b>Harnessing XAPI performance data for adaptive training within any immersive simulation-based training environment</b> Evan Oster, Janet Spruill, USA</p>	
<b>164</b>	<b>Design for Cognition and Optimization</b> Chair: Umer Asgher, Pakistan	<b>ICEEP</b>
10:30-12:30 - AHFE 16	<p><b>Concept for an employee-specific resource planning in manual assembly</b> Barbara Tropschuh, Gunther Reinhart, Germany</p> <p><b>Assessing differences on eye fixations by attention levels in an assembly environment</b> Thomas Shotton, Jung Hyup Kim, USA</p> <p><b>Consequences of emotional work in operational environments of service production in Colombia</b> Olga Helena Piñeros Mora, Carlos Armando Marin Valencia, Colombia</p> <p><b>Multi-level optimization of reactive power compensation in industrial nets with Heuristic modelling techniques</b> Umer Asgher, Jose Arzola Ruiz, Yasar Ayaz, Muhammad Sajid, Khurram Khalil, Sara Ali, Pakistan/Cuba</p> <p><b>Cognitive computing for human-machine interaction: An IBM Watson implementation</b> Khurram Khalil, Umer Asgher, Yasar Ayaz, Riaz Ahmad, José Arzola-Ruiz, Noriyuki Oka, Sara Ali, Muhammad Sajid, Pakistan/Cuba/Japan</p> <p><b>Mathematical modeling and optimization of downdraft gasifiers using artificial neural networks (ANN) and stochastic programming techniques</b> Umer Asgher, Jose Arzola Ruiz, Eduardo Roberto Gutierrez Gualatuña, Yasar Ayaz, Muhammad Sajid, Khurram Khalil, Sara Ali, Pakistan/Cuba</p> <p><b>Optimal experimental design methods for acquiring and restricting information to improve decision making</b> Sarah Walsh, William Sealy, Karen Feigh, USA</p> <p><b>Organizational socialization: An important factor for knowledge creation in knowledge based industrial organizations and enterprises</b> Khurram Khalil, Umer Asgher, Mahmoona Khali, Kausar Khawaja, Yasar Ayaz, Salman Nazir, Noriyuki Oka, Jose Arzola Ruiz, Muhammad Sajid, Pakistan/Norway/Japan/Cuba</p>	

<b>165</b>	<b>An Interdisciplinary Approach to Innovation</b> Co-Chairs: Lindsay McCauley and Carla Ayukawa, Canada	IPID
10:30-12:30 - AHFE 9	<p><b>An interdisciplinary approach to accessible museum exhibitions</b> Carla Ayukawa, Lois Frankel, Canada</p> <p><b>An interdisciplinary framework for designing adaptive snow sports equipment</b> Lindsay McCauley, Lois Frankel, Canada</p> <p><b>Case study of cultural design innovation enabling brand development</b> Huabin Wang, Lei Han, China</p> <p><b>Innovation's DNA in postmodern society age</b> Ekaterina Barcellos, Galdenoro Botura, Jr., Lívia Barcellos, Brazil</p> <p><b>Exploration and practice of industry-education integration in design schools</b> Dadi An, Xinyao Huang, Wei Ding, China</p> <p><b>Product design education for circular economy</b> José Vicente, Portugal</p> <p><b>Industrial design + horticulture: A collaborative approach to greenhouse design</b> Carlton Lay, USA</p>	
<b>166</b>	<b>Transport Planning and Infrastructure Design</b> Co-Chairs: Jonas Schmidtler and James Chakwizira, USA/South Africa	RR
10:30-12:30 - AHFE 3	<p><b>The intersection of spatial fragmentation and smart transport planning in Gauteng Province, South Africa: Constraints and opportunities</b> James Chakwizira, South Africa</p> <p><b>Semi-charmed life - Willingness to use and related contributing factors regarding semi-public charging infrastructure for electric cars</b> Ralf Philipson, Imke Haverkämper, Hannah Biermann, Teresa Brell, Martina Ziefle, Germany</p> <p><b>Effect of perceived contrast enhancing lens technology on traffic signal detection for color-deficient individuals</b> Cameron Lopez, Jeremy Swan, Jonas Schmidtler, USA</p> <p><b>Research on the bike-sharing service from the users' perspective and its impacts on their lifestyles</b> Tianshi Shen, China</p> <p><b>Analysis of driving performance data considering the characteristics of railway stations</b> Daisuke Suzuki, Ayako Suzuki, Keiko Shimano, Kazuki Kiyota, Yutaka Kakizaki, Japan</p>	
<b>167</b>	<b>Safety Management II</b> Co-Chairs: Bettina Mrusek and Thierry Meyer, USA/Switzerland	SMHF
10:30-12:30 - AHFE 15	<p><b>REPAIRER reporting system user analysis for SMS compliance in aviation maintenance</b> Bettina Mrusek, Mark Miller, USA</p> <p><b>Safety decision-making in academia</b> Anastasia Kalugina, Thierry Meyer, Switzerland</p> <p><b>Relationship between the level of preventive training in companies and their accident rates</b> Bàrbara Estudillo Gil, Jose M. Carretero-Gomez, Francisco J. Forteza, Spain</p> <p><b>Distribution of occupational accidents in coal fired thermal power plants using HFACS technique</b> Ismail Ekmekci, Akide Cerci, Turkey</p> <p><b>How accurate is it to measure noise with smart mobile devices?</b> Rui B. Melo, Filipa Carvalho, Rafael Assunção, Portugal</p> <p><b>Safety in drilling offshore operations: A narrative literature review</b> Carolina Alonso, Luciano Garotti, Janaína Silva Rodrigues da Costa, William Silva Santana de Almeida, Eiel Prueza de Oliveira, Francisco Duarte, Brazil</p> <p><b>A fuzzy decision making method for preventing the loss of knowledge in nuclear organizations</b> Jaqueline Vianna, Paulo V. R. Carvalho, Carlos A. N. Cosenza, Claudio H. S. Grecco, Brazil</p>	

<b>168</b>	<b>Complex Human-System Interaction</b> Co-Chairs: Filipa Carvalho and Alf Ove Braseth, Portugal/Italy	<b>SYSI</b>
10:30-12:30 - AHFE 4	<p><b>Piloting the use of an upper limb passive exoskeleton in automotive industry: Assessing user acceptance and intention of use</b>                  Gabriela Ferreira, Jacqueline Gaspar, Carlos Fujão, Isabel L. Nunes, Portugal</p> <p><b>Occupational hazards in a pathological anatomy service</b>                  Filipa Carvalho, Rita Martins, Rui B. Melo, Portugal</p> <p><b>Architecture for a services system based on sharing economy</b>                  Maritzol Tenemaza, Sergio Luján-Mora, Javier Tinoco, Rodney Tapia, Ecuador</p> <p><b>The RENAULT ergonomic assessment method V3: Comparing results with the OCRA checklist and the Strain Index methods</b>                  Filipa Carvalho, Susana Silva, Rui B. Melo, Portugal</p> <p><b>Applying haptics to interactive large screens displays</b>                  Alf Ove Braseth, Hans Olav Randem, Aleksander Lygren Toppe, Alexandra Fernandes, Norway</p> <p><b>Ergonomics in mobile fingerprint recognition systems: A user interaction evaluation</b>                  Barbara Corsetti, Raul Sanchez-Reillo, Richard M. Guest, Spain/UK</p> <p><b>Research on the parameters of human - machine interaction of command and control system operator based on Fitts Law</b>                  Ning Li, Yingwei Zhou, Bei Zhang, Qiuyu Liu, Yanghe, Jincui Huang China</p> <p><b>Reliability in extreme isolation: A natural language processing tool for stress self-assessment</b>                  Alessandro Alcibiade, Irene Lia Schlacht, Francesco Finazzi, Massimiliano Di Capua, Giacomo Ferrario, Giorgio Musso, Bernard Foing, Italy/Germany</p>	
<b>169</b>	<b>Student/Environment Interaction</b> Co-Chairs: Summer Rebensky and Yoenia Portilla, USA/Ecuador	<b>TELS</b>
10:30-12:30 - AHFE 5	<p><b>Optimizing the learning experience: Examining interactions between the individual learner and the learning context</b>                  Summer Rebensky, Maria Chaparro, Meredith Carroll, USA</p> <p><b>Research competency training for students of the superior technological institute of administrative and commercial training</b>                  Evelyn De La Llana, Belinda Lema, Emma Zulay, Yoenia Portilla, Rafael Bell Rodríguez, Ecuador</p> <p><b>Academic school performance as an indicator of success in undergraduate studies in construction economics in South Africa</b>                  Danie Hoffman, Inge Pieterse, South Africa</p> <p><b>Performance of mathematical and scientific school subjects as an indicator of success in undergraduate modules in construction economics in South Africa</b>                  Danie Hoffman, Inge Pieterse, South Africa</p> <p><b>A platform for tracking teacher-student interaction</b>                  Nicholas Caporusso, Nicholas Elleman, USA</p> <p><b>Research on digital reading app design to stimulate reading motivation of teenagers</b>                  Yijie Cao, Bing Xiao, China</p> <p><b>The effect of curriculum integrated technology-based universal design of learning approach on academic achievement of elementary school students</b>                  Rahat Javaid, Tahira Anwar Lashari, Imran Haider, Erum Afzal, Umer Farooq, Sabahat Javed, Areeba Javaid, Naqash Gerard, Pakistan/Italy</p>	

12:30-13:30 Session Break (1 hour)

<b>171</b>	<b>Service Science and Knowledge Science in the AI Era</b> Co-Chairs: Jim Spohrer and Youji Kohda, USA/Japan	<b>HSSE</b>
13:30-15:30 - AHFE 1	<p><b>Solving AI and service science: Technology and human-side perspectives</b> Jim Spohrer, USA</p> <p><b>Value-dominant logic: An evolving quantum theory of economics</b> Hunter Hastings, USA</p> <p><b>The impact of Chatbots on customer service performance</b> Alexander Rossmann, Alfred Zimmermann, Dieter Hertweck, Germany</p> <p><b>From multidisciplinary to transdisciplinary perspectives on solving AI and service science</b> Francesco Polese, Debora Sarno, Sergio Barile, Italy</p> <p><b>Can humans learn from AI? A fundamental question in knowledge science in the AI era</b> Youji Kohda, Japan</p> <p><b>Intelligence augmentation (IA) in complex decision making: A new view of the VSA concept of relevance</b> Clara Bassano, Sergio Barile, Marialuisa Saviano, Paolo Piciocchi, Mattia Lettieri, Italy</p>	
<b>172</b>	<b>Artificial Intelligence and Social Computing VI</b> Co-Chairs: Mustafa Demir and Nicholas Caporusso, USA	<b>AISC</b>
13:30-15:30 - AHFE 10	<p><b>Team dynamics and trust in explainable artificial intelligence</b> Mustafa Demir, Nancy Cooke, USA</p> <p><b>Social networks' factors driving consumer restaurant choice: An exploratory analysis</b> Karen Ramos, Onesimo Cuamea, Jorge Morgan, Ario Estrada, Mexico</p> <p><b>Automatic generation of abstracts in scientific articles based on natural language processing for early education professionals and speech therapists</b> Diego Quisi-Peralta, Vladimir Robles-Bykbaev, Martín López-Nores, Luis Serpa-Andrade, Jorge Galan-Mena, Roberto García-Vélez, Ecuador</p> <p><b>Deepfakes for the good: A beneficial application of contentious artificial intelligence technology</b> Nicholas Caporusso, USA</p> <p><b>Affective computing based on remarks of customs in online shopping websites</b> Haitao Wang, Fan Zhang, Gang Wu, Jing Zhao, Chao Zhao, Xinyu Cao, China</p> <p><b>Construction of an ontological network to support the process of inference learning styles</b> Roberto García-Vélez, Luis Serpa-Andrade, Diego Quisi-Peralta, El Salvador</p>	
<b>173</b>	<b>Aviation III</b> Co-Chairs: Jin Wang and Tiziano Bernard, China/USA	<b>AVI</b>
13:30-15:30 - AHFE 17	<p><b>Research on the comprehensive evaluation system of cabin comfort of civil aircraft cabin</b> Jian-Ping Chen, Jin Wang, Jin-Yi Zhi, Li-Li Zhang, China</p> <p><b>The importance of human factors when designing airport terminals integrating automated modes of transit</b> Seth Gatien, John Gales, Ata Khan, Ariel Yerushalami, Canada</p> <p><b>The flight scenarios development method for cockpit design and evaluation of civil aircraft</b> Hongyu Zhu, Meng Hua, Shasha Lu, Guangyu Bao, China</p> <p><b>An approach to aerospace design integrating crew resource management in operational environments</b> Tiziano Bernard, William Tuccio, Sebastien Boulnois, Aleksandar Tasic, Lucas Stephane, USA</p> <p><b>High-level review principles for human-machine interface design of civil aircraft flight deck</b> Fei Li, China</p>	

<b>174</b>	<b>Cognitive Function Assessment</b> Co-Chairs: Hasan Ayaz and Dan Callan, USA/Japan	CN
13:30-15:30 - AHFE 7	<p><b>The association between Anhedonia and decreased neural activity in the prefrontal cortex in response to positive natural rewards in methadone patients</b>                  Andrew Huhn, USA</p> <p><b>Quantification of social media influence on behavior using psychophysiological profiles</b>                  Christian Richard, Marissa McConnell, Jared Poole, Abigail Fink, Gregory Rupp, Marija Stevanovic-Karic, Amir Meghdadi, Chris Berka, USA</p> <p><b>Technological innovation to assess cognitive functions in attention deficit hyperactivity disorder</b>                  Carlos Ramos-Galarza, Mónica Acosta-Rodas, Patricia Acosta-Vargas, Luis Salvador-Ullauri,</p> <p><b>Changes in brain activity after the Sternberg and cognitive judgment tasks</b>                  Tatsuya Fukunaga, Hiroshi Hagiwara, Koji Kashiwara, Hiroyuki Shinoda, Japan</p> <p><b>Understanding the cognitive demands of the Purdue Pegboard Test: An fNIRS study</b>                  Elham Bakhshipour, Reza Koiler, Kimberly Milla, Nancy Getchell, USA</p> <p><b>Fidget spinners may decrease prefrontal cortex activity during cognitively challenging fine motor tasks</b>                  Reza Koiler, Elham Bakhshipour, Austin Schimmel, Andrez Jones, Kimberly Milla Ceja, Patricia Shewokis, Nancy Getchell, USA</p> <p><b>Mobile technological apps to improve frontal lobe functioning</b>                  Carlos Ramos-Galarza, Mónica Acosta-Rodas, Sandra Sanchez-Gordon, Tania Calle-Jimenez, Ecuador</p>	
<b>175</b>	<b>Human Factors in Energy: Oil, Gas, Nuclear and Electric Power Industries II</b> Co-Chairs: Jens-Patrick Langstrand and Ronald Boring, Norway/USA	ENERGY
13:30-15:30 - AHFE 13	<p><b>The first decade of the human systems simulation laboratory: A brief history of human factors research in support of nuclear power plants</b>                  Ronald Boring, USA</p> <p><b>Simulation technologies for integrated energy systems engineering and operations</b>                  Roger Lew, Thomas Ulrich, Ronald Boring, USA</p> <p><b>A tool for performing link analysis, operational sequence analysis, and workload analysis to support nuclear power plant control room modernization</b>                  Casey Kovesdi, Katya Le Blanc, USA</p> <p><b>Human factors challenges in developing cyber-informed risk assessment for critical infrastructure</b>                  Katya Le Blanc, USA</p> <p><b>Dynamic instructions for lock-out tag-out</b>                  Jeremy Mohon, USA</p>	
<b>176</b>	<b>Design, Experiments and Innovative Issues in Additive Manufacturing Domain</b> Co-Chairs: Gregor Harih and Artur Andrearczyk, Slovenia/Poland	AMMSP
13:30-15:30 - AHFE 12	<p><b>Design of 3D printed cellular meta-materials for improved tool-handle ergonomics</b>                  Andrej Cupar, Jasmin Kaljun, Bojan Dolšak, Gregor Harih, Slovenia</p> <p><b>Destructive tests of an additively manufactured compressor wheel performed at high rotational speeds</b>                  Artur Andrearczyk, Magdalena Mieloszyk, Paweł Bagi ski, Poland</p> <p><b>SMAG - Smart Garden: A system of outdoor furniture equipped with artificial intelligence</b>                  Marco Marseglia, Eleonora Trivellini, Giuseppe Lotti, Jurji Filieri, Elisa Matteucci, Francesco Cantini, Alessio Tanzini, Italy</p> <p><b>Product development with biopolymers made from Brewers' Spent Grain (BSG) and Carboxymethylcellulose (CMC), using 3D food printer</b>                  Claudia Cirineo Ferreira Monteiro, Antonio Roberto Giriboni, Fernando Moreira Da Silva, Brazil</p> <p><b>Effects of deposition current on the microstructure and pseudoelasticity of wire-arc additively manufactured Ni-rich NiTi alloys</b>                  Jun Wang, Zengxi Pan, Yangfan Wang, Kristin Carpenter, Huijun Li, China</p>	

<b>177</b>	<b>Advances in Medical Devices and Diagnosis Techniques</b> Co-Chairs: Joshua Gray, Eduardo Pinos and Riad Taha Al-Kasasbeh, USA/Ecuador/Russia	<b>EHMD</b>
13:30-15:30 - AHFE 14	<p><b>Human factors components of invasive medical devices in non-clinical environments</b>          Joshua Gray, Najm Meshkati, Glenn Takata, Mary Lawlor, Andrew Imada, USA</p> <p><b>Plasma treatments to boost the biocompatibility of the textile medical devices</b>          Emilia Visileanu, Razvan Scarlet, Bogdana Mitu, Alina Vladu, Romania</p> <p><b>Modeling and simulation of the human eye and its correlation between increased intraocular pressure and the thickness of the cornea</b>          Eduardo Pinos-Vélez, Adrián Cabrera, Andrea Curay, Carlos Luis Chacón, William Ipanaqué, Luis Serpa-Andrade, Ecuador/Peru</p> <p><b>Identification and prevention of glaucoma through digital processing of biomedical imaging by the relationship between volume of nerve fibers and IOP</b>          Eduardo Pinos-Vélez, Marlon Chazi, Christian Cajamarca, Vladimir Robles-Bykbaev, Carlos Luis Chacón, William Ipanaqué, Luis Serpa-Andrade, Ecuador/Peru</p> <p><b>Study of corneal biomechanics and modeling of Young's module in healthy and pathological corneas</b>          Maria Cordero, Eduardo Pinos, Roberto Coronel, Ecuador</p> <p><b>The influence of ergonomics of human-machine systems on the emergence and development of cognitive function disorders</b>          Riad Taha Al-Kasasbeh, Nikolay Korenevskiy, Altyn Aikeyeva, Sofia Nikolaevna Rodionova, Ilyash Maksim, Mahdi Alshamasin, Russia</p> <p><b>Information-analytical system for assessing the rehabilitation of the patients with endocrine diseases</b>          Irina Kurnikova, Sofia Buturlina, Ramchandra Sargar, Natalia Zabrodina, Artyom Yurovsky, Russia</p>	
<b>178</b>	<b>Human Factors for Textile and Society</b> Co-Chairs: Gianni Montagna and Carla Morias, Portugal	<b>HFATE</b>
13:30-15:30 - AHFE 8	<p><b>The importance of textiles in the user experience in interior and furniture design</b>          Catarina Carreto, Rui Carreto, Portugal</p> <p><b>The shape of desire</b>          Gianni Montagna, Cristina Carvalho, Carla Morais, Maria Antonietta Sbordone, Portugal/Italy</p> <p><b>Ancient activities improved by design</b>          Isabel Bieger, Gianni Montagna, Cristina Carvalho, Portugal</p> <p><b>Long-line composite floating modular system for controlled growth of Mytilus galloprovincialis mussels and the development of Crassostrea gigas oyster</b>          Alexandra Gabriela Ene, Carmen Mihai, Romania</p> <p><b>Artisan and art design: The development of a textile collection in contemporary fashion</b>          Ana Fernandes, Isabelle Lavado, Portugal</p>	
<b>179</b>	<b>Data and Analysis</b> Co-Chairs: Cecilia Gallegos and Claudio Elórtogui Gómez, Chile	<b>HFBMS</b>
13:30-15:30 - AHFE 2	<p><b>The philanthropy of Chilean citizenship. A quantitative data science study</b>          Claudio Elórtogui Gómez, José Ruetter, Hanns de la Fuente-Mella, Chile</p> <p><b>Probabilistic models of job placement and positioning for students with a career in Chile</b>          Hanns de la Fuente-Mella, Cecilia Gallegos, Estela Rodríguez, Camila Inostroza Ocares, Mariana Lagos Pérez, Chile</p> <p><b>A critical review of absorptive capacity measurement and misspecification in business research</b>          Saad Yaseen, Ihab El Qirem, Dima Dajani, Jordan</p> <p><b>Gravity models for Latin American economies</b>          Ana María Vallina-Hernández, Pascalle Martinez, Claudio Gonzalez, Rodrigo Fuentes, Hanns de la Fuente-Mella, Chile</p> <p><b>Analysis of reading offers: The case of Finland and Germany</b>          Thomas Berger, Timo Holopainen, Sven Seidenstricker, Germany</p>	

<b>180</b>	<b>Human Factors in Virtual Environments II</b> Co-Chairs: Xiaolong Lou and Xin Song, China	<b>HFGD</b>
13:30-15:30 - AHFE 15	<p><b>Handedness effect and its implication for designing two-handed interactive applications in virtual reality</b> Xiaolong Lou, Zhipeng Feng, Yan Shi, China</p> <p><b>Augmented reality assisted sensory integration therapy for improving attention of children with autism</b> Xin Song, Xin He, China</p> <p><b>Usability and gaming experience assessment of the Nintendo Switch user interface by Filipino users</b> Cyrus Alexander Ting, Juneliza Mondragon, Julia Isabel Almirante, Gabriel Isaac Ramolete, Michael Angelo Patrick Cohen, Benette Custodio, Philippines</p> <p><b>The use of immersive technologies for design review</b> Sander Van Goethem, Rune Degryse, Ian Garcia, Siebe Perdieus, Stijn Verwulgen, Belgium</p> <p><b>Design and evaluation of a virtual reality serious game</b> Mayra Carrión, Marco Santórum, Juan Benavides, Jose Aguilar, Yolanda Ortiz, María Pérez, Ecuador</p> <p><b>Application of virtual reality combined with eye tracking technology for design and its assessment by fuzzy evaluation method</b> Yan Wang, Thailand</p>	
<b>181</b>	<b>Case Studies of Physical Ergonomics</b> Chair: Sachin Kapur, India	<b>PEHF</b>
13:30-15:30 - AHFE 11	<p><b>Ergonomic approaches to reduce the risk of a manual material handling task in a Brazilian poultry slaughterhouse</b> Adriana Seára Tirloni, Diogo Cunha dos Reis, Antônio Renato Pereira Moro, Brazil</p> <p><b>Ergonomics of date palm irrigation work: Algerian Foggara as an example</b> Mohamed Mokdad, Bouhafis Mebarki, Lahcene Bouabdellah, Ibrahim Mokdad, Bahrain/Algeria</p> <p><b>Ergonomic assessment of the lifting tasks performed by north Indian workers in LPG cylinder distribution supply chain</b> Sachin Kapur, Mahender Singh Kaswan, India</p> <p><b>Analysis of physiological signal characteristics of persons working at heights</b> Guilei Sun, China</p> <p><b>The indoor thermal environment in fencing halls: Assessment of the environmental conditions through an objective and subjective approach</b> Fabio Fantozzi, Giulia Lamberti, Francesco Leccese, Giacomo Salvadori, Italy</p> <p><b>Construction ergonomics observations</b> John Smallwood, South Africa</p>	
<b>182</b>	<b>Sociotechnical Approach to Road Safety (STARS) Project</b> Co-Chairs: Neville Stanton and Katie Plant, UK	<b>RR</b>
13:30-15:30 - AHFE 3	<p><b>The sociotechnical approach to road safety (STARS) project</b> Neville Stanton, Katie Plant, Rich McIlroy, UK</p> <p><b>Narrating our journeys: How do cyclists', motorcyclists', and drivers' on-road experiences differ?</b> Rich McIlroy, Katie Plant, Neville Stanton, UK</p> <p><b>Evaluating adherence to speed and driving lanes by Kenyan drivers using driving simulation experiments</b> Brenda Bunyasi, Sylvia Anyika, James Oyoo, Gilbert Kokwaro, Rich McIlroy, Neville Stanton, Katie Plant, Kenya</p> <p><b>Applying the systems theoretic accident model and process to analyze a downgrade-truck collision caused by a brake failure in Vietnam</b> Duy Dinh Do, Nam Vu Hoai, Rich McIlroy, Katie Plant, Neville Stanton, Vietnam</p> <p><b>Modeling of a vehicle accident prediction system based on a correlation of heterogeneous sources</b> Pablo Marcillo, Lorena Isabel Barona López, Myriam Hernandez-Alvarez, Ángel Leonardo Valdivieso Caraguay, Ecuador</p>	

<b>183</b>	<b>Studies on Impact and Trends in Occupational and Social Ergonomics</b> Co-Chairs: Nicholas Caporusso and Asun Galera, USA/Spain	SOE
13:30-15:30 - AHFE 16	<p><b>The impact of social media in military recruiting</b> Nicholas Caporusso, Angel Peralta, USA</p> <p><b>The case of the first world's court sentence on occupational risk exposure to nanomaterials.</b> Asun Galera, Spain</p> <p><b>Impact of pre-professional practices on the excessive mental workload of university engineering students</b> Cesar Corrales, Wilmer Atoche, Jonatan Rojas, Peru</p> <p><b>Improvement of efficiency in the productivity of an aerospace, maritime and military company in Tijuana, Baja California, Mexico</b> Mario Raul Sanchez Matute, Carolina Zayas-Marquez, Luis Alfredo Avila Lopez, Maria Marcela Solis-Quinteros, Mexico</p> <p><b>Mass and density of materials: Knowledge and perceptions</b> John Smallwood, South Africa</p> <p><b>Analysis of the operation in a woodwork shop: Layout aspects, work safety and interaction with ergonomics.</b> Valeria Barbosa Gomes, Beatriz Carvalho Peixoto, Laís Benevides De Almeida, Brazil</p> <p><b>An assessment of whole-body vibrations exposure in transport truck drivers</b> Rodrigo Dominguez, Jose Dasso, Chile</p>	
<b>184</b>	<b>Implementation of Technology in Health and Special Education</b> Co-Chairs: Jan Neuhoefer and Hanna Lindsten, Germany/Poland	TELS
13:30-15:30 - AHFE 5	<p><b>Exploring the true motivation of faculty members to promote technological innovation in their courses</b> Eyal Eckhaus, Nitza Davidovich, Israel</p> <p><b>Predict trainee's comprehension from computer operations with deep learning</b> Koga Kobayashi, Hironobu Satoh, Japan</p> <p><b>Strengthening teacher service capacities to improve empowerment in school feeding</b> Ernesto Hernández Martínez, William Rolando Miranda Zamora, Manuel Jesus Sanchez Chero, Roberto Simón Seminario Sanz, Leandro Alonso Vallejos More, Miguel Hernández Martínez, Peru</p> <p><b>Digital prequalification of nursing trainees with migration background</b> Jan Neuhoefer, Germany</p> <p><b>Mental health in different college education systems</b> Brenda Rivero-Orozco, Alberto Rossa-Sierra, Fabiola Cortes-Chavez, Mexico</p> <p><b>Developing a reinforcement learning agent for the game of checkers</b> Henning Knauer, Andrea Dederichs-Koch, Daniel Schilberg, Germany</p> <p><b>The development of the use of force assessment tool</b> Francesca Ruscito, Canada</p>	
<b>185</b>	<b>DHM and Application in Military</b> Co-Chairs: Hyeg Joo Choi and Sudhakar Rajulu, USA	DHMAO
13:30-15:30 - AHFE 9	<p><b>US Army anthropometric databases: Past, present, and future</b> Joseph Parham, Todd Garlie, Hyegjoo Choi, USA</p> <p><b>Military encumbered anthropometry methodology and application</b> Todd Garlie, Hyegjoo Choi, Joseph Parham, USA</p> <p><b>Female torso shape classification: Methods and comparison</b> Peng Li, Steven Paquette, USA</p> <p><b>Facial shape analyses using 3D landmark coordinates for protective eye wear design with an Integrated Headborne System</b> Hyegjoo Choi, Peng Li, Todd Garlie, USA</p>	

<b>186</b>	<b>Usability and User Experience Applications III</b> Co-Chairs: Fiorella Falconi and Chenyue Sun, Peru/China	UUE
13:30-15:30 - AHFE 6	<b>Security guidelines for the design of ATM interfaces</b> Fiorella Falconi, Arturo Moquillaza, Freddy Paz, Claudia Zapata, Peru <b>Research on the design and application of Persuasive game in calligraphy learning</b> Long Ren, Chenyue Sun, Hongzhi Pan, China <b>A study on the effect of artificial light environment on consumers' purchase intention for fruits</b> Sha Liu, Lin Li, Tan Yu Tan, Jiaoli Xie, Lu Qi Xiu, China <b>The analysis of influence factors of user experience in bullet screen</b> Zhizheng Zhang, Li Zhang, Yajun Li, China <b>Technology products suitability for experimental display size and color research</b> Ming-Chi Hsieh, Chih-Chun Lai, Lungwen Kuo, Taiwan <b>Creative design of kitchenware products based on the concept of affordance</b> Yuhan Shi, Honghai Zhang, China <b>Brain reality gaming: Concepts, advances and current challenges</b> Ana Franca, Vilma Villarouco, Brazil	
<b>Session Break: 15:30-16:00</b>		
<b>188</b>	<b>HSSE Closing Session: Best Paper Awards, Thank-you's, Planning Next HSSE</b> Co-Chairs: Christine Leitner and Jim Spohrer, UK/USA	HSSE
16:00-18:00 AHFE 1	<b>Best Paper Award, Planning next HSSE</b> Jim Spohrer and Christine Leitner, USA/UK	
<b>189</b>	<b>Coordinating for Emotional Satisfaction II</b> Co-Chairs: Teruaki Ito and Shuichi Fukuda, Japan	APD
16:00-18:00 - AHFE 17	<b>Motor control of hand force for visual indicator without hand displacement</b> Takashi Oyama, Teruaki Ito, Japan <b>Style and color design of technology packaging</b> Lungwen Kuo, Chih-Chun Lai, Ming-Chi Hsieh, Taiwan <b>A methodology for designing meaningful interactions in public space</b> Liang Tan, China <b>Case study: How design students tailor their crowdfunding presentation to different audiences</b> Jose Rivera-Chang, USA <b>Application of traditional cultural elements in the design of bank card surface</b> Yu-chen Xi, Xinxiong Liu, China	
<b>190</b>	<b>Machine Learning in Cognitive Neuroimaging</b> Chair: Siamak Aram, USA	CN
16:00-18:00 - AHFE 7	<b>A comparative study on epileptic seizure detection methods</b> Sarah Hadipour, Ala Tokhmpash, Bahram Shafai, USA <b>Fractional order modeling of brain signals</b> Ala Tokhmpash, Sarah Hadipour, Bahram Shafai, USA <b>Neural correlation of brain activities and gaming using functional near-infrared spectroscopy and Iowa gambling task</b> Sagar Kora Venu, Siamak Aram, Hadis Dashtestani, Amir Gandjibakhche, Roozbeh Sadeghian, USA <b>Machine learning approaches and neuroimaging in cognitive functions of the human brain: A review</b> Siamak Aram, Denis Kornev, Roozbeh Sadeghian, Saeed Esmaili Sardari, Sagar Kora Venu, Hadis Dashtestani, Amir Gandjibakhche, USA <b>CNN LSTM combined network for artifact identification in multi-channel EEG data</b> Hasib-Al Rashid, Tinoosh Mohsenin, USA <b>Cognitive performance degradation in high school students as the response to the psychophysiological changes</b> Oleksandr Burov, Evgeniy Lavrov, Svitlana Lytvynova, Nadiia Pasko, Svitlana Dubovyk, Olena Orliyk, Olga Siryk, Vasyl Kyzenko, Ukraine <b>Designing realistic sensor-driven mixed-reality simulations to elicit and study human behavior</b> Brian Flowers, Les Bird, Michael Jenkins, USA	

<b>191</b>	<b>Design for Inclusion in the Living Environment</b> Co-Chairs: Valeria Minucciani and Agata Bonenberg, Italy/Poland	<b>DI</b>
16:00-18:00 - AHFE 13	<p><b>Challenges of universal design in coastal resort architecture and planning</b>                      Agata Bonenberg, Poland</p> <p><b>Beyond walking: Improving urban mobility equity in the age of information</b>                      Dadi An, Yuheng Yang, Jiangchao Wang, China</p> <p><b>Accessibility to cultural heritage from the urban system to museums. Innovative solutions</b>                      Michela Benente, Graziella Roccella, Valeria Minucciani, Italy</p> <p><b>Inclusive museums: From physical accessibility to cultural appropriation</b>                      Valeria Minucciani, Michela Benente, Italy</p> <p><b>Moving beyond visitor and usability studies: Co-designing inclusion in museums and galleries</b>                      Janice Rieger, Australia</p> <p><b>Bathroom handrail requirements for use by the elderly</b>                      Yoshiaki Goto, Satoshi Kose, Shinji Tanaka, Hajime Yada., Japan</p> <p><b>Acceptable handrail diameter for use by the elderly</b>                      Satoshi Kose, Yoshiaki Goto, Yoshihide Sugimoto, Japan</p>	
<b>192</b>	<b>Anthropometric Design</b> Co-Chairs: Matteo Zallio and Francisco Lobo, USA/Brazil	<b>ED</b>
16:00-18:00 - AHFE 8	<p><b>A gender comparison of Portuguese firefighters' perceptions concerning personal protective equipment: Results from a pilot study</b>                      Sophia Piacenza, Miguel Carvalho, Fernando Ferreira, Susan Ashdown, Linsey Griffin, Portugal</p> <p><b>A study on the functional dimensions of Chinese people for workspace design</b>                      Linghua Ran, Chaoyi Zhao, Hong Luo, Xin Zhang, Taijie Liu, China</p> <p><b>Ergonomic characteristics and usage habits of adult backpack</b>                      Huimin Hu, Sining Li, Shaorong Ni, Haimei Wu, China</p> <p><b>Parametric design method for personalized bras</b>                      Yuanqing Tian, Roger Ball, USA</p> <p><b>Physical design assessment of the Nintendo Switch controller configurations</b>                      Gabriel Isaac Ramolete, Julia Isabel Almirante, Juneliza Mondragon, Cyrus Alexander Ting, Michael Angelo Patrick Cohen, Benette Custodio, Philippines</p> <p><b>Pressure comfort design elements for backpacks</b>                      Rui Hui, Ling Luo, Jie Wang, China</p> <p><b>Experimental study on tightening torque of bottle cap</b>                      Aiping Yang, Huimin Hu, Yun-ni Xu, China</p>	
<b>193</b>	<b>Human Factors, Business Management and Efficiency</b> Co-Chairs Henrijs Kalkis and Zenija Roja, Latvia	<b>HFBMS</b>
16:00-18:00 - AHFE 2	<p><b>Toward improving the direction orientation task</b>                      Joseph Coyne, Nathan Herdener, Jacqueline Sweet, Ciara Sibley, Noelle Brown, Cyrus Foroughi, Kenneth King, USA</p> <p><b>Rethinking the contemporary art fairs through the viewpoint of assemblage theory: A case study of ART021 from Shanghai</b>                      Jia Fu, China</p> <p><b>Creating a physical bridge between management and leadership as a strategy to improve organization performance analysis</b>                      Dominic Ramere, Timothy Laseinde, South Africa</p> <p><b>Development status and marketing strategy of smart speakers</b>                      Xiaobo Fu, Tianhong Fang, China</p> <p><b>Barriers to the development of regional competitiveness in the context of regional economies - EU, Latvia, Vidzeme region case study</b>                      Liga Braslina, Anda Batraga, Santa Bormane, Daina Šiltere, Jelena Salkovska, Henrijs Kalkis, Aija Legzdina, Girts Braslins, Latvia</p> <p><b>Downstream intra-organisational product market competition between employees: a theoretical approach</b>                      Harsh Chauhan, Henrijs Kalkis, India</p> <p><b>Econometric modeling of marketing productivity for service sector</b>                      Hanns de la Fuente-Mella, Chile</p> <p><b>Emotional labour and turnover intention: The moderating role of team support</b>                      Ophelia Delali Dogbe Zungbey, Evans Sokro, Nobel Osei Bonsu, Michael Akomeah Ofori Ntow, Ghana</p>	

<p><b>195</b></p>	<p><b>An Interdisciplinary Approach to Design Manufacturing</b> Co-Chairs: Fabiola Cortes Chavez and Chunrong Liu, Mexico/China</p>	<p>IPID</p>
<p>16:00-18:00 - AHFE 9</p>	<p><b>Analysis of the components of the scene system and its characteristics</b> Yan Wang, Jiadong Han, China</p> <p><b>Sound design for electric vehicles: Lessons and requirements learned from a Chinese automobile manufacturer</b> Yang Zhao, Hua Dong, Long Liu, China</p> <p><b>Design of doll's arm based on shape memory alloy actuator</b> Danying Liu, Xifan Ding, Mingjiang Jin, Shanang He, China</p> <p><b>Integration of consumer electronics products designed in Mexico</b> Carlos Garnier-Ortiz, Alberto Rossa-Sierra, Fabiola Cortes Chavez, Mexico</p> <p><b>Extracting contour shape of passenger car form in front quarter view based on form similarity judgement by young Chinese Consumers</b> Chunrong Liu, Yuchun Shi, Minghua Zhang, China</p> <p><b>Reconstructing social identity through physical attractiveness</b> Young Ae Kim, Qiuwen Li, USA</p> <p><b>Happiness participatory media: Cultural differences in happiness on Instagram</b> Qiuwen Li, Young Ae Kim, USA</p>	
<p><b>196</b></p>	<p><b>Kansei Engineering</b> Co-Chairs: Kui Gao and Sandrine Fischer, China/USA</p>	<p>KE</p>
<p>16:00-18:00 - AHFE 10</p>	<p><b>Young Chinese consumers' perception of passenger car form in side view analyzed with quantitative and qualitative methods</b> Chunrong Liu, Kui Gao, Qichang He, China</p> <p><b>Examining the incidence of intuitiveness and cognitive-affective states in the Kansei and rating of mobile apps</b> Sandrine Fischer, USA</p> <p><b>Real, augmented, virtual, and robotic animals in smart and playable cities</b> Anton Nijholt, Netherlands</p> <p><b>On the role of muscle memory in interaction design</b> Miao Liu, Xingchun Yang, China</p> <p><b>UX design for mobile application of E-Commerce site by using Kansei interface</b> Yuiko Mimura, Toshio Tsuchiya, Kaho Moriyama, Kanna Murata, Sana Takasuka, Japan</p> <p><b>Research on the color of physiotherapy equipment - example of the lower limb equipment</b> Peng Jyun Liu, Taiwan</p>	
<p><b>197</b></p>	<p><b>Physical Workload Assessment Methods and Techniques</b> Co-Chairs: Christopher Brandl and Lawrence Schulze, Germany/USA</p>	<p>PEHF</p>
<p>16:00-18:00 - AHFE 11</p>	<p><b>An evaluation of numerical integration methods for estimating cumulative loading based on discrete spinal loads</b> Laura Johnen, Alexander Mertens, Verena Nitsch, Christopher Brandl, Germany</p> <p><b>The influence of the relative working position as a function of body dimensions on working posture, compression load on L5/S1 and muscle activity</b> Christopher Brandl, Alexander Mertens, Verena Nitsch, Germany</p> <p><b>The effects of concurrent physical and psychosocial demands on muscle tension, perceived workload, and performance</b> Rania Ghalayini, Saif Al-Qaisi, Lina Younan, Lebanon</p> <p><b>Using simplify-enable-leverage-resource (SELR) to develop solutions for identified opportunities</b> Lawrence Schulze, USA</p> <p><b>Study of the furniture used for students in a Peruvian university</b> Cesar Corrales, Wilmer Atoche, Jonatan Rojas, Peru</p> <p><b>Biomechanical effects of walking with assistive forces from a smart walker</b> Wen Liang Yeoh, Ping Yeap Loh, Seiji Saito, Satoshi Muraki, Japan</p> <p><b>Kinematics characteristics of various backward walking in young adults</b> Teerapapa Luecha, Shin Takesue, Ping Yeap Loh, Satoshi Muraki, Japan</p>	

<b>198</b>	<b>Route Choice, Navigation and Wayfinding</b> Co-Chairs: Giuseppe Lotti and Yanhua Meng, Italy/China	RR
16:00-18:00 - AHFE 3	<p><b>An evaluation index system for wayfinding system and its research applications: The case of Beijing subway Line 1</b>          Chuanyu Zou, Guangxin Wang, China</p> <p><b>Empirical study on evaluation of railway wayfinding system: A case study of Shandong Province, China</b>          Chuanyu Zou, Yongquan Chen, Ziding Chen, China</p> <p><b>Empirical study on evaluation of subway wayfinding system: A case study of Shandong Province, China</b>          Chuanyu Zou, Yongquan Chen, Jindong Gao, China</p> <p><b>Analysis on the redesigned metro safety signs based on eye tracking</b>          Guilei Sun, Yanhua Meng, Zijie Wan, Yaqi Wang, China</p> <p><b>TIAMBIENTA: Smart technologies for the motor-home sector</b>          Giuseppe Lotti, Margherita Vacca, Irene Fiesoli, Alessio Tanzini, Elisa Matteucci, Claudia Morea, Francesco Cantini, Eleonora Trivellin, Lu Ji, Marco Marseglia, Italy</p>	
<b>199</b>	<b>Safety Management Potpourri</b> Co-Chairs: Chuliporn Sopajareeya and Joana Santos, Thailand/Portugal	SMHF
16:00-18:00 - AHFE 15	<p><b>Occupational exposure to biological agents</b>          Joana Santos, Carla Ramos, Manuela Vaz Velho, Marta Vasconcelos Pinto, Portugal</p> <p><b>Health protection criteria for airborne infrasound exposure: An international comparison</b>          Fabio Lo Castro, Sergio Iarossi, Massimiliano De Luca, Maria Patrizia Orlando, Claudia Giliberti, Raffaele Mariconte, Italy</p> <p><b>Process operator students' outlook on safety</b>          Susanna Mattila, Sanna Nenonen, Noora Nenonen, Sari Tappura, Finland</p> <p><b>Psychosocial risk assessment by Fine Kinney and ANFIS Method: A case study in a metal processing plant</b>          Nalan Bac, Ismail Ekmekci, Turkey</p> <p><b>Ergonomic risk and safety assessment of typical household products</b>          Xu Qian, Huimin Hu, Nan Li, China</p> <p><b>Safety requirements for the design of collaborative robotic workstations in Europe – a review</b>          Carlos Faria, Ana Colim, João Cunha, João Oliveira, Nelson Costa, Paula Carneiro, Sérgio Monteiro, Estela Bicho, Luís Rocha, Pedro Arezes, Portugal</p> <p><b>Reviewing tools to prevent accidents by investigation of human factor dynamic networks</b>          Salvador Ávila Filho, Beata Mrugalska, Pedro Arezes, Lucas Menezes Pereira, Rita Ávila, Camila Pontes Pena, Brazil/Poland</p>	
<b>200</b>	<b>Social Aspects and Occupational Ergonomics</b> Co-Chairs: Lucia Longo and Manutchanok Jongprasithporn, Italy/Thailand	SOE
16:00-18:00 - AHFE 16	<p><b>Is sick building syndrome existing in Thailand?</b>          Manutchanok Jongprasithporn, Thailand</p> <p><b>Proposal for integration of urban planning with the environment in Daule - Ecuador</b>          Dalys Castro, Gabriela Vega, Jesús Rafael Hechavarría Hernández, Ecuador</p> <p><b>Corporate mental health program</b>          Manoela Trindade, Carlos Eduardo Martini de Lolo, Brazil</p> <p><b>Looking toward the future of mental workload research through the past: A bibliometric analysis of 1990–2020</b>          Yi Ding, Yaqin Cao, Vincent Duffy, China/USA</p> <p><b>Communication of legal epistemology applied to law</b>          Manuel Angulo, Ana Tapia, Janeth Ruiz, Yonaiker Navas, Milton González, Lilibeth Orrala, Ecuador</p> <p><b>Epistemological foundations of the conditioned constitutionality</b>          Otilia Gonzalez Barzola, Yonaiker Navas, Angela Reyes, Oscar Arias Pelaez, Patricia Vallejo, Sergio Luis Marzo Vanegas, Ecuador</p>	

<b>201</b>	<b>Teaching/Learning Interaction</b> Co-Chairs: Qing Xue and Susana Barreto, China/Portugal	TELS
16:00-18:00 - AHFE 5	<p><b>The design and implementation of effective teaching based on human factors engineering</b> Qing Xue, Lin Gong, China</p> <p><b>The infographic process of synthesizing complex information about the individual legacies of retired teachers and researchers in art and design</b> Nuno Martins, Susana Barreto, Eliana Penedos-Santiago, Cláudia Lima, Inês Calado, Portugal</p> <p><b>Matrix for the planification from the formative and scientific investigation that helps the teaching-learning process</b> Cesar Enriquez, Ecuador</p> <p><b>An interactive computerized system for Chinese handwriting training</b> Nan-Ying Yu, Shao-Hsia Chang, Taiwan</p> <p><b>Digitalization and learning. Exploring connections and contradictions between emerging design principles and new learning practices</b> Astrid Camilla Wiig, Marius Imset, Veronica Jaramillo Jimines, Norway</p> <p><b>Novice and experienced EAP practitioners' pedagogical content knowledge: Teachers' cognitions and students' perceptions</b> Mohadeseh Khazae, USA</p>	
<b>202</b>	<b>Software Applications</b> Co-Chairs: Haseena Al Katheeri and Xi Zheng, UAE/China	EHMD
16:00-18:00 - AHFE 14	<p><b>The development of traditional Thai massage Chatbot application for hypertension treatment</b> Chudanat Sudthongkhong, Kejkaew Thanasuan, Parichaya Bumrungsena, Thailand</p> <p><b>The adoption of mHealth apps testing the UTAUT model with gamification impact</b> Haseena Al Katheeri, UAE</p> <p><b>Relieving children's fear during Medical process by gamification medical navigation application</b> Xin He, Xi Zheng, China</p> <p><b>A parent-child interactive toy design for rehabilitation training of hearing-impaired children</b> Jing Zhao, Danni Chang, China</p> <p><b>A comparison of the user experiences of primary care electronic health record systems</b> Berglind Smaradottir, Norway</p> <p><b>Digital instructions for use in the medical space: Where we are and where we want to go</b> Rebecca Williamson, Trevor Johnson, Corey Cook, Mary Farrell, USA</p> <p><b>Usability evaluation of an Electronic Health Record (EHR) to improve physician performance</b> Martina Clarke, Jeffery Belden, Min Kim, USA</p>	
<b>203</b>	<b>Usability and User Experience Applications IV</b> Co-Chairs: Jesslyn Alekseyev and Nicholas Caporusso, USA	UUE
16:00-18:00 - AHFE 6	<p><b>A framework to improve evaluations of novel decision support tools</b> Jesslyn Alekseyev, USA</p> <p><b>Flat-design icon sets: A case for universal meanings?</b> Andrea Legleiter, Nicholas Caporusso, USA</p> <p><b>(Ro) bots UX gaps, between experiential myth and reality</b> Sandrine Prom Tep, Manon Arcand, Lova Rajaobelina, Line Ricard, Canada</p> <p><b>Ergonomic assessment of a parking ticket payment machine for Filipino use</b> Baron Guerrero, Joshua Juinio, Joshua Castro, Michael Angelo Patrick Cohen, Benette Custodio, Philippines</p> <p><b>Usability assessment of a Philippine commuting navigation application</b> Jason Toledo, Alessa Camryn Salgado, Carmina Claire Gozum, Benette Custodio, Philippines</p> <p><b>Factors affecting the purchase decision of sneakers in post-90s consumer groups</b> Jiyue Chu, China</p> <p><b>Digitization - Frankenstein's new media demon in Bulgaria?</b> Lilia Raycheva, Bulgaria</p>	

# Interactive Poster Demonstrations

Posters will be displayed Saturday, July 18, Sunday, July 19, and Monday, July 20, 2020 during the designated timeslots listed below.

## **POSTER/DEMONSTRATION SESSIONS, SATURDAY, JULY 18**

**Time: 10:00 - 12:30**

**Virtual Room: AHFE 18**

- A1. Investigation and analysis of ergonomic risk factors associated with laparoscopic surgeries using rapid upper limb assessment (RULA) tool  
Mohammed Alamoudi, Saudi Arabia
- A2. Algorithm for assessing auditory images perception and verbal information  
Sergey Lytaev, Kseniy Belskaya, Russia
- A3. Research on optimal design of metro driving interface based on driver operating characteristics  
Yang Du, Zhi Jinyi, Zerui Xiang, Jing Kang, China
- A4. Effects of tire pressure on wheelchairs when riding on uneven ground  
Soichiro Fujisawa, Katsuya Sato, Shin-ichi Ito, Junji Kawada, Jiro Morimoto, Mineo Higuchi, Masayuki Booka, Japan
- A5. Fine design of music application user experience based on first sense interactive node optimization: Example of Splashscreen  
Wei Yu, Jie Gao, China
- A6. Augmented reality based scientific gateway as education form  
Eva Pajorova, Ladislav Hluchy, Slovakia
- A7. Research on the application trend of immersive game interactive experience space in museum  
Jian Yu, Yongbin Wang, China
- A8. Traffic behavior analysis using mobile base station data  
Juyoung Kim, South Korea
- A9. Research on design of children's experiential space in museum based on interaction concept -- take Perth, Australia as an example  
Yuqi Zhang, China
- A10. Estimation of load on lumbar spine while walking by using multiple regression analysis  
Hiroki Himeda, Kyoko Shibata, Hironobu Satoh, Japan
- A11. Psychological safety in healthcare workers: An evidence synthesis  
Katherine Grailey, Eleanor Murray, Stephen Brett, UK
- A12. Exploring the potential uses of ocean plastic and public engagement activities for raising awareness  
Xingyu Tao, UK
- A13. The assessment of motion sickness induced by sensory conflict and posture instability  
Huey-Min Sun, Taiwan
- A14. Interaction effect of anthropometric load and sex on the progression of fatigue during an upper limb repetitive movement task  
Matthew Slopecki, Julie Côté, Canada
- A15. Effects of situational awareness support system in the risk of collision with multiple ships  
Seung-Kweon Hong, Hongtae Kim, South Korea
- A16. Ergonomic adjustment to workstations in sitting positions: EMG measurements and effect on the social security risk premium tax  
Claudia Vega-Michel, Gerardo Zermeño Zuazo, Germán Mitsuro Nakashima Guzmán, Luis Óscar Mora Yáñez, Mexico
- A17. Design of urban public space through community building  
Peng Xu, China
- A18. Sound Identification system from auditory cortex by using fMRI and deep learning: Study on experimental design for capturing brain images  
Jun Shinke, Kyoko Shibata, Hironobu Satoh, Japan
- A19. The impact of a biological driver state monitoring system on visual attention during partially automated driving  
Alice Stephenson, Iveta Eimontaite, Praminda Caleb-solly, Chris Alford, UK

# Interactive Poster Demonstrations

## POSTER/DEMONSTRATION SESSIONS, SATURDAY, JULY 18

Time: 10:00 - 12:30

Virtual Room: AHFE 18

- A20. A holistic approach to inclusive mobility under resilience and sustainability goals: A pilot project in Brazil  
Magaly Romão, Anabela Simoes, Brazil/Portugal
- A21. Evaluation on visual fatigue and comfort between the VR HMD and the iPad  
Yunhong Zhang, Yi Yang, Jin Yu, Feng Si, Li Wei, Jintian Qi, China
- A22. Effects of occupational stressors on depressive symptoms: Longitudinal study among medical services and welfare workers  
Takumi Iwaasa, Takeshi Sasaki, Toru Yoshikawa, Yuko Ochiai, Tomohide Kubo, Tomoaki Matsuo, Xinxin Liu, Masaya Takahashi, Japan
- A23. Educational marketing and hackathon for candidate student recruitment  
Gabriela Tapia, Mexico

## POSTER/DEMONSTRATION SESSIONS, SATURDAY, JULY 18

Time: 13:30 - 16:00

Virtual Room: AHFE 18

- B1. Interest in design studios: A theoretical framework for teaching creativity for millennials and Generation Z  
Khanh Hoa Vo, USA
- B2. Rating prediction using AI big data: Empathy word in network analysis method  
Sang Hee Kweon, Hyeon Ju Cha, Jung Jung Yook, South Korea
- B3. The development of an audible warning system for parachute landing at night  
Jeffrey Parr, Nathan Courtaney, Matthew Lovetri, Cameron Cates, Nicholas Wesolek, USA
- B4. Postural analysis in older females from an indigenous community of Ecuador that uses a chumbi as part of their traditional outfit  
Thalia San Antonio, Maria Teresa Naranjo, Maria Augusta Latta, David Guevara, Ecuador
- B5. Public administration and economic aspects of Ukraine's nature conservation in comparison with Poland  
Alina Yakymchuk, Andriy Valyukh, Olesia Diugowanets, Rostyslav Bilyk, Kostiantyn Pavlov, Olena Pavlova, Natalia Batkovets, Nazariy Popadynets, Iryna Hryhoruk, Ukraine
- B6. Eye movement analysis of interactive interface of CRH high-speed train braking test  
Li Jun, Zhi Jinyi, China
- B7. Road condition monitoring and classification for smart cities  
Diana Kassem, Carlos Arce-lopera, Colombia
- B8. Measurement of cognition rate on packaging and transportation signs  
Yen-Hui Lin, Shu-Zon Lou, Taiwan
- B9. Study on sensation cognitive evaluation of fashion patterns  
Jun Zhang, Mengyun Zhang, China
- B10. Professional competencies and research to offer integrated manufacturing systems  
Rodolfo Martinez Gutierrez, Maria Antonieta Carmona Lopez, Marco Antonio Juarez Mendoza, Oscar Jesus Sanchez Puga, Mexico
- B11. Effect of intercity train vehicle layout on boarding and alighting  
Chen Wang, Weining Fang, Yueyuan Chen, Caifeng Li, China
- B12. How efficiency and naturalness change in multimodal interaction in mobile navigation apps  
Jianren Ling, Lu Yin, Zhuochao Peng, Xiaojing Yuan, China
- B13. A life cycle assessment framework-based method for ergonomic indicator selection for complex human-machine systems  
Aobo Wang, Beiyuan Guo, Yuan Liu, Tiancheng Huang, China
- B14. Garbage classification education application design - Taking Shanghai, China as an example  
Lijuan Guo, Jiping Wang, China

# Interactive Poster Demonstrations

## POSTER/DEMONSTRATION SESSIONS, SATURDAY, JULY 18

Time: 13:30 - 16:00

Virtual Room: AHFE 18

- B15. Construction and application of applicability evaluation model of human factors methods for complex human-machine system  
Xueying Zhang, Beiyuan Guo, Yuan Liu, Tiancheng Huang, China
- B16. Agent-based approach to ship officer's navigational behavior modeling for maritime traffic analysis  
Hongtae Kim, Seung-Kweon Hong, South Korea
- B17. A web platform targeting for easier fit performance analysis and headwear products aided design  
Zhelin Li, Xianghong Deng, Guangzheng Yu, Lee Yu-chi, Lijun Jiang, Yuguang Shao, China
- B18. Identifying persistent usability issues when using an electronic health record to inform EHR instructional redesign  
Martina Clarke, Jeffery Belden, Min Kim, USA
- B19. User preference and comparative workflow evaluation of a next generation vital signs monitor designed for a low acuity setting  
Shruti Marwaha, Christopher Long, Thomas T. John, Kimberly Koloms, USA
- B20. Computer lenses and sex influence on shoulder-neck musculoskeletal mechanisms in university students identifying as laptop users  
Genevieve Gill, Samuel Lamanuzzi, Julie Côté, Canada
- B21. A study on effective teamwork based on Jungian type theory available for adaptive things team  
Yoichi Sugimoto, Yoshiro Imai, Japan
- B22. Accountability in assertive decisions making  
Alma Laura Bonilla-Hernández, Mexico
- B23. Case study of science communication in ergonomics: Design of infographics for use in SNS communication  
Yasuyuki Yamada, Takeshi Ebara, Motoki Mizuno, Tsuyoshi Matsukawa, Motoko Kai, Japan
- B24. Characteristics of communication behavior from the viewpoint of building factors of human relationships in nursing organization  
Yuki Mizuno, Motoki Mizuno, Yasuyuki Yamada, Yasuyuki Hoshi, Emiko Togashi, Takumi Iwaasa, Hidenori Hayashi, Hideko Aida, Aya Okada, Japan

## POSTER/DEMONSTRATION SESSIONS, SUNDAY, JULY 19

Time: 10:00 - 12:30

Virtual Room: AHFE 18

- C1. The influence of noise-stress factor in the environment on the human body  
Larisa Hambardzumyan, Armenia
- C2. Microstrip antennas used for communication in military systems and civil communications in the 5 GHz band - design and simulation results  
Rafał Przesmycki, Marek Bugaj, Marian Wnuk, Poland
- C3. Influence of environmental information on driver trust in automated driving  
Wenmin Li, Yanwei Shi, Jiawen Liang, Mowei Shen, Zaifeng Gao, China
- C4. Teaching-learning ergonomics in virtual and distance education: Bibliometric review  
Wilder Hernández, Luis Gabriel Gutierrez, Colombia
- C5. Analysis of labor and non-labor risk factors of workers diagnosed with lumbar pathologies. Study of Cases  
Wilder Hernández, Luis Gabriel Gutierrez, Colombia
- C6. The distribution of bust ease allowance and fitting evaluation of women's wear  
Jun Zhang, Xiao Xu, China

# Interactive Poster Demonstrations

## POSTER/DEMONSTRATION SESSIONS, SUNDAY, JULY 19

Time: 10:00 - 12:30

Virtual Room: AHFE 18

- C7. Quality of work life and burnout in workers of a health institution in Guadalajara, Mexico  
Raquel Gonzalez-Baltazar, Manuel Pando-Moreno, Silvia G. Leon-Cortes,  
Monica I. Contreras-Estrada, Liliana Hidalgo-Gonzalez, Mexico
- C8. Essential care for every baby: Neonatal clinical decision support tool  
Anushri Rajapuri, Saptarshi Purkayastha, Sherri Bucher, Radhika Ravirandharan,  
Kevin Horan, USA
- C9. Customising human factors information for better Australian Army soldier equipment design and acquisition  
Sheena Care, Amy Simpson, Shahd Al-Janabi, Sheena Davis, Jemma Coleman, Australia
- C10. Effect of fatigue of the protective clothing wearer on body balance performance caused by shorten or prolonged workload with heat exposure  
Su-Young Son, Ken Tokizawa, South Korea
- C11. User-defined gestures for taking self-portraits with smartphone based on consistency  
Zhuchao Peng, Jiaxin Xu, China
- C12. Smart home - design and simulation results for a intelligent telecommunications installation in a single-family home  
Rafał Przesmycki, Marek Bugaj, Marian Wnuk, Poland
- C13. Impact of automated vehicles-exclusive lane on adjacent lane drivers  
Aryan Sohrabi, USA
- C14. Exploring the effects of proximity on longitudinal physiological, environmental, and self-reported psychological construct data  
Walker Alexander, Alexander Danvers, Gavin Fox, Gina Notaro, Amanda Kraft,  
Alison Perez, Erica Baranski, Altaf Engineer, Esther Sternberg, Matthias Mehl,  
Matthias Ziegler, USA
- C15. Taking our routines into account: Exploring the dynamics of daily cycles using information theory approaches  
Gabriel Collins, Amanda Kraft, Jeremy Chang, Eric Shieh, Alexander Danvers, Dave Coar,  
Gina Notaro, Matthias Mehl, Esther Sternberg, Matthias Ziegler, USA
- C16. Utilizing surrogate safety measures in an intelligent transportation management center for proactive safety evaluation at signalized intersections  
Alireza Darzian Rostami, Arash Jahangiri, USA
- C17. Design and user engagement in social media campaigns: Comparisons of channels and changes over time  
Marielle Hanley, Gerry Hanley, USA
- C18. Effects of hot pack and static stretching on the range of motion of ankle dorsiflexion and trunk angle for people with chronic ankle instability  
Wei-Hsien Hong, Sui-Foon Lo, Min-Chi Chiu, Hsin-Chieh Wu, Taiwan
- C19. DINED mannequin: An open platform for 3D anthropometry  
Toon Huysmans, Lyè Goto, Johan Molenbroek, Richard Goossens, Netherlands
- C20. Ergonomic testing for human skin contact with hot surface  
Rui Wang, Li Wei, Gao Jianfeng, Zhao Chaoyi, China
- C21. Operator physiological and interaction signals as predictors of system failures during a simulated spacecraft landing task  
Walker Alexander, Amanda Kraft, Matthew Widjaja, Ed Simons, Carlos Pinedo,  
Torin Clark, Raquel Galvan, USA
- C22. The thumb and palm press strength among the workers in healthcare industries in Taiwan  
Ei-Wen Lo, Shu-Min Chao, Taiwan
- C23. The relationship with assertiveness and mind state based on the mind monitoring system in nursing organization  
Yasuyuki Hochi, Yuki Mizuno, Yasuyuki Yamada, Takumi Iwaasa, Emiko Togashi,  
Hidenori Hayashi, Hideko Aida, Aya Okada, Motoki Mizuno, Japan

# Interactive Poster Demonstrations

## POSTER/DEMONSTRATION SESSIONS, SUNDAY, JULY 19

Time: 13:30 - 16:00

Virtual Room: AHFE 18

- D1. Design for ergonomics and safety: An exploratory study of machinery manufacturers' practices  
Francois Gauthier, Canada
- D2. Comparing surrogate safety measures to proactively evaluate safety of vulnerable road users at signalized intersections  
Anagha Katthe, Arash Jahangiri, Sahar Ghanipoor Machiani, Aryan Sohrabi, USA
- D3. An investigation of traffic noise levels around a major hospital in Qatar  
Khaled Shaaban, Abdelrahman Abouzaid, Ahmad Musleh, M. Fares Hout, Qatar
- D4. Research on availability of intelligent express cabinet service system  
Tang Yingying, Wang Zhong, China
- D5. Study on online service experience of public cultural learning space -using the self-service seat selection system of university library as an example  
Wei Yu, Jieyu Wan, China
- D6. Ergonomics risk assessment of graphics tablet users using the rapid upper limb assessment tool  
Mengqian Xu, China
- D7. Traffic scene detection based on YOLOv3  
Qian Yin, Ruyi Yang, Xin Zheng, China
- D8. The expression methods of printmaking art for creative fashion design  
Mengyun Zhang, Jun Zhang, China
- D9. The effects of vagus nerve stimulation on insomnia persons for stress reduction and sleep induction  
Rathakrishnan Kalaivani, Min Kyu Kim, Park Se Jin, South Korea
- D10. Effects of a dynamic hand orthosis on hand recovery in persons with chronic stroke  
Chiung-Ling Chen, Shu-Zon Lou, Shih-Hung Lai, Kwok-Tak Yeung, Ya-Ling Teng, Taiwan
- D11. Ontological description of the skills of colonoscopy  
Kazuhiko Shinohara, Japan
- D12. Impact of speedometer forms on integration task performance for train driving  
Chenchen Gao, Weining Fang, Ke Niu, Jianxin Wang, China
- D13. Study on thermal comfort of vehicle interior environment based on thermal manikin  
Rui Wang, Li Wei, Zhao Chaoyi, Gao Jianfeng, China
- D14. Clothing warmth preservation based on thermal manikin  
Li Wei, Rui Wang, Gao Jianfeng, Zhao Chaoyi, China
- D15. Ergonomic evaluation of agriculture-related activities performed by Ecuadorian indigenous women  
Marco Ciaccia, Cosme Mejía, Christian Vásquez, Thalia San Antonio, Ecuador
- D16. Research on the sampling procedures for inspection by variables based on the rate of nonconforming products  
Jing Zhao, Jingjing Wang, Zhang Fan, Haitao Wang, Zhao Chao, Gang Wu, China
- D17. Research on body type's characteristics of young men and women based on 3D body scanning  
Jing Zhao, Zhang Fan, Zhao Chao, Wenxing Ding, Gang Wu, Haitao Wang, China
- D18. Effects of muscle fatigue on upper body posture and discomfort during a repetitive pointing task performed using a sit-stand stool  
Chen Yang, Julie Côté, Canada
- D19. Satisfaction evaluation of the passenger interface design of high-speed train based on G1-entropy weight method  
Sijun He, Jinyi Zhi, Zerui Xiang, China
- D20. Ergonomic and occupant issues considering elderly female pillion rider sitting posture on motorcycle in Indian rural/semi urban context  
Vaibhav Lothe, India
- D21. Research on green efficiency of the life cycle of customized intelligent products  
Junxia Wang, Tao Xi, China
- D22. The role of surgeon leadership in operating room turnover  
Falisha Kanji, Kate Cohen, Kevin Shamash, Sarah Francis, Tara Cohen, USA

# Interactive Poster Demonstrations

## POSTER/DEMONSTRATION SESSIONS, SUNDAY, JULY 19

Time: 13:30 - 16:00

Virtual Room: AHFE 18

- D23. Understanding users' attitude toward personalized smart city services  
Sung-Hee Kim, South Korea
- D24. Descriptive statistics of face-to-face communication during working time among Japanese hospital nurses  
Yasuyuki Yamada, Yasuyuki Hochi, Yuki Mizuno, Takumi Iwaasa, Emiko Togashi, Hidenori Hayashi, Hideko Aida, Aya Okada, Motoki Mizuno, Japan

## POSTER/DEMONSTRATION SESSIONS, MONDAY, JULY 20

Time: 10:00 - 12:30

Virtual Room: AHFE 18

- E1. Design and evaluation of a remote navigation of a robotic sensor platform in the context of civil security research  
Alexander Mertens, Jochen Nelles, Christopher Brandl, Germany
- E2. Effects of ball throwing strategies on weight shift and stability for patients with stroke  
Shu-Zon Lou, Yen-Hui Lin, Cheng-Lung Lee, YuChi Chen, Chiung-Ling Chen, Taiwan
- E3. Characterization of occupational health and safety management in companies of Bogotá Colombia  
Luis Gabriel Gutierrez, Wilder Hernández, Colombia
- E4. Criteria indicators of the consistency of air traffic controllers' preferences on a set of characteristic errors  
Oleksii Reva, Volodimir Kamyshyn, Andrii Nevynitsyn, Valerii Shulgin, Serhiy Nedbay, Ukraine
- E5. Ergonomic methods adaptation for risk evaluation associated to musculoskeletal disorders in elderly indigenous women of the Ecuadorian highlands  
Alejandra Lascano, Thalia San Antonio, Anita Larrea, Marco Ciaccia, Ecuador
- E6. Behavioral-based autonomous robot operation under robot-central base loss of communication  
Edmundo Guerra, Yolanda Bolea, Antoni Grau, Rodrigo Munguia, Spain
- E7. Psychosocial risk factors at work: the legal compliance model in Mexico  
Rodolfo Martinez Gutierrez, Concepcion Cruz Ibarra, Mexico
- E8. The impact of website design on users' trust perception  
Sonia Sousa, Kairi Fimberg, Estonia
- E9. Research on hospital self-service machine Interaction design based on Kansei engineering  
Huifang Shang, Zhengyu Shi, Chuanshun Wang, Zhengyu Wang, Meiyu Zhou, China
- E10. Measuring the effects of messaging on consumer decision-making using functional near infrared spectroscopy  
Jan Watson, Amanda Sargent, Yigit Topoglu, Hongjun Ye, Rajneesh Suri, Hasan Ayaz, USA
- E11. The construction of story-telling illustration in tea packaging design  
Lu Geng, Long Ren, Chenyue Sun, China
- E12. Practice of whole process product design innovation theory system based on service design thinking  
Wei Ding, Defang Chen, Junnan Ye, China
- E13. Dictionary of competencies for sustainable development in the municipalities of northern Mexico  
Rodolfo Martinez Gutierrez, Maria Estela Salcedo Correa, Mexico
- E14. Correlation situation forecasting of economic indicators based on partial least squares and kernel method regression model  
Chao Wang, Shengwu Xiong, Xiaoying Chen, China

# Interactive Poster Demonstrations

## POSTER/DEMONSTRATION SESSIONS, MONDAY, JULY 20

Time: 10:00 - 12:30

Virtual Room: AHFE 18

- E15. Methodology of dictionaries of sector competences (DCS), to design standards of professional competences, research and labor  
Rodolfo Martinez Gutierrez, Mexico
- E16. Trajectory prediction at intersections using inverse reinforcement learning  
Mohammad Sadegh Jazayeri, Arash Jahangiri, USA
- E17. Research on somatotype recognition method based on Euclidean distance  
Tong Yao, Li Pan, Jun Wang, Chong Yao, China
- E18. Determination and management of gas distribution companies' competitive positions  
Kostiantyn Pavlov, Olena Pavlova, Myroslav Korotia, Liliana Horal, Ihor Ratushniak, Mykola Semenov, Liubov Ratushniak, Yuriy Shapovalov, Sergey Anastasenko, Iryna Hryhoruk, Nazariy Popadynets, Ukraine
- E19. Fashion design based on cross-cultural communication  
Yixin Zou, Eakachat Joneurairatana, China
- E20. Introducing intelligent interior design framework (IIDF) and the overlap with human building interaction (HBI)  
Holly Sowles, Laura Huisinga, USA
- E21. A novel method to estimate traffic density using probe vehicles and its assessment  
Jong-Jin Kim, Younshik Chung, South Korea
- E22. Risk management in smart car architecture  
Hadas Chassidim, Israel
- E23. Feedback method of communication networks and patterns in nursing organization by AI technologies  
Motoki Mizuno, Yasuyuki Hochi, Yasuyuki Yamada, Takumi Iwaasa, Emiko Togashi, Aya Okada, Hideko Aida, Hidenori Hayashi, Yuki Mizuno, Japan

## APPLIED HUMAN FACTORS AND ERGONOMICS

Proceedings of the AHFE 2020 Virtual Conferences on Human Factors and Ergonomics and the Affiliated Conferences, July 16-20, 2020, USA

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The foundation of this educational institution became the basis for creation of highly qualified medical workers in Armenia, whose compassion and humanness as well as sympathy for the seek people serve as the bases for their moral-ethical activities.

In the Medical University of St. Theresa, besides the principles of medical education, the students acquire practical skills and psychological-pedagogical capacities. This enables the university graduates not only to successfully and highly productively implement their medical activities, but also to be engaged in treating, taking care of the sick and disabled people, orphans, lonely mothers and the elderly, who are in need of charity, love, attention, and tactful approach. The students also take an active part in the organization of sanitary – instructive work and in concrete events aimed at preventing certain diseases.

St. Tereza Medical University (STMU), Yerevan is one of the main Medical Universities in Armenia. STMU always keeps on enhancing its offices and nature of training to adapt up to changing innovations and improvements in the division of Medical Education. The university management is particularly experienced and open for receiving most recent patterns and models in advanced education, St. Tereza Medical University is good to go to welcome students from everywhere throughout the world and giving training in English Language to foreign students. Teaching Faculties in the University are very experienced.

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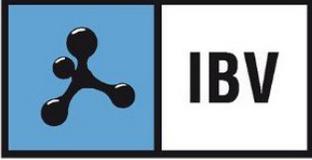


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Massive petrochemical complex and automotive manufacturing companies are located along Seto Inland Sea at Chugoku-Shikoku area. Chugoku-Shikoku branch is actively engaged in ergonomics and human factor research in cooperation with industry.

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