



2018 **iHSI** International

1st International Conference on
**Intelligent Human Systems Integration:
Integrating People and Intelligent Systems**

Final Program

January 7-9, 2018
JW Marriott Marquis
Dubai, United Arab Emirates

www.ihshint.org

Opening Plenary Session and Keynote Address

Date: January 7, 2018 • 8:30-10:30

Room: Emirates Ballroom

Chair: Waldemar Karwowski

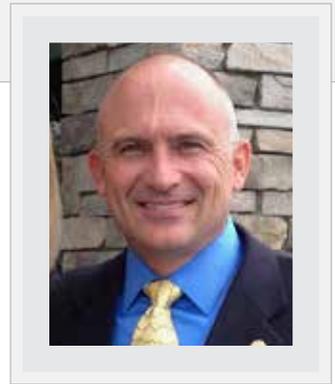
INTRODUCTORY REMARKS

Waldemar Karwowski - General Conference Chair

THE EMERGENCE OF TRUE HUMAN-COMPUTER SYMBIOSIS (ROBOTS – AGENTS – PEOPLE)

Dylan Schmorrow, Ph.D.

Executive Vice President & Chief Scientist
Soar Technology, Inc.
United States



About the speaker

Dylan Schmorrow is the Chief Scientist and Executive Vice-President of Soar Technology, Inc., where he is leading the advancement and application of Artificial Intelligence (AI) technologies to make people more prepared, more informed and more capable. He is focused on the development of intelligent software that reasons like humans do to automate complex tasks, simplify human-machine interaction, and model human behaviors. He is an international expert on research, products, and policy related to Human-Systems-Integration (HSI) and AI technologies and has led numerous initiatives that transformed promising technologies into innovative capabilities. During his 20+ year career as a U.S. Naval Officer, he served at the Director-Level for the Assistant Secretary of Defense for Research and Engineering in the Office of the Secretary of Defense, as the Executive Assistant for two Chiefs of Naval Research, the Chief Scientist for Human-Technology Integration at the Naval Research Laboratory (NRL), and as a Program Manager at both the Defense Advanced Research Projects Agency (DARPA) and at the Office of Naval Research (ONR). He has extensive experience collaborating with world-wide government, universities and industrial-based research and technology development organizations.

Abstract

The volume of information and overall complexity of human experience in the 21st Century continues to grow at a rapid pace in stark contrast to human cognitive abilities, which have remained relatively static. Human capabilities such as memory, attention, sensory bandwidth, comprehension, and visualization abilities are critically important. This talk will showcase several ways in which these human abilities can benefit from rapidly growing computational capabilities. We can apply computational power to support and augment cognitive skills that will bolster limited cognitive resource. This presentation will highlight both theory and applications of human-artificial intelligence systems collaborations and examine how 21st Century human-system computing technology helps us reap the rewards of the digital age without overwhelming us with

complex systems and impossible interfaces. We now have the ability to design human-computer interaction capabilities where the computer anticipates, predicts and augments the performance of the user where the human supports, aids, and supports the learning of the computer. The ultimate result is a truly interactive symbiosis where humans and computers are tightly coupled in productive partnerships.

This presentation will also illustrate the aforementioned belief by showcasing examples including long-term, personalized training, immersive training, real-time cognitive status measurement, real-time physical status measurement, human-machine teaming to assist in decision making, task redistribution, and overall human-agent collaboration. Opportunities such as enhancing memory, support data analysis, discovery, and visualization, automating new aspects of problem-solving and filtering, modulating, triaging communications, information, developing new visualization techniques to enhance understanding, and increasing "effective human-computer bandwidth" will also be discussed. We are now able to extend abilities while simultaneously removing the burdens often associated with employing new technologies.

CONFERENCE RECEPTION/BANQUET: SUNDAY, JANUARY 7 • 18:00 - 20:00

AL-SAFA TERRACE

IHSI 2018 BADGE REQUIRED

Dress is business casual

Tutorials

Tutorials will take place on Sunday, January 7, Monday, January 8, and Tuesday, January 9, 2018 (Fourth Level at JW Marriott Marquis).

SUNDAY, JANUARY 7

11:30 - 13:30 • BREAK AT AL-SAFA FOYER

- **Privacy Issues in Social Media**
Presenter: Esma Aimeur, University of Montreal
Room: Al-Safa 3

MONDAY, JANUARY 8

11:30 - 13:30 • BREAK AT AL-SAFA FOYER

- **Augmenting Cognitive Cultural Intelligence**
Presenter: Shatha Samman, Global Assessment
Room: Al-Safa 4

TUESDAY, JANUARY 9

11:30 - 13:30 • BREAK AT AL-SAFA FOYER

- **Current Insights in Human Factors of Automated Driving and Future Outlook Towards Tele-Operated Remote Driving Services**
Presenters: Christopher Cabrall, Alexander Eriksson, Zhenji Lu and Sebastiaan Petermeijer, Delft University of Technology/The Swedish National Road and Transport Research Institute (VTI)
Room: Al-Safa 4

Conference at a Glance

**iHSI 2018
REGISTRATION DESK
LOCATED AT
AL-SAFA FOYER**

REGISTRATION DESK OPEN:

Saturday, January 6.....13:00 - 16:00
 Sunday, January 7.....8:00 - 16:00
 Monday, January 8.....8:00 - 16:00
 Tuesday, January 9.....8:00 - 16:00

Complimentary Coffee at 8:00 - 8:30 and 10:30 - 11:30 Al-Safa Foyer

ACRONYM	TRACK
COG	iHSI 1: Humans and Artificial Cognitive Systems
ITA	iHSI 2: Intelligence, Technology and Automation
CMS	iHSI 3: Computational Modeling and Simulation
COMP	iHSI 4: Humans and Artificial Systems Complexity
SMIHS	iHSI 5: Smart Materials and Inclusive Human Systems

Sunday, January 7

#	TITLE	ROOM	TRACK
Session Time: 8:30-10:30			
	iHSI 2018 Keynote Address: The Emergence of True Human-Computer Symbiosis (Robots – Agents – People) Speaker: Dylan Schmorrow	Emirates Ballroom	ALL
10:30 - 11:30 Refreshments will be provided in Al-Safa Foyer			
Session Time: 11:30 - 13:30			
1	Humans and Artificial Cognitive Systems I	Al-Safa 1	COG
2	Intelligence, Technology and Automation I	Al-Safa 2	ITA/COG
3	Tutorial: Privacy Issues in Social Media	Al-Safa 3	TUT
4	Humans and Artificial Systems Complexity I	Al-Safa 4	COMP
13:30 - 15:00 • Lunch Break • Enjoy lunch at the restaurant of your choice			
Session Time: 15:00 - 17:00			
5	Humans and Artificial Cognitive Systems II	Al-Safa 1	COG/ITA
6	Intelligence, Technology and Automation II	Al-Safa 2	ITA
8	Emotional Materials and Social Inclusion	Al-Safa 4	SMIHS

Conference at a Glance

Monday, January 8

#	TITLE	ROOM	TRACK
Session Time: 8:30-10:30			
9	Humans and Artificial Cognitive Systems III	Al-Safa 1	COG
10	Intelligence, Technology and Automation III	Al-Safa 2	ITA
11	Humans and Artificial Systems Complexity II	Al-Safa 3	COMP
12	Society, Governance, Sustainable Living Environments and Smart Systems	Al-Safa 4	SMIHS
10:30 - 11:30 Refreshments will be provided in Al-Safa Foyer			
Session Time: 11:30 - 13:30			
13	Humans and Artificial Cognitive Systems IV	Al-Safa 1	COG
14	Computational Modeling and Simulation I	Al-Safa 2	CMS
15	Humans and Artificial Systems Complexity III	Al-Safa 3	COMP
16	Tutorial: Augmenting Cognitive Cultural Intelligence	Al-Safa 4	TUT
13:30 - 15:00 • Lunch Break • Enjoy lunch at the restaurant of your choice			
Session Time: 15:00 - 17:00			
17	Humans and Artificial Cognitive Systems V	Al-Safa 1	COG
18	Humans and Artificial Cognitive Systems VI	Al-Safa 2	COG
19	Intelligence, Technology and Automation IV	Al-Safa 3	ITA
20	Computational Modeling and Simulation II	Al-Safa 4	CMS

Tuesday, January 9

#	TITLE	ROOM	TRACK
Session Time: 8:30-10:30			
21	Humans and Artificial Cognitive Systems VII	Al-Safa 1	COG
22	Intelligence, Technology and Automation V	Al-Safa 2	ITA
23	Humans and Artificial Systems Complexity IV	Al-Safa 3	COMP
10:30 - 11:30 Refreshments will be provided in Al-Safa Foyer			
Session Time: 11:30 - 13:30			
25	Humans and Artificial Cognitive Systems VIII	Al-Safa 1	COG
26	Intelligence, Technology and Automation VI	Al-Safa 2	ITA
27	Computational Modeling and Simulation III	Al-Safa 3	CMS
28	Tutorial: Current Insights in Human Factors of Automated Driving and Future Outlook Towards Tele-Operated Remote Driving Services	Al-Safa 4	TUT
13:30 - 15:00 • Lunch Break • Enjoy lunch at the restaurant of your choice			
Session Time: 15:00 - 17:00			
29	Humans and Artificial Cognitive Systems IX	Al-Safa 1	COG
30	Panel Discussion-iHSI: Current Practices and Future Opportunities in Dubai	Al-Safa 2	COG
31	Intelligence, Technology and Automation VII	Al-Safa 3	ITA
32	Smart Materials Experience	Al-Safa 4	SMIHS

Detailed Technical Program

Sunday, January 7, 2018

Sunday, January 7

1	Humans and Artificial Cognitive Systems I Chair: Kawa Nazemi, Germany	COG
11:30-13:30 - AL-SAFA 1	<p>Social network analysis in submarine command and control Neville Stanton and Aaron Roberts, UK</p> <p>A perception study of a new set of usability heuristics for transactional web sites Freddy Paz, Freddy A. Paz, Juan Jesús Arenas and Carmen Rosas, Peru</p> <p>The role of mental model in graphical password selection and design Mona Mohamed, Joyram Chakraborty and Josh Dehlinger, USA</p> <p>Non-obtrusive sleep detection for character computing profiling Alia El Bolock, Rowan Amr and Slim Abdennadher, Egypt</p> <p>On user eXperience evaluation: Combining user tests and psychometrics Virginia Zaraza Rusu, Cristian Rusu, Pablo Caceres, Virginica Rusu, Daniela Quiñones and Patricia Muñoz, Chile</p> <p>Intelligent visual analytics – A human-adaptive approach for complex and analytical tasks Kawa Nazemi, Germany</p> <p>Assessing effect of care treatment using face emotional analysis and cognitive computing Arashi Sako, Masahide Nakamura and Sachio Saiki, Japan</p>	
2	Intelligence, Technology and Automation I Co-Chairs: Christian Lehsing, Axel Schulte and Diana Donath, Germany	ITA/ COG
11:30-13:30 - AL-SAFA 2	<p>External HMIs and their effect on the interaction between pedestrians and automated vehicles Ye Eun Song, Christian Lehsing, Tanja Fuest and Klaus Bengler, Germany</p> <p>The command team experimental testbed: using the event analysis systemic teamwork method to identify automation requirements Aaron Roberts and Neville Stanton, UK</p> <p>A design and description method for human-autonomy teaming systems Axel Schulte and Diana Donath, Germany</p> <p>Designing a proactive risk mitigation environment for integrated autonomous vehicle and human infrastructure Caitlin Anne Surakitbanharn, USA</p> <p>Artificial intelligence and interaction design for a positive emotional user experience Cristina Caramelo Gomes and Sandra Preto, Portugal</p> <p>Continuous Model Base System Engineering (MBSE) improvement and human system integration at Airbus Defence and Space (DS) Robert Sharples, UK</p> <p>Holistic scenarios by using platform technologies with human-machine-collaboration for small batch-sized production Yübo Wang, Germany</p>	
3	11:30-13:30 - AL-SAFA 3 Tutorial: Privacy Issues on Social Media Presenter: Esma Aimeu, Canada	TUT

4	Humans and Artificial Systems Complexity I Co-Chairs: Johan Hoorn and Frode Eika Sandnes, The Netherlands/Norway	COMP
11:30-13:30 - AL-SAFA 4	<p>The robot brain server: Design of a human-artificial systems partnership Johan Hoorn, The Netherlands</p> <p>Statistics-IDE: Supporting the design of empirical experiments for non-experts during early stages of research projects Frode Eika Sandnes and Evelyn Eika, Norway</p> <p>Collaborative human-machine interaction in mobile phone support centers: A case study Kyle Dent, Luke Plurkowski and John Maxwell, USA</p> <p>Measuring user experience of seniors in battery swapping interactions Fei-Hui Huang, Taiwan</p>	
13:30 - 15:00 • Lunch Break • Enjoy lunch at the restaurant of your choice		
5	Humans and Artificial Cognitive Systems II Co-Chairs: Juha Puustjärvi and H. T. M. A. Riyadh, Finland/Bangladesh	COG/ ITA
15:00 - 17:00 - AL-SAFA 1	<p>Integrating e-Health tools: A way to more advanced healthcare services Juha Puustjärvi and Leena Puustjarvi, Finland</p> <p>Humans and color cognition – using the brain to study human behavior Fernando Moreira da Silva, Portugal</p> <p>Identify subconscious visual response from brain signals H. T. M. A. Riyadh, Zehara Zebin, Md. Jahangir Hossain Bhuyain, Khandaker Tabin Hasan and A. Z. M. Ehtesham Chowdhury, Bangladesh</p> <p>Human-human interaction: A neglected field of study? Piotr Chynal, Janusz Sobocki and Julia Falkowska, Poland</p> <p>Neurofeedback and its effect on cognitive performance Aleksandra Przegalinska and Leon Ciechanowski, Poland</p> <p>GazePass: A usable, single, and yet strong biometrics authentication method Christina Van Braz and Ahmed Seffah, Canada/Finland</p>	
6	Intelligence, Technology and Automation II Chair: Walter Eichendorf, Germany	ITA
15:00 - 17:00 - AL-SAFA 2	<p>New technologies and occupational health and safety Walter Eichendorf, Germany</p> <p>The future of driver distraction Katie Parnell, Neville Stanton and Katherine Plant, UK</p> <p>The cognitive airport signage system design: Comparative case study between American airport and Chinese airport Yan Gan and Feng Zhipeng, Japan</p> <p>A prototype of a small tracked robot for gas pipeline inspection and maintenance Wen Zhao, Mitsuhiro Kamezaki, Yoshida Kento, Minoru Konno, Ryoichi Toriumi and Shigeki Sugano, Japan</p> <p>Impact of digitized assembly instructions on productivity and worker satisfaction Lukas Merkel, Laura Merhar, Christoph Berger, Cedric Schultz, Stefan Braunreuther and Gunther Reinhart, Germany</p> <p>Study on estimation of driver's state during automatic driving using seat pressure Kenta Okabe, Keiichi Watanuki, Kazunori Kaede and Keiichi Muramatsu, Japan</p> <p>Estimating driver workload with systematically varying traffic complexity using machine learning: Experimental design Udara Manawadu, Takahiro Kawano, Shingo Murata, Mitsuhiro Kamezaki and Shigeki Sugano, Japan</p>	

8	Emotional Materials and Social Inclusion Co-Chairs: Giuseppe di Bucchianico and Donatella Radogna, Italy	SMIHS
15:00 - 17:00 - AL-SAFA 4	<p>The emotional side of smartness: Intelligent materials and everyday aesthetics Anna Cecilia Russo, France</p> <p>Smart shopping experience. New materials and technologies for social inclusion through daily activities Stefania Camplone and Giuseppe di Bucchianico, Italy</p> <p>Next smart design: Inclusion, emotions, interaction in the concept of baby soothing, caring and monitoring smart solutions Marinella Ferrara and Anna Cecilia Russo, Italy/France</p> <p>Cyclotourism and social inclusion: From service to product for a smart extra-urban bike sharing Ivo Spitilli, Stefania Camplone and Giuseppe di Bucchianico, Italy</p> <p>Design for inclusive human-machine systems: Model connectivity in complex systems Najat Alrashed, Jumana Almahmoud, Sattam Alsubaiee, Areej Alwabil and Anas Alfaris, Saudi Arabia</p> <p>Using Accimaps to explore human-systems interactions in road safety Katherine Plant, Rich McIlroy and Neville Stanton, UK</p>	

9	Humans and Artificial Cognitive Systems III Co-Chairs: Patricia Tegtmeier and Cezary Biele, Germany/Poland	COG
8:30 - 10:30 - AL-SAFA 1	<p>Computerized brain interfaces for adaptive learning and assessment Rosa María Arnaldo, Javier Iglesias, Víctor Fernando Gómez, Javier Crespo, Luis Pérez and José Félix Alonso, Spain</p> <p>Surface recalibration as a new method improving gaze-based human-computer interaction Cezary Biele and Pawel Kobylinski, Poland</p> <p>Tablets and smart glasses in modern production environments - a lab study on distracted walking Patricia Tegtmeier and Sascha Wischniewski, Germany</p> <p>Research on parent-child interaction system of intelligent children's furniture based on application behavior analysis Ting Deng, Wei Sun and Ruiqiu Zhang, China</p> <p>SenseBooks: Multisensory books design concepts Paulo Maldonado, Portugal</p>	
10	Intelligence, Technology and Automation III Co-Chairs: Don Allen and Verena Wagner-Hartl, USA/Germany	ITA
8:30 - 10:30 - AL-SAFA 2	<p>Injecting digitized knowledge into the technical support dialog Don Allen, USA</p> <p>What are the benefits of newly developed medical devices when the user does not use them? An investigation of hearing aid use Verena Wagner-Hartl, Germany</p> <p>Intelligent bathroom - intelligent decision for health Anna Jaglarz, Poland</p> <p>Evaluating quality of internet breast cancer information: Fuzzy VIKOR approach Zuhaira Muhammad Zain, Saudi Arabia</p>	

<p>11</p>	<p>Humans and Artificial Systems Complexity II Chair: Kirsten Revell, UK</p>	<p>COMP</p>
<p>8:30 - 10:30 - AL-SAFA 3</p>	<p>User centered ecological interface design: A novel method applied to safe and user friendly interaction between drivers and autonomous vehicles Kirsten Revell, Pat Langdon, Mike Bradley, Ioannis Politis, James Brown and Neville Stanton, UK</p> <p>Modelling the perceived pragmatic and hedonic quality of intelligent personal assistants Tihomir Orehovački, Snježana Babić and Darko Etinger, Croatia</p> <p>The brave new e-World of the human-centered media ecosystem Lilia Raycheva and Dobrinka Peicheva, Bulgaria</p> <p>Transformations in mass society and emergent properties of human behavior in contemporary media space Dobrinka Peicheva, Lilia Raycheva, Valentina Milenkova and Boris Manov, Bulgaria</p> <p>Web page graphic design usability testing enhanced with eye-tracking Julia Falkowska, Piotr Chynal and Janusz Sobecki, Poland</p>	
<p>12</p>	<p>Society, Governance, Sustainable Living Environments and Smart Systems Co-Chairs: Gianmarco Cifaldi and Ionut Serban, Italy/Romania</p>	<p>SMIHS</p>
<p>8:30 - 10:30 - AL-SAFA 4</p>	<p>City of the future Fabrizio Fornari, Italy</p> <p>Between a smart city and smart society Gianmarco Cifaldi and Ionut Serban, Italy/Romania</p> <p>Hemp for a healthy and sustainable building in Abruzzo Donatella Radogna, Maria Cristina Forlani and Luciana Mastrodonardo, Italy</p> <p>Applied semiotics in the context of open government data (OGD) portals in the Arab Gulf Furat Aljishi, Arwa Alsaati, Areej Al-Wabil and Anas Alfaris, Saudi Arabia</p> <p>Study of the ergonomics applied to the reuse and recycling of materials Hebert Roberto da Silva, Brazil</p> <p>Smart cities-smart societies Gianmarco Cifaldi and Ionut Serban, Italy/Romania</p>	
<p>10:30 - 11:30 • Refreshments • Room: Al-Safa Foyer</p>		
<p>13</p>	<p>Humans and Artificial Cognitive Systems IV Chair: Rick van der Kleij, The Netherlands</p>	<p>COG</p>
<p>11:30 - 13:30 - AL-SAFA 1</p>	<p>The design of a digital teammate to support collaborative sensemaking in Cyber Security Incident Response Teams Rick van der Kleij, The Netherlands</p> <p>Identification of visually impaired person with deep learning Shoichiro Fujisawa, Shin-ichi Ito, Katsuya Sato, Ryota Kurozumi and Ranmaru Mandai, Japan</p> <p>Study on visual symbols used in food packaging identification of the elderly with chronic diseases Jiajie Lyu and Delai Men, China</p> <p>Will sketching survive in confront with the use of artificial intelligence tools? Ana Moreira da Silva, Portugal</p>	

14	Computational Modeling and Simulation I Co-Chairs: Ketoma Vix and Andrej Dobrkovic, Germany and The Netherlands	CMS
11:30 - 13:30 - AL-SAFA 2	Development and evaluation of a virtual reality grocery shopping application using a multi-Kinect walking-in-place approach Ketoma Vix Kemanji, Philip Schaefer and Gerrit Meixner, Germany Augmenting the evaluation and mapping of progress in scientific research: A human-machine symbiosis perspective Andrej Dobrkovic, Daniel A. Döppner, Maria Eugenia Jacob and Jos van Hillegersberg, The Netherlands Guidance of enterprise team division based on security awareness and interaction Yun-lu Zhang and Xue-bo Chen, China Bayesian network construction and simplified inference method based on causal chains Yohei Ueda, Masaomi Kimura and Daisuke Ide, Japan Digital human modelling method for the evaluation of the ultrasound system and transducer design adherence to the SDMS industry standards Giuseppe Andreoni, Carlo Emilio Standoli, Fabio Rezzonico, Luis Rojas and Leonardo Forzoni, Italy Applying process mining techniques to learning management systems for educational process model discovery and analysis Darko Etinger, Tihomir Orehovački and Snježana Babić, Croatia	
15	Humans and Artificial Systems Complexity III Co-Chairs: Prasanna Illankoon and Aysen Taylor, Sweden/USA	COMP
11:30 - 13:30 - AL-SAFA 3	Crew resource management doctrine applicability to human-machine interaction in commercial aircraft Aysen Taylor, USA Preliminary research on competency model for high plateau airline pilots Qi Luo, China Identifying significance of human cognition in future maintenance operations Prasanna Illankoon, Phillip Tretten and Uday Kumar, Sweden User interface design in remove aerodrome flight information service Shoka Nagata, Kazuhiko Yamazaki and Satoru Inoue, Japan	
16	11:30 - 13:30 - AL-SAFA 4 Tutorial: Augmenting Cognitive Cultural Intelligence Presenter: Shatha Samman, UAE	TUT
13:30 - 15:00 • Lunch Break • Enjoy lunch at the restaurant of your choice		
17	Humans and Artificial Cognitive Systems V Chair: Claire Taylor, Norway	COG
15:00 - 17:00 - AL-SAFA 1	Adaptive edge analytics - A framework to improve performance and prognostics capabilities for dairy IOT sensor Santosh Kedari, Jaya Shankar Vuppapapati, Anitha Ilapakurti, Sharat Kedari, Rajasekar Vuppapapati and Chandrasekar Vuppapapati, USA Operator response to failure of a computerized procedure system Claire Taylor, Michael Hildebrandt, Niav Hughes and Robert McDonald, Norway Integrating classes from different schools using intelligent teacher support systems Roberto Araya, Chile Biological and social factors that exert an impact on decision making during working-out of the convergent technologies Evgeny Kolbachev and Tatiana Kolbacheva, Russia Machine-man-task system approach and NR -17 regulatory standard - ergonomics Kazuo Hatakeyama and Norma de Melo Pinto, Brazil	

<p>18</p>	<p>Humans and Artificial Cognitive Systems VI Chair: Areej Al-Wabil, Saudi Arabia</p>	<p>COG</p>
<p>15:00 - 17:00 - AL-SAFA 2</p>	<p>Recognition of affective states via electroencephalogram analysis and classification Abeer Al-Nafjan, Manar Hosny, Yousef Al-Ohali and Areej Al-Wabil, Saudi Arabia</p> <p>Multimodal interactive payment based on biometrics Shuxian Liu and Huaming Peng, China</p> <p>The effects of enterprise staff safety consciousness based on cellular automata model Min Yang and Xue-bo Chen, China</p> <p>A qualitative model to predict users' fear of environmental conditions for evacuation route guidance Hiroshi Furukawa and Zhihuan Liu, Japan</p> <p>Research on the construction of the hierarchical classification model of the urban intelligent lighting appliance (UILA) based on user needs Junnan Ye, Jianxin Cheng, Chaoxiang Yang, Zhang Zhang, Xinyu Yang and Lingyun Yao, China</p>	
<p>15:00 - 17:00 - AL-SAFA 3</p>	<p>Intelligence, Technology and Automation IV Chair: Jaroslaw Kowalski, Poland</p> <p>Significance of social factors for effective implementation of Smart Energy Management Systems in end-user households Jaroslaw Kowalski, Cezary Biele, Marek Mlodozieniec and Marcel Geers, Poland/The Netherlands</p> <p>Research on an improved fall detection algorithm for elderly people Qi Luo, China</p> <p>Human activity predictive patterns: A pilot study for unobtrusive discovery of daily working routine Hicham Rifai, Paula Kelly, Yoshiki Shoji, Damon Berry and Matteo Zallio, Ireland</p> <p>The creative space of university as a cognitive-generative system Alexander O. Karpov, Russia</p> <p>Task analysis of diagnostic ultrasound system use: Comparison between sonographers' and physicians' use in different clinical applications Giuseppe Andreoni, Marco Delpiano, Nicola Guraschi and Leonardo Forzoni, Italy</p>	<p>ITA</p>
<p>15:00 - 17:00 - AL-SAFA 4</p>	<p>Computational Modeling and Simulation II Co-Chairs: Roger Parker and Konstantin Konson, USA/Germany</p> <p>Quantum computing as a future technology. Basics of Q-bits manipulation Konstantin Konson, Germany</p> <p>Explorations into deep learning mobile applications Sonja Gievska, Alisa Krstova and Alek Petreski, USA/Macedonia</p> <p>Agent-based simulation in healthcare resource allocation for cardiovascular diseases in Saudi Arabia Areej Al-Wabil, Sulaf Almagooshi and Fahmi Alsenani, Saudi Arabia</p> <p>The concept of narrative as a fundamental for human agent-based modeling Roger Parker, USA</p> <p>Image super resolution using wavelet transformation and swarm optimization algorithm Gunamani Jena, Sudam Sekhar Panda, Bonam Venkata Rajesh and Subhashish Jena, India</p>	<p>CMS</p>

Monday, January 8

21	<p>Humans and Artificial Cognitive Systems VII Co-Chairs: Qi Luo and Khulood Alameri, China/UAE</p>	COG
8:30-10:30 - AL-SAFA 1	<p>Research on falling detection system for old people based on three-dimensional acceleration Qi Luo, China</p> <p>Human posture tracking system for industrial process design and assessment Francesco Caputo, Alessandro Greco, Egidio D'Amato, Immacolata Notaro and Stefania Spada, Italy</p> <p>Influence of VR-based slope images on walking pattern Yusuke Osawa, Keiichi Watanuki, Kazunori Kaede, Keiichi Muramatsu and Norihiro Ishizaka, Japan</p> <p>A bionic sphincter for stress urinary incontinence: Design and preliminary experiments Khulood Alameri, Gioia Lucarini, Tommaso Mazzocchi, Cesare Stefanini, Paolo Dario and Arianna Menciassi, UAE/Italy</p>	
22	<p>Intelligence, Technology and Automation V Co-Chairs: Chandrasekar Vuppalapati and Christopher Cabrall, USA/The Netherlands</p>	ITA
8:30-10:30 - AL-SAFA 2	<p>AI infused fragrance systems for creating memorable customer experience and venue brand engagement Anitha Ilapakurti, Jaya Shankar Vuppalapati, Santosh Kedari, Sharat Kedari, Rajasekar Vuppalapati and Chandrasekar Vuppalapati, USA</p> <p>The 4D LINT model of function allocation: Spatial-temporal arrangement and levels of automation Christopher Cabrall, Thomas Sheridan, Thomas Prevot, Joost de Winter and Riender Happee, The Netherlands/USA</p> <p>Service system-based smart urban mobility platform design for Chinese cities Jintian Shi and Xiaohua Sun, China</p> <p>Attuning the 'pedestrian-vehicle' and 'driver-vehicle'-why attributing a mind to a vehical matters Peter Bengtsson, Sweden</p>	
23	<p>Humans and Artificial Systems Complexity IV Chair: Kazuhiko Yamazaki, Japan</p>	COMP
8:30-10:30 - AL-SAFA 3	<p>Design approach for Sanpoyoshi principle and case study Kazuhiko Yamazaki, Japan</p> <p>Development of an active upper limb orthosis controlled by EMG with upper arm rotation Akihiko Hanafusa, Yuji Kubota, Masaki Nagusa, Haruki Ishii, Kengo Ohnishi, Yushiyuki Shibata and Fumiya Shiki, Japan</p> <p>Embodied conversational agents in intelligent healthcare applications for native Arabic-speaking populations Lamia Almoajil, Sumayia Juman and Areej Al-Wabil, Saudi Arabia</p>	
10:30 - 11:30 • Refreshments • Room: Al-Safa Foyer		

25	Humans and Artificial Cognitive Systems VIII Chair: Fabian Schmitt, Germany	COG
11:30-13:30 - AL-SAFA 1	<p>Experimental validation of pilot situation awareness enhancement through transparency design of a scalable mixed-initiative mission planner Fabian Schmitt, Gunar Roth, Daniel Barber, Jessie Chen and Axel Schulte, USA/Germany</p> <p>Cognitive cybernetics Lennart Willms and Matthias Haun, Germany</p> <p>Design and experimental validation of transparent behavior for a workload-adaptive cognitive agent Yannick Brand, Michael Ebersoldt, Daniel Barber, Jessie Chen and Axel Schulte, Germany/USA</p> <p>Exploring the usage of EEG and pupil diameter to detect elicited valence Yasmeeen Abdrabou, Khaled Kassem, Jailan Salah, Reem El-gendy, Mahesty Morsy, Yomna Abdelrahman and Slim Abdennadher, Egypt</p> <p>Re-modeling the 'phonebook' in a smart phone: Personalization based on intimacy and immediacy Ravi Mokashi Punekar, Shivani Holkar and Abhishek Yevalkar, India</p>	
26	Intelligence, Technology and Automation VI Chair: Pawel Kobylinski, Poland	ITA
11:30-13:30 - AL-SAFA 2	<p>Enabling data integration from wearable sensors: The biometric usability research (BUR) platform Hissah Alotaibi, Abdulmalik Alsalman and Areej Al-Wabil, Saudi Arabia</p> <p>Influence of human based factors on small neighborhood vs. individual household energy load prediction modelling Pawel Kobylinski, Mariusz Wierzbowski and Cezary Biele, Poland</p> <p>Evaluation of legibility and visual fatigue caused by luminescent text displays Daiki Saito, Keiichi Watanuki, Kazunori Kaede, Keiichi Muramatsu, Masutsugu Tasaki, Takashi Kanahira, Eiji Ishiguro and Naoya Mashiko, Japan</p>	
27	Computational Modeling and Simulation III Chair: Yosef Alsuhaibani, Saudi Arabia	CMS
11:30-13:30 - AL-SAFA 3	<p>Personas and behavioral archetypes in user research: Insights from UX design in crowd sourcing platforms for hackathons and time-bound events Hailah Alqaffary and Areej Al-Wabil, Saudi Arabia</p> <p>UX design in the localization and internationalization of NASA's Eyes on the Earth Lamees Alsuhaibani, Amal Alabdulkarim, Kevin Hussey and Areej Al-Wabil, Saudi Arabia/USA</p> <p>An agent-based model of Saudi household electricity consumption Yosef Alsuhaibani, Saudi Arabia</p> <p>Digital media art utilizing traditional animation digital video expression using projection mapping and multi-screen technique Feng Zhipeng and Kiyoshi Tomimatsu, China</p>	
28	11:30-13:30 - AL-SAFA 4 Tutorial: Current Insights in Human Factors of Automated Driving and Future Outlook Towards Tele-Operated Remote Driving Services Presenters: Christopher Cabrall, Alexander Eriksson, Zhenji Lu and Sebastiaan Petermeijer, The Netherlands	TUT
13:30 - 15:00 • Lunch Break • Enjoy lunch at the restaurant of your choice		

29	Humans and Artificial Cognitive Systems IX Chair: Davor Predavec, Croatia	COG
15:00 - 17:00 - AL-SAFA 1	<p>CPR: Bright side of machine-human relationship Shaik Farid Abdull Wahab, Rohayu Othman and Ahmad Rasdan Ismail, Malaysia</p> <p>Integrating 3D facial model with person-centered care support system for people with dementia Shota Nakatani, Sachio Saiki and Masahide Nakamura, Japan</p> <p>Integration of cognitive cybernetics into intelligent human systems Zdenko Balaz and Davor Predavec, Croatia</p> <p>Intelligent augmented reality assistant for children diagnosed with autism spectrum disorder Smitha Venkatesh, Renu Parameswaran and Susheel Kumar Bhargav Kaparaboyana, USA</p>	
30	15:00 - 17:00 - AL-SAFA 2 Panel Discussion-iHSI: Current Practices and Future Opportunities in Dubai Chair: Shatha Samman, UAE	COG
	Panelist: Mostafa Aldah, Ali al-Azzawi, Nicklas Dahlstrom, Mazin Gadir and Zain Tahboub, UAE	
31	Intelligence, Technology and Automation VII Chair: Areej Al-Wabil, Saudi Arabia	ITA
15:00 - 17:00 - AL-SAFA 3	<p>Behavioral archetypes in stroke telecare systems Areej Al-Wabil, Nora AlGhanmi, Asma Saeed, Ibtisam Al-Mutairi, Malak Alasiri, Bdor Alotaibi and Reema Alharbi, Saudi Arabia</p> <p>Visualization of reading patterns for people with dyslexia in intelligent dyslexia screening systems for Arabic script Arwa Aledaily, Yousef Alohal and Areej Al-Wabil, Saudi Arabia</p> <p>Aging gracefully using smart technologies! Alaa Serry, Canada</p> <p>Edge shield, albeit analytics-driven, for guarding IOT devices against Bluetooth battery drain attack Chandrasekar Vuppapapati, Anitha Ilapakurti, Santosh Kedari, Sharat Kedari and Jaya Shankar Vuppapapati, USA</p> <p>The role of monitoring and evaluation in construction project management Callistus Tengan and Clinton Aigbavboa, South Africa</p>	
32	Smart Materials Experience Chair: Marinella Ferrara, Italy	SMIHS
15:00 - 17:00 - AL-SAFA 4	<p>ICS materiality Marinella Ferrara, Valentina Rognoli, Venanzio Arquilla and Stefano Parisi, Italy</p> <p>Mapping ICS materials: Interactive, connected, and smart materials Stefano Parisi, Davide Spallazzo, Venere Ferraro, Marinella Ferrara, Mauro Attilio Ceconello, Camilo Ayala Garcia and Valentina Rognoli, Italy</p> <p>Bio-smart materials: The binomial of the future Sabrina Lucibello, Marinella Ferrara, Carla Langella, Cecilia Cecchini and Rossana Carullo, Italy</p> <p>Exploring scenarios for ICS materials in the yacht design framework Arianna Bionda and Andrea Ratti, Italy</p> <p>Advanced materials empowering inclusive engineering design processes Micol Costi and Emilio Genovesi, Italy</p> <p>Smart textiles in architecture Claudia Oliveira, Portugal</p>	

Interactive Poster Demonstrations

Tuesday, January 9, 2018

Posters will be displayed Sunday, January 7, 2018, Monday, January 8, 2018 and Tuesday, January 9, 2018. Posters must be removed by the end of each day/session they are scheduled to be demonstrated. Posters can be positioned starting on Sunday, January 7, 8:00 a.m. and removed by the last poster session on Tuesday, January 9, after 12:30. Poster demonstration sessions will be at the times shown below.

POSTER/DEMONSTRATION SESSIONS SUNDAY, JANUARY 7

Session Time: 9:00 - 17:00

Room: Al-Safa Foyer

- A1. Applying cognitive security systems to deal with modern day threats
Sulakshan Vajipayajula, USA
- A2. Ergonomics as element of process and production optimization
Johannes Labuttis, Germany
- A3. Influence of personal characteristics and device properties on wearable's rank order
Thea Radüntz and Uwe Rose, Germany
- A4. A practice of flight deck evaluation in civil aircraft
Haiyan Liu, Baofeng Li, Dayong Dong, Yinbo Zhang, Hongtao Liu and Zhefeng Jin, China
- A5. Loffe current constant from a relativistic three quark model
Klara Lagrance and Bohdan Klotska, USA
- A6. Karate e-learning system using real-time motion capture
Seiko Endo, Yui Endo and Eiichi Yoshida, Japan
- A7. Smart palletisation: Cognitive ergonomics in augmented reality based palletising
Veronika Kretschmer, Thorsten Plewan, Gerhard Rinkenauer and Benedikt Mättig, Germany
- A8. Theoretical propositions and practical implementation of the formalization of structured knowledge of the subject area for exploratory research
Olga Popova, Yury Shevtsov, Boris Popov, Vladimir Karandey and Vladimir Klyuchko, Russia

POSTER/DEMONSTRATION SESSIONS MONDAY, JANUARY 8

Session Time: 9:00 - 17:00

Room: Al-Safa Foyer

- B1. Gaze-aware cognitive assistant for multiscreen surveillance
Sebastien Tremblay, Daniel Lafond, Cindy Chamberland, Helen Hodgetts and Francois Vachon, Canada
- B2. Comparative analysis of the quantitative parameters of the different shapes of the heart in human fetuses
Galina Spirina, Russia
- B3. Eye movements and lie detection
Yulia Bessonova and Alexander Oboznov, Russia
- B4. Instrumentation of an external fixator for force and bone healing process monitoring
Fatima Ba Fakh, Cesare Stefanini, Paolo Dario and Stefano Mazzoleni, UAE

Interactive Poster Demonstrations

- B5. Real-time motion reconstruction using digital human models and IMU-based MoCap system
Yui Endo and Eiichi Yoshida, Japan
- B6. Legal risks and the countermeasures of developing intelligent investment advisor in China
Cheng-yong Liu, Taiwan
- B7. Act like a human: Teach an autonomous vehicle to deal with traffic encounters
Jianmin Wang, Jiawei Lu, Fang You and Yujia Wang, China
- B8. User context query service supporting person-centered care for elderly people
Haruhisa Maeda, Sachio Saiki and Masahide Nakamura, Japan

POSTER/DEMONSTRATION SESSIONS TUESDAY, JANUARY 9

Session Time: 9:00 - 17:00

Room: Al-Safa Foyer

- C1. Virtual experiments for elementary school science classes
Jinwoo Choi and JungHyun Han, South Korea
- C2. Cow necklaces - Smart dairy IoT sensor for small & medium family dairies
Chandrasekar Vuppapalapati, Santosh Kedari, Anitha Ilapakurti,
Jaya Shankar Vuppapalapati and Sharat Kedari, USA
- C3. Intelligent technical support platform for handling technical problems using internet of thing (IOT) environment
Khalda Ali, Saudi Arabia
- C4. Reactive operation: A framework for event driven low voltage grid operation
Ralf Mosshammer, Konrad Diwold, Alfred Einfalt and Christoph Groiss, Austria
- C5. Research on the development difficulties and countermeasures of Chinese traditional garment industry
Tianyu He and Qi Luo, China
- C6. EEG analysis from motor imagery to control forestry cranes
Midhumol Augustian, Shafiq ur Réhman, Axel Sandvig, Thivra Kotikawatte,
Mi Yongcui and Hallvard Røe Evensmoen, Sweden/Norway
- C7. Automated text detection and character recognition in natural scenes based on local image features and contour processing techniques
Remigiusz Baran, Poland

Conference Organization

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Chair: Q. Abbasi, Scotland

iHSI 2: INTELLIGENCE, TECHNOLOGY AND AUTOMATION

Chair: A. Ebert, Germany

iHSI 3: COMPUTATIONAL MODELING AND SIMULATION

Chair: M. Andujar, USA

iHSI 4: HUMANS AND ARTIFICIAL SYSTEMS COMPLEXITY

Chair: O. Alrehaili, Saudi Arabia

iHSI 5: SMART MATERIALS AND INCLUSIVE HUMAN SYSTEMS

Chair: S. Camplone, Italy

M. Ferrara, Italy

E. Karana, Netherlands

A. Ratti, Italy

R. Rodriguez, Italy

V. Rognoli, Italy

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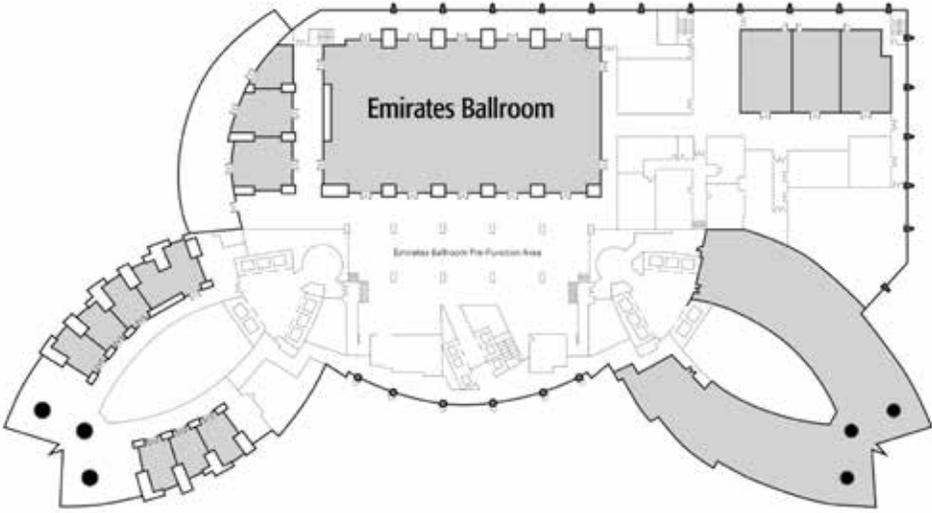
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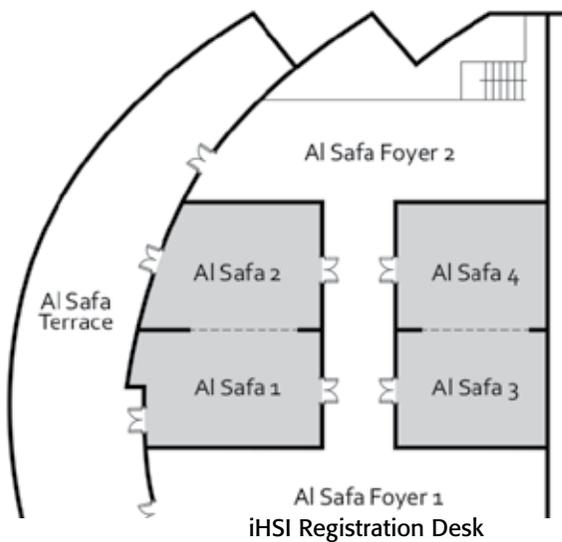
SIXTH LEVEL JW MARRIOTT MARQUIS HOTEL

Conference Keynote will be held at JW Marriott Marquis Hotel in Emirates Ballroom (Sixth Level)



FOURTH LEVEL JW MARRIOTT MARQUIS HOTEL

Conference Reception Banquet will be held at the JW Marriott Marquis Hotel at Al-Safa Terrace (Fourth Level)





AHFE International 2018

9th International Conference on Applied Human Factors and Ergonomics

jointly with

- 1st International Conference on Human Factors in Artificial Intelligence and Social Computing
- 1st International Conference on Additive Manufacturing, Modeling Systems and 3D Prototyping
- 1st International Conference on Advanced Production Management and Process Control
- 1st International Conference on Interdisciplinary Practice in Industrial Design
- 1st International Conference on Human Factors in Aging and Gerontology
- 1st International Conference on Human Factors and Assistive Technology
- 2nd International Conference on Human Factors and Wearable Technologies
- 2nd International Conference on Human Error, Reliability, Resilience, and Performance
- 2nd International Conference on Human Factors in Communication of Design
- 2nd International Conference on Human Factors and Game Design
- 3rd International Conference on Design for Inclusion
- 3rd International Conference on Cognitive Computing and Internet of Things
- 3rd International Conference on Human Factors and Simulation
- 3rd International Conference on Human Factors in Management and Leadership
- 4th International Conference on Human Factors in Cybersecurity
- 4th International Conference on Human Factors and Systems Interaction
- 4th International Conference on Human Factors in Robots and Unmanned Systems
- 4th International Conference on Human Factors in Sports, Injury Prevention and Outdoor Recreation
- 4th International Conference on Human Factors, Business Management and Society
- 4th International Conference on Human Factors in Energy: Oil, Gas, Nuclear and Power Industries
- 4th International Conference on Human Factors in Training, Education, and Learning Sciences
- 5th International Conference on Human Factors, Software, and Systems Engineering
- 5th International Conference on Human Factors, Sustainable Urban Planning and Infrastructure
- 5th International Conference on Safety Management and Human Factors
- 6th International Conference on The Human Side of Service Engineering
- 6th International Conference on Affective and Pleasurable Design
- 6th International Conference on Human Factors in Transportation
- 6th International Conference on Ergonomics in Design
- 7th International Conference on Cross-Cultural Decision Making
- 7th International Conference on Human Factors and Ergonomics in Healthcare and Medical Devices
- 7th International Conference on Digital Human Modeling and Applied Optimization
- 9th International Conference on Physical Ergonomics and Human Factors
- 9th International Conference on Usability & User Experience
- 9th International Conference on Neuroergonomics and Cognitive Engineering
- 9th International Conference on Social & Occupational Ergonomics
- 19th International Conference on The Human Aspects of Advanced Manufacturing: Managing Enterprise of the Future

July 22-26 2018

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