

IECON 2021 Special Session Proposal

Title of the Proposal: **Challenges and Opportunities for Global Standardization in Modern Human Factors**

**The name, a photo, a very short bio, contact details and IEEE IES membership of the Session**

Organizers:

*Organizer 1: Dr. Allen Chen, Ph.D., P.E., [c.j.chen@ieee.org](mailto:c.j.chen@ieee.org), IEEE IES member*



Allen Chen has over 30 years of technical and managerial experience in computer, VLSI, and wireless communication industries. He was a lead engineer in developing mini-computer processors for NCR and Perkin Elmer. He then joined AT&T Bell Labs (then Lucent Technologies) where he contributed to developments of BELLMAC VLSI family and Wireless Base Stations technically and managerially. After retiring from Lucent, Allen joined a startup company in Silicon Valley, CA where he managed the development of consumer products and embedded systems. He then served as VP of Engineering for Teleion Wireless where he spearheaded development of wireless data modules for smart phones. Presently he continues to consult in the field of wireless communications at Innovatech Solutions. Allen is an IES Life AdCom Member, IEEE Life Senior Member and Chair of IES Standards Technical Committee. He has served for IES in various capacity for many IES conferences and IES Treasurer. He was a recipient of an IEEE Third Millennium Medal Award and IES Anthony Homfreck Award. He holds a MS in ECE from University of North Dakota and Ph.D. in ECE from University of Wisconsin, Madison and is a Professional Engineer.

*Organizer 2 Prof. Jinhua She Ph.D., IEEE IES member*



Jinhua She received his Ph.D. degrees in engineering from Tokyo Institute of Technology, Tokyo, Japan in 1993. Then, he joined the School of Engineering, Tokyo University of Technology, Tokyo, where he is currently a professor at the Department of Mechanical Engineering. His research interests include the application of control theory, repetitive control, process control, Internet-based engineering education, and assistive robotics. He is the delegate of Cluster 4 and the chair of Technical Committee of Human Factors, IES, IEEE, and Associate Editors of IEEE TIE, IEEE/ASME TMech, JESTIE, etc. Dr. She is one of the founding chairs of the Japan-China International Workshop on Information Technology and Control Applications (ITCA), and has been served as a member of program, publishing, and other committees of IEEE conferences.

*Organizer 3: Dr. Victor Huang, Ph.D., [v.huang@ieee.org](mailto:v.huang@ieee.org), IEEE IES member*



Victor Huang is a senior level executive seasoned in high technology industrial management, having served as VP Engineering at 5 separate start-ups in Silicon Valley, and led the establishment of the highly acclaimed Institute of Microelectronics (IME) for the Singapore government which resulted in Singapore's highly successful high technology industry. His experience spans the telecommunications (Bell Labs) and consumer electronics industries. Victor is presently a Partner in Sage Technology Resources, a technology and business consulting services firm serving investment, early stage, growth stage and Global 1000 companies, where he specializes in IT-Automotive Sector - Electric Vehicles and infrastructure industry (EV), and connected and autonomous vehicles. He holds 4 patents, and a PhD from University of Virginia. He is a Life Senior Member of



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IEEE, a Life AdCom member of the IEEE Industrial Electronics Society (IES), Chair of IES Standards Technical Committee, IES representative to IEEE-SA, and a member of IEEE-Standards Association (SA), IEEE Communications Society, IEEE Technical Engineering Management Society (TEMS), past member of IEEE Computer Society.

### Technical Outline of the Session and Topics:

#### Outline of the Session

Integration of cognition, mentality and social characteristics are important in modern human factors. Optimization of the interfaces between systems and people including dealing with problems in communication quality, healthcare and psychological handicaps becomes essential. As a result, it creates new opportunities for best practices and global standardization of human factors in industrial technologies including medical devices, systems and 3D display.

#### Topics of the Session

- o Human factors in Robots*
- o Human-centred design*
- o Human-computer interaction*
- o Human-robot communication Human-robot interaction*
- o Display and control of technologies*
- o Robot vision*
- o Best practices and Standardization of human factors for medical devices and systems*
- o Best practices and Standardization based on human factors for 3D display*
- o Standards of human-centred mechatronic systems*
- o Standards of the implementation of service and rehabilitation robots*
- o Best Practices and Standardization of human-machine interfaces applied to industrial robotics and automation systems*
- o Best Practices and Standardization of human-machine interface application to autonomous vehicles and transportation*

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**IEEE IES Technical Committee Sponsoring the Special Session (if any):**

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