**New Smc Technical Committee**

**on AI-Based Smart Manufacturing Systems**

AI-based Smart Manufacturing Systems (AISMS) incorporates various technologies, i.e., Internet of Things (IoT), big data analytics, system modeling, and Artificial Intelligence (AI). Such technologies are permeating different aspects of manufacturing industry and make it smart and capable of addressing challenges such as interoperability, decentralization, distributed control, real-time manufacturing process control, service orientation, and maintenance optimization. Recent advances in AI-based solutions can expedite and make new development of smart manufacturing possible. These advances should drive the evolution of manufacturing architectures into integrated networks of automation devices and enable the smart characteristics of being self-adaptive, self-sensing, and self-organizing. Smart manufacturing represents a paradigm shift from automated manufacturing towards intelligent manufacturing. Conventional automated technologies and systems, such as manufacturing execution system (MES), advanced process control (APC) system, etc., have hit bottlenecks in further providing higher efficiencies and better productivities. AISMS are considered as the key to addressing these challenges.

A screenshot of a video game

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Figure 1. AISMS drives the transformation of manufacturing industries. The realization of smart manufacturing requires development and deployment of individual AI systems targeting different applications in a factory and deep integration of these systems into a coherent ecosystem.

The Technical Committee on AISMS (TC-AISMS) aims at establishing a community consisting of research experts and industrial practitioners and drive relevant technology development and system implementation. The active involvement of industrial experts in TC-AISMS will help the research community focus on key manufacturing areas (i.e., smart design, smart machining, smart monitoring, smart control, smart scheduling, industrial applications, and system integrations), while innovative thinking coming from research experts will in turn provide technologies and systems to implement the relevant industry transformations. Close collaborations between two communities will help close the gap between academic research and industrial applications, greatly advancing the science and engineering of AI and SMS fields. The proposed TC activities include facilitating its members in fostering the state-of-the-art research results in the field of AI and smart manufacturing, stimulating not only the members of SMC Society but also parties from other organizations to participate in the interdisciplinary research and contribute to breaking the existing barriers among various research communities related to smart manufacturing.

**Vision**

TC-AISMS aims to promote interdisciplinary and multidisciplinary research by organizing the AISMS related special issues in the premier IEEE Transactions, establishing new conferences and workshops, technically co-sponsoring conferences and workshops, proposing special sessions and presenting tutorials and panel discussion in the existing conferences or workshops.

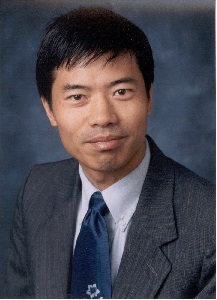
**Mission**

The long-term goal of TC-AISMS is to promote the fundamental research aspects in relevant fields and drive the transformation of manufacturing industries. This proposed TC will stimulate the SMC society researchers to participate in the interdisciplinary research of AI and smart manufacturing in the future and contribute to breaking the existing barriers among research communities related to a smart manufacturing ecosystem.

Welcome you to join this TC by contacting:

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**MengChu Zhou** (Fellow, IEEE) received his B.S. degree in Control Engineering from Nanjing University of Science and Technology, Nanjing, China in 1983, M.S. degree in Automatic Control from Beijing Institute of Technology, Beijing, China in 1986, and Ph. D. degree in Computer and Systems Engineering from Rensselaer Polytechnic Institute, Troy, NY in 1990. He joined New Jersey Institute of Technology (NJIT), Newark, NJ in 1990, and is now a Distinguished Professor of Electrical and Computer Engineering. His research interests are in Petri nets, intelligent automation, Internet of Things, big data, AI, and intelligent transportation. He has over 900 publications including 12 books, 600+ journal papers (500+ in IEEE TRANSACTIONS), 28 patents and 29 book-chapters. He is the founding Editor of IEEE Press Book Series on Systems Science and Engineering, Editor-in-Chief of IEEE/CAA Journal of Automatica Sinica, and Associate Editor of IEEE Internet of Things Journal, IEEE Transactions on Intelligent Transportation Systems, and IEEE Transactions on Systems, Man, and Cybernetics: Systems. He is a recipient of Humboldt Research Award for US Senior Scientists from Alexander von Humboldt Foundation, Franklin V. Taylor Memorial Award and the Norbert Wiener Award from IEEE Systems, Man and Cybernetics Society, and Excellence in Research Prize and Medal from NJIT. He is a life member of Chinese Association for Science and Technology-USA and served as its President in 1999. He is a Fellow of International Federation of Automatic Control (IFAC), American Association for the Advancement of Science (AAAS), Chinese Association of Automation (CAA) and National Academy of Inventors (NAI).

A picture containing person, person, suit, clothing

Description automatically generated**Bin Liu** (Senior Member, IEEE) is the Chief Technology Officer (CTO) of IKAS Industries, a leading industrial AI solution provider. He establishes the technical visions, strategies, and roadmap of IKAS, and leads the research programs which explore how emerging technologies could drive advancement of manufacturing industries. He is responsible for development and industrialization of smart manufacturing systems by integrating cutting edge technologies such as AI, big data, IoT, and system modeling. His team has successfully developed several high impact intelligent manufacturing systems which significantly improve productivities of multi-billion factories. Before joining IKAS, Bin Liu was with GlobalFoundries, Samsung, and National University of Singapore, leading the R&D and mass production efforts of several semiconductor technologies including MRAM, IoT, 7/14nm CMOS, etc. Bin Liu has published more than 50 peer reviewed technical papers and has 18 patents. He received the B.Eng. (honors) and Ph.D degrees in electrical engineering from National University of Singapore.

A person with a beard and glasses

Description automatically generated with medium confidence**Witold Pedrycz** (Life Fellow, IEEE) received the MS. c. degree in computer science and technology, the Ph.D. degree in computer engineering, and the D.Sci. degree in systems science from the Silesian University of Technology, Gliwice, Poland, in 1977, 1980, and 1984, respectively. He is a Professor and the Canada Research Chair in Computational Intelligence with the Department of Electrical and Computer Engineering, University of Alberta, Edmonton, AB, Canada. He is also with the Systems Research Institute of the Polish Academy of Sciences, Warsaw, Poland. He is a foreign member of the Polish academy of Sciences. He has authored 15 research monographs covering various aspects of computational intelligence, data mining, and software engineering. His current research interests include computational intelligence, fuzzy modeling, and granular computing, knowledge discovery and data mining, fuzzy control, pattern recognition, knowledge-based neural networks, relational computing, and software engineering. He has published numerous papers in the above areas. Dr. Pedrycz was a recipient of the IEEE Canada Computer Engineering Medal, the Cajastur Prize for Soft Computing from the European Centre for Soft Computing, the Killam Prize, and the Fuzzy Pioneer Award from the IEEE Computational Intelligence Society. He is intensively involved in editorial activities. He is an Editor-in-Chief of Information Sciences, an Editor-in-Chief of WIREs Data Mining and Knowledge Discovery (Wiley) and the International Journal of Granular Computing (Springer). He currently serves as a member of a number of editorial boards of other international journals. He is a fellow of the Royal Society of Canada.

**Mohammadhossein Ghahramani** (Member, IEEE) obtained the B.S. degree and M.S. degree in Information Technology Engineering from Amirkabir University of Technology - Tehran Polytechnic, Iran, and Ph.D. degree in Computer Technology and Application from Macau University of Science and Technology, Macau in 2018. He was a technical manager and senior data analyst of the Information Center of Institute for Research in Fundamental Sciences from 2008 to 2014. He is currently a Research Fellow at University College Dublin (UCD), Ireland. His research interests are focused on AI, Machine Learning, Optimization, Big Data analysis, Cloud Computing and Smart Manufacturing. Dr. Ghahramani was a recipient of the Best Student Paper Award of 2018 IEEE International Conference on Networking, Sensing and Control. He has served as a reviewer of over ten journals including IEEE Transactions on Cybernetics, IEEE Transactions on Neural Networks and Learning Systems and IEEE Transactions on Industrial Informatics. He have published many journal and conference papers.