

Robot-Integrated Manufacturing

Speaker:

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Description:

Before 1784, manufacturing has heavily depended on human workers. When machines powered by steam-engines were invented, the first industrial revolution was started. And, it was characterized by fully machine-integrated manufacturing. In 1923, the first industrial revolution was succeeded by the second industrial revolution which was characterized by fully systems-integrated manufacturing (e.g. production systems or production lines). Since 1969, we saw the rise of the third industrial revolution which was characterized by fully computer-integrated manufacturing. Now, we are in the early stage of the four industrial revolution which is characterized by fully network-integrated manufacturing. Surprisingly enough, with the rapid penetration of industrial robots and service robots into the market, we are witnessing the eve of the fifth industrial revolution which is to be characterized by fully robot-integrated manufacturing. In this keynote speech, I will talk about: a) the landscape of manufacturing and industrial revolutions, b) the landscape of robotics and automation, and c) the roadmap of robotics applications for achieving robot-integrated manufacturing.

Biodata of Speaker:



Xie Ming received the B.Eng degree in control and automation engineering. Subsequently, as a recipient of the overseas scholarship from Chinese government, he has completed the study for Master degree in the University of Valenciennes (France) as well as the research for PhD degree in the University of Rennes (France). He is Associate Professor of Nanyang Technological University, and was a Fellow with Singapore-MIT Alliance (SMA). He was the General Chair of 2007 International Conference on Climbing and Walking Robots (CLAWAR), the General Chair of 2009 International Conference on Intelligent Robotics and Applications (ICIRA), the Co-founder of the International Journal of Humanoid Robotics (SCI/SCIE indexed), Co-founder of Singapore-China Association for Advancement of Science and Technology, Co-founder of Robotics Society of Singapore. He has taught the courses such as Robotics,

Artificial Intelligence, Applied Machine Vision, Measurement and Sensing Systems, Microprocessor Systems, and University Physics. In terms of scientific research, he has published two books, two edited books, several book chapters, over 10 patents of invention, over 30 research papers in scientific journals and over 100 research papers in international conferences. He was the recipient of one best conference paper award from World Automation Congress, the recipient of one best conference paper award from CLAWAR, the recipient of one outstanding paper award from International Journal of Industrial Robot, the recipient of one Gold Prize (S\$8K) from CrayQuest, the recipient of one Grand Champion Prize (S\$15K) from CrayQuest, the recipient of one A-Star's Best Research Idea Prize (S\$5K), the recipient of one Silver Medal from Dragon Design Foundation.