Robotics Applications for Industry 4.0

Speaker:
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Description:
The first industrial revolution was characterized by fully machine-integrated manufacturing since 1784 while the second industrial revolution was characterized by fully production-line-integrated manufacturing since 1923. After the third industrial revolution which was characterized by fully computer-integrated manufacturing since 1969, we have just entered the era of fourth industrial revolution which is characterized by fully robot-integrated manufacturing since 2014. Under the name of industry 4.0, the fourth industrial revolution was initiated in Germany during the period of 2011 to 2013. And, the aim is to achieve manufacturing as agile as possible with the help of massive deployment of sensors, actuators, networks, robots, and cloud computing. In this seminar of 2.0 hours, I will give an introductory presentation which will cover: a) the landscape of manufacturing and industrial revolutions, b) the landscape of robotics and automation, and c) the roadmap of robotics applications for achieving industry 4.0.

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.