

Key Steps Toward Development of Humanoid Robots

Speaker:

Prof. Xie Ming

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Description:

Since 1996, we have embarked into the journey of developing humanoid robots at Nanyang Technological University, Singapore. We have ventured into the various technical aspects of humanoid robot development. In particular, we have placed special emphasis on mechatronics design of humanoid robots, planning and control of biped walking, hand-eye coordination for humanoid robots, cognitive vision for humanoid robots, and cognitive speech for humanoid robots. From 2006 onward, several teams in Singapore have received a substantial amount of research grants and have developed together two full prototypes of humanoid robots, which are about 1.8 meters in height and weigh about 80 kg each. And, each humanoid robot has 42 degrees of freedom with independent actuations. In this plenary talk, I will share some findings and results related to the R&D works of humanoid robots in Singapore.

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.