CRA Distinguished Lecture Series

Centre for Robotics and Automation
香港城市大學 City University of Hong Kong

Vision-Guided Control, Manipulation, and Navigation of Robots

Professor LIU Yun-hui

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Date: 9 June 2023 (Friday)
Time: 2:30 pm
Venue: B6605, College of Engineering Conference Room
6/F, Yeung Kin Man Academic Building (Lift No.3)

Abstract

Although robots are being widely employed in various applications, their performance and intelligence level are still far below humans' expectation. One of the major reasons is that robots are not skillful or intelligent in coordinating eyes with motion of their hands, legs, and bodies. Eye-hand coordination or eye-leg coordination, i.e. using visual feedback in their motion control, manipulation and navigation, is crucial for robots to possess higher-level intelligence. This talk presents technical challenges in eye-hand coordination, and demonstrates our work on visual servoing of robot arms and mobile robots, vision-based robot grasping, robotic manipulation of soft objects, vision-guided navigation of mobile robots, etc. Applications of the vision-guided robotics technology in manufacturing, logistics and surgery will be also introduced.

Biography

Yun-hui Liu received B. Eng. degree in Applied Dynamics from Beijing Institute of Technology, M. Eng. degree in Mechanical Engineering from Osaka University, and Ph.D. degree in Applied Mathematics from the University of Tokyo. After working at the national Electrotechnical Laboratory of Japan as a Research Scientist, he joined The Chinese University of Hong Kong (CUHK) in 1995 and is currently Choh-Ming Li Professor of Mechanical and Automation Engineering, the Director of the CUHK T Stone Robotics Institute, and the Director/CEO of Hong Kong Centre for Logistics Robotics funded by the InnoHK clusters of the HKSAR government. He has published more than 500 papers in refereed journals and conference proceedings and was listed in the Highly Cited Authors (Engineering) by Thomson Reuters in 2013. His research interests include vision-based robotics, machine intelligence and their applications in manufacturing, logistics, healthcare and constructions. Prof. Liu has received numerous research awards from international journals and international conferences in robotics and automation, and from government agencies. In recent years, he has been actively transferring robotics technologies developed at university labs to industries, and co-founded VisionNav Robotics, CornerStone Robotics, and Zanecon Robotics. He was the Editor-in-Chief of Robotics and Biomimetics and served as an Associate Editor of the IEEE TRANSACTION ON ROBOTICS AND AUTOMATION. He is an IEEE Fellow and a HKIE Fellow.

All are welcome

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