國立交通大學
機械工程學系
MECHANICAL ENGINEERING
NATIONAL CHIAO TUNG UNIVERSITY

書報討論專題演講 Department Seminar

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Abstract

Many researchers in robotics have foreseen that most robots in the future will be endowed with human intelligence. In order to achieve such advanced robotic systems, several control frameworks and algorithms have been proposed recently. In this talk, the latest results in teleoperation for robotic control systems will be introduced. Teleoperated robots have emerged as a useful tool to accomplish tasks in remote or hazardous environments, as was witnessed during the recent natural disaster. To ensure the safety, enhance the efficiency, and increase the flexibility of complex robotic systems operating in cluttered environment over network, the study of bilateral teleoperation for heterogeneous master and slave robots will be addressed. A semi-autonomous control framework for bilateral teleoperation will be discussed for non-identical robots with dynamic uncertainties and asymmetric communication delays. An extension of the proposed semi-autonomous teleoperation that a human operator can simultaneously interact with a group of swarm robots in a remote environment will be introduced subsequently. Moreover, flexible formation control and coverage control in the human-swarm system will also be presented. This talk will conclude with some directions for future research about human-robot interaction in networked control systems.

Speaker Biography

Education

Ph.D., Mech. Engi., University of Maryland, College Park, USA, 2012. (Advisor: Prof. Nikhil Chopra)
M.S., Mech. Engi., National Chiao Tung University, Taiwan, 2005. (Advisor: Prof. 曾錦煥)
B.S., Mech. Engi., National Chiao Tung University, Taiwan, 2003.

Recent Honors and Awards

MOST Young Scholar Fellowship - Pilot Directions for MOST Grant for the Columbus Program (2019/2~2024/1), MOST, Taiwan, 2019
Kwoh-Ting Li Researcher Award, National Cheng Kung University (NCKU), Taiwan, 2018.
Outstanding Young Auto. Control Award, Chinese Auto. Control Society (CACS). Taiwan 2018.
Outstanding Mech. Faculty Award, Chinese Society of Mech. Engineers (CSME), Taiwan, 2018.
Outstanding Young Robotics Award, Robotics Society of Taiwan (RST), Taiwan, 2017.
Rising-Star Award, College of Engi., National Cheng Kung University (NCKU), Taiwan, 2017.
Ta-You Wu Memorial Award, Ministry of Science and Technology (MOST), Taiwan, 2016.