

学术报告会

时间: 2017年7月17日(周一)10:00

地点: 电院群楼3-308会议室

Robust control and estimation approaches for human robot interaction

Dr Guido Herrmann



**Department of Mechanical Engineering, Faculty of Engineering
University of Bristol – UK**

Abstract:

This talk will present a selection of recent results of the Nonlinear Robotics Control Group (NRCG) at the Bristol Robotics Laboratory (BRL). The control and estimation approaches are targeted at the safe interaction of a human physically collaborating with a robot. This considers a) humanoid arm control for physical and psychological safety through active compliance and human-like motion, b) cooperative control in collaborative human-robot lifting tasks, c) the control of passively safe, tendon-driven robots using a generalized form of backstepping control and finally targets d) the actions of the human collaborator by classifying and predicting his actions. The majority of the presented approaches are underpinned by the development of novel robust and adaptive estimation schemes which easily incorporate into control and estimation algorithms.

Biography:

Dr Guido Herrmann (Reader -Associate-Professor in Control and Dynamics, University of Bristol, FIET, SenMIEEE) obtained his first degree, MS+BSc, from the Technical University of Berlin, Germany, in 1997, and his PhD in Control in 2001 from the University of Leicester, UK. He joined the University of Bristol, UK, in 2007 after working in Singapore and Leicester. Guido Herrmann's research interests are in the development of novel robust and adaptive controllers. Results in nano-precision servo control, in robotics and in automotive systems have been developed together with industrial companies such as Western Digital, Jaguar Land Rover, Tata UK or Vector Informatik.

Guido Herrmann has been Theme Lead in Nonlinear Control for Robotics at the Bristol Robotics Laboratory (BRL) and lead of the associated Nonlinear Robotics Control Group (NRCG) since March 2007. The specific interest of NRCG has been to develop control and estimation approaches which help in human-robot interaction. He was the chair of two international conferences in robotics. He was a member of the Editorial Board cohort 2010-15 of the IEEE/ASME Transactions in Mechatronics and he has been an editorial board member of Springer's International Journal on Social Robotics since 2009.