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报告

Innovative Robotic Systems and its Applications to Agile Locomotion

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讲者介绍 Biography

Professor Kwok Wai Samuel Au received the B.Eng. and M.Phil degrees in Mechanical and Automation Engineering from the Chinese University of Hong Kong(CUHK), Hong Kong in 1997 and 1999, respectively. He completed his Ph.D. degree in Mechanical Engineering at MIT in 2007, where he invented (with Prof. Hugh Herr) the MIT Robotic Ankle-foot Prosthesis. This invention was named one of the Best Inventions of Year by TIME magazine in 2007 and was later commercialized by iWalk, Inc. Dr. Au is an Associate Professor of the Department of Mechanical and Automation Engineering at CUHK since Sept, 2016. Before joining CUHK, he was the manager of Systems Analysis of the New Product Development Department at Intuitive Surgical, Inc. At Intuitive Surgical, he co-invented and was leading the software and control algorithm development for the FDA cleared da Vinci Si Single-Site surgical platform (2012), Single-Site Wristed Needle Driver (2014), and da Vinci Xi Single-Site surgical platform (2016). Since the official launch at Dec 2012, over 150K patients have received the single incision surgery through this platform. He was also a founding team member for the early development of the robotic-assisted catheter system for lung biopsy (FDA Cleared da Vinci ION) at Intuitive Surgical. Dr. Au is the author and co-author of over 18 peer-reviewed manuscripts and conference journals. He currently holds 12 US patents (and over 8 pending US Patents/Provisional Patents). His inventions/works featured in numerous magazines such as New York Times and Technology Review. He has won numerous awards including the first prize in the American Society of Mechanical Engineers (ASME) Student Mechanism Design Competition in 2007, Intuitive Surgical Problem Solving Award in 2010, and Intuitive Surgical Inventor Award in 2011.

报告摘要 Abstract

Bioinspired Robotics and Medical Technology (BMT) group is a newly established research group at CUHK, focusing on the development of innovative robotic systems for medical application and agile locomotion. In this talk, we will present our efforts on the development of innovative legged robots with greater mobility/efficiency/robustness, comparable to its biological counterpart. We will discuss the fundamental challenges for legged robots and show our initial results to demonstrate the feasibility of developing such systems through the use of external appendages and advanced intelligent algorithms. We believe our solutions could potentially lead to new mechanism designs and control frameworks for under-actuated robotic systems as well as more understanding on how animals move.

有兴趣合作之项目 Interested topics for future collaboration

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