The Chinese University of Hong Kong

Department of Biomedical Engineering

Time: 10:00am, 27 October 2023 (Friday)
Venue : ERB1118, William M.W. Mong Engineering Building

Intelligent Sensing – Technologies for Wellbeing, Health and Clinical Applications

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Abstract

The current patient care primarily relies on a snapshot model where patients are examined periodically. However, such model often falls short in capturing transient but life threatening events. The vulnerabilities of this reactive healthcare model have become apparent during the pandemic. Especially, during the peaks of the outbreaks, almost all healthcare systems around the world failed to cope with the overwhelming demands on the care services. Wearable sensing technologies have been widely used during the pandemic to help monitoring patients, mainly for those with mild symptoms or who are recovering. These low-cost technologies have started the needed transformation of the healthcare services and becoming the tools in the new normal in healthcare. With the aim of improving patient care, my research has been focused on developing miniaturised wireless and intelligent sensing technologies which can support continuous monitoring of patients, capture the context information, and enable timely diagnosis and personalised care. My research group has introduced a range of sensing platforms and technologies for wellbeing, health and clinical applications. With the wireless connectivity, these sensing devices can often considered as an integral part of the Internet of Things (IoT). It is anticipated that every object will soon become sensor enabled and forming smart environments ranging from smart homes to smart operating theatres. Together with the smart environments, these intelligent sensors could provide context rich information, enable timely detection of adverse events, improve our understanding of symptoms and diseases, and facilitate the transformation of the current reactive healthcare practice to a proactive or even preventive care model. In this talk, I will give a brief introduction on my research, present some of our recent works in sensing and robotics, explain how the technologies can be applied clinically, and discuss the potential of the technologies in tackling health challenges.

Biography

Dr Benny Lo is the CEO of Precision Robotics (HK) Ltd. and a visiting Reader of the Department of Metabolism, Digestion and Reproduction, Imperial College London. Prior to joining Precision Robotics early this year, Dr Lo was a Reader of the Hamlyn Centre/Dept of Surgery and Cancer, Imperial College. Dr Lo received his BASc in Electrical and Computer Engineering from UBC, MSc (distinction) in Electronics Research from King's College London and PhD in Computing from Imperial College London. His research mainly focuses on Pervasive Sensing, Biomedical Engineering, Electronics, Surgical Vision, and Machine Learning for healthcare, well-being and sports applications. He is one of the pioneers in Body Sensor Networks (BSN) and pervasive sensing research, and has led many large scale translational projects on applying sensing technologies in clinical applications. He has published over 300 peer review research articles. His research work has been highly recognised by academic and industrial and led to numerous awards, such as the Best Paper awards of BSN2021 and BSN2019, Outstanding Interaction paper award ICRA 2022, etc. In addition, his team at Precision Robotics is the finalist for the IET Innovation Award 2023 – AI and Robotics. He serves as an Associate Editor of the IEEE Journal of Biomedical and Health Informatics (J-BHI), the Topics Editor of the International Journal of Distributed Sensor Networks, and the Area Editor of the EAI Transaction on Bioengineering and Bioinformatics. He was the Chair of the IEEE EMBS Wearable Biomedical Sensors and Systems (WBSS) Technical Committee (2018-2019) and the Steering Committee member of the IEEE EMBS Standards Technical Committee.