Abstract

The ever-increase in ageing populations and the prevalence of chronic diseases such as heart disease and stroke, the leading cause of global death, are society’s most pressing health challenges. The convergence research model proposed in the 2016 MIT white paper provides a blueprint for addressing these grand challenges and may lead to the fast development of future revolutionised healthcare systems that enable the Participation of all people for the early Prediction and Prevention of diseases such that Preemptive treatment can be delivered to realise Personalised, Precision, Pervasive, and Patient-centralised healthcare, i.e., the paradigm of the 8-P’s Medicine.

This talk will outline some of our research work in cardiovascular health informatics which attempts a convergence approach to integrate technologies across multiple scales in the biological hierarchy from molecular, cell, organ to system. The presentation will focus on the development of unobtrusive wearable 'MINDS' technologies and their integration with nano-biomarker detection, medical imaging and machine learning for the early prediction of acute cardiovascular diseases. Using the atherosclerotic plaque assessment as an example, this talk will also
attempt to illustrate that health informatics with the convergence approach should allow the practice of 8- P’s Medicine in the future.

About the Speaker

Professor Yuan-Ting Zhang served as the Director of the Joint Research Center for Biomedical Engineering and the first Head of the Division of Biomedical Engineering at the Chinese University of Hong Kong. He is currently the Director of the Key Lab for Health Informatics of Chinese Academy of Sciences (HICAS), the Chief Scientist of the CAS Shenzhen Institutes of Advanced Technology (SIAT), and the Founding Director of the CAS-SIAT Institute of Biomedical and Health Engineering. He was the Sensing System Architect in Health Technology at Apple in California, USA. Prof. Zhang was the Editor-in-Chief for IEEE Transactions on Information Technology in Biomedicine and the Founding Editor-in-Chief of IEEE Journal of Biomedical and Health Informatics. He served as Vice Preside of IEEE EMBS, Technical Program Chair of EMBC’1998, Conference Chair of EMBC’2005, Internationale Committee Chair of EMBC’2013, and Technical Program Co-Chair of EMBC2017. Prof. Zhang is currently the Editor-in-Chief for IEEE Reviews in Biomedical Engineering, Chair of 2018 Gordon Research Conference on Advanced Health Informatics, Chair of the Working Group for the development of IEEE Standard on Wearable Cuffless Blood Pressure Measuring Devices (IEEE 1708), and Chair of 2016-2018 IEEE Award Committee in Biomedical Engineering. Prof. Zhang’s research interests include cardiovascular health informatics, unobtrusive sensing and wearable devices, neural muscular modelling and pHealth technologies. He won a number of international awards including IEEE-EMBS best journal paper awards, IEEE-EMBS Outstanding Service Award, and IEEE-SA 2014 Emerging Technology Award. Prof. Zhang is elected as IAMBE Fellow, IEEE Fellow and AIMBE Fellow for his contributions to the development of wearable and m-Health technologies.

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All are Welcome!

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