Sound, Music and Wearable Computing for Rehabilitation and Learning: a Multidisciplinary Approach

Ye Wang
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Room 205, Runme Shaw Buidling
12:30 - 1:45 pm
(Chair: Dr Xiao Hu)

Abstract
The use of music as an aid for improving body and mind has received enormous attention over the last 20 years from a wide range of disciplines, including neuroscience, physical therapy, exercise science, and psychological medicine. We have attempted to transform insights gained from the scientific study of music, learning, and medicine into real-life applications that can be delivered widely, effectively, and accurately. We have been using music to enhance learning as well as to augment evidence-based medicine. In this talk, I will describe tools to facilitate the delivery of established music-enhanced therapies, harnessing the synergy of sound and music computing (SMC), wearable computing, and cloud computing technologies to promote learning and to facilitate disease prevention, diagnosis, and treatment in both developed countries and resource-poor developing countries. These tools are being developed as part of ongoing research projects that combine wearable sensors, smartphone apps, and cloud-based therapy delivery systems to facilitate music-enhanced learning and music-enhanced physical therapy. Tracing the seven-year journey of exploration from a student project to a dedicated research theme, I will share what we have learnt from the exciting yet challenging journey of multidisciplinary research. Finally, I will introduce our PhD program as well as two relevant conferences in the region to the audience (https://ismir2017.smcnus.org/; http://www.colips.org/conferences/icot2017/).

About the speaker:

Ye Wang is an Associate Professor in the Computer Science Department at the National University of Singapore (NUS) and NUS Graduate School for Integrative Sciences and Engineering (NGS). He established and directed the sound and music computing (SMC) Lab (www.smcnus.org). Before joining NUS he was a member of the technical staff at Nokia Research Center in Tampere, Finland for 9 years. His research interests include sound analysis and music information retrieval (MIR), wearable computing, and cloud computing, and their applications in music edutainment, e-Learning, and e-Health, as well as determining their effectiveness via subjective and objective evaluations. His most recent projects involve the design and evaluation of systems to support 1) therapeutic gait training using Rhythmic Auditory Stimulation (RAS), 2) diagnosis and assessment of Parkinson's disease using sensor data analytics, and 3) auditory training and second language learning via speech and singing voice analysis.

~ All are welcome ~

For enquiries, please contact the Office of Research at 3917 8254.