Biomedical Discussion Group

Ballistocardiography - An Old Methodology in the New IoT Health Monitoring Space

Thursday February 15, 2018
3:00 –4:00 pm, East Campus 4 Boardroom (EC4-2101a)
Coffee and Cookies available - RSVP required

Dr. Abdul Qadir Javaid, Post-doctoral scholar in Intelligent Systems and Assistive Technology laboratory at University of Toronto and AGE-WELL

Abstract: Ballistocardiography, a measure of body vibrations due to cardiac ejection of blood into the vasculature, was first observed by Gordon in 1877 and later shown by Starr and his colleagues in mid 20th century as a useful method for detecting cardiac anomalies. The methodology almost vanished in the later half of the last century partially due to echocardigraphy and other magnetic resonance imaging techniques and partially because of cumbersome hardware required to measure the bio-signal. However, the recent advances in sensor technology has revived interest in ballistocardiography and research has shown that it can be used in non-clinical settings for continuous monitoring of cardiac function. This talk will focus on the recent developments in ballistocardiography and its potential to be used as a valuable technique for zero-effort monitoring in an IoT environment.

Biosketch: Abdul Qadir Javaid received the B.S. degree from the University of Engineering and Technology, Lahore, Pakistan, in 2007, the M.S. degree from Newcastle University, Newcastle upon Tyne, U.K. in 2008, and, the M.S. and PhD degrees in Electrical and Computer Engineering from Georgia Institute of Technology, Atlanta, Georgia in 2016. His research focused on ballistcardiography and seismocardiography based estimation of parameters related to cardiovascular physiology. Since 2016, he has been working as a postdoctoral scholar in Intelligent Systems and Assistive Technology laboratory at University of Toronto and AGE-WELL. His current research interests include zero-effort monitoring using ballistocardiography, smart textile sensors and application of machine learning to extract useful information from bio-signals.

Keywords: Ballistocardiography, cardiology, zero-effort monitoring, internet of things, smart textile sensors, machine learning, biosignals.

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