



COLLEGE of ENGINEERING AND PHYSICAL SCIENCES

SCHOOL OF COMPUTER SCIENCE

MSc Seminar

Wednesday August 1, 2018 at 10:30AM in J.D. MacLachlan, Room 228
The Methods and Datasets of Human Activity Recognition using
Wearable Sensors

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ABSTRACT:

The smart devices such as smart-phone, smart-watch and fitness-band give us new opportunities thanks to various sensors of acceleration, location GPS and gyroscope. These make the smartphones suitable for the system of human activity recognition(HAR) by gathering the data of human activities efficiently and sending the sensor data immediately. Its applications include surveillance systems, health training systems, and a variety of systems that involve interactions between persons and electronic devices such as human-computer interfaces. Most of these applications require a high-level recognition accuracy of activities, composed of multiple simple actions of persons. The early research in the activity recognition has focused on vision sense data like camera and video surveillance systems. Nowadays smart devices have become the main platform for the human activity recognition due to rich set of sensors, communication tool and easy-to-use. However, human daily activities recognition based on the sensing data is still one of the challenges due to the limited dataset and the complexity of human actions. There are several human activity recognition studies and dataset with the mobile devices. These studies and dataset have difficulties in mutual analysis by applying different format data, analysis method and limited data to distinct activities.

This seminar will cover the motivations and ways to overcome obstacles associated with human activity recognition using smart devices. It will introduce the current dataset and methodology of HAR, and will discuss how to merge the data to solve the problem. This seminar will also present a deep learning method of bidirectional multi-stacked LSTM for the time series data of HAR, and will show the results of the deep running method of the pilot experiments.