

**School of Computer Science and Engineering
Presentation**

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Friday, March 6, 2020
Time 10:00am-11:00am
JB 389/391**

Data Analytics and Digital Healthcare

Abstract:

Data Analytics is the process of analyzing given data sets to derive useful conclusions about the information contained. This becomes an essential technology in the era of 4th generation industrial revolution, where the sufficiently large volume of datasets collected from sensors, IoT devices, and Social Network Service become available.

In this presentation, we first go over the foundation of data analytics; different approaches to data analytics with real world examples. Then, we focus on an emerging application domain; *machine learning analytics for digital healthcare* with focus on medical image diagnosis.

Medical images such as CT, MRI, and Ultrasonic become essential means to examine the inside of the human body. Machine learning is the science of providing software machines the capability to learn without being explicitly programmed. Applying machine learning to medical image analytics is quite same as the way medical doctors analyze medical images to diagnose diseases and recommend best medical remedy methods. The author introduces the result of her research project on *Medical Image Analytics*. We apply *Convolutional Neural Network (CNN)* to segment the target organs and suspicious tumors from contrasted CTs and *Recurrent Neural Network (RNN)* to identify in-progress or potential diseases from contrasted medical images. The project results show that machine learning analytics on medical images can potentially reach at the accuracy level of medical image interpretations by physicians.