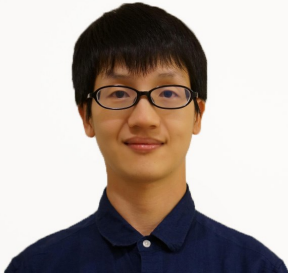# Stony Brook University

Biomedical Informatics Grand Rounds

Tengfei Ma, PhD;

Research Staff Member, IBM T.J. Watson Research Center

Deep Learning for Computational Healthcare: EHR Phenotyping and DDI Prediction

Wednesday, February 26, 2020 3 pm—4 pm
Health Science Center L3-LH6

Abstract:

The growing availability of electronic health records (EHR) data and medical ontology has brought many opportunities for automated data analysis and prediction. Deep learning is thus thriving in the healthcare domain and has been successfully applied to various tasks, such as patient phenotyping and the prediction of unknown drug-drug interactions (DDIs). However, there still remain many challenges, e.g. information heterogeneity, temporal dynamics, and label correlation. In this talk, I will introduce our recent works about disease risk prediction, readmission prediction and medication recommendation on EHR data, considering the temporal dynamics, topic contexts, and external knowledge in deep sequential models respectively. In addition, I will also talk about DDI prediction models which address the multi-view similarity integration and label correlation problems. From the perspective of deep learning, it contains how to apply and develop various sequential learning techniques to EHR data and how to extend graph neural networks for DDI data.

Bio:

Dr. Tengfei Ma is a research staff member of IBM T.J. Watson Research Center. Prior to that, he obtained his PhD from The University of Tokyo in 2015; and he was a researcher in IBM Research-Tokyo from 2015 to 2016. His research interests have spanned a range of topics in machine learning, natural language processing and healthcare. Particularly his recent research is focused on graph neural networks and deep learning based healthcare analytics. The results of his research have been published in many premier AI conferences such as NeurIPS, ICLR, IJCAI, AAAI. For more details, please check his homepage: www.matengfei.com.

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