

R. Clifton Bailey Statistics Seminar Series

Prediction-runtime efficient modeling and optimization

Liang Zhao

Department of Information Science and Technology

George Mason University

Student Union 1 – 3B

4400 University Drive, Fairfax, VA 22030

September 21, 2018

11:00 A.M. - 12:00 Noon

Abstract: Nowadays, machine learning models have been applied into more and more applications. And in many of them, prediction runtime is important concern, such as attacker-intrusion detection and high-frequency trading. In this talk, the speaker will focus on a framework for joint minimizing the prediction runtime and error. During feature generation process, there are significant duplicated computations through feature computational dependencies, which largely challenges the prediction-runtime modeling and optimization. In this talk, the proposed work first characterizes feature computational dependency using heterogeneous hypergraphs, and then optimizes prediction accuracy and test-time efficiency jointly via nonconvex optimization. The extension of this work, such as the automatic feature dependency extraction and partition, will also be discussed.

Bio: Dr. Liang Zhao is an assistant professor at Information Science and Technology Department at George Mason University. He got his PhD degree from Computer Science Department at Virginia Tech in the United States. His research interests include big data mining, artificial

intelligence, and machine learning, with particular emphasis on sparse feature learning, social event forecasting, text mining, heterogeneous network modeling, and deep learning on graphs. He got the CRII award from National Science Foundation of United States in 2018. He is named as the one of the “Top 20 Data mining Rising Star in the world” by Microsoft Academic Search in 2016. He has published papers in top venues in data mining and artificial intelligence such as ACM KDD, proceeding of the IEEE, IEEE TKDE, AAAI, IJCAI, IEEE ICDM, ACM CIKM, and WWW. He has served as publication chair of SSTD 2017, co-chair of LENS 2018 co-located with SIGSPATIAL 2018, program committee of ACM KDD 2018, IEEE ICDM 2018, SIAM DM 2018, and IEEE ICDM 2017. He has been serving as reviewer for top conferences and journals such as ACM KDD, ACM TKDD, IEEE TKDE, and IEEE TBD, and IJGIS.