

Department of Data Science

Data Science Seminar Series

Machine Learning for Human Learning: Addressing Sparse, Sequential, and Temporal Data



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Web Link: [Zoom Meeting Room Link](#)

Large volumes of data are collected from users of online applications every day. Shopping, education, health, and fitness are a few example domains of such applications. This collected data is also highly complex because of the complicated nature of human behavior. Missing, noisy, and sparse observations, data heterogeneity, and evolving temporal patterns are a few of these complexities. My research addresses such complexities with a personalization perspective in human-centered applications. In this talk, I present solutions to deal with these challenges in the context of two problems in the education domain: student knowledge tracing and procrastination modeling.

In knowledge tracing, we answer questions like “how to quantify the gradual knowledge gain in students, given their noisy interactions with learning materials?” I present our constrained multiview tensor decomposition models that are flexible to represent student sequential data, personalized to match each student’s learning pace, and interpretable to help visualize the gradual knowledge gain. In procrastination detection, we answer questions like “how to predict the time when the students will work on a specific assignment, even if they haven’t started working on it?” I present our point process models that can represent student activities in continuous time while estimating the effects of triggers, such as deadlines, on student learning behavior.

Sherry Sahebi is an Assistant Professor of Computer Science at the University at Albany – SUNY. She received her Ph.D. and M.Sc. in Intelligent Systems Program from the University of Pittsburgh. Also, she has an M.Sc. and B.Sc. in Computer Science/Engineering from the University of Tehran and Sharif University of Technology, respectively. Her broad research interests include machine learning and data mining for human-centered applications, such as educational, recommendation, and health application systems. Her research has been supported by three NSF awards, including a CAREER award in 2021 and a CRII award in 2018. Her research has been featured in peer-reviewed publications in major venues such as The International Educational Data Mining (EDM), ACM Web conference, ACM Recommender Systems (RecSys), The AAAI Conference on Artificial Intelligence (AAAI), and Artificial Intelligence in Education (AIED).