Jenna Wiens, PhD

Machine Learning for Data-Driven Healthcare

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The proliferation of electronic medical records holds out the promise of using machine learning and data mining to build models that will help healthcare providers improve patient outcomes. However, building useful models from these datasets presents many technical problems. The task is made challenging by the large number of factors, both intrinsic and extrinsic, influencing a patient's risk of an adverse outcome, the inherent evolution of that risk over time, and the relative rarity of adverse outcomes. In this talk, I will describe the development and validation of hospital-specific models for predicting healthcare-associated infections (HAIs), one of the top-ten contributors to death in the US. I will show how by adapting techniques from time-series classification, transfer learning and multi-task learning one can learn a more accurate model for patient risk stratification for the HAI Clostridium difficile (C. diff).

Jenna Wiens is an Assistant Professor in Computer Science and Engineering (CSE) at the University of Michigan. She currently heads the Machine Learning for Healthcare research group within the AI lab. Prof. Wiens' research interests lie at the intersection of machine learning, data mining, and medicine. Within machine learning she is particularly interested in time-series analysis, transfer/multitask learning, and causal inference. The overarching goal of her research agenda is to develop the computational methods needed to help organize, process, and transform data into actionable knowledge.

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