Biography

Angela Zhou is a PhD student in Operations Research and Information Engineering. Her primary technical research interests include data-driven decision-making under uncertainty, leveraging causal inference and machine learning to inform a reliable, credible, and effective language for prescriptive analytics. Her substantive interests include the unique structural challenges that arise in informing evidence-based decision-making in healthcare and policy. As a result, she is interested in questions regarding fairness in machine learning and more broadly, the role of data in understanding, advocating for, and intervening towards greater access to opportunity. As a doctoral fellow at DLI, she hopes to study avenues for integrating expert and local knowledge for decision support and understanding distributional impacts of interventions, towards developing an "ecology of care" for data-driven decision-making beyond current black-box paradigms.

Abstract

The empirical success of machine learning and data science for making sense of otherwise un-operationalizable corpora of text, image, and rich individual- and transaction-level data would seem to suggest opportunities for improving operational decisions at large. However, institutions and individuals attempting to leverage their own data to improve decision-making typically operate in vastly different settings that challenge usual convenience assumptions. At the same time, decision-making settings that arise in business, healthcare, and policy, often revolve around data gathered from people, for which model-building that appeals to simple mechanisms or intuitive stories is inadequate. In this talk, Zhou speculates on what it means to work towards “prescriptive validity” of learning from data to directly inform decisions: what principles contribute to robust and meaningful benefits in outcomes, when data is necessarily historical and limited? She will draw on recent work on learning from observational data and revisiting fairness assessment for decision support to illustrate the necessity of accounting for the lived environments from which data is collected, and upon which decisions will be deployed. Expanding the scope of attention in this way seeks to recognize the broader "ecology" of data-driven decision-making, while emphasizing the role of "care" in assuring prescriptive validity and robustness of any accordant insights.