

Department of Statistics Seminar Series



Yongyi Guo
Department of Statistics
University of Wisconsin - Madison

Statistical Inference for Misspecified Contextual Bandits

Wednesday, March 4th, 2026

12:10-1:30 PM

Hill Center - 552

Zoom Meeting: Meeting ID: 926 1608 1995

Password: 153525

<https://rutgers.zoom.us/j/92616081995?pwd=TqPVh6Y1O6aLUt8i2uUBCRhrgH6Ayx.1>

Light refreshments will be served in Hill 452 11:40am

Abstract:

Adaptive decision-making algorithms such as contextual bandits and reinforcement learning are increasingly used in online platforms, recommendation systems, and human-centered interventions. While these methods can substantially improve decision quality, they also produce data that are collected adaptively and are highly dependent over time, posing fundamental challenges for statistical inference.

In this talk, I focus on statistical inference for adaptively collected data in noisy contextual bandit environments where the reward model may be misspecified. I will illustrate how classical inference methods can fail in such settings and discuss what properties of data collection policies support valid and flexible post-hoc inference. The results provide insight into the trade-offs between adaptivity and statistical validity and offer guidance for designing adaptive experiments that remain replicable and scientifically interpretable.

Bio:

Yongyi Guo is an Assistant Professor in the Department of Statistics at the University of Wisconsin–Madison. Prior to joining UW–Madison, she was a postdoctoral fellow in the Department of Statistics at Harvard University, hosted by Professor Susan A. Murphy. She received her Ph.D. in 2022 from Princeton University, where she was advised by Professor Jianqing Fan, and her B.S. degree in 2016 from the School of Mathematical Sciences at Peking University.