

**Seminar:** 11/07/2022

[Guanyang Wang](#)

Assistant Professor in Department of Statistics at Rutgers University

**Title:** Unbiased Multilevel Monte Carlo methods for intractable distributions: MLMC meets MCMC

**Abstract:** Constructing unbiased estimators from MCMC outputs has recently increased much attention in statistics and machine learning communities. However, the existing unbiased MCMC framework only works when the quantity of interest is an expectation. In this work, we propose unbiased estimators for functions of expectations. Our idea is based on the combination of the unbiased MCMC and MLMC methods. We prove the theoretical properties of our estimator. We also illustrate our estimator on several examples, including estimating the ratio of normalizing constants and the nested expectation. This is a joint work with Tianze Wang.