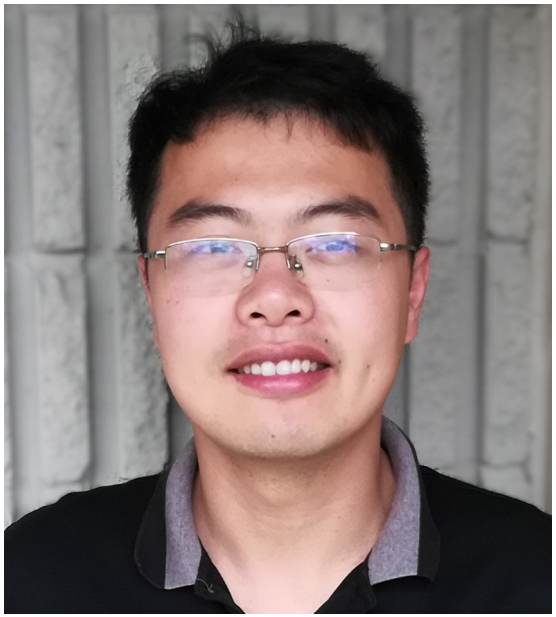

My name is Yanglei Song, and I am an Assistant Professor in the Department of Mathematics and Statistics at Queen's University.

My research focuses on problems involving sequential decision making and non-standard asymptotics in mathematical statistics. Some topics I am working on include the following.

Topic 1 Contextual bandits involve an agent who makes decisions based on contextual information and selects actions to maximize rewards. They are widely used in applications such as personalized recommendations and online advertising. Our objective is to understand the fundamental limits in terms of regret and to propose practical algorithms under various modeling assumptions. We also aim to study statistical inference for data collected through bandit feedback.

Topic 2 Change point analysis detects shifts in data distributions, often signaling significant changes in underlying processes. In online settings, the goal is to identify these changes as quickly as possible while minimizing false alarms. We plan to study the challenging task of monitoring a large number of data streams with complex dependency structures.

Topic 3 Recent progress in debiased machine learning has shown that valid statistical inference is possible for estimators produced by machine learning algorithms, such as lasso and random forests. We aim to apply these techniques to various types of data, propose inferential procedures, and establish their theoretical properties, with a particular focus on data collected via covariate adaptive designs.

If you find any of these Topics interesting or would like to hear more about my research, do not hesitate to contact me at yanglei.song@queensu.ca