

September 11, 2023
2:00pm-3:00pm
KAP 414

Prof. Bingyan Han
(University of Michigan)

Fitted value iteration methods for bicausal optimal transport

Abstract: We develop a fitted value iteration (FVI) method to compute bicausal optimal transport (OT) where couplings have an adapted structure. Based on the dynamic programming formulation, FVI adopts a function class to approximate the value functions in bicausal OT. Under the concentrability condition and approximate completeness assumption, we prove the sample complexity using (local) Rademacher complexity. Furthermore, we demonstrate that multilayer neural networks with appropriate structures satisfy the crucial assumptions required in sample complexity proofs. Numerical experiments reveal that FVI outperforms linear programming and adapted Sinkhorn methods in scalability as the time horizon increases, while still maintaining acceptable accuracy. This is a joint work with Prof. Erhan Bayraktar. The preprint is available at <https://arxiv.org/abs/2306.12658>.

Zoom Link: USC Math Finance Colloquium

Time: September 11, 2023 02:00 PM Pacific Time (US and Canada)

Join Zoom Meeting

<https://usc.zoom.us/j/94973619069?pwd=VnU5bVIMc1pzVTlEYUVaZUYyNSt6UT09>

Meeting ID: 949 7361 9069

Passcode: 925028