復旦大學
FUDAN UNIVERSITY

Applied Math Ph.D. Seminar

Lipschitz Bandits With Batched Feedback

Speaker: Yasong Feng (Fudan University)

Time: 2022-12-08, 16:10 to 17:00

Location: Rm 1801, Guanghua East Tower

Advisor: Zhiliang Ying (Fudan University)

Abstract: In this talk, we focus on Lipschitz bandit problems with batched feedback, where the expected reward is Lipschitz and the reward observations are communicated to the player in batches. We introduce a novel landscape-aware algorithm, called Batched Lipschitz Narrowing (BLiN), that optimally solves this problem. Specifically, we show that for a T-step problem with Lipschitz reward of zooming dimension d_z, our algorithm achieves theoretically optimal (up to logarithmic factors) regret rate $\widetilde{\mathcal{O}}\left(T^{\frac{d_z+1}{d_z+2}}\right)$ using only $\mathcal{O}\left(\log\log T\right)$ batches. We also provide complexity analysis for this problem. Our theoretical lower bound implies that $\Omega(\log\log T)$ batches are necessary for any algorithm to achieve the optimal regret. Thus, BLiN achieves optimal regret rate using minimal communication.