Analysis Seminar

Learning in Discounted-cost and Average-cost Mean-field Games

By

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Abstract: In this talk, we consider learning approximate Nash equilibria for discrete-time mean-field games with nonlinear stochastic state dynamics subject to both average and discounted costs. To this end, we introduce a mean-field equilibrium (MFE) operator, whose fixed point is a mean-field equilibrium (i.e. equilibrium in the infinite population limit). We first prove that this operator is a contraction, and propose a learning algorithm to compute an approximate mean-field equilibrium by approximating the MFE operator with a random one. Moreover, using the contraction property of the MFE operator, we establish the error analysis of the proposed learning algorithm. We then show that the learned mean-field equilibrium constitutes an approximate Nash equilibrium for finite-agent games.

Date: Thursday, March 3, 2022
Time: 18:00-19:00, GMT+3
Place: ZOOM

To request the event link, please send a message to goncha@fen.bilkent.edu.tr