AIRS-TNSE Joint Distinguished Seminar Series

MARL=PPAD

April 28 (Friday), 2023

09:00am -10:00am | Beijing Time

Host: Prof. Jianwei Huang

Presidential Chair Professor, Associate Vice President, CUHK-Shenzhen
Associate Director, AIRS
Editor-in-Chief of IEEE TNSE

Speaker: Prof. Xiaotie Deng

- Chair professor, Peking University
- Council member of Game Theory Society
- Member of Academia Europaea.
- ACM, IEEE, CSIAM Fellow

ABSTRACT

Similar to the role of Markov decision processes in reinforcement learning, Markov games (also known as stochastic games) form the basis for the study of multi-agent reinforcement learning and sequence-agent interaction. We introduce an approximate Markov perfect equilibrium as a computational problem for solving finite-state stochastic games under infinite time discounting, and prove its PPAD completeness. This solution concept preserves the Markovian-perfect property, opening the possibility to extend successful multi-agent reinforcement learning algorithms to multi-agent dynamic games, thus extending the range of PPAD complete classes.

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