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Hong Kong - Singapore joint Seminar Series in Financial Mathematics/Engineering

Entropic Fictitious Play

Professor Zhenjie Ren

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Abstract

The classical fictitious play is a common algorithm for solving games. However, once the cost functions of the players are non-convex, the method becomes hard to implement. In our study we add the entropic regulariser, a common strategy for non-convex optimisation, to the cost functions, and look into the analog of fictitious play in this context. We shall further see that the entropic fictitious play not only helps to solve non-convex game, but also can be used to solve optimisations on the space of probability measures, and thus can be applied to train neural networks.

Date

17 Nov 2021(Wednesday)

(HK Time)

Time

4:00pm – 5:00pm (HK Time)

Zoom

https://cityu.zoom.us/j/99525688932?pwd=dlE1WjVxdzRGK3RFS0R0VFpEWHpqZz09

Meeting ID:
995 2568 8932

Passcode:
360517

About the speaker

Zhenjie Ren is Assistant Professor at CEREMADE in University Paris Dauphine-PSL since 2016. Before doing his PhD in applied mathematics at Ecole Polytechnique, he finished his Bachelier in mathematics and a Master in numerical mathematics at Fudan University, Shanghai. His research so far focuses on the topics closely related to the theories of stochastic process, differential equations and optimal control. More broadly, he is interested in topics related to probability, optimization and game theory, in particular the applications to economics, finance and more recently machine learning.