Seminar

Dr Shujun WANG

The Hong Kong Polytechnic University

Topic
A Large-Population Stochastic Differential Game with Terminal State Constraint and Common Noise

Date| Time
31 December 2024 (Tuesday) | 11:00am – 11:40am (HK Time)

Mode of Delivery:
Online via Voov

Meeting ID:
555-397-682

Meeting Link:
https://meeting.tencent.com/dm/ktO10b0LHppI

Abstract:
In this paper, we focus on a type of linear-quadratic (LQ) mean-field game of stochastic differential equation (SDE) with terminal state constraint and common noise, where a coupling structure enters state equation, cost functional and constraint condition. First, by virtue of mean-field method, we introduce an auxiliary problem of the original game, which is a constrained optimal control problem. Second, by virtue of Lagrangian multiplier method and stochastic maximum principle, a decentralized control strategy depending on the optimal Lagrangian multiplier is derived. Finally, we prove that the decentralized control strategy obtained is an ϵ-Nash equilibrium of the LQ mean-field game. As an application, we solve a financial problem and give some numerical results.

ALL ARE WELCOME