



ID de Contribution: 10

Type: Non spécifié

Regression Monte Carlo methods for HJB type equations: which approximation space?

vendredi 10 janvier 2020 09:30 (50 minutes)

Abstract: Regression-based methods constitute a standard approach to solve dynamic programming stochastic equations. Their theoretical accuracies can be quantified in terms of local approximation errors, statistical errors and propagation errors. There is a subtle interplay between these three sources of error, which should lead to determine well the approximation space according to the sampling effort. In this talk, I will discuss

- the pros/cons of using Discontinuous Galerkin type space and Neural Network approximation spaces;
- statistical learning results to adaptively choose the approximation space.

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