
Stratified Nested Regression Monte-Carlo scheme with large scale parallelization

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Abstract

We design a novel algorithm based on Least-Squares Monte Carlo (LSMC) in order to approximate the solution of discrete time dynamic programming equations, like Backward Stochastic Differential Equations (BSDEs). Our algorithm allows massive parallelization of the computations on many core processors such as graphics processing units (GPUs). Our approach consists of a novel method of stratification which appears to be crucial for large scale parallelization. In this way, we minimize the exposure to the memory requirements due to the storage of simulations. Indeed, we note the lower memory overhead of the method compared with previous works.

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