

Optimal Stopping in High-dimensions

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Abstract

A method based on deep artificial neural networks and empirical risk minimization is developed to calculate the boundary separating the stopping and continuation regions in optimal stopping. The algorithm parameterizes the stopping boundary as the graph of a function and introduces relaxed stopping rules based on fuzzy boundaries to facilitate efficient optimization. Several examples related to financial instruments, some in high dimensions, are analyzed through this method, demonstrating its effectiveness. The existence of the stopping boundary is also proved under natural structural assumptions.