

Stochastic Optimization via Grid Search

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This paper is concerned with the use of grid search as a means of optimizing an objective function that can be evaluated only through simulation. We study the question of how rapidly the number of replications per grid point must grow relative to the number of grid points, in order to reduce the "noise" in the function evaluations and guarantee consistency. This question is studied in the context of Gaussian noise, stable noise, and noise having a finite moment generating function. We particularly focus on the limit behavior in the "critical case".