## **Limit Theorems for Simulation-based Optimization via**

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This paper develops fundamental theory related to the use of simulation-based non-adaptive random search as a means of optimizing a function that can be expressed as an expectation. Our results establish rates of convergence that express the trade-off between exploration and estimation, and fully characterize the limit distributions that arise. Our rates of convergence results should be viewed as a baseline against which to compare more intelligent algorithms.

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