Automated Generation of Benchmarks with High Discriminatory Power for Specific Sets of Black Box Search Algorithms

Matthew Nuckolls

ABSTRACT

Determining the best black box search algorithm (BBSA) to use on any given optimization problem is difficult. It is self-evident that one BBSA will perform better than another, but determining a priori which BBSA will perform better is a task for which we currently lack theoretical underpinnings. A system could be developed to employ heuristic measures to compare a given optimization problem to a library of benchmark problems, where the best performing BBSA is known for each problem in the library. This paper describes a methodology for automatically generating benchmarks for inclusion in that library, via evolution of NK-Landscapes.

*The publication of this abstract is intended for educational purposes only from an internal symposium and its content has not been peer-reviewed.