

Unimodality Tests for Global Optimization of Single Variable Functions Using Statistical Methods

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ABSTRACT

This paper discusses the randomness and normality tests to the set of points which are obtained by splitting an interval under consideration into several subintervals for verifying that the optimization problem constitutes a Wiener process. Then, by using the optimization probabilistic algorithm, a best subinterval can be chosen for unimodality test and will be continued with a simple local search method, starting at any point in the such chosen best interval. Furthermore, numerical results are given to illustrate the tests.

Keywords: Global optimization, probability, randomness test, normality test, and unimodality test