Stochastic Models For Global Optimization Using Newton’s Method

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Abstract:
This paper will discuss the randomness and normality tests of the data collected by splitting
the interval [a,b] into several subintervals [xᵢ, xᵢ₊₁] (i = 0, ..., n-1) with x₀ = a and xₙ = b for verifying
that the optimization problem constitutes a Wiener process. Furthermore, the data can be used to
evaluate the efficiency of probabilistic algorithm as proposed in this paper in determining the best
subinterval to be explored by Newton’s method for searching the optimal point of global optimization
problem.

Keywords: Optimization, Wiener Process, Probabilistic, Newton’s Method