On quasirandom search

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# Introduction

This paper looks at a combination of methods for finding the global extremum of a function of several variables: the simulated annealing method[1] and the stochastic gradient descent method[2]. The simulated annealing method gives an initial approximation for the global extremum and the stochastic gradient descent method yields its more precise value. For a more complete study (given the same number of calculations) of the function's domain, quasirandom numbers are used instead of pseudorandom numbers[3]. A modified method of simulated annealing, as it's described in [4], is also used. This modification uses the fact that a function , as , converges to a function concentrated at the global extremum of ; where can have several equivalent extrema. To illustrate this algorithm's operation, a problem of regression experiment planning was chosen — finding the D-optimal experimental designs.

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**References**

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