Global optimization : a stochastic approach

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Abstrak

This self-contained monograph presents a new stochastic approach to global optimization problems arising in a variety of disciplines including mathematics, operations research, engineering, and economics. The volume deals with constrained and unconstrained problems and puts a special emphasis on large scale problems. It also introduces a new unified concept for unconstrained, constrained, vector, and stochastic global optimization problems. All methods presented are illustrated by various examples. Practical numerical algorithms are given and analyzed in detail. The topics presented include the randomized curve of steepest descent, the randomized curve of dominated points, the semi-implicit Euler method, the penalty approach, and active set strategies. The optimal decoding of block codes in digital communications is worked out as a case study and shows the potential and high practical relevance of this new approach.