

Simon, Dan

Evolutionary optimization algorithms. Biologically inspired and population-based approaches to computer intelligence. (English) [Zbl 1280.68008](#)

Hoboken, NJ: John Wiley & Sons (ISBN 978-0-470-93741-9/hbk). xxx, 742 p. (2013).

The book presents modern evolutionary solutions to optimization problems. Different natural computing techniques, in particular related to evolutionary algorithms, are thus reviewed. The topics approached throughout the book concern: evolutionary algorithms, genetic algorithms, evolutionary programming, evolution strategy, genetic programming, simulated annealing, ant colony optimization, particle swarm optimization, differential evolution, biogeography-based optimization, cultural algorithms, opposition-based learning, combinatorial optimization, constrained optimization, multi-objective optimization, and many others. The theory is accompanied by simple examples illustrating it intuitively. Mathematical tools for analyzing the algorithms are also provided. The author aimed the book as reference for advanced undergraduate students, graduate students, and professionals in computer science and engineering.

Reviewer: [Florin Gorunescu \(Craiova\)](#)

MSC:

- [68-02](#) Research exposition (monographs, survey articles) pertaining to computer science
- [68Txx](#) Artificial intelligence
- [90C90](#) Applications of mathematical programming
- [92B20](#) Neural networks for/in biological studies, artificial life and related topics

Cited in **4** Documents

Keywords:

evolutionary algorithms; genetic algorithms; evolutionary programming; evolution strategy; genetic programming; simulated annealing; ant colony optimization; particle swarm optimization; differential evolution; biogeography-based optimization; cultural algorithms; opposition-based learning; combinatorial optimization; constrained optimization; multi-objective optimization