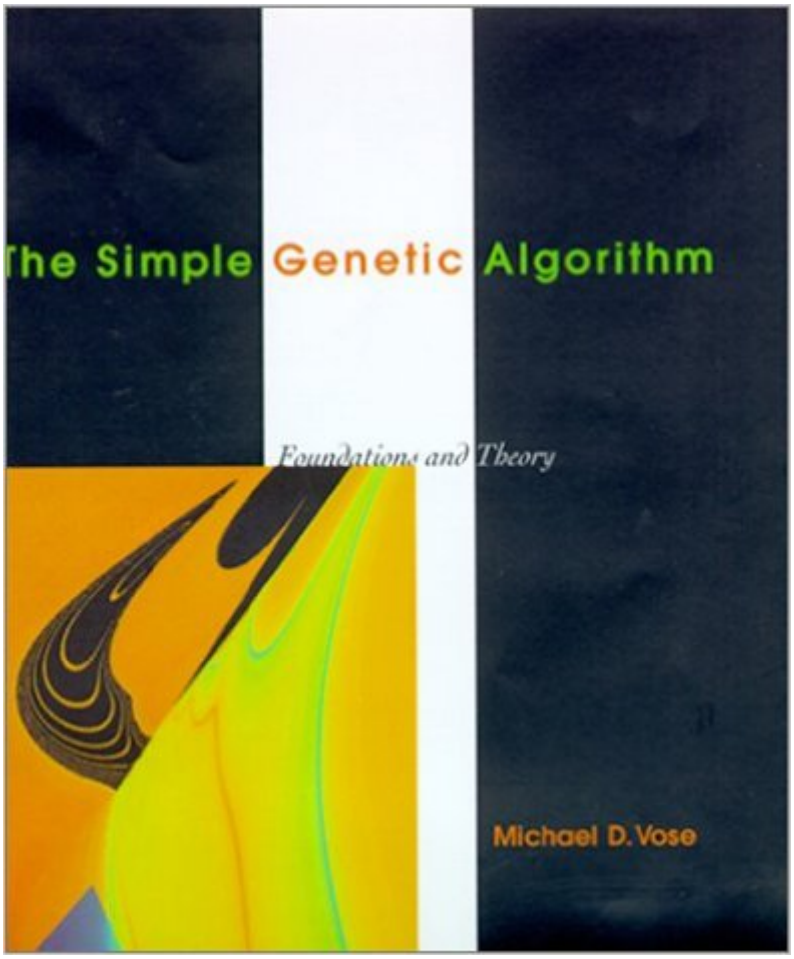
The Simple Genetic Algorithm: Foundations And Theory (Complex Adaptive Systems)



Synopsis

The Simple Genetic Algorithm (SGA) is a classical form of genetic search. Viewing the SGA as a mathematical object, Michael D. Vose provides an introduction to what is known (i.e., proven) about the theory of the SGA. He also makes available algorithms for the computation of mathematical objects related to the SGA. Although he describes the SGA in terms of heuristic search, the book is not about search or optimization per se. Rather, the focus is on the SGA as an evolutionary system. The author intends the book also to serve as an outline for exploring topics in mathematics and computer science in a goal-oriented way.

Book Information

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Customer Reviews

This book is for mathematicians or people who want to study genetic algorithms formally. If you are looking for a book that does not emphasize on the mathematical aspects and talks about parallels between genetic algorithms and natural selection,etc., then you should buy the books written by Goldberg or Mitchell.It is a great introduction to genetic algorithms for advanced undergraduate mathematics students or people with sufficient math knowledge and maturity. If you read it without these prerequisites, you will only be able to understand little bits and will get lost in the formalism.Prior knowledge of genetic algorithms is recommended. I did not give this book the perfect rating because I find that the author should introduce concepts intuitively before giving their mathematical definitions. I am aware that this can be a consequence of a lack of mathematical

maturity on my part. If you are tired of reading books on genetic algorithms that talk about natural selection,etc. but do not formalize the concepts involved, then this a book for you.

This book is the result of the author’s attempts to "really understand" evolutionary algorithms. It’s very mathematical and rigorous, though sometimes the formulation is not very usual. (a warning!) You may need a few references, and pondering.Is this a perfect book? Maybe not. But it’s very important for the deeper understanding of GA...a landmark great job!All people who are interested in the underpinning of GA should get this book. It’s also a good supplement for mathematical modeling in the sense that it presents a very hard topic that few people have tried to formulate. I mean a very good demonstration of modeling complicated structures like heuristic learning process. And also a good supplement of general dynamical systems.The style is kind of Dirac-like -- few words, short, original but you barely can add more words to the margins. It’s a kind of modernized Chinese meal -- less oily, but still nutritious!! I cannot find any annoying and useless aside in the whole book.The book is beautiful and well-bound, and nice paper, cover, etc. I got the hardback, though.

the word simple in the title can be misleading. it is not meant to give the impression that the material in the book is simple, but to say that the topic covered is reduced to the simpliest of genetic algorithm theory, and then, you are brutally raked over burning coals by it.the introduction given by the author could be mistaken as elitest, totalitarial propaganda for the next mathematical reich: condeming the application and biological euphamism that has been used to explain genetic algorithms while carrying the flag of pure mathematical abstraction. basically, all math and no play makes jack a dull boy, at least to those who wanted a simple introduction.i found the math sometimes unnecessarily complex at times, with notation being abused (ironically, the author in the introduction condems those that do this, too), and the level of rigor being uneven. all of this makes it sometimes difficult to follow. but, there are some sections that where there is no better explanation in any book but the detailed, well thought out, straight forward presentation here (look at the coverage of walsh and the complex examples sections).for anybody who uses ga’s daily, this is an essential read for a truly deep understanding. the two friends that i have loaned this book to, returned it in under a month scared away by the mathematics, prima facie; it really isn’t that bad and the understanding you get from this book is unparalled by any other dna-glossy-picture, darwinian-explanation filled excuse for a book.

I was lucky enough to have Dr. Vose for a graduate course in Genetic Algorithms at the University

of Tennessee. The course content was very similar to this book, and gave me the knowledge needed to successfully apply GA's to a wide range of real-life problems. Dr. Vose is a gifted mathematician and computer scientist, and I highly recommend this book.

Me ha ayudado mucho en mi trabajo.

The Simple Genetic Algorithm: Foundations and Theory (Complex Adaptive Systems) An Introduction to Genetic Algorithms (Complex Adaptive Systems) Advances in Genetic Programming (Complex Adaptive Systems) Advances in Genetic Programming, Vol. 3 (Complex Adaptive Systems) Advances in Genetic Programming, Vol. 2 (Complex Adaptive Systems) Fuzzy C-Means Clustering for Clinical Knowledge Discovery in Databases: Optimizing FCM using Genetic Algorithm for use by Medical Experts in Diagnostic Systems and Data Integration with SchemaSQL Signals and Boundaries: Building Blocks for Complex Adaptive Systems (MIT Press) Elements of Artificial Neural Networks (Complex Adaptive Systems) Model fitting of a bilinear material with genetic algorithm: with Matlab and Opensees Network Models and Optimization: Multiobjective Genetic Algorithm Approach (Decision Engineering) Hybrid Particle Swarm Algorithm for Multiobjective Optimization: Integrating Particle Swarm Optimization with Genetic Algorithms for Multiobjective Optimization IntAR, Interventions Adaptive Reuse, Volume 03; Adaptive Reuse in Emerging Economies The Design of Innovation: Lessons from and for Competent Genetic Algorithms (Genetic Algorithms and Evolutionary Computation) Genetic Algorithms and Genetic Programming in Computational Finance Location Determination within Wireless Networks: Dynamic indoor/outdoor Localization Systems: Algorithm Design, Performance Analysis and Comparison Study Boosting: Foundations and Algorithms (Adaptive Computation and Machine Learning series) Spoken Language Processing: A Guide to Theory, Algorithm and System Development Foundations of Machine Learning (Adaptive Computation and Machine Learning series) Foundations of Genetic Programming Foundations of Genetic Algorithms 1995 (FOGA 3) (v. 3)