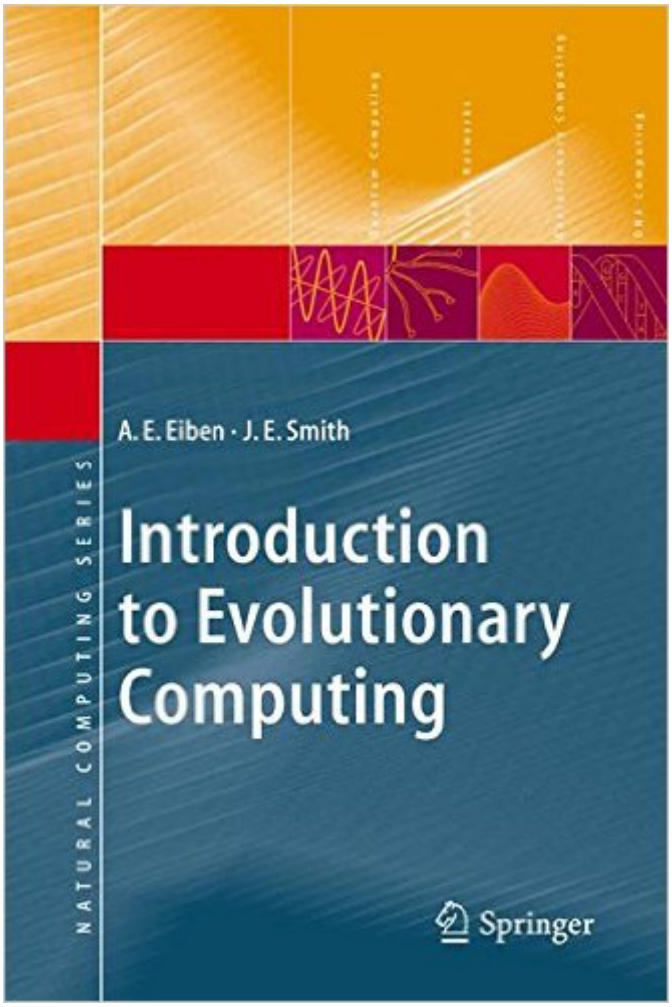
Introduction To Evolutionary Computing (Natural Computing Series)



Synopsis

The first complete overview of evolutionary computing, the collective name for a range of problem-solving techniques based on principles of biological evolution, such as natural selection and genetic inheritance. The text is aimed directly at lecturers and graduate and undergraduate students. It is also meant for those who wish to apply evolutionary computing to a particular problem or within a given application area. The book contains quick-reference information on the current state-of-the-art in a wide range of related topics, so it is of interest not just to evolutionary computing specialists but to researchers working in other fields.

Book Information

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Customer Reviews

I taught our introduction to evolutionary computation class from this book. It is a well rounded introduction to the topic covering most of the introductorty material you would expect. There is an real dearth of good introductory books for EC. This is probably the best because of its breadth. Its weakness is its lack of detail. It would not hurt if they covered the same material in about 50% more pages. As soon as they start a topic its over and on to the next topic. But if you are new to the field they give plenty of references and touch on most topics in enough detail for students to implement. All in all a good solid job.

The authors emphasise from the get-go that this book is meant as a practical introduction to the

application of evolutionary computing. It is not a high brow, abstruse monograph. (Which indeed Springer texts often are.)The level of discussion can be adequately understood by someone with a good background in computing and hopefully also in some science or engineering field. Certainly, there are important abstractions that must be mastered. Like how the evolutionary search can be seen as a path across a fitness landscape or potential energy surface. But there appears to be a careful explanation of the minimum necessary maths to convey an idea. And where a chapter's references might point to more specialised texts or journal papers that give a fuller math treatment.It may well be, as another reviewer remarked, that there is insufficient detail in some passages of this book. But perhaps the text is not meant to be a low level "user's manual" type of discussion.If you do find this book useful, consider a more advanced text, "Foundations of Genetic Programming" by Langdon and Poli, also published by Springer. It takes you deeper into the subject.

I have used evolutionary programming in my research in the past and have read several books on the topic. This is one of the most well written books available, that can easily be read by a beginner despite its depth. The conclusions that they draw are logical and supported by the appropriate references (I was not impressed with the theory and results in the field, but this has nothing to do with the quality of this book).

The book is easy and refreshing to read. Assuming only a minimum of prior knowledge, all the relevant aspects are covered. The focus is on practical applications, with numerous examples, simple equations and plenty of practical advise for the user.As should be the costum with every scientific introduction, the authors are at great pains to clarify the relationship between the different flavours of EC and to show how they historically developed.The book does not provide much on the mathematical level, though. Not even a basic graph theoretical analysis of mutation and recombination.This said, the book is still perfect to get you started.

This is an excellent textbook which covers most aspects of the Evolutionary Computing. It's suitable for all levels. It's easy to follow, rich in content and has many references (439 to be precise) for further information. The table of contents from the book's web site is as follows:1. Introduction2. What is an Evolutionary Algorithm?3. Genetic Algorithms4. Evolution Strategies5. Evolutionary Programming6. Genetic Programming7. Learning Classifier Systems8. Parameter Control in Evolutionary Algorithms9. Multi-Modal Problems and Spatial Distribution10. Hybridisation with Other Techniques: Memetic Algorithms11. Theory12. Constraint Handling13. Special Forms of

Evolution14. Working with Evolutionary Algorithms15. Summary16. Appendices17. Index18. References Recommended to everyone interested in EC.

I chose this book because I wanted an overview of evolutionary methods for AI.This book gave me exactly that.I recommend it to all that have to make decisions about using specific forms of evolutionary computing to achieve a goal.

it is a very helpful book for those who want to get the outline of evolutionary computing. it will offer a solid foundation for further study.