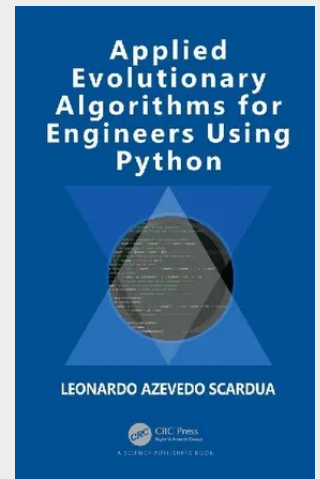


Applied Evolutionary Algorithms for Engineers using Python

This book meant for those who seek to apply evolutionary algorithms to problems in engineering and science. To this end, it provides the theoretical background necessary to the understanding of the presented evolutionary algorithms and their shortcomings, while also discussing themes that are pivotal to the successful application of evolutionary algorithms to real-world problems. The theoretical descriptions are illustrated with didactical Python implementations of the algorithms, which not only allow readers to consolidate their understanding, but also provide a sound starting point for those intending to apply evolutionary algorithms to optimization problems in their working fields. Python has been chosen due to its widespread adoption in the Artificial Intelligence community. Those familiar with high level languages such as MATLAB™ will not have any difficulty in reading the Python implementations of the evolutionary algorithms provided in the book. Instead of attempting to encompass most of the existing evolutionary algorithms, past and present, the book focuses on those algorithms that researchers have recently applied to difficult optimization problems, such as control problems with continuous action spaces and the training of high-dimensional convolutional neural-networks. The basic characteristics of real-world optimization problems are presented, together with recommendations on its proper application to evolutionary algorithms. The applied nature of the book is reinforced by the presentation of successful cases of the application of evolutionary algorithms to optimization problems. This is complemented by Python source codes, giving users an insight into the idiosyncrasies of the practical application of evolutionary algorithms.

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