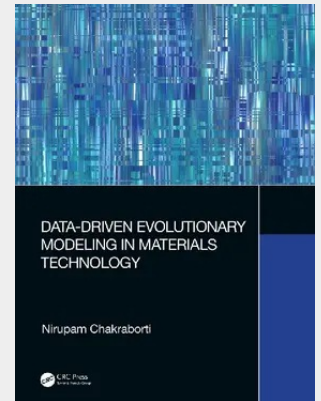


Data-Driven Evolutionary Modeling in Materials Technology

Due to efficacy and optimization potential of genetic and evolutionary algorithms, they are used in learning and modeling especially with the advent of big data related problems. This book presents the algorithms and strategies specifically associated with pertinent issues in materials science domain. It discusses the procedures for evolutionary multi-objective optimization of objective functions created through these procedures and introduces available codes. Recent applications ranging from primary metal production to materials design are covered. It also describes hybrid modeling strategy, and other common modeling and simulation strategies like molecular dynamics, cellular automata etc. Features: - Focuses on data-driven evolutionary modeling and optimization, including evolutionary deep learning. - Include details on both algorithms and their applications in materials science and technology. - Discusses hybrid data-driven modeling that couples evolutionary algorithms with generic computing strategies. - Thoroughly discusses applications of pertinent strategies in metallurgy and materials. - Provides overview of the major single and multi-objective evolutionary algorithms. This book aims at Researchers, Professionals, and Graduate students in Materials Science, Data-Driven Engineering, Metallurgical Engineering, Computational Materials Science, Structural Materials, and Functional Materials.

This book presents the genetic and evolutionary, algorithms and strategies associated with pertinent issues in materials science domain. It discusses the procedures for evolutionary multi-objective optimization of objective functions including available professional and public domain codes and a gamut of recent applications.



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