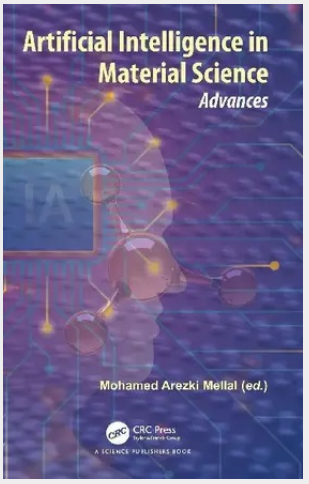
Mellal

Artificial Intelligence in Material Science

Advances



Artificial intelligence (AI) in the form of machine learning and nature-inspired optimization algorithms are vastly used in material science. These techniques improve many quality metrics, such as reliability and ergonomics. This book highlights the recent challenges in this field and helps readers to understand the subject and develop future works. It reviews the latest methods and applications of AI in material science. It covers a wide range of topics, including Material processing; Properties prediction; Conventional machining, such as turning, boring, grinding, and milling; non-conventional machining, such as electrical discharge machining, electrochemical machining, laser machining, plasma machining, ultrasonic machining, chemical machining, and water-jet machining; Machine tools, such as programming, design, and maintenance. AI techniques reviewed in the book include Machine learning, Fuzzy logic, Genetic algorithms, Particle swarm optimization, Cuckoo search, Grey wolf optimizer, and Ant colony optimization.

Material science is one of the sciences that utilizes Artificial Intelligence techniques, including machine learning and nature-inspired optimization algorithms, most extensively. This book reviews the latest methods and applications of AI in material science.

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