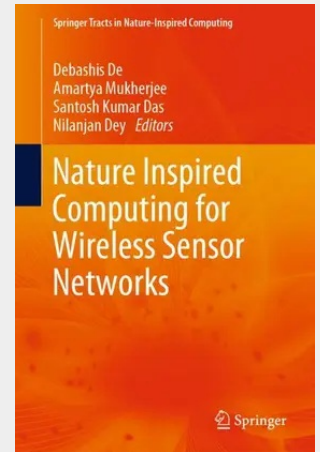


Nature Inspired Computing for Wireless Sensor Networks

This book presents nature inspired computing applications for the wireless sensor network (WSN). Although the use of WSN is increasing rapidly, it has a number of limitations in the context of battery issue, distraction, low communication speed, and security. This means there is a need for innovative intelligent algorithms to address these issues. The book is divided into three sections and also includes an introductory chapter providing an overview of WSN and its various applications and algorithms as well as the associated challenges. Section 1 describes bio-inspired optimization algorithms, such as genetic algorithms (GA), artificial neural networks (ANN) and artificial immune systems (AIS) in the contexts of fault analysis and diagnosis, and traffic management. Section 2 highlights swarm optimization techniques, such as African buffalo optimization (ABO), particle swarm optimization (PSO), and modified swarm intelligence technique for solving the problems of routing, network parameters optimization, and energy estimation. Lastly, Section 3 explores multi-objective optimization techniques using GA, PSO, ANN, teaching-learning-based optimization (TLBO), and combinations of the algorithms presented. As such, the book provides efficient and optimal solutions for WSN problems based on nature-inspired algorithms.

This book presents nature inspired computing applications for the wireless sensor network (WSN). Although the use of WSN is increasing rapidly, it has a number of limitations in the context of battery issue, distraction, low communication speed, and security. This means there is a need for innovative intelligent algorithms to address these issues. The book is divided into three sections and also includes an introductory chapter providing an overview of WSN and its various applications and algorithms as well as the associated challenges. Section 1 describes bio-inspired optimization algorithms, such as genetic algorithms (GA), artificial neural networks (ANN) and artificial immune systems (AIS) in the contexts of fault analysis and diagnosis, and traffic management. Section 2 highlights swarm optimization techniques, such as African buffalo optimization (ABO), particle swarm optimization (PSO), and modified swarm intelligence technique for solving the problems of routing, network parameters optimization, and energy estimation. Lastly, Section 3 explores multi-objective optimization techniques using GA, PSO, ANN, teaching-learning-based optimization (TLBO), and combinations of the algorithms presented. As such, the book provides efficient and optimal solutions for WSN problems based on nature-inspired algorithms.



160,49 €

149,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9789811521249

Medium: Buch

ISBN: 978-981-15-2124-9

Verlag: Springer

Erscheinungstermin: 02.02.2020

Sprache(n): Englisch

Auflage: 1. Auflage 2020

Serie: Springer Tracts in Nature-Inspired Computing

Produktform: Gebunden

Gewicht: 764 g

Seiten: 322

Format (B x H): 160 x 241 mm

