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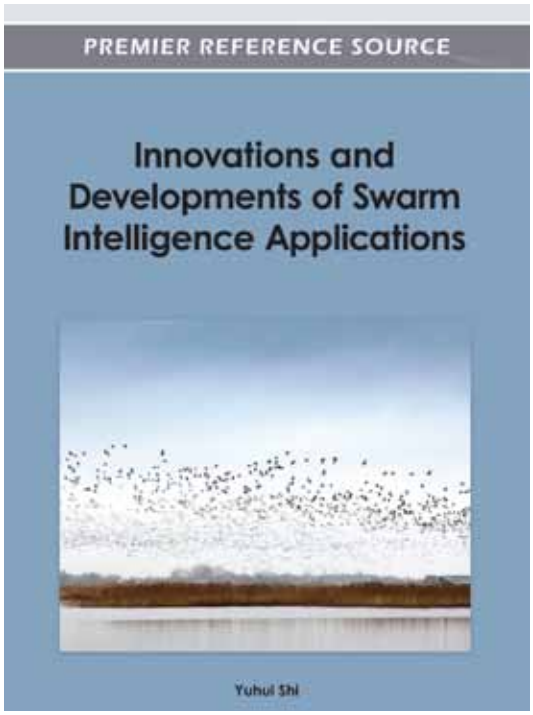
Innovations and Developments of Swarm Intelligence Applications



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The natural social behavior of large groups of animals, such as flocks of birds, schools of fish, or colonies of ants has fascinated scientists for hundreds of years, if not longer, due to the intricate nature of their interactions and their ability to move and work together seemingly effortlessly.

Innovations and Developments of Swarm Intelligence Applications explores the emerging realm of swarm intelligence, which finds its basis in the natural social behavior of animals. The study and application of this swarm behavior has led scientists to a new world of research as ways are found to apply this behavior to independent intelligent agents, creating complex solutions for real world applications. Worldwide contributions have been seamlessly combined in this comprehensive reference, providing a wealth of new information for researchers, academicians, students, and engineers.

Topics Covered:

- Ant colony optimization
- Constrained optimization
- Differential evolution
- Distributed multi-agent systems
- Foraging algorithm
- Hybrid algorithm
- Modeling and analysis of biological collective systems
- Multi-objective optimization
- Particle swarm optimization
- Swarm robotics

Market: This premier publication is essential for all academic and research library reference collections. It is a crucial tool for academicians, researchers, and practitioners and is ideal forclassroom use.

Yuhui Shi is a Professor of Electrical and Electronic Engineering at Xi'an Jiaotong-Liverpool University (XJTLU), (Suzhou, China). He is also the Director of the Research and Postgraduate Office at XJTLU. He is an adjunct professor at Indiana University Purdue University Indianapolis (Indiana, USA), Southeast University (Nanjing, China), and Jiangsu University (Zhenjiang, China), respectively. He has over eighteen years experience in algorithm design and implementation primarily using computational intelligence. He has extensively knowledge on innovation and creative problem-solving skills. Dr. Shi is an associate editor of the IEEE Transactions on Evolutionary Computation and the Chair of the IEEE CIS Task Force on Swarm Intelligence. He also serves as a member of the Editorial Review Board of the Journal of Swarm Intelligence. Dr. Shi has organized several international conferences since 2003, serving as the general chair or the program chair, etc.. He co-authored a book on swarm intelligence together with Dr. James Kennedy and Professor Russell Eberhart, and another book (Computational Intelligence: Concept to Implementation) together with Prof. Russell Eberhart. He has given tutorials and lectures in conferences and universities.

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