

Studies in Computational Intelligence

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Oscar Castillo · Patricia Melin
Editors

Fuzzy Logic Hybrid Extensions of Neural and Optimization Algorithms: Theory and Applications

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Preface

We describe in this book, recent developments on fuzzy logic, neural networks and meta-heuristic optimization algorithms, as well as their hybrid combinations, and their application in areas such as intelligent control and robotics, pattern recognition, medical diagnosis, time series prediction and optimization of complex problems. There are papers with the main theme of type-1 and type-2 fuzzy logic, which basically consists of papers that propose new concepts and algorithms based on type-1 and type-2 fuzzy logic and their applications. There are also papers that present theory and practice of meta-heuristics in different areas of application. There are interesting papers on diverse applications of fuzzy logic, neural networks and hybrid intelligent systems in medical applications. In addition, we can find papers describing applications of fuzzy logic, neural networks and meta-heuristics in robotics problems. Another set of papers are presenting theory and practice of neural networks in different areas of application, including convolutional and deep learning neural networks. There are also a group of papers that present theory and practice of optimization and evolutionary algorithms in different areas of application. Finally, we can find a set of papers describing applications of fuzzy logic, neural networks and meta-heuristics in pattern recognition problems.

In conclusion, the edited book comprises papers on diverse aspects of fuzzy logic, neural networks and nature-inspired optimization meta-heuristics for forming hybrid intelligent systems and their application in areas such as intelligent control and robotics, pattern recognition, time series prediction and optimization of complex problems. There are theoretical aspects as well as application papers.

Tijuana, Mexico
October 2020

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