Foreword

by Gerardo M. Mendez

Real world events can be considered as processes that are characterized by a behavior that is non-linear, noisy, uncertain, and time varying. In most cases, these processes can be mathematically modeled only with the usage of complex solutions, and in some of them, these processes do not have analytical solutions. Under this situation, soft computing theory has offered rational and intelligent methodologies in order to deal with these inherent and natural characteristics of real world events. Soft computing techniques can identify, create a model, generate a prediction, and execute the control of the process.

This book, published by IGI Global, USA, and edited by Dr. Pandian Vasant, offers to the reader, in a clear and integrated manner, the opportunity to know a rich variety of edge soft computing algorithms and their applications in real world problems. The knowledge techniques and the methodologies treated in the book are swarm intelligence and optimization, meta-heuristics algorithms, fuzzy-PID systems, hybrid fuzzy logic, neuro-fuzzy type-2 systems, tabu search, genetic algorithms, memetic algorithms, machine learning, vector machine, and kernel regression. Their applications are related to the multi-objective optimization, OCR detection of the Arabic languages, industrial processes control and automation, early warning for industrial systems, medical systems and healthcare, flow-shop scheduling, supply chain, least-cost routing plan, interconnection problem in cellular systems, and cold drilling of steel.

The book has been written by several expert authors from around the world. The readers of this book can be researchers, practitioners, graduate students, and undergraduate students. In addition, it can be read by industrialists, businessmen, teachers, engineers, managers, and financiers, among others.

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Gerardo M. Mendez graduated from the Technological Institute of Monterrey (ITESM) in Electronic Systems Engineering in 1985. He obtained a Master’s Degree in Business Administration from FACPYA, UANL in 1996 and the Doctoral Degree in Mechatronics Engineering from CIDESI – Conacyt in 2005. In 1993, he obtained a Certification in Control Engineering and Process Automation by General Electric Industrial Drive Systems in Roanoke, Virginia, USA. He began his career in Machinery Manufacturing Company (FAMA-Vitro) as an engineer in process automation and the Technological Institute of Monterrey (ITESM) in 1985 as an assistant professor. He worked at APM-IMSA in steel hot rolling mill in the area of plant engineering
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