

# Handbook of Research on Soft Computing and Nature-Inspired Algorithms

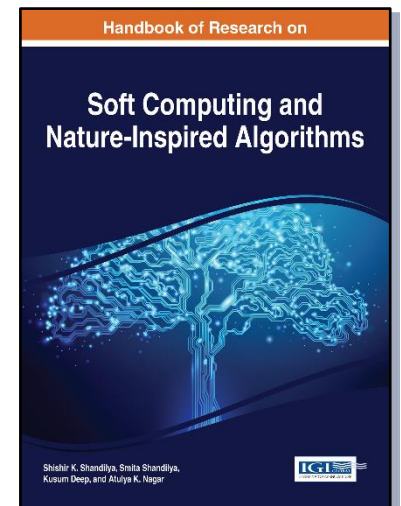
Part of the Advances in Computational Intelligence and Robotics Book Series

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## Description:

Soft computing and nature-inspired computing both play a significant role in developing a better understanding to machine learning. When studied together, they can offer new perspectives on the learning process of machines.

The **Handbook of Research on Soft Computing and Nature-Inspired Algorithms** is an essential source for the latest scholarly research on applications of nature-inspired computing and soft computational systems. Featuring comprehensive coverage on a range of topics and perspectives such as swarm intelligence, speech recognition, and electromagnetic problem solving, this publication is ideally designed for students, researchers, scholars, professionals, and practitioners seeking current research on the advanced workings of intelligence in computing systems.



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## Topics Covered:

- Electromagnetic Problem Solving
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- Fuzzy Logic
- Machine Learning
- Neural Computing
- Speech Recognition
- Swarm Intelligence

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### About the Contributors

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**Atulya K. Nagar** is the Foundation Professor of Computer and Mathematical Sciences at Liverpool Hope University and is Head of Department of Computer Science. A mathematician by training, Prof. Nagar brings multi-disciplinary expertise in computational science, bioinformatics, operations research and systems engineering to the Faculty of Business & Computer Sciences. He received a prestigious Commonwealth Fellowship for pursuing his Doctorate in applied non-linear mathematics, which he received from the University of York in 1996. Prof. Nagar is an internationally recognised scholar working at the cutting edge of theoretical computer science, applied mathematical analysis, operations research, and industrial systems engineering. The centre of his research expertise lies in his IDS group, which pursues strategic and applied research into advancing applications of engineering, computational and biological systems. The research of the group seeks to contribute to the general body of knowledge and to influence IT practice in systems modelling and planning, scheduling, optimisation, and informatics. One such innovative theme is DNA sequence analysis using sophisticated computational techniques. The work of the group is highly theoretical, and primarily benefits the scientific community, with demonstrable potential for practical applications and relevance to society as a whole. Prof. Nagar has published a substantial number of research papers in reputed outlets such as the IEE and IEEE publications. He has co-edited a volume on Intelligent Systems area and serves on editorial boards for a number of prestigious journals including the International Journal of Artificial Intelligence and Soft Computing, and the Journal of Universal Computer Science. Prof. Nagar was a Conference Chair for the European Modelling Symposium (EMS 2008); currently he is a Conference and TPC Chair for the Developments in E-Systems Engineering (DeSE'09) Conference ([www.dese.org.uk](http://www.dese.org.uk)); and he serves on International Programme Committees (IPC) for several international conferences. He has been an expert reviewer for the Biotechnology and Biological Sciences Research Council (BBSRC) grants peer-review committee for Bioinformatics Panel and has been selected to serve on the prestigious Peer-Review College of the Arts and Humanities Research Council (AHRC) as a Scientific/Technical expert member. He is a member of numerous professional organisations including the IEE; a fellow of the Higher Education Academy (FHEA); he is a member of the Council of Professors and Heads of Computing (CPHC); and has been listed in the invaluable reference Marquis' Who's Who in Science and Engineering. Prof. Nagar supervises PhD research projects in Computer Science and serves on PhD external examiner panels. He holds a Visiting Professorship at the University of Madras; and Adjunct Professorship at the Mathematics department at the Indian Institute of Technology (IIT), Roorkee. He is a member of the Board of Studies at Stella Maris College, India; external examiner for MSc Computer Science programme at Staffordshire University. His teaching expertise is in Applied Analysis, Systems Engineering and Computational Biology. Prof. Nagar earned his PhD in Applied Nonlinear Mathematics from the University of York (UK) in 1996. He holds BSc (Hons.), MSc and MPhil (with distinction) degrees, in Mathematical Sciences, from the MDS University of Ajmer, India. Prior to joining Liverpool Hope University, Prof. Nagar has worked for several years as a Senior Research Scientist, on various EPSRC sponsored research projects, in the department of Mathematical Sciences, and later in the department of Systems Engineering, at Brunel University. In the work at Brunel he has contributed to the development of new techniques based on mathematical control systems theory for modelling and analysis of uncertainty in complex decision making systems.

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