

# **Advances in Intelligent Systems and Computing**

Volume 816

## **Series editor**

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# Soft Computing for Problem Solving

SocProS 2017, Volume 1

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# Preface

SocProS, which stands for ‘Soft Computing for Problem Solving,’ is entering its seventh edition as an established and flagship international conference. This particular annual event is a joint collaboration between a group of faculty members from the institutes of repute like South Asian University, New Delhi; NIT Silchar; Liverpool Hope University, UK; IIT Roorkee; and IIT Bhubaneswar.

The first in the series of SocProS started in 2011 and was held from 20th to 22nd December on the IIT Roorkee Campus with Prof. Deep (IITR) and Prof. Nagar (Liverpool Hope University) as the general chairs. JKLU Jaipur hosted the second SocProS from December 28 to 30, 2012. Coinciding with the Golden Jubilee of the IIT Roorkee’s Saharanpur Campus, the third edition of this international conference, which has by now become a brand name, took place at the Greater Noida Extension Centre of IIT Roorkee during December 26–28, 2013. Afterward, in 2014, it has been organized at NIT Silchar, Assam, during December 27–29, 2014. The next conference series was held at Saharanpur Campus of IIT Roorkee during December 18–20, 2015. In the last year, Thapar University, Patiala, has hosted the conference during December 23–24, 2016.

Like earlier SocProS conferences, the focus of SocProS 2017 is on soft computing and its applications to real-life problems arising in diverse areas of medical and health care, supply chain management, signal processing and multimedia, industrial optimization, image processing, cryptanalysis, etc. SocProS 2017 attracted a wide spectrum of thought-provoking articles. A total of 164 high-quality research papers have been selected for publication in the form of this two-volume proceeding.

We hope that the papers contained in this proceeding will prove helpful toward improving the understanding of soft computing at teaching as well as research level and will inspire more and more researchers to work in the field of soft computing.

The editors would like to express their sincere gratitude to SocProS 2017 patron, plenary speakers, invited speakers, reviewers, program committee members, international advisory committee, and local organizing committee; without whose support, the quality and standards of the conference could not be maintained. We

express special thanks to Springer and its team for this valuable support in the publication of this proceeding.

Over and above, we would like to express our deepest sense of gratitude to the ‘Indian Institute of Technology (IIT) Bhubaneswar’ to facilitate the hosting of this conference. Our sincere thanks to all the sponsors of SocProS 2017.

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Kedar Nath Das  
Atulya Nagar  
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# About the Book

The proceedings of SocProS 2017 will serve as an academic bonanza for scientists and researchers working in the field of soft computing. This book contains theoretical as well as practical aspects using fuzzy logic, neural networks, evolutionary algorithms, swarm intelligence algorithms, etc., with many applications under the umbrella of ‘soft computing.’ The book will be beneficial for young as well as experienced researchers dealing across complex and intricate real-world problems for which finding a solution by traditional methods is a difficult task.

The different application areas covered in the proceedings are image processing, cryptanalysis, industrial optimization, supply chain management, newly proposed nature-inspired algorithms, signal processing, problems related to medical and health care, networking optimization problems, etc.

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