

# **Advances in Intelligent Systems and Computing**

Volume 883

## **Series editor**

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The series “Advances in Intelligent Systems and Computing” contains publications on theory, applications, and design methods of Intelligent Systems and Intelligent Computing. Virtually all disciplines such as engineering, natural sciences, computer and information science, ICT, economics, business, e-commerce, environment, healthcare, life science are covered. The list of topics spans all the areas of modern intelligent systems and computing such as: computational intelligence, soft computing including neural networks, fuzzy systems, evolutionary computing and the fusion of these paradigms, social intelligence, ambient intelligence, computational neuroscience, artificial life, virtual worlds and society, cognitive science and systems, Perception and Vision, DNA and immune based systems, self-organizing and adaptive systems, e-Learning and teaching, human-centered and human-centric computing, recommender systems, intelligent control, robotics and mechatronics including human-machine teaming, knowledge-based paradigms, learning paradigms, machine ethics, intelligent data analysis, knowledge management, intelligent agents, intelligent decision making and support, intelligent network security, trust management, interactive entertainment, Web intelligence and multimedia.

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Khalid Saeed · Nabendu Chaki  
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# Advanced Computing and Systems for Security

Volume Eight

 Springer

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# Preface

The Fifth International Doctoral Symposium on Applied Computation and Security Systems (ACSS 2018) was held at Kolkata, India, during February 9–11, 2018. The University of Calcutta in collaboration with Ca' Foscari University of Venice, Italy, and Bialystok University of Technology, Poland, organized the symposium.

The fifth year of the symposium was marked with a significant shift of research interests toward usage of machine learning based on signal processing and image analytics. It is truly interesting to find the increasing popularity of ACSS among researchers, this being one of its own kinds of symposium for doctoral students to showcase their ongoing research works on a global platform. Program Committee Members are each renowned researchers in his/her field of interest, and we thank them for taking immense care in finding out the pros and cons of each of the submissions for ACSS 2018. As in the previous years, Session Chairs for each session had a prior go-through of each paper to be presented during the respective sessions. This often makes it more interesting as we found deep involvement of Session Chairs in mentoring the young scholars during their presentations. With concrete suggestion on how to improve the presented works, the participants utilized the 6-week post-symposium time. The final version of the papers thus goes through the second level of modification as per Session Chair's comments.

These post-symposium book volumes contain the revised and improved version of the manuscripts of works presented during the symposium. The evolution of ACSS is an ongoing process. We had included deep learning in the scope of research interests in 2018. In 2018, considering the global interest, we plan to include pricing and network economics within the scope and announced the same in CFP for the next year. We have invited researchers working in the domains of algorithms, signal processing and analytics, security, image processing, and IoT to submit their ongoing research works.

The indexing initiatives from Springer have drawn a large number of high-quality submissions from scholars in India and abroad. We are indebted to all Program Committee Members, who, despite their immensely busy schedules, have given an intense reading of each allotted contribution. Each reviewer has given their constructive suggestions for the submitted works. ACSS continues with the

tradition of the double-blind review process by PC Members and by the external reviewers. The reviewers mainly considered the technical aspect and novelty of each paper, besides the validation of each work. This being a doctoral symposium, clarity of presentation was also given importance. The entire process of paper submission, review, and acceptance was done electronically. Due to the sincere efforts of Program Committee and Organizing Committee Members, the symposium resulted in a suite of strong technical paper presentations followed by effective discussions and suggestions for improvement for each researcher.

The technical program committee for the symposium selected only 24 papers for publication out of 64 submissions. We would like to take this opportunity to thank all Members of the program committee and the external reviewers for their excellent and time-bound review works. We thank all the sponsors who have come forward toward the organization of this symposium. These include Tata Consultancy Services (TCS), Springer Nature, ACM India, and M/s Fujitsu, Inc., India. We appreciate the initiative and support from Mr. Aninda Bose and his colleagues in Springer Nature for their strong support toward publishing this post-symposium book in the series “Advances in Intelligent Systems and Computing.” Last but not least, we thank all the authors without whom the symposium would not have reached up to this standard.

On behalf of the editorial team of ACSS 2018, we sincerely hope that ACSS 2018 and the works discussed in the symposium will be beneficial to all its readers and motivate them toward even better works.

Kolkata, India  
Bialystok, Poland  
Venice, Italy  
Kolkata, India

Rituparna Chaki  
Khalid Saeed  
Agostino Cortesi  
Nabendu Chaki

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**Nabendu Chaki** is a Professor at the Department of Computer Science & Engineering, University of Calcutta, Kolkata, India. He first graduated in Physics from the legendary Presidency College in Kolkata and then in Computer Science & Engineering from the University of Calcutta. He completed his Ph.D. from Jadavpur University, India in 2000. He shares 6 international patents, including 4 U.S. patents, with his students. Prof. Chaki has been active in developing international standards for software engineering and cloud computing as a member of the Global Directory (GD) for ISO-IEC. As well as editing more than 25 book volumes, Nabendu has authored 6 text- and research books and has published over 150 Scopus indexed research papers in journals and at international conferences. His areas of research interest include distributed systems, image processing and software engineering. Prof. Chaki also served as a Researcher in the Ph.D. program in Software Engineering at the U.S. Naval Postgraduate School, Monterey, CA. He is a visiting faculty member for numerous Universities in India and abroad. In addition to serving on the editorial board for several international journals, he has also been on the committees of over 50 international conferences. Prof. Chaki is the founder Chair of ACM Professional Chapter in Kolkata.