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# Advanced Computing and Intelligent Engineering

Proceedings of ICACIE 2018, Volume 2

# Advances in Intelligent Systems and Computing

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Editors

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 Springer

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# Preface

This volume contains the papers presented at the 3rd International Conference on Advanced Computing and Intelligent Engineering (ICACIE) 2018: The 3rd International Conference on Advanced Computing and Intelligent Engineering ([www.icacie.com](http://www.icacie.com)) was held during 22–24 December 2018 at the Institute of Technical Education and Research (ITER), Siksha ‘O’ Anusandhan (Deemed to be University), Bhubaneswar, India, in collaboration with Rama Devi Women’s University, Bhubaneswar, India, during 22–24 December 2018. There were 528 submissions, and each qualified submission was reviewed by a minimum of two Technical Program Committee members using the criteria of relevance, originality, technical quality and presentation. The committee accepted 103 full papers for oral presentation at the conference, and the overall acceptance rate is 20%.

ICACIE 2018 was an initiative taken by the organizers which focuses on research and applications on topics of advanced computing and intelligent engineering. The focus was also to present the state-of-the-art scientific results, to disseminate modern technologies and to promote collaborative research in the field of advanced computing and intelligent engineering.

Researchers presented their work in the conference and had an excellent opportunity to interact with eminent professors, scientists and scholars in their area of research. All participants were benefitted from discussions that facilitated the emergence of innovative ideas and approaches. Many distinguished professors, well-known scholars, industry leaders and young researchers participated in making ICACIE 2018 an immense success.

We also had a panel discussion on the emerging topic entitled “*Intellectual Property and Standardisation in Smart City*” consisting of panellists from software industries like TCS, Infosys, educationalist and entrepreneurs.

We thank all the Technical Program Committee members and all reviewers/sub-reviewers for their timely and thorough participation during the review process.

We express our sincere gratitude to Prof. Manojranjan Nayak, President, S ‘O’ A Deemed to be University and Chairman, Advisor Committee Prof. Damodar Acharya for their endless support towards organizing the conference. We extend our sincere thanks to Honourable Vice Chancellor Dr. Amit Banerjee for allowing us to organize

ICACIE 2018 on the campus and also for his timely support. We also express our sincere gratitude to Honourable Patron Vice Chancellor Prof. Padmaja Mishra, Rama Devi Women's University for her moral supports and ceaseless encouragement towards successful completion of the conference. We thank Prof. Pradeep Kumar Sahoo, Dean Faculty in Engineering and Technology, for his guidance in the local organization of ICACIE 2018. We also thank Prof. P. K. Nanda, Prof. Bibudhendu Pati and Prof. A. K. Nayak, General Chairs for their valuable guidance during review of papers as well as other aspects of the conference. We appreciate the time and efforts put in by the members of the local organizing team at Institute of Technical Education and Research (ITER), Siksha 'O' Anusandhan (Deemed to be) University, Bhubaneswar, India, especially the faculty members of the Department of Computer Applications, Computer Science and Information Technology, Computer Science and Engineering, student volunteers, administrative and hostel management staff, who dedicated their time and efforts to make ICACIE 2018 successful. We thank Er. Subhashis Das Mohapatra for designing and maintaining ICACIE 2018 web site.

Bhubaneswar, India  
Bhubaneswar, India  
Melbourne, Australia  
Taichung, Taiwan

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# About This Book

The book focuses on theory, practice and applications in the broad areas of advanced computing techniques and intelligent engineering. This two volumes book includes 109 scholarly articles, which have been accepted for presentation from 528 submissions in the 3rd International Conference on Advanced Computing and Intelligent Engineering held at Institute of Technical Education and Research (ITER), Siksha 'O' Anusandhan (Deemed to be) University, Bhubaneswar, India, in collaboration with Rama Devi Women's University, Bhubaneswar, India, during 22–24 December 2018. The first volume of this book consists of 54 papers, and second volume contains 49 papers with a total of 103 papers. This book brings together academic scientists, professors, research scholars and students to share and disseminate their knowledge and scientific research works related to advanced computing and intelligent engineering. It helps to provide a platform for the young researchers to find the practical challenges encountered in these areas of research and the solutions adopted. The book helps to disseminate the knowledge about some innovative and active research directions in the field of advanced computing techniques and intelligent engineering, along with some current issues and applications of related topics.



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