

Lecture Notes on Data Engineering and Communications Technologies

Volume 4

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The aim of the book series is to present cutting edge engineering approaches to data technologies and communications. It publishes latest advances on the engineering task of building and deploying distributed, scalable and reliable data infrastructures and communication systems.

The series has a prominent applied focus on data technologies and communications with aim to promote the bridging from fundamental research on data science and networking to data engineering and communications that lead to industry products, business knowledge and standardisation.

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Networking Communication and Data Knowledge Engineering

Volume 2

 Springer

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Preface

The International Conference on Recent Advancement in Computer, Communication and Computational Sciences (ICRACCCS 2016) has been held at Udaipur, India, during November 25–26, 2016. The ICRACCCS 2016 has been organized and supported by the **Janardan Rai Nagar Rajasthan Vidyapeeth University, Udaipur, India.**

The ICRACCCS 2016 is an international forum for researchers, developers, and end users to explore cutting-edge ideas and results for the problems involved in the general areas of communication, computational sciences, and technology to disseminate and share novel research solutions to real-life problems that fulfill the needs of heterogeneous applications and environments, as well to identify new issues and directions for future research and development. ICRACCCS also provides an international communication platform for educational technology and scientific research for the universities and engineering field experts, and professionals.

Nowadays, globalization of academic and applied research is growing with great pace. Computer, communication, and computational sciences are hot areas with lot of thrust. Keeping this ideology in preference, **Janardan Rai Nagar Rajasthan Vidyapeeth University, Udaipur, INDIA**, has come up with international event. ICRACCCS 2016 has a foreseen objective of enhancing the research activities at a large scale. Technical Program Committee and Advisory Board of ICRACCCS include eminent academicians, researchers, and practitioners from abroad as well as from all over the nation.

Udaipur, formerly the capital of the Mewar Kingdom, is a city in the western Indian state of Rajasthan. Founded by Maharana Udai Singh II in 1559, it is set around a series of artificial lakes and is known for its lavish royal residences. City Palace, overlooking Lake Pichola, is a monumental complex of 11 palaces, courtyards, and gardens, famed for its intricate peacock mosaics. Udaipur city is also referred to as the “**Venice of the East**”, the “**Most Romantic City of India**,” and the “**Kashmir of Rajasthan**”. Udaipur the “**City of Lakes**” is one among the most romantic and most beautiful cities of India. The city of Dawn, Udaipur, is a lovely land around the azure water lakes, hemmed in by the lush hills of the Aravallis.

Janardan Rai Nagar Rajasthan Vidyapeeth University, which was recognized in 1987 and established on August 21, 1937 by Manishi Pandit Janardan Rai Nagar, an eminent educationalist, social worker, and freedom fighter, with his team of dedicated workers. The University is now all set to take higher education to the masses that are still not getting benefits of various researches done for the socioeconomical and cultural values. The institution is not only spreading its wings of education in the country itself but has also entered into the area of international studies through academic exchange of its students and faculty members to Slippery Rock University, a prestigious university of USA. This is a step forward to the academic excellence and toward providing opportunity to the students and teachers of Rajasthan Vidyapeeth.

ICRACCCS 2016 received around 300 submissions from around 662 authors of 15 different countries such as USA, Algeria, China, Saudi Arabia, and many more. Each submission has been gone through the plagiarism check. On the basis of plagiarism report, each submission was rigorously reviewed by at least two reviewers with an average of 2.07 per reviewer. Even some submissions have more than two reviews. On the basis of these reviews, 48 high-quality papers were selected for publication in this proceedings volume, with an acceptance rate of 17%.

We are thankful to the speakers: Prof. Mohan Kohle, University of Agder, Norway, Dr. B.K. Panigrahi, IIT Delhi, Mr. Subhash Jagota, CEO, Global Business Solutions Pvt. Ltd., India, delegates and the authors for their participation, and their interest in ICRACCCS as a platform to share their ideas and innovation. We are also thankful to the Prof. Dr. Khafa, Fatos, Series Editor, LNDECT, Springer and Mr. Aninda Bose, Senior Editor, Hard Sciences, Springer for providing continuous guidance and support. Also, we extend our heartfelt gratitude and thanks to the reviewers and Technical Program Committee Members for showing their concern and efforts in the review process. We are indeed thankful to everyone directly or indirectly associated with the conference organizing team leading it toward the success.

We hope you enjoy the conference proceedings and wish you all the best.

Udaipur, India

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About the Book

Data science, data engineering, and knowledge engineering require networking and communication as a backbone and have wide scope of implementation in engineering sciences. Keeping this ideology in preference, this book includes the insights that reflect the advances in these fields from upcoming researchers and leading academicians across the globe. It contains high-quality peer-reviewed papers of ‘International Conference on Recent Advancement in Computer, Communication and Computational Sciences (ICRACCCS 2016)’, held at Janardan Rai Nagar Rajasthan Vidyapeeth University, Udaipur, India, during November 25–26, 2016. The volume covers variety of topics such as *Advanced Communication Networks, Artificial Intelligence and Evolutionary Algorithms, Advanced Software Engineering and Cloud Computing, Image Processing and Computer Vision, and Security*. The book will help the perspective readers from computer industry and academia to derive the advances of next generation communication and computational technology and shape them into real-life applications.

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Shailesh Tiwari currently works as a Professor in Computer Science and Engineering Department, ABES Engineering College, Ghaziabad, India. He is also administrative head of the department. He is an alumnus of Motilal Nehru National Institute of Technology Allahabad, India. He has more than 15 years of experience in teaching, research, and academic administration. His primary areas of research are software testing, implementation of optimization algorithms, and machine learning techniques in software engineering. He has published more than 40 publications in International Journals and in Proceedings of International Conferences of repute. He is also serving as a program committee member of several conferences and also editing Scopus and E-SCI-indexed journals. He has organized several international conferences under the banner of IEEE and Springer. He is a Senior Member of IEEE, member of IEEE Computer Society, and Executive Committee member of IEEE Uttar Pradesh section. He is a member of reviewer and editorial board of several International Journals and Conferences.

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