

# Advances in Intelligent Systems and Computing

Volume 1077

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Milan Tuba · Shyam Akashe ·  
Amit Joshi  
Editors

# ICT Systems and Sustainability

Proceedings of ICT4SD 2019, Volume 1

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ISSN 2194-5357

ISSN 2194-5365 (electronic)

Advances in Intelligent Systems and Computing

ISBN 978-981-15-0935-3

ISBN 978-981-15-0936-0 (eBook)

<https://doi.org/10.1007/978-981-15-0936-0>

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# Preface

The Fourth International Conference on ICT for Sustainable Development (ICT4SD 2019) targets theory, development, applications, experiences and evaluation of interaction sciences with fellow students, researchers and practitioners.

The conference may concern any topic within its scope. Workshops may be related to any topics within the scope of the conference. The conference is devoted to increase the understanding role of technology issues and how engineering has day by day evolved to prepare human-friendly technology. The conference will provide a platform for bringing forth significant research and literature across the field of ICT for Sustainable Development and provide an overview of the technologies awaiting unveiling. This interaction will be the focal point for leading experts to share their insights, provide guidance and address participant's questions and concerns.

The conference was held during 5–6th July 2019, at Hotel Vivanta By Taj, Panaji, Goa, India, and organized by Global Knowledge Research Foundation and supported by The Institution of Engineers, (India), Supporting Partner InterYIT, International Federation for Information Processing, State Chamber Partner Goa Chamber of Commerce & Industry, and National Chamber Partner Knowledge Chamber of Commerce & Industry.

Research submissions in various advanced technology areas were received, and after a rigorous peer review with the help of program committee members and 56 external reviewers for 519 papers from 8 different countries including Algeria, USA, United Arab Emirates, Serbia, Qatar, Mauritius, Egypt, Saudi Arabia, Ethiopia and Oman, 113 were accepted with an acceptance ratio of 0.11.

Technology is the driving force of progress in this era of globalization. Information and Communication Technology (ICT) has become a functional requirement for the socio-economic growth and sustained development of any country. The influence of Information Communication Technology (ICT) in shaping the process of globalization, particularly in productivity, commercial and financial spheres, is widely recognized. The ICT sector is undergoing a revolution that has momentous implications for the current and future social and economic situation of all the countries in the world. ICT plays a pivotal role in empowering

people for self-efficacy and how it can facilitate this mission to reach out to grassroots level. Finally, it is concluded that ICT is a significant contributor to the success of the ongoing initiative of Startup India.

In order to recognize and reward the extraordinary performance and achievements by ICT and allied sectors & promote universities, researchers and students through their research work adapting new scientific technologies and innovations, the two-day conference had presentations from the researchers, scientists, academia and students on the research works carried out by them in different sectors.

ICT4SD Summit is a flagship event of GR Foundation. This is the fourth edition. The summit was inaugurated by Dr. Pramod Sawant, Chief Minister of Goa, along with other eminent dignitaries including Shri Mangursh Pai Raikar, Chairperson, Assocham's National Council for MSME; Shri. Prajyot Mainkar, Chairman, IT Committee of Goa Chamber of Commerce and Industry; Mike Hinchey, President, IFIP and Chair, IEEE, UK and Ireland; Milan Tuba, Vice Rector for International Relations, Singidunum University, Serbia; and Shri Amit Joshi, Director, GR Foundation.

Dr. Pramod Sawant shared his views and aim on creating a world-class IT infrastructure and connectivity for e-governance in the state of Goa. Government is committed to create adequate infrastructure for the industry promotion of e-governance, e-education and streamlining of IT in Goa. He further stated that the infrastructure development and capacity building for promotion of IT is one of the main focus areas.

Shri Mangursh Pai Raikar, Chairperson, Assocham's National Council for MSME, said that this summit is to provide a common platform and bringing forth significant industries, researches and literatures across the field of ICT for Sustainable Development and provide an overview of the technologies awaiting unveiling along with recognizing and rewarding the extraordinary performance as well achievements by ICT and allied industries, communally.

Shri Prajyot Mainkar, Chairman, IT Committee of Goa Chamber of Commerce and Industry, highlighted and encouraged the entrepreneurship and said that GCCI will continue to support such programmes for larger public benefits with great degree of excellence.

The international dignitaries including Mike Hinchey, President, IFIP and Chair, IEEE, UK and Ireland and Milan Tuba, Vice Rector for International Relations, Singidunum University, Serbia, also highlighted the issues and opportunities in the information processing and education sector.

Belgrade, Serbia  
Gwalior, India  
Ahmedabad, India

Milan Tuba  
Shyam Akashe  
Amit Joshi

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## About the Editors

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**Amit Joshi** is a young entrepreneur and researcher who holds an M.Tech. in Computer Science and Engineering and is currently pursuing research in the areas of Cloud Computing and Cryptography. He has six years of academic and industrial experience at prestigious organizations in Udaipur and Ahmedabad. Currently, he is working as an Assistant Professor in the Department of Information Technology, Sabar Institute in Gujarat. He is an active member of the ACM, CSI, AMIE, IACSIT-Singapore, IDES, ACEEE, NPA, and many other professional societies. He also holds the post of Honorary Secretary of the CSI Udaipur Chapter and Secretary of the ACM Udaipur Chapter. He has presented and published more than 30 papers in national and international journals/conferences of the IEEE and ACM. He has edited three books, on Advances in Open Source Mobile Technologies, ICT for Integrated Rural Development, and ICT for Competitive Strategies. He has also organized more than 15 national and international conferences and workshops, including the International Conference ICTCS 2014 at Udaipur through the ACM-ICPS. In recognition of his contributions, he received the Appreciation Award from the Institution of Engineers (India) in 2014, and an award from the SIG-WNs Computer Society of India in 2012.