

Advances in Intelligent Systems and Computing

Volume 906

Series Editor

Janusz Kacprzyk, Systems Research Institute, Polish Academy of Sciences,
Warsaw, Poland

Advisory Editors

Nikhil R. Pal, Indian Statistical Institute, Kolkata, India

Rafael Bello Perez, Faculty of Mathematics, Physics and Computing,
Universidad Central de Las Villas, Santa Clara, Cuba

Emilio S. Corchado, University of Salamanca, Salamanca, Spain

Hani Hagras, School of Computer Science and Electronic Engineering,
University of Essex, Colchester, UK

László T. Kóczy, Department of Automation, Széchenyi István University,
Gyor, Hungary


Vladik Kreinovich, Department of Computer Science, University of Texas
at El Paso, El Paso, TX, USA

Chin-Teng Lin, Department of Electrical Engineering, National Chiao
Tung University, Hsinchu, Taiwan

Jie Lu, Faculty of Engineering and Information Technology,
University of Technology Sydney, Sydney, NSW, Australia

Patricia Melin, Graduate Program of Computer Science, Tijuana Institute
of Technology, Tijuana, Mexico

Nadia Nedjah, Department of Electronics Engineering, University of Rio de Janeiro,
Rio de Janeiro, Brazil

Ngoc Thanh Nguyen , Faculty of Computer Science and Management,
Wrocław University of Technology, Wrocław, Poland

Jun Wang, Department of Mechanical and Automation Engineering,
The Chinese University of Hong Kong, Shatin, Hong Kong

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.

The publications within “Advances in Intelligent Systems and Computing” are primarily proceedings of important conferences, symposia and congresses. They cover significant recent developments in the field, both of a foundational and applicable character. An important characteristic feature of the series is the short publication time and world-wide distribution. This permits a rapid and broad dissemination of research results.

**** Indexing: The books of this series are submitted to ISI Proceedings, EI-Compendex, DBLP, SCOPUS, Google Scholar and Springerlink ****

More information about this series at <http://www.springer.com/series/11156>

N. R. Shetty · L. M. Patnaik · H. C. Nagaraj ·
Prasad Naik Hamsavath · N. Nalini
Editors

Emerging Research in Computing, Information, Communication and Applications

ERCICA 2018, Volume 2

 Springer

Editors

N. R. Shetty
Central University of Karnataka
Kalaburagi, Karnataka, India

L. M. Patnaik
National Institute of Advanced Studies
Bangalore, Karnataka, India

H. C. Nagaraj
Nitte Meenakshi Institute of Technology
Bangalore, Karnataka, India

Prasad Naik Hamsavath
Nitte Meenakshi Institute of Technology
Bangalore, Karnataka, India

N. Nalini
Nitte Meenakshi Institute of Technology
Bangalore, Karnataka, India

ISSN 2194-5357 ISSN 2194-5365 (electronic)
Advances in Intelligent Systems and Computing
ISBN 978-981-13-6000-8 ISBN 978-981-13-6001-5 (eBook)
<https://doi.org/10.1007/978-981-13-6001-5>

Library of Congress Control Number: 2018966829

© Springer Nature Singapore Pte Ltd. 2019

This work is subject to copyright. All rights are reserved by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, expressed or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

This Springer imprint is published by the registered company Springer Nature Singapore Pte Ltd. The registered company address is: 152 Beach Road, #21-01/04 Gateway East, Singapore 189721, Singapore

Organizing Committee

ERCICA 2018

The Fifth International Conference on “Emerging Research in Computing, Information, Communication and Applications,” ERCICA 2018, was held during July 27–28, 2018, at the Nitte Meenakshi Institute of Technology (NMIT), Bangalore, and organized by the Departments of CSE and MCA, NMIT.

Chief Patrons

Dr. N. V. Hegde, President, Nitte Education Trust, Mangalore, India.
Dr. N. R. Shetty, Chancellor, Central University of Karnataka, Kalaburagi, and Advisor, Nitte Education Trust, Mangalore, India.

Conference Chair

Dr. H. C. Nagaraj, Principal, NMIT, Bangalore, India.

Program Chairs

Dr. Prasad Naik Hamsavath, HOD, MCA, NMIT, Bangalore, India.
Dr. N. Nalini, Professor, CSE, NMIT, Bangalore, India.

Publisher

Springer

Advisory Chairs

Dr. K. Sudha Rao, Advisor, Admin and Management, NMIT, Bangalore, India.

Mr. Rohit Punja, Administrator, NET, Mangalore, India.

Dr. Jharna Majumdar, Dean (R&D), NMIT, Bangalore, India.

Mr. K. A. Ranganatha Setty, Dean (Academic), NMIT, Bangalore, India.

Advisory Committee

Dr. L. M. Patnaik, INSA Senior Scientist, NIAS, Bangalore, India.

Dr. B. S. Sonde, Former Vice Chancellor, Goa University, Goa, India.

Dr. D. K. Subramanian, Former Dean and Professor, IISc, Bangalore, India.

Dr. K. D. Nayak, Former OS & CC, R&D (MED & MIST), DRDO, India.

Dr. Kalidas Shetty, Founding Director of Global Institute of Food Security and International Agriculture (GIFSIA), North Dakota State University, Fargo, USA.

Dr. Kendall E. Nygard, Professor of Computer Science and Operations Research, North Dakota State University, Fargo, USA.

Dr. Sathish Udpa, Dean and Professor, Michigan State University, Michigan, USA.

Dr. K. N. Bhat, Visiting Professor, Center for Nano Science and Engineering-CeNSE, IISc, Bangalore, India.

Dr. K. R. Venugopal, Principal, UVCE, Bangalore, India.

Dr. C. P. Ravikumar, Director, Technical Talent Development at Texas Instruments, Bangalore, India.

Dr. Navakanta Bhat, Chairperson, Center for Nano Science and Engineering-CeNSE, IISc, Bangalore, India.

Dr. Anand Nayyar, Professor, Researcher and Scientist in Graduate School, Duy Tan University, Da Nang, Vietnam.

Program Committee

Dr. Savitri Bevinakoppa, Professional Development and Scholarship Coordinator, School of IT and Engineering, Melbourne Institute of Technology (MIT), Australia.

Dr. P. Ramprasad, Professor, Department of CSE and IT, Manipal University, Dubai.

Dr. Ohta Tsuyoshi, Department of Computer Sciences, Shizuoka University, Japan.

Dr. Sonajharia Minz, Professor, School of Computer and Systems Sciences, Jawaharlal Nehru University, New Delhi, India.

Dr. Sanjay Kumar Dhurandher, Professor and Head, Department of Information Technology, Netaji Subhas Institute of Technology, New Delhi, India. Networks, University Putra Malaysia, Malaysia.

Dr. Ramesh R. Galigekere, Professor, Department of Biomedical Engineering, Manipal Institute of Technology, Manipal, Karnataka, India.

Dr. K. G. Srinivasa, CBP Government Engineering College, New Delhi, India.

Dr. S. Ramanarayana Reddy, HOD, Department of CSE, IGDTU for Women, Kashmere Gate, Delhi, India.

Dr. K. Raghavendra, Professor, School of Computing, National University of Singapore, Singapore.

Dr. Abhijit Lele, Principal Consultant, Robert Bosch, Bangalore, India.

Dr. Bappaditya Mandal, Faculty of Science, Engineering and Computing, Kingston University, London.

Organizing Co-chairs

Dr. M. N. Thippeswamy, Professor and Head, Department of CSE, NMIT, Bangalore, India.

Dr. H. A. Sanjay, Professor and Head, Department of ISE, NMIT, Bangalore, India.

Dr. S. Sandya, Professor and Head, Department of ECE, NMIT, Bangalore, India.

Dr. H. M. Ravikumar, Professor and Head, Department of EEE, NMIT, Bangalore, India.

Preface

The Fifth International Conference on “Emerging Research in Computing, Information, Communication and Applications,” ERCICA 2018, is an annual event organized at the Nitte Meenakshi Institute of Technology (NMIT), Yelahanka, Bangalore, India.

ERCICA aims to provide an interdisciplinary forum for discussion among researchers, engineers and scientists to promote research and exchange of knowledge in computing, information, communication and related applications. This conference will provide a platform for networking of academicians, engineers and scientists and also will enthruse the participants to undertake high-end research in the above thrust areas.

ERCICA 2018 received more than 400 papers from all over the world, viz. from China, UK, Africa, Saudi Arabia and India. The ERCICA Technical Review Committee has followed all necessary steps to screen more than 400 papers by going through six rounds of quality checks on each paper before selection for presentation/publication in Springer proceedings.

The acceptance ratio is only 1:3.

Bangalore, India
July 2018

Prasad Naik Hamsavath
N. Nalini

Acknowledgements

First of all, we would like to thank Prof. N. R. Shetty who has always been the guiding force behind this event's success. It was his dream that we have striven to make a reality. Our thanks to Prof. L. M. Patnaik, who has monitored the whole activity of the conference from the beginning till its successful end.

Our special thanks to Springer and especially the editorial staff who were patient, meticulous and friendly with their constructive criticism on the quality of papers and outright rejection at times without compromising the quality of the papers as they are always known for publishing the best international papers.

We would like to express our gratitude to all the review committee members of all the themes of computing, information, communication and applications and the best-paper-award review committee members.

Finally, we would like to express our heartfelt gratitude and warmest thanks to the ERCICA 2018 organizing committee members for their hard work and outstanding efforts. We know how much time and energy this assignment demanded, and we deeply appreciate all the efforts to make it a grand success.

Our special thanks to all the authors who have contributed to publishing their research work in this conference and participated to make this conference a grand success. Thanks to everyone who have directly or indirectly contributed to the success of this conference ERCICA 2018.

Regards
Program Chairs
ERCICA 2018

About the Conference

ERCICA 2018

The Fifth International Conference on “Emerging Research in Computing, Information, Communication and Applications,” ERCICA 2018, is an annual event jointly organized by the Departments of CSE and MCA during July 27–28, 2018, at the Nitte Meenakshi Institute of Technology (NMIT), Yelahanka, Bangalore, India.

ERCICA 2018 is organized under the patronage of Prof. N. R. Shetty, Advisor, Nitte Education Trust. Dr. L. M. Patnaik, Technical Advisor, NMIT, and Dr. H. C. Nagaraj, Principal, served as Conference Chairs, and Program Chairs of the conference were Dr. Prasad Naik Hamsavath, Professor and Head, MCA, and Dr. N. Nalini, Professor, CSE, NMIT, Bangalore, Karnataka.

ERCICA aims to provide an interdisciplinary forum for discussion among researchers, engineers and scientists to promote research and exchange of knowledge in computing, information, communication and related applications. This conference will provide a platform for networking of academicians, engineers and scientists and also will enthuse the participants to undertake high-end research in the above thrust areas.

For ERCICA 2019, authors are invited to submit the manuscripts of their original and unpublished research contributions to ercica.chair@gmail.com (ERCICA Web site: <http://nmit.ac.in/ercica/ercica.html>). All the submitted papers will go through a peer review process, and the corresponding authors will be notified about the outcome of the review process. There will be six rounds of quality checks on each paper before selection for presentation/publication. Authors of the selected papers may present their papers during the conference.

Theme Editors

Computing

Dr. N. Nalini
Dr. Thippeswamy M. N.

Information

Dr. Sanjay H. A.
Dr. Shakti Mishra

Communication

Dr. H. C. Nagaraj
Dr. Raghunandan S.
Prof. Sankar Dasiga

Application

Dr. Prasad Naik Hamsavath
Prof. Sitaram Yaji

Contents

Use of Blockchain for Smart T-Shirt Design Ownership	1
Ashley Alexsius D’Souza and Okstynn Rodrigues	
A Feasibility Study and Simulation of 450 kW Grid Connected Solar PV System at NMIT, Bangalore	7
B. Smitha, N. Samanvita and H. M. Ravikumar	
Prediction of a Dam’s Hazard Level	19
Urna Kundu, Srabanti Ghosh and Satyakama Paul	
Elemental Racing	29
Lingala Siva Karthik Reddy, Karthik Koka, Amiya Kumar Dash and Manjusha Pandey	
A Survey on Existing Convolutional Neural Networks and Waste Management Techniques and an Approach to Solve Waste Classification Problem Using Neural Networks	45
Tejashwini Hiremath and S. Rajarajeswari	
L1-Regulated Feature Selection in Microarray Cancer Data and Classification Using Random Forest Tree	65
B. H. Shekar and Guesh Dagneu	
Automated Delineation of Costophrenic Recesses on Chest Radiographs	89
Prashant A. Athavale and P. S. Puttaswamy	
Using Location-Based Service for Interaction	103
K. M. Deepika, Piyush Chaterjee, Sourav Kishor Singh, Writtek Dey and Yatharth Kundra	
Modeling Implementation of Big Data Analytics in Oil and Gas Industries in India	113
Dilip Motwani and G. T. Thampi	

Practical Market Indicators for Algorithmic Stock Market Trading: Machine Learning Techniques and Grid Strategy	121
Ajithkumar Sreekumar, Prabhasa Kalkur and Mohammed Moiz	
A Review on Feature Selection Algorithms	133
Savina Colaco, Sujit Kumar, Amrita Tamang and Vinai George Biju	
A Review on Ensembles-Based Approach to Overcome Class Imbalance Problem	155
Sujit Kumar, J. N. Madhuri and Mausumi Goswami	
“College Explorer” An Authentication Guaranteed Information Display and Management System	173
Sonali Majumdar, K. M. Monika Patel, Arushi Gupta and M. N. Thippeswamy	
Activity-Based Music Classifier: A Supervised Machine Learning Approach for Curating Activity-Based Playlists	185
B. P. Aniruddha Achar, N. D. Aiyappa, B. Akshaj, M. N. Thippeswamy and N. Pillay	
New Password Embedding Technique Using Elliptic Curve Over Finite Field	199
D. Sravana Kumar, C. H. Suneetha and P. Sirisha	
Performance of Wind Energy Conversion System During Fault Condition and Power Quality Improvement of Grid-Connected WECS by FACTS (UPFC)	211
Sudeep Shetty, H. L. Suresh, M. Sharanappa and C. H. Venkat Ramesh	
Comprehensive Survey on Hadoop Security	227
Maria Martis, Namratha V. Pai, R. S. Pragathi, S. Rakshatha and Sunanda Dixit	
Descriptive Data Analysis of Real Estate Using Cube Technology	237
Gursimran Kaur and Harkiran Kaur	
Temporal Information Retrieval and Its Application: A Survey	251
Rakshita Bansal, Monika Rani, Harish Kumar and Sakshi Kaushal	
A Survey on Multi-resolution Methods for De-noising Medical Images	263
G. Bharath, A. E. Manjunath and K. S. Swarnalatha	
Performance Analysis of Vedic Multiplier with Different Square Root BK Adders	273
Ranjith B. Gowda, R. M. Banakar and Basavaprasad	

Analysis of Traffic Characteristics of Skype Video Calls Over the Internet 287
 Gulshan Kumar and N. G. Goudru

Smart Tourist Guide (Touristo) 299
 M. R. Sowmya, Shashi Prakash, Shubham K. Singh, Sushent Maloo and Sachindra Yadav

Thefted Vehicle Identification System and Smart Ambulance System in VANETs 313
 S. R. Nagaraja, N. Nalini, B. A. Mohan and Afroz Pasha

Performance Study of OpenMP and Hybrid Programming Models on CPU–GPU Cluster 323
 B. N. Chandrashekhar and H. A. Sanjay

Signature Analysis for Forgery Detection 339
 Dinesh Rao Adithya, V. L. Anagha, M. R. Niharika, N. Srilakshmi and Shastry K. Aditya

Optimal Sensor Deployment and Battery Life Enhancement Strategies to Employ Smart Irrigation Solutions for Indian Agricultural Sector 351
 M. K. Ajay, H. A. Sanjay, Sai Jeevan, T. K. Harshitha, M. Farhana mobin and K. Aditya Shastry

Smart Waste Monitoring Using Wireless Sensor Networks 363
 T. V. Chandan, R. Chaitra Kumari, Renu Tekam and B. V. Shruti

Digital Filter Technique Used in Signal Processing for Analysing of ECG Signal 371
 A. E. Manjunath, M. V. Vijay Kumar and K. S. Swarnalatha

GeoFencing-Based Accident Avoidance Notification for Road Safety 379
 Bhavyashree Nayak, Priyanka S. Mugali, B. Raksha Rao, Saloni Sindhava, D. N. Disha and K. S. Swarnalatha

An Innovative IoT- and Middleware-Based Architecture for Real-Time Patient Health Monitoring 387
 B. A. Mohan and H. Sarojadevi

Travelling Salesman Problem: An Empirical Comparison Between ACO, PSO, ABC, FA and GA 397
 Kinjal Chaudhari and Ankit Thakkar

Twitter Data Sentiment Analysis on a Malayalam Dataset Using Rule-Based Approach 407
 Deepa Mary Mathews and Sajimon Abraham

An IoT-Based Smart Water Microgrid and Smart Water Tank Management System	417
Shubham Kumar, Sushmita Yadav, H. M. Yashaswini and Sanket Salvi	
Smart Sensing for Vehicular Approach	433
Mukesh Chandra Sah, Chandan Kumar Sah, Shuhaib Akhter Ansari, Anjit Subedi, A. C. Ramachandra and P. Ushashree	
Android Malware Detection Techniques	449
Shreya Khemani, Darshil Jain and Gaurav Prasad	
A Comparative Study of Machine Learning Techniques for Emotion Recognition	459
Rhea Sharma, Harshit Rajvaidya, Preksha Pareek and Ankit Thakkar	
IoT-Based Smart Parking System	465
G. Abhijith, H. A. Sanjay, Aditya Rajeev, Chidanandan, Rajath and Mohan Murthy	
Smart Agricultural Monitoring System Using Internet of Things	473
H. V. Asha, K. Kavya, S. Keerthana, G. Kruthika and R. Pavithra	
Detecting Healthiness of Leaves Using Texture Features	483
Srishti Shetty, Zulaikha Lateef, Sparsha Pole, Vidyadevi G. Biradar, S. Brunda and H. A. Sanjay	
A Survey on Different Network Intrusion Detection Systems and CounterMeasure	497
Divya Rajput and Ankit Thakkar	
Compressed Sensing for Image Compression: Survey of Algorithms	507
S. K. Gunasheela and H. S. Prasantha	
Intrusion Detection System Using Random Forest on the NSL-KDD Dataset	519
Prashil Negandhi, Yash Trivedi and Ramchandra Mangrulkar	
Dual-Mode Wide Band Microstrip Bandpass Filter with Tunable Bandwidth and Controlled Center Frequency for C-Band Applications	533
Shobha I. Hugar, Vaishali Mungurwadi and J. S. Baligar	
ADHYAYAN—An Innovative Interest Finder and Career Guidance Application	541
Akshay Talke, Virendra Patil, Sanyam Raj, Rohit Kr. Singh, Ameya Jawalgekar and Anand Bhosale	

Implementation of Cure Clustering Algorithm for Video Summarization and Healthcare Applications in Big Data 553
 Jharna Majumdar, Sumant Udandakar and B. G. Mamatha Bai

Redundancy Management of On-board Computer in Nanosatellites 565
 Shubham, Vikash Kumar, Vishal Pandey, K. Arun Kumar and S. Sandya

A Fault Tolerant Architecture for Software Defined Network 571
 Bini Y. Baby, B. Karunakara Rai, N. Karthik, Akshith Chandra, R. Dheeraj and S. RaviShankar

Optimal Thresholding in Direct Binary Search Visual Cryptography for Enhanced Bank Locker System 589
 Sandhya Anne Thomas and Saylee Gharge

Comparison Between the DDFS Implementation Using the Look-up Table Method and the CORDIC Method 601
 Anish K. Navalgund, V. Akshara, Ravali Jadhav, Shashank Shankar and S. Sandya

Adding Intelligence to a Car 609
 Komal Suresh, Svati S. Murthy, Usha Nanthini, Shilpa Mondal and P. Raji

Thermal Care and Saline Level Monitoring System for Neonatal Using IoT 619
 Huma Kousar Sangreskop

Home Security System Using GSM 627
 P. Mahalakshmi, Raunak Singhanian, Debabrata Shil and A. Sharmila

Automatic Toll Tax Collection Using GSM 635
 P. Mahalakshmi, Viraj Pradip Puntambekar, Aayushi Jain and Raunak Singhanian

Facial Expression Recognition by Considering Nonuniform Local Binary Patterns 645
 K. Srinivasa Reddy, E. Sunil Reddy and N. Baswanth

About the Editors

Prof. N. R. Shetty is the Chancellor of Central University of Karnataka, Kalaburagi, and Chairman of the Review Commission for the State Private University Karnataka. He is currently serving as an advisor to the Nitte Meenakshi Institute of Technology (NMIT), Bangalore. He is also founder Vice-President of the International Federation of Engineering Education Societies (IFEES), Washington DC, USA. He served as Vice Chancellor of Bangalore University for two terms and President of the ISTE, New Delhi for three terms. He was also a member of the AICTE's Executive Committee and Chairman of its South West Region Committee.

Prof. L. M. Patnaik obtained his Ph.D. in Real-Time Systems in 1978, and his D.Sc. in Computer Systems and Architectures in 1989, both from the Indian Institute of Science, Bangalore. From 2008 to 2011, he was Vice Chancellor of the Defense Institute of Advanced Technology, Deemed University, Pune. Currently he is an Honorary Professor with the Department of Electronic Systems Engineering, Indian Institute of Science, Bangalore, and INSA Senior Scientist and Adjunct Professor with the National Institute of Advanced Studies, Bangalore.

Dr. H. C. Nagaraj completed his B.E. in Electronics & Communication from the University of Mysore in 1981, his M.E. in Communication Systems from P.S.G College of Technology, Coimbatore in 1984. He was awarded Ph.D. (Biomedical Signal Processing and Instrumentation) from Indian Institute of Technology Madras, Chennai in 2000. Dr. Nagaraj has teaching experience spanning more than 35 years. He was the Chairman, BOS of IT/BM/ML of Visvesvaraya Technological University, Belagavi for 2010–13 and Member, Academic Senate of VTU for 06 years w.e.f. April 2010. Further extended for a period of three years w.e.f. 02-06-2016. He has the credit of publishing more than 40 technical papers and has also published a book—"VLSI Circuits", Star-Tech Education, Bangalore in 2006. He has won the Best Student Paper Award at the 5th National Conference of Biomechanics held at I.I.T. Madras, Chennai in 1996 and Best Paper Award at the Karnataka State Level Seminar on "Introduction of Flexible System in Technical

Education” under Visveswaraiiah Technological University in 1999 at P.E.S. Institute of Technology, Bangalore. Presently, he is the Dean, Faculty of Engineering, Visvesvaraya Technological University Belgaum, for three years from 2016 to 2019 and Member of the Court, Pondicherry University. He is the Member of Karnataka State Innovation Council, Government of Karnataka and Member of NAAC (UGC) Peer Team to assess the institutions for Accreditation. He has also visited as an Expert Member of the UGC, New Delhi for inspecting the colleges seeking Autonomous Status.

Dr. Prasad Naik Hamsavath is a Professor and Head of the Department of Master of Computer Applications at Nitte Meenakshi Institute of Technology, Bangalore. He completed his Ph.D. at Jawaharlal Nehru University, New Delhi, India. Dr. Prasad N H has more than 12 years of experience in different roles in both public and private sector enterprises, including the Ministry of Human Resource and Development, New Delhi, Government of India. He received the prestigious “Dr. Abdul Kalam Life Time Achievement Award” and also received a “Young Faculty” award at the 2nd Academic Brilliance Awards.

Dr. N. Nalini is a Professor at the Department of Computer Science and Engineering at Nitte Meenakshi Institute of Technology, Bangalore. She received her MS from BITS, Pilani in 1999 and her Ph.D. from Visvesvaraya Technological University in 2007. She has more than 21 years of teaching and 14 years of research experience. She has written numerous international publications, and **Received “Bharath Jyoti Award” by India International Friendship Society, New Delhi on 2012**, from Dr. Bhishma Narain Singh, former Governor of Tamilnadu and Assam. She received the **“Dr. Abdul Kalam Life time achievement National Award” for excellence in Teaching, Research Publications, and Administration by International Institute for Social and Economic Reforms, IISER, Bangalore on 29th Dec 2014**. She is also the recipient of “Distinguished Professor” award by TechNext India 2017 in association with Computer Society of India-CSI, Mumbai Chapter and “Best Professor in Computer Science & Engineering “award by **26th Business School Affaire & Dewang Mehta National Education Awards (Regional Round) on 5th September 2018, at Bangalore**. She is a lifetime member of the ISTE, CSI, ACEEE and IIFS.