Mayank Singh · P.K. Gupta Vipin Tyagi · Arun Sharma Tuncer Ören · William Grosky (Eds.)

Communications in Computer and Information Science

721

## Advances in Computing and Data Sciences

First International Conference, ICACDS 2016 Ghaziabad, India, November 11–12, 2016 Revised Selected Papers





Mayank Singh · P.K. Gupta Vipin Tyagi · Arun Sharma Tuncer Ören · William Grosky (Eds.)

## Advances in Computing and Data Sciences

First International Conference, ICACDS 2016 Ghaziabad, India, November 11–12, 2016 Revised Selected Papers





Editors Mayank Singh Krishna Engineering College Ghaziabad, Uttar Pradesh India

P.K. Gupta Jaypee University of Information Technology Waknaghat, Himachal Pradesh India

Vipin Tyagi Department of Computer Science and Engineering Jaypee University of Engineering and Technology Guna, Raghogarh, Madhya Pradesh India

Arun Sharma Indira Gandhi Delhi Technical University New Delhi India

Tuncer Ören School of Electrical Engineering and Computer Science University of Ottawa Ottawa, ON Canada

William Grosky Department of Computer and Information University of Michigan-Dearborn Dearborn, MI USA

ISSN 1865-0929 ISSN 1865-0937 (electronic) Communications in Computer and Information Science ISBN 978-981-10-5426-6 ISBN 978-981-10-5427-3 (eBook) DOI 10.1007/978-981-10-5427-3 Arning Resource

Library of Congress Control Number: 2017945739

© Springer Nature Singapore Pte Ltd: 2017 OFTA SI 1804 Till.

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, express 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.

Printed on acid-free paper

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

## **Contents**

Advanced Computing	
A Survey on Location Recommendation Systems	3
A Comparative Study and Performance Analysis of Classification Techniques: Support Vector Machine, Neural Networks and Decision Trees Kumarshankar Raychaudhuri, Manoj Kumar, and Sanjana Bhanu	13
A Novel Technique for Segmenting Platelets by k-Means Clustering Kaushiki Roy, Ratnadeep Dey, Debotosh Bhattacharjee, Mita Nasipuri, and Pramit Ghosh	22
Additive Noise Removal by Combining Non Local Means Filtering and a Local Fuzzy Filter – A Fusion Approach	30
An Incremental Verification Paradigm for Embedded Systems	40
Artificial Intelligence Based Recommender Systems: A Survey	50
Assembling Swarm with Limited Visibility in Presence of Line Obstacles Pratibha Tokas, Aravind Mekala, and Deepanwita Das	60
Clustering Proficient Students Using Data Mining Approach	70
Designing of a Gender Based Classifier for Western Music	81
Detecting Malwares Using Dynamic Call Graphs and Opcode Patterns K.P. Deepta and A. Salim	91
Development of Secured Trust SLA Model from SLA Life Cycle Phases Manjula Shanbhog, Krista Chaudhary, Mayank Singh,	102

and Shailendra Mishra

S. Nithya and A. Salim

Dimensionality Reduction by Distance Covariance and Eigen

112

Artificial Neural Network (ANN)	123
Hybrid Segmentation Technique Using Wavelet Packet and Watershed Transform for Medical Images	132
Image Modelling: A Feature Detection Approach for Steganalysis	140
Implementation of Medical Image Watermarking Technique Using FPGA S. Sivakannan, G. Thirugnanam, and P. Mangaiyarkarasi	149
IoV: The Future of Automobiles	158
Measuring Branch Coverage for the SOA Based Application Using Concolic Testing	165
Mutation Analysis of Stateflow to Improve the Modelling Analysis Prachi Goyal, Manju Nanda, and J. Jayanthi	173
Prioritization of Near-Miss Incidents Using Text Mining and Bayesian Network	183
Security Integration in Big Data Life Cycle	192
Trust Based Energy Efficient Clustering Protocol in Wireless Sensor Networks for Military Applications	201
Using Morphological Features to Simplify Complex Sentences in Punjabi Language	210
Communications	
A Comparative Study of Internet Protocols in MANET	221
A Novel Bulk Drain Connected 6T SRAM Cell	232

Contents	XXI
Blood Pressure Control During Anaesthesia With and Without Transport Delay	243
Brain-Bot: An Unmanned Ground Vehicle (UGV) Using Raspberry Pi and Brain Computer Interface (BCI) Technology	252
Contact Dynamics Emulation Using Leap Motion Controller	262
Dynamic Two Level Threshold Estimation for Zero Motion Prejudgment:  A Step Towards Fast Motion Estimation	272
Emerging Technologies, Applications and Futuristic Scope of Cognitive Vehicular Network for 5G Wireless Systems	282
Intuitionistic Fuzzy PROMETHEE Technique for Multi-criteria Decision Making Problems Based on Entropy Measure	290
Ku Band Microstrip Rectangular Patch	302
Least Time Based Weighted Load Balancing Using Software  Defined Networking	309
QoS and QoE in Wireless Multicast Communication	315
Signed Social Networks: A Survey	326
Text Document Clustering Based on Neural K-Mean Clustering Technique Daljeet Kaur and Jagpuneet Kaur Bajwa	336
Informatics	
An Accelerated Approach for Generalized Entropy Based MRI Image Segmentation	347

Automatic Face Naming Using Image Processing: A Review Study Based on Face Name Detection in Images or Videos	357
Directional Contourlet Based Multi-resolution Image Fusion Method for INSAT Images	369
Feature Extraction Methods for Human Gait Recognition – A Survey Sugandhi K., Farha Fatina Wahid, and Raju G.	377
Modeling the Decline of Orkut with Popularity in Facebook	386
Optimizing Support Vector Machines for Multi-class Classification J.K. Sahoo and Akhil Balaji	393
Scalable Online Analytics on Cloud Infrastructures	399
User Search Intention in Interactive Data Exploration: A Brief Review Archana Dhankar and Vikram Singh	409
Internet of Things	
A Novel Ultra Low Power Current Comparator	423
A Secure Multi-owner Multi-copy Facility with Privacy Preserving on Public Storage Cloud Dynamic Data	433
A Technique to Reduce Problem of Delay in Key Rekeying in Mobile Networks	448
Automated Learning Based Water Management and Healthcare System Using Cloud Computing and IoT	457
Challenging Issues of Video Surveillance System Using Internet of Things in Cloud Environment	471
Dynamic Orchestration Model for Complex Business Processes:  An Application to e-SCMS	482

Contents	XXIII
Efficient Vehicle Detection and Classification for Traffic Surveillance System	495
Graphical and Theoretical Approach of Thermodynamics in Cyclic Theory of Universe	504
Supplier Performance Evaluation for Manufacturing Industries:  Re-exploring with Big Data Analysis	516
Data Sciences	
A Distributed, Scalable Computing Facility for Big Data Analytics in Atmospheric Physics	529
Abstracting Communication Methodology in IoT Sensors to Eliminate Redundancy and Cycles	541
Analysis of Application Layer Protocols in Internet of Things S. Sasirekha, S. Swamynathan, S. Chandini, and K. Keerthana	550
Classification of Emotions from Images Using Localized Subsection Information	562
Comparative Study of Classification Techniques for Weather Data Shweta Panjwani, S. Naresh Kumar, and Laxmi Ahuja	572
Content Based Component Retrieval Based on Neural Network (NN)  Classification Method	577
Data Mining Classification Models for Industrial Planning	585
Designing a Smart-Contract Application Layer for Transacting  Decentralized Autonomous Organizations	595
Digitization of Ancient Manuscripts and Inscriptions - A Review N. Jayanthi, S. Indu, Snigdhaa Hasija, and Prateek Tripathi	605

## XXIV Contents

Heart Disease Prediction System Using Random Forest Yeshvendra K. Singh, Nikhil Sinha, and Sanjay K. Singh	613
MapReduce Based Multilevel Association Rule Mining from Concept Hierarchical Sales Data	624
Author Index	637