Contents

Signal and Image Processing

Removal of BW and Respiration Noise in abdECG for fECG Extraction ........................................ 3
Jeffy Joseph, J. Rolant Gini, and K.I. Ramachandran

Early Stage Detection of Diabetic Retinopathy
Using an Optimal Feature Set ................................. 15
S.D. Shirbahadurkar, Vijay M. Mane, and D.V. Jadhav

Exploring Cepstral Coefficient Based Sleep Stage Scoring Method
for Single-Channel EEG Signal Using Machine Learning Technique ... 24
S. Rajalakshmi and R. Venkatesan

Non Linear Tracking Using Unscented Kalman Filter ................. 38
P. Sudheesh and M. Jayakumar

An Analysis on the Influence that the Position and Number of Control
Points Have on MLS Registration of Medical Images ............... 47
Hema P. Menon

Component Characterization of Western and Indian Classical Music ... 57
Shivam Sharma, Seema Ghisingh, and Vinay Kumar Mittal

Design and Performance Analysis of Step Graded Dielectric Profile
High Gain Flexible Textile Antennas for Radiolocation Military
and Aeronautical Radio Navigation Applications ................... 70
Kirtan Kaur, Sneh Kanwar Singh Sidhu, Aman Nag, Raveena Bhatoa,
and Ekambir Sidhu

An Experimental Setup of DSA Algorithm Suitable for High
Bandwidth Data Transfer Using USRP and GNU Radio Companion ... 81
S. Naveen Naik and B. Malarkodi
Influence of Filter Bank Structure on the Statistical Significance of Coefficients in Cepstral Analysis for Acoustic Signals ............... 91
Akhil Jose, Justin Joseph, Glan Devadas, and M.M. Shinu

Particle Filtering Technique for Fast Fading Shadow Power Estimation in Wireless Communication ............ 105
S. Jaiyant Gopal, J.P. Anita, and P. Sudheesh

A Novel Cyclic Convolution Based Regularization Method for Power-Line Interference Removal in ECG Signal ............... 116
V.G. Sujadevi, K.P. Soman, S. Sachin Kumar, and Neethu Mohan

Object Detection and Localization Using Compressed Sensing .... 127
Poonam Ashok Deotale and Preetida Vinayakray-Jani

Vehicle License Plate Detection Using Image Segmentation and Morphological Image Processing ................. 142
Wasif Shafaet Chowdhury, Ashikur Rashid Khan, and Jia Uddin

An Improved Approach for Securing Document Images Using Dual Cover ............................................ 155
R.E. Vinodhini, P. Malathi, and T. Gireesh Kumar

Dependency of Various Color and Intensity Planes on CNN Based Image Classification ........................... 167
Rajan Sachin, V. Sowmya, D. Govind, and K.P. Soman

Epigraphic Document Image Enhancement Using Retinex Method .... 178
H.T. Chandrakala and G. Thippeswamy

Improved Microaneurysm Detection in Fundus Images for Diagnosis of Diabetic Retinopathy ......... 185
V. Dharani and R. Lavanya

Intelligent Recognition Techniques and Applications

Swarm Robots in a Closed Loop Visual Odometry System by Using Visible Light Communication ............. 201
Dhiraj Patil, Kewal Shah, Udit Patadia, Nilay Sheth, Rahul Solanki, and Anshuman Singh

An Adaptive Neuro-Fuzzy Inference System Based Situation Awareness Assessment in VLC Enabled Connected Cars ...... 213
P. Balakrishnan, Gnana Guru Ganesan, Ezhilarasi Rajapackiyam, and Umamakeswari Arumugam

Speech Recognition Using Feed Forward Neural Network and Principle Component Analysis ................. 228
Nusrat Momo, Abdullah, and Jia Uddin
Machine Learning-Based Method and Its Performance Analysis for Occupancy Detection in Indoor Environment ........................................ 240
Sachin Kumar, Shobha Rai, Rampal Singh, and Saibal K. Pal

Identifying Issues in Estimating Parameters from Speech Under Lombard Effect ............................................................... 252
M. Aiswarya, D. Pravena, and D. Govind

Classification of Alzheimer and MCI Phenotypes on MRI Data Using SVM ................................................................. 263
K.R. Kruthika, Rajeswari, Akshay Pai, and H.D. Maheshappa

Real-Time Traffic Light Signal Recognition System for a Self-driving Car ................................................................. 276
Nakul Agarwal, Abhishek Sharma, and Jieh Ren Chang

RGB-Depth Image Based Human Detection Using Viola-Jones and Chan-Vese Active Contour Segmentation .................. 285
Puji Lestari and Hans-Peter Schade

Choice of the Scheduling Technique Taking into Account the Subcontracting Optimization ........................................ 297
Konstantin Aksyonov, Anna Antonova, and Natalia Goncharova

Feature Based Opinion Mining for Restaurant Reviews ............. 305
Nithin Y.R and Poornalatha G.

Exploring the Significance of Low Frequency Regions in Electroglottographic Signals for Emotion Recognition ............. 319
S.G. Ajay, D. Pravena, D. Govind, and D. Pradeep

Tamil Speech Emotion Recognition Using Deep Belief Network(DBN) ................................................................. 328
M. Srikanth, D. Pravena, and D. Govind

Unsupervised Auditory Saliency Enabled Binaural Scene Analyzer for Speaker Localization and Recognition .................. 337
R. Venkatesan and A. Balaji Ganesh

Applying Machine Learning Techniques for Sentiment Analysis in the Case Study of Indian Politics .......................... 351
Annapurna P. Patil, Dimple Doshi, Darshan Dalsaniya, and B.S. Rashmi

An Efficient Method for Detecting Electrical Spark and Fire Flame from Real Time Video .................................. 359
Sonia Corraya and Jia Uddin

Speaker-Independent Automatic Speech Recognition System for Mobile Phone Applications in Punjabi .................. 369
Puneet Mittal and Navdeep Singh
ReviseOnTheGo – Immersive Mobile Applications for Accelerated Mathematics Learning ........................................ 383
Atharva Kimbahune, Sanjay Kimbahune, and Snehal Kimbahune

Analysis of the Electric Arc Furnace Workshop Logistic Processes Using Multiagent Simulation ........................................ 390
Konstantin Aksyonov, Anna Antonova, and Natalia Goncharova

Development of Intelligent Petrol Supplies Planning System .................. 398
K.A. Aksyonov, A.L. Nevolina, H.L. Ayvazyan, and O.P. Aksyonova

A Model for an Emotional Respondent Robot .................................... 406
Ayşe E. Sancar and Elena Battini Sönmez

A Combined Feature Extraction Method for Automated Face Recognition in Classroom Environment .................. 417
Md. Shafiqul Islam, Asif Mahmud, Azmina Akter Papeya, Irin Sultana Onny, and Jia Uddin

A Low Cost Intelligent Smart System for Real Time Child Monitoring in the School ........................................ 427
Pruthvi Raj Myakala, Rajasree Nalumachu, and V.K. Mittal

Optimized Cost-Based Biomedical Workflow Scheduling Algorithm in Cloud ........................................ 439
N. Mohanapriya and G. Kousalya

Automated Electric Bill Generation System Using Internet of Things ........................................ 449
Shreyas H.N., Nikhil Aatrei M, Sumesh S. Iyer, and Prakash P

Author Index ................................................ 459
Advances in Signal Processing and Intelligent Recognition Systems
2018, XIV, 460 p. 264 illus., Softcover
ISBN: 978-3-319-67933-4