Contents

Part I Medical Image Processing and Analysis

Proposed Intelligent System to Identify the Level of Risk of Cardiovascular Diseases Under the Framework of Bioinformatics ........................................ 3
Somsubahra Gupta and Annwesha Banerjee

Real Time Eye Detection and Tracking Method for Driver Assistance System ....................................... 13
Sayani Ghosh, Tanaya Nandy and Nilotpal Manna

Preprocessing in Early Stage Detection of Diabetic Retinopathy Using Fundus Images ..................................... 27
Vijay M. Mane, D.V. Jadhav and Ramish B. Kawadiwale

Magnetic Resonance Image Quality Enhancement Using Transform Based Hybrid Filtering ...................... 39
Manas K. Nag, Subhranil Koley, Chandan Chakraborty and Anup Kumar Sadhu

Histogram Based Thresholding for Automated Nucleus Segmentation Using Breast Imprint Cytology ................ 49
Monjoy Saha, Sanjit Agarwal, Indu Arun, Rosina Ahmed, Sanjoy Chatterjee, Pabitra Mitra and Chandan Chakraborty

Separation of Touching and Overlapped Human Chromosome Images ............................................... 59
V. Sri Balaji and S. Vidhya
## Contents

**Combination of CT Scan and Radioimmunoscintigraphy in Diagnosis and Prognosis of Colorectal Cancer.**
Sutapa Biswas Majee, Narayan Chandra Majee and Gopa Roy Biswas...

**Enhanced Color Image Segmentation by Graph Cut Method in General and Medical Images**
B. Basavaprasad and M. Ravi...

**A New Approach for Color Distorted Region Removal in Diabetic Retinopathy Detection**
Nilarun Mukherjee and Himadri Sekhar Dutta...

### Part II Biomedical Instrumentation and Measurements

**A New Heat Treatment Topology for Reheating of Blood Tissues After Open Heart Surgery**
Palash Pal, Pradip Kumar Sadhu, Nitai Pal and Prabir Bhomik...

**Real Time Monitoring of Arterial Pulse Waveform Parameters Using Low Cost, Non-invasive Force Transducer**
S. Aditya and V. Harish...

**Selection of Relevant Features from Cognitive EEG Signals Using ReliefF and MRMR Algorithm**
Ankita Mazumder, Poulami Ghosh, Anwesha Khasnobish, Saugat Bhattacharyya and D.N. Tibarewala...

**Generalised Orthogonal Partial Directed Coherence as a Measure of Neural Information Flow During Meditation**
Laxmi Shaw, Subodh Mishra and Aurobinda Routray...

**An Approach for Identification Using Knuckle and Fingerprint Biometrics Employing Wavelet Based Image Fusion and SIFT Feature Detection**
Aritra Dey, Akash Pal, Aroma Mukherjee and Karabi Ganguly Bhattacharjee...

**Development of a Multidrug Transporter Deleted Yeast-Based Highly Sensitive Fluorescent Biosensor to Determine the (Anti)Androgenic Endocrine Disruptors from Environment**
Shamba Chatterjee and Sayanta Pal Chowdhury...
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simulation of ICA-PI Controller of DC Motor in Surgical Robots for Biomedical Application</td>
<td>175</td>
</tr>
<tr>
<td>Milan Sasmal and Rajat Bhattacharjee</td>
<td></td>
</tr>
<tr>
<td>Development of a Wireless Attendant Calling System for Improved Patient Care</td>
<td>185</td>
</tr>
<tr>
<td>Debeshi Dutta, Biswajeet Champaty, Indranil Banerjee, Kunal Pal and D.N. Tibarewala</td>
<td></td>
</tr>
<tr>
<td>A Review on Visual Brain Computer Interface</td>
<td>193</td>
</tr>
<tr>
<td>Deepak Kapgate and Dhananjay Kalbande</td>
<td></td>
</tr>
<tr>
<td>Design of Lead-Lag Based Internal Model Controller for Binary Distillation Column</td>
<td>207</td>
</tr>
<tr>
<td>Rakesh Kumar Mishra and Tarun Kumar Dan</td>
<td></td>
</tr>
<tr>
<td>Clinical Approach Towards Electromyography (EMG) Signal Capturing Phenomenon Introducing Instrumental Activity</td>
<td>215</td>
</tr>
<tr>
<td>Bipasha Chakrabarti, Shilpi Pal Bhowmik, Swarup Maity and Biswarup Neogi</td>
<td></td>
</tr>
<tr>
<td>Brain Machine Interface Automation System: Simulation Approach</td>
<td>225</td>
</tr>
<tr>
<td>Prachi Kewate and Pranali Suryawanshi</td>
<td></td>
</tr>
<tr>
<td>Cognitive Activity Classification from EEG Signals with an Interval Type-2 Fuzzy System</td>
<td>235</td>
</tr>
<tr>
<td>Shreyasi Datta, Anwesha Khasnobish, Amit Konar and D.N. Tibarewala</td>
<td></td>
</tr>
<tr>
<td>Performance Analysis of Feature Extractors for Object Recognition from EEG Signals</td>
<td>249</td>
</tr>
<tr>
<td>Anwesha Khasnobish, Saugat Bhattacharyya, Amit Konar and D.N. Tibarewala</td>
<td></td>
</tr>
<tr>
<td>Rectangular Patch Antenna Array Design at 13 GHz Frequency Using HFSS 14.0</td>
<td>263</td>
</tr>
<tr>
<td>Vasujadevi Midasala, P. Siddaiah and S. Nagakishore Bhavanam</td>
<td></td>
</tr>
</tbody>
</table>
Automated Neural Network Based Classification of HRV and ECG Signals of Smokers: A Preliminary Study
Suraj Kumar Nayak, Ipsita Panda, Biswajeet Champaty, Niraj Bagh, Kunal Pal and D.N. Tibarewala

Reliable, Real-Time, Low Cost Cardiac Health Monitoring System for Affordable Patient Care
Meghamala Dutta, Sourav Dutta, Swati Sikdar, Deepneha Dutta, Gayatari Sharma and Ashika Sharma

Part IV Embedded Systems and Its Applications in Healthcare

An Ultra-Wideband Microstrip Antenna with Dual Band-Filtering for Biomedical Applications
Subhashis Bhattacharyya, Amrita Bhattacharya and Indranath Sarkar

Design of Cryoprobe Tip for Pulmonary Vein Isolation
B. Sailalitha, M. Venkateswara Rao and M. Malini

Designing of a Multichannel Biosignals Acquisition System Using NI USB-6009
Gaurav Kulkarni, Biswajeet Champaty, Indranil Banerjee, Kunal Pal and Biswajeet Mohapatra

Arsenic Removal Through Combined Method Using Synthetic Versus Natural Coagulant
Trina Dutta and Sangita Bhattacherjee

Development of Novel Architectures for Patient Care Monitoring System and Diagnosis
M.N. Mamatha

Review on Biocompatibility of ZnO Nano Particles
Ananya Barman

Tailoring Characteristic Wavelength Range of Circular Quantum Dots for Detecting Signature of Virus in IR Region
Swapan Bhattacharyya and Arpan Deyasi

Methodology for a Low-Cost Vision-Based Rehabilitation System for Stroke Patients
Arpita Ray Sarkar, Goutam Sanyal and Somajyoti Majumder
Coacervation—A Method for Drug Delivery .......................... 379
Lakshmi Priya Dutta and Mahuya Das

A Simulation Study of Nanoscale Ultrathin-Body
InAsSb-on-Insulator MOSFETs ........................................... 387
Swagata Bhattacherjee and Subhasri Dutta

Author Index ............................................................... 393
Advancements of Medical Electronics
Proceedings of the First International Conference, ICAME 2015
Gupta, S.; Bag, S.; Ganguly, K.; Sarkar, I.; Biswas, P. (Eds.)
2015, XXVI, 394 p. 210 illus., Hardcover