Contents

An In-Silico Structural Analysis of the Interactions of SoxY and SoxZ from Moderately Thermophilic Betaproteobacterium, *Hydrogenophilus thermoluteolus* in the Global Sulfur Oxidation Cycle .......................................................... 1
Sujay Ray and Angshuman Bagchi

The Effect of T192M Mutation in Stability of Alpha Dystroglycan: Study with Molecular Dynamics Simulation .................................................. 11
Simanti Bhattacharya, Amit Das, Rakhi Dasgupta and Angshuman Bagchi

Intermolecular Interaction Study of Dissimilatory Sulfite Reductase (DsrAB) from Sulfur Oxidizing Proteobacteria *Allchromatium vinosum* ................................................................. 19
Semanti Ghosh and Angshuman Bagchi

Structural Bioinformatic Approach to Understand the Molecular Mechanism of the Interactions of Small Heat Shock Proteins IbpA and IbpB with Lon Protease ............................... 29
Sanchari Bhattacharjee, Rakhi Dasgupta and Angshuman Bagchi

Computer Based Self-Pacing Instructional Design Approach in Learning with Respect to Gender as a Variable ............................................. 37
Santoshi Halder, Sanju Saha and Soumita Das

Use of Machine Learning Features to Detect Protein-Protein Interaction Sites at the Molecular Level .............................................................. 49
Angshuman Bagchi
### Contents

**Mutual Interaction Study Between DnaK-GroEL-FtSH with Heat Shock Regulator σ32 to Explain Prokaryotic Heat Shock Regulation** ................................... 55  
Sourav Singha Roy, Monobesh Patra, Rakhi Dasgupta and Angshuman Bagchi

**Molecular Structure and Packing Analysis of Two Nematogenic Fluoro-Phenyl Compounds in the Crystalline Phase** .............. 63  
Sripada Haldar, Pradip Kumar Mandal and Wolfgang Haase

**Fractal Image Compression with Adaptive Quadtree Partitioning and Lossless Encoding on the Parameters of Affine Transformations** ........................................ 73  
Utpal Nandi and Jyotsna Kumar Mandal

**EMD Based Features for Discrimination of Focal and Non-focal EEG Signals** ........................................ 85  
Manish Gehlot, Yogit Kumar, Harshita Meena, Varun Bajaj and Anil Kumar

**HHT Based Features for Discrimination of EMG Signals** .......... 95  
Gaurav Sahu, Nishant Chaurasia, Prem Prakash Suwalka, Varun Bajaj and Anil Kumar

**Understanding the Interaction of Human Formin Binding Protein 4 with Formin FMN1** ........................................ 105  
Amit Das, Simanti Bhattacharya, Angshuman Bagchi and Rakhi Dasgupta

**In-Silico Structural Analysis of SoxF Protein Through Molecular Modelling and Protein-Protein Docking from *Hydrogenophilus thermoluteolus*: An Approach to Understand the Molecular Mechanism of Thiosulfate Oxidation** ......................... 115  
Sujay Ray and Angshuman Bagchi

**Structural Analyses of the Mode of Binding Between AANAT Protein with 14-3-3 Protein Involved in Human Melatonin Synthesis** ........................................ 127  
Ananya Ali, Sanchari Bhattacharjee and Angshuman Bagchi

**Development of E-Learning System in Grid Environment** .......... 133  
Sajal Mitra, Ajanta Das and Sarbani Roy
A Weighted Concept Map Approach to Generate Learning Guidance in Science Courses ........................................ 143
Anal Acharya and Devadatta Sinha

Fingerprint Recognition by Divide and Conquer Method ........... 153
Samayita Bhattacharya and Kalyani Mali

Nonlocal Speckle Denoising Model Based on Non-linear Partial Differential Equations ............................... 165
Arundhati Bagchi Misra and Hyeona Lim

Optimal Multilevel Image Threshold Selection Using a Novel Objective Function ........................................ 177
V. Rajinikanth and M.S. Couceiro

Molecular Docking Analysis of AHL Molecule on Plant Protein ARR10 ...................................................... 187
Anamika Basu and Anasua Sarkar

A Remote Login Password Authentication Scheme Using Row Vector with Biometric .................................... 195
Shipra Kumari and Hari Om

A Symmetric Key Cryptosystem Using DNA Sequence with OTP Key ....................................................... 207
Asish Aich, Alo Sen, Satya Ranjan Dash and Satchidananda Dehuri

Text Localization in Camera Captured Images Using Adaptive Stroke Filter ............................................. 217
Shauvik Paul, Satadal Saha, Subhadip Basu and Mita Nasipuri

Dynamic Modeling of Three Link Finger Manipulator ............ 227
Neeta Sahay and Sanjoy Das

Dynamic Reconfigurable Architectures—A Boon for Desires of Real Time Systems .................................... 235
Kevin Kansagara, K V Shravya and S Sivanantham

A Real Time Gesture Recognition with Wrist Mounted Accelerometer ....................................................... 245
Debjyoti Chowdhury, Soumya Jyoti Banerjee, Krishnendu Sanyal and Madhurima Chattopadhyay
Effectiveness of Proximity-Based Outlier Analysis in Detecting Profile-Injection Attacks in E-Commerce Recommender Systems .......... 255 Parthasarathi Chakraborty and Sunil Karforma

Novel Approach of Multiplier Design Using Ancient Vedic Mathematics ................................................................. 265 Angshuman Khan and Rupayan Das

Supply Chain Model for Deteriorating Items with Imperfect Production Process Under Budget Constraint .................... 273 Urvashi Chaudhary, S.R. Singh and Upendra Chaudhary

Line-Level Script Identification for Six Handwritten Scripts Using Texture Based Features ................................. 285 Pawan Kumar Singh, Ram Sarkar and Mita Nasipuri

Single Sensor Color Filter Array Interpolation Algorithms ......... 295 C. RajaRao, Mahesh Boddu and Soumitra Kumar Mandal

Region Based Image Retrieval Using Integrated Color, Texture and Shape Features ........................................ 309 Nishant Shrivastava and Vipin Tyagi

Automatic Generation of Web Service Composition Templates Using WSDL Descriptions .......................... 317 S. Sowmya Kamath, Suresh Alse, Prajwal Prasad and Abhay R. Chennagiri

Poisson Noise Removal from Mammogram Using Poisson Unbiased Risk Estimation Technique ................ 327 Manas Saha, Mrinal Kanti Naskar and Biswa Nath Chatterji


Differential Power Analysis: Attacks and Resisting Techniques ...... 349 Hridoy Jyoti Mahanta, Abul Kalam Azad and Ajoy Kumar Khan

Health-System Evaluation: A Multi-attribute Decision Making Approach ................................................................. 359 Debashree Guha and Bapi Dutta
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analysis and Evaluation of Image Quality Metrics</td>
<td>369</td>
</tr>
<tr>
<td>Tina Samajdar and Md. Iqbal Quraishi</td>
<td></td>
</tr>
<tr>
<td>Comparative Analysis of Color Image Encryption Using 2D Chaotic Maps</td>
<td>379</td>
</tr>
<tr>
<td>Shubhendu Kumar, Bhavna Sinha and Chittaranjan Pradhan</td>
<td></td>
</tr>
<tr>
<td>Automatic Model Extraction from C Code—Abstracter and Architecture</td>
<td>389</td>
</tr>
<tr>
<td>Debapriyay Mukhopadhyay</td>
<td></td>
</tr>
<tr>
<td>Remote Sensing Image Registration Based on Particle Swarm Optimization and Mutual Information</td>
<td>399</td>
</tr>
<tr>
<td>Reham Gharbia, Sara A. Ahmed and Aboul ella Hassanien</td>
<td></td>
</tr>
<tr>
<td>Enzyme Function Classification Based on Sequence Alignment</td>
<td>409</td>
</tr>
<tr>
<td>Mahi M. Sharif, Alaa Thwat, Islam Ibrahim Amin, Aboul Ella and Hesham A. Hefeny</td>
<td></td>
</tr>
<tr>
<td>A Novel Biometric Fingerprint Template Based Method for Stream Cipher Design</td>
<td>419</td>
</tr>
<tr>
<td>Musheer Ahmad and Bashir Alam</td>
<td></td>
</tr>
<tr>
<td>A Non-linear Diffusion Based Partial Differential Equation Model for Noise Reduction in Images</td>
<td>429</td>
</tr>
<tr>
<td>Subit K. Jain and Rajendra K. Ray</td>
<td></td>
</tr>
<tr>
<td>A Pixel Based Segmentation Scheme for Fingerprint Images</td>
<td>439</td>
</tr>
<tr>
<td>Debashis Das and Susanta Mukhopadhyay</td>
<td></td>
</tr>
<tr>
<td>Distance Similarity as a CBR Technique for Early Detection of Breast Cancer: An Egyptian Case Study</td>
<td>449</td>
</tr>
<tr>
<td>Heba Ayeldeen, Olfat Shaker, Osman Hegazy and Aboul Ella Hassanien</td>
<td></td>
</tr>
<tr>
<td>Modified PCT on Variable Cipher Block Chaining Mode</td>
<td>457</td>
</tr>
<tr>
<td>Manas Paul, Jyotsana Kumar Mandal and Moirangthem Marjit Singh</td>
<td></td>
</tr>
<tr>
<td>A Fast and Efficient Mesh Smoothing Algorithm for 3D Graphical Models Using Cubic B-Splines</td>
<td>467</td>
</tr>
<tr>
<td>Rishabh Roy, Kireeti Bodduna, Neha Kumari and Rajesh Siddavatam</td>
<td></td>
</tr>
</tbody>
</table>
Text Extraction from Scene Images Through Local Binary Pattern and Business Features Based Color Image Segmentation
Ranjit Ghoshal, Anandarup Roy, Bibhas Ch. Dhara and Swapan K. Parui

Age Group Classification of Facial Images Using Rank Based Edge Texture Unit (RETU)
Ch Rajendra Babu, E. Sreenivasa Reddy and B. Prabhakara Rao

Writer Identification from Handwritten Devanagari Script
Chayan Halder, Kishore Thakur, Santanu Phadikar and Kaushik Roy

Quality Estimation of MT-Engine Output Using Language Models for Post-editing and Their Comparative Study
Kuldeep Kumar Yogi, Nishith Joshi and Chandra Kumar Jha

Genetic Algorithm with Improved Mutation Operator for Multiple Sequence Alignment
Rohit Kumar Yadav and Haider Banka

Analysis of Induced Color for Automatic Detection of ROI in Multipose AVSR System
Amarsinh Varpe, Prashant Borde, Sadhana Sukale, Pallavi Perdeshi and Pravin Yannawar

Conditional Spatial Fuzzy C-means Clustering Algorithm with Application in MRI Image Segmentation
Sudip Kumar Adhikari, Jamuna Kanta Sing, Dipak Kumar Basu and Mita Nasipuri

Advancement in Guard Zone Computation Through Detection and Exclusion of the Overlapped Regions
Ranjan Mehera, Arpan Chakraborty, Piyali Datta and Rajat Kumar Pal

Design of a Mixer for Performing Efficient Mixing to Reduce Overall Assay Response Time
Debasis Dhal, Piyali Datta, Arpan Chakraborty and Rajat Kumar Pal

Remotely Functional-Analysis of Mental Stress Based on GSR Sensor Physiological Data in Wireless Environment
Ramesh Sahoo and Srinivas Sethi
Contents

Dynamic Software Metrics for Object Oriented Software: A Review .......................................................... 579
Anjana Gosain and Ganga Sharma

Big Data Analytics and Its Prospects in Computational Proteomics . . 591
Sagnik Banerjee, Subhadip Basu and Mita Nasipuri

The Future ICT Education in India—A Pilot Study on the Vision of Ubiquitous Learning in Higher Education .... 599
Parag Chatterjee and Asoke Nath

Study of Various Feature Extraction and Selection Techniques for Drought Prediction in Precision Agriculture ................. 611
Nikhil Gaikwad, Gaurav Chavan, Hemant Palivela and Preeja Ravishankar Babu

Automatic Segmentation of Spoken Word Signals into Letters Based on Amplitude Variation for Speech to Text Transcription ..... 621
Anik Roy and Santanu Phadikar

Logically Organised Sensor Based Prototype Model for Automatic Control of Process Temperature ......................... 629
Sandip Das

Investigations into the Goodness of Posts in Q&A Forums—Popularity Versus Quality ........................................ 639
Deepa Anand and Sushma Ravichandran

Color Video Compression Based on Fractal Coding Using Quadtree Weighted Finite Automata .......................... 649
Shailesh D. Kamble, Nileshsingh V. Thakur, Latesh G. Malik and Preeti R. Bajaj

BIG Data Analysis for Indian e-Governance Projects—A Proposed Framework to Improve Real Time Reporting ............ 659
Manas Kumar Sanyal, Sudhangsu Das and Sajal Bhadra

Role of Team Leaders in Employee Faith in the Performance Appraisal Practices: An Exploratory Study on the Software Professionals in Some Selected IT Companies in West Bengal (India) .......................................................... 669
Manas Kumar Sanyal and Soma Bose Biswas
Automatic Bus Fare Collection System in India ............................. 681
Prerit Datta, Namandeep Kaur and Naveen Garg

Secure e-Learning Framework (SeLF) ........................................... 691
Nikhilesh Barik and Sunil Karforma

Embedding an Extra Layer of Data Compression Scheme for Efficient Management of Big-Data ........................................ 699
Sayan Pal, Indranil Das, Suvajit Majumder, Amit Kr. Gupta and Indrajit Bhattacharya

Automatic Gesture Recognition for Health Care Using ReliefF and Fuzzy kNN .......................................................... 709
Sriparna Saha, Monalisa Pal, Amit Konar and Diptendu Bhattacharya

Volume Cutting of Medical Data Using Deformable Surfaces Modeled with Level Sets ........................................... 719
V.R. Bindu and K.N. Ramachandran Nair

Improved DB-SCAN for Detecting Zonal Followers for Small Regions on Twitter ........................................... 727
Nidhi Jain, Basant Agarwal and Mukesh Kumar Gupta

Cooperative Revocation of Misbehaving Vehicles from VANET ...... 735
Sulata Mitra

Identification and Recognition of Defects in Civil Structures Using Non-destructive Technique ........................................ 747
Devansh Gaur, Shalini Saxena, Dhiraj Sangwan and Jagdish Lal Raheja

Efficient Knowledge Transformation for Incremental Learning and Detection of New Concept Class in Students Classification System ........................................... 757
Roshani Ade and Prashant Deshmukh

A Software Project Risk Analysis Tool Using Software Development Goal Modeling Approach ................................. 767
Shruti Patil and Roshani Ade

Modeling Agility in Internet of Things (IoT) Architecture .......... 779
Priyanka Upadhyay, Gurpreet Matharu and Naveen Garg
Authentication in Higher Region of Convergence of Z Transform Domain (AHRocZ) ......................... 787
Suman Mahapatra, J.K. Mandal and Madhumita Sengupta

Bilateral Filtering in Wavelet Domain for Synthesis of Flash and No-Flash Image Pairs. .................. 797
Abhijeet Kumar Sinha, Vikrant Bhatija, Anand Sharma and S.C. Satapathy

Simulation Tool for Assignment Model: ASSOLVE. ......................... 807
Pratiksha Saxena, Shabana Urooj, Abhinav Chaudhary, Sanchit Kumar and Satyavan Singh

Pharmaco-Informatics: An Interaction Study of Herbal Compounds with Receptors Implicated in ADHD .......... 815
Preenon Bagchi, R.S. Manasa, K.S. Shwetha, S.C. Harshitha, M. Mahesh and R. Somashekar

Restoration Algorithm for Gaussian Corrupted MRI Using Non-local Averaging. ................................. 831
Aditya Srivastava, Vikrant Bhatija, Harshit Tiwari and S.C. Satapathy

Multi-objective Optimization Based Software Testing Using Kansei Quality Approach ......................... 841
Shilpa and Kavita Choudhary

Prediction of Occurrence of Heart Disease and Its Dependability on RCT Using Data Mining Techniques .......... 851
Pinky Bajaj, Kavita Choudhary and Renu Chauhan

An Artificial Neural Networks Model by Using Wavelet Analysis for Speaker Recognition ...................... 859
Kanaka Durga Returi and Y. Radhika

Author Index .............................. 875