Contents

Automatic Bharatnatyam Dance Posture Recognition and Expertise Prediction Using Depth Cameras ........................................... 1
Pooja Venkatesh and Dinesh Babu Jayagopi

A Logo-Based Approach for Recognising Multiple Products on a Shelf ................................................................. 15
Trisha Mittal, B. Laasya, and J. Dinesh Babu

Unsupervised Text Binarization in Handwritten Historical Documents Using k-Means Clustering ........................................... 23
Huseyin Kusetogullari

Feature Fusion for Facial Landmark Point Location ................. 33
Gang Zhang and Jiansheng Chen

Fast Graph-Based Object Segmentation for RGB-D Images .......... 42
Giorgio Toscana, Stefano Rosa, and Basilio Bona

Image Splicing Detection Using Electromagnetism-Like Based Descriptor ................................................................. 59
Hamid A. Jalab, Ali M. Hasan, Zahra Moghaddasi, and Zouhir Wakaf

Enhanced Object Segmentation for Vehicle Tracking and Dental CBCT by Neuromorphic Visual Processing with Controlled Neuron .......................................................... 67
Woo-Sup Han and Il-Song Han

A Robust, Real-Time Capable Framework for Fully Automated Order Picking of Pouch-Parceled Goods ................................ 78
Adrian Böckenkamp, Frank Weichert, and Christian Prasse

Ensemble Neural Networks and Image Analysis for On-Site Estimation of Nitrogen Content in Plants ................................. 103
Susanto B. Sulistyow, W.L. Woo, and S.S. Dlay

vii
Contents

Bag of Features vs Vector of Locally Aggregated Descriptors ............. 119
Farkhunda Younas, Junaid Baber, Tahir Mahmood, Javeria Farooq,
and Maheen Bakhtyar

Image Segmentation Using Clustering Methods ............................ 129
Benrais Lamine and Baha Nadia

MR Brain Images Segmentation Using Joint Information
and Fuzzy C-Means .................................................. 142
Ouarda Assas and Salah Eddine Bouhouita Guermech

Visual Odometry for Pedestrians Based on Orientation
Attributes of SURF .................................................. 153
Chadly Marouane, Robert Gutschale, and Claudia Linnhoff-Popien

Strategic Development and Dynamic Models of Supply Chains:
Search for Effective Model Constructions .............................. 175
Natalia N. Lychkina

Multi-resource Minority Games: Redefining the Game ............... 186
Daniel Romero, Elissa Shinseki, S.M. Mahdi Seyednezhad,
and Ronaldo Menezes

Agent-Based Outsourcing Solution for Agency
Service Management .................................................. 204
Anton Ivaschenko, Andrey Lednev, Alfiya Diyazitdinova,
and Pavel Sitnikov

Petri Nets for Mobile Agent: Theory and Application .................. 216
Walid Ben Mesmia, Borhan Marzougui, and Kamel Barkaoui

Multi-agent System for Safeguarding Children Online .............. 228
Katrinna MacFarlane and Violeta Holmes

Synthetizing Qualitative (Logical) Patterns for Pedestrian
Simulation from Data ............................................... 243
Gonzalo A. Aranda-Corral, Joaquín Borrego-Díaz, and Juan Galán-Páez

Learning to Negotiate Optimally in a Multi-agent Based
Negotiation System for Web Service Selection ....................... 261
Raja Bellakhal and Khaled Ghédira

Hybrid Service Discovery Approach for Peer-to-peer
Web Service Systems ................................................ 281
Moses Olaifa, Sunday Ojo, and Tranos Zuva
Embodied Conversational Agent-Based Deception Detection ........ 294
Aaron C. Elkins, Jeffrey G. Proudfoot, Nathan Twyman, Judee K. Burgoon, and Jay F. Nunamaker Jr.

An Efficient Agent Scheming in Distributed Time
Varying Networks .................................................. 308
Ali Mustafa, Salman Ahmed, Najam ul Islam, and Ahsan Tufail

An Object-Oriented Agent Framework for HEMS .................... 321
Visit Hirankitti and Tisanaluk Makee

An Ontology for Modelling Human Machine Interaction
in Smart Environments ........................................... 338
Norman Köster, Sebastian Wrede, and Philipp Cimiano

Evolutionary Testing Using Particle Swarm Optimization
in IOT Applications ................................................ 351
Hiba Khalid, Mazhar Hameed, and Usman Qamar

Deep Learning Based Semantic Video Indexing and Retrieval ......... 359
Anna Podlesnaya and Sergey Podlesnyy

Using Machine Learning for Evaluating the Quality of Exercises
in a Mobile Exergame for Tackling Obesity in Children ............... 373
Lucas de Moura Carvalho, Vasco Furtado, José Eurico de Vasconcelos Filho, and Carminda Maria Goersch Fontenele Lamboglia

Machine Learning Approaches to Predict Repetitive Transcranial
Magnetic Stimulation Treatment Response in Major Depressive Disorder ........................................ 391
Turker Tekin Erguzel and Nevzat Tarhan

A Machine Learning Based Model for Software Cost Estimation ..... 402
Muhammad Raza Tayyab, Muhammad Usman, and Waseem Ahmad

Performance Analysis of Various Missing Value Imputation
Methods on Heart Failure Dataset .................................... 415
Mohammad Al Khaldy and Chandrasekhar Kambhampati

Deep Reinforcement Learning: An Overview ................................ 426
Seyed Sajad Mousavi, Michael Schukat, and Enda Howley

Cantilever Beam Natural Frequency Prediction Using Artificial
Neural Networks ....................................................... 441
Sallehuddin Mohamed Haris and Hamed Mohammadi

Deep Learning with Random Neural Networks ......................... 450
Erol Gelenbe and Yongha Yin
Short-Term Localized Weather Forecasting by Using Different Artificial Neural Network Algorithm in Tropical Climate ..................................................... 463
Noor Zuraidin Mohd-Safar, David Ndzi, Ioannis Kagalidis, Yanyang Yang, and Ammar Zakaria

Initialising Deep Neural Networks: An Approach Based on Linear Interval Tolerance ................................................................. 477
Cosmin Stamate, George D. Magoulas, and Michael S.C. Thomas

Query Caching and Answering Using an Atom Based Neuro-Architecture ....................................................................................... 486
Yehia Kotb and Moutaz Haddara

Integration of Fuzzy C-Means and Artificial Neural Network for Short-Term Localized Rainfall Forecast in Tropical Climate ........ 499
Noor Zuraidin Mohd-Safar, David Ndzi, David Sanders, Hassanuddin Mohamed Noor, and Latifah Munirah Kamarudin

Position Control and Stabilization of Fully Actuated AUV using PID Controller ........................................................................... 517
Mohanad M. Hammad, Ahmed K. Elshenawy, and M.I. El Singaby

Motion Control of a Terrain Following Unmanned Aerial Vehicle Under Uncertainty ........................................................................ 537
Nasser Ayidh Alqahtani, Bara Jamal Emran, and Homayoun Najjaran

Adjustment of Tele-Operator Learning When Provided with Different Levels of Sensor Support While Driving Mobile Robots ........ 548
David Sanders, David Ndzi, Simon Chester, and Manish Malik

Controlling Line Follower Robot with the Remote Web Server .......... 559
Md. Badruduja Bhuiya

Development of Guided Autonomous Navigation for Indoor Material Handling Applications .......................................................... 584
Aparna Geetha Jayaprakash, Sandeep Bairampalli, Vijay Desai, and Ravichandra Bhat

Rule-Based System to Assist a Tele-Operator with Driving a Mobile Robot .................................................................................... 599
David Adrian Sanders, Heather May Sanders, Alexander Gegov, and David Ndzi

Path Following of Underactuated Catamaran Surface Vessel (WAM-V) Using Fuzzy Waypoint Guidance Algorithm ..................... 616
Jyotsna Pandey and Kazuhiko Hasegawa
Review of Potential Attacks on Robotic Swarms ................................. 628
Ian Sargeant and Allan Tomlinson

SIMSSP: Secure Instant Messaging System for Smart Phones ............... 647
Kahtan Aziz, Saed Tarapiah, and Shadi Atalla

Elastic Serial Substitution Box for Block Ciphers
with Integrated Hash Function Generation ........................................ 658
K.B. Jithendra and T.K. Shahana

A Model of a Malware Infected Automated Guided Vehicle
for Experimental Cyber-Physical Security .................................... 672
Richard French, Viktoryia Degeler, and Kevin Jones

JIR2TA: Joint Invocation of Resource-Based Thresholding
and Trust-Oriented Authentication in Mobile Adhoc Network ............ 689
Burhan Ul Islam Khan, Nurul Fariza Zulkurnain, Rashidah F. Olanrewaju,
Gousia Nissar, Asifa Mehraj Baba, and Sajaad Ahmad Lone

HADM: Hybrid Analysis for Detection of Malware ............................ 702
Lifan Xu, Dongping Zhang, Nuwan Jayasena, and John Cavazos

Resolving DRDoS Attack in Cloud Database Service Using Common
Source IP and Incremental Replacement Strategy ............................. 725
Aborisade Dada Olaniyi, Reich Christoph, Sodiyi Adesina Simon,
Akinwale Adio Taofeek, and Biodun S. Badmus

Effective Solutions for Most Common Vulnerabilities
in Web Applications ................................................................. 738
Moudhi Aljamea, Costas S. Iliopoulos, and M. Samiruzzaman

Chaos-Based Audio Steganography and Cryptography
Using LSB Method and One-Time Pad ......................................... 755
Samah M.H. Alwahbani and Huwaida T.I. Elshoush

A Smart Card Web Server in the Web of Things ............................ 769
Lazaros Kyrillidis, Sheila Cobourne, Keith Mayes,
and Konstantinos Markantonakis

Semantic Events ................................................................. 785
Susan Marie Thomas

In-Home Assisted Living for Elderly Dementia Care ......................... 799
Boon-Chong Seet, Jianchao Zhang, and Yang Liu

Weibo Surveillance of Public Awareness to Ebola
Disaster in China ........................................................................ 811
Shihui Feng and Liaquat Hossain

A Mobile Healthcare Application for Chronic Diseases Patient ........... 826
Amr Salah Mahmoud and Hmood Al-Dossari
Steady Illumination Color Local Ternary Pattern as a Feature Extractor in Iris Authentication .............................................. 966
Noorjahan Khatoon and Mrinal K. Ghose

A Review of Frequent Pattern Mining Algorithms for Uncertain Data ....................................................... 974
Vani Bhogadhi and M.B. Chandak

Exploring Patient-Oriented Healthcare Support System by Using General Bayesian Network ............................... 984
Kun Chang Lee, Jae Mun Sim, Hyeon Gyu Jeon, and Eun Young Choi

Neural Networks for Robotic Detection of Mastitis in Dairy Cows: Netherlands and New Zealand Perspectives .................. 989
Sandhya Samarasinghe, Manishi Kohli, and Don Kulasiri

Feature Selection for Document Retrieval in the Export Control Domain .............................................. 997
Jae-woong Tae, Sung-ho Yoon, and Dong-hoon Shin

Applications of Artificial Intelligence in the Export Control Domain ........................................ 1005
Dong-hoon Shin

Automatic Question Answering System for Consumer Products .......... 1012
Seunghyun Yoon, Mohan Sundar, Abhishek Gupta, and Kyomin Jung

Data Workflow for Extension Framework to Interpret and Transform Human Behavior ................................ 1017
Ravi Limaye and Akhilesh R. Upadhyay

Credibility Perception for Arab Users .............................................. 1030
Amal Abdullah AlMansour

Measuring Player’s Behaviour Change over Time in Public Goods Game ....................................................... 1039
Polla Fattah, Uwe Aickelin, and Christian Wagner

Audiovisual Compression Techniques Using DCT-DWT and LPC Codec for Audiovisual Human Machines Interfaces ............. 1053
Fatma Zohra Chelali and Amar Djeradi

Author Index ................................................................. 1067