2010 6th International Conference on Emerging Technologies

(ICET 2010)

Islamabad, Pakistan
18 – 19 October 2010

IEEE Catalog Number: CFP10617-PRT
ISBN: 978-1-4244-8057-9

Proceedings

2010 6th International Conference on Emerging Technologies (ICET)

ICET 2010

Table of Contents

Foreword iii

Organizing Committee iv

Technical Program Committee vi

Sponsors ix

Presented Papers

Artificial Intelligence

Membrane Protein Prediction using Wavelet Decomposition and Pseudo Amino Acid based Feature Extraction 1
Maqsood Hayat, Asifullah Khan

Parameter Tuning of Evolutionary Algorithm by Meta-EAs for WCET Analysis 7
Imran Ashraf, Ghulam M. Hassan, K. M. Yahya, Syed A. A. Shah, Salim Ullah, Asif Manzoor, Mohsin Murad

Determination of Hepatotropic Virus in Human Metabolism using Artificial Neural Networks 11
Sana Ansari, Imran Shafi, Jamil Ahmad, Syed Ismail Shah

Momentum term heals the performance of Back Propagation Algorithm for Digit Recognition 16
Qamar Abbas, Jamil Ahmad, Waqas Haider Bangyal

Hierarchical Sessionization at Preprocessing Level of WUM Based on Swarm Intelligence 21
Tasawar Hussain, Sohail Asghar, Nayyer Masood

Application of Artificial Neural Networks for Monsoon Rainfall Prediction 27
Jehangir Ashraf Awan, Onaiza Maqbool

Constructing Experts Profiles from Linked Open Data 33
Atif Latif, Muhammad Tanvir Afzal, Klaus Tochtermann

Effects of Different Data Characteristics on Classifier's Performance 39
Yasir Mehmood, Sania Khadam, Kamran Hameed, Faisal Riaz, Abdul Ghafoor

Clustering Based Deletion Policy for Case-base Maintenance 45
Rabia Ali, Maleeha Ather, Rahat Ijaz, Hina Razzaq, Farah Saleem, Malik Jahan Khan

Spectrum Optimization in Cognitive Radios using Elitism in Genetic Algorithms 49
Mohammad Riaz Moghal, Mubbashar Altaf Khan, Hassan A Bhatti

Meningioma Subtype Classification: A Survey 55
Kiran Fatima, Hammad Majeed

Fuzzy Clustering and Fuzzy Entropy based Classification Model 61
Muhammad A. Khan, Muhammad Nazir, Arfan Jaffar, Anwar M. Mirza

Computer Networks

Performance Evaluation of PhotoReceivers in WDM Passive Optical Networks 65
U. Ibrahim, Hassan Abbas, Raja faizan, S. F. Shaukat

Routing Protocols in Delay Tolerant Networks – A Survey 70
Salman Ali, Junaid Qadir, Adeel Baig

BRIDGE: BoRder-node assIstance for Diffusion through a Gating mEchanism for collocated WPANs 76
Saima Zafar, Ali Hammad Akbar, Madiha Amjad, Saif Shams, Shafique Ahmed Chaudhry, Jung Seuk, Byeong-hee Roh, Ki-Hyung Kim

Computer Systems - Modeling & Simulation

MEMS Based System for Drug Delivery 82
Muhammad Waseem Ashraf, Shahzadi Tayyaba, Asim Nisar, Nitin Afzulpurkar

Uplink Closed Loop Power Control for LTE System 88
Bilal Muhammad, Abbas Mohammed

On Indigenous Design of Prototypic Tele-Operated Mobile Robot for Ventilation Duct Inspection in Nuclear Power Plants 94
Muhammad Salem, Abdul Rehman Abbasi, Qazi S. M. Zia-ul-Haque

Nonlinear Optimal Position Control Design for 2-link RR-Robot Manipulator 100
Bilal Khan, Jawad Arif, Shah Riaz

Optical Property of the Fabricated Si1-xGex Nanowires 106
Aqeel Ahmed Shah, Zhongyi Guo, Yanjun Xiao, Qurban A. Shah

Simulation of Dual Radii Polymeric Microneedle Array for Blood Extraction 110
Shahzadi Tayyaba, Muhammad Waseem Ashraf, Muhammad Naim Ashraf

Size Reduction of Log Periodic Dipole Array Antenna 114
Muhammad Luqman Nazar, Mian Shahzad Iqbal, Muhammad Irfan

Mathematical Model for Solute Kinetics and Body Composition in Hemodialysis Patients 118
Rashida Hussain, Franz Kappel, Peter Kotanko, Nathan W. Levin

Evaluation and Monitoring of Energy Consumption Patterns Using Statistical Modeling and Simulation 124
Qasim Khalid, Roland Langhe

Computer Vision - Image & Video Processing

Watermarking Scheme Based on Wavelet Transform, Genetic Programming and Watson Perceptual Distortion Control Model for JPEG2000 128
Zahoor Jan, Fauzia Jabeen, Arfan Jaffar, Azhar Rauf

Spatial Rule Based Approach for Facial Expression Recognition 134
Mohsin Ikram and Aasia Khanum

A Novel Technique for Removal of High Density Impulse Noise from Digital Images 139
Abdul Majid, Muhammad Tariq Mahmood

An Implementation of MPEG in Multi-Terminal Video Coding 144
Saima Shaheen, M. Younas Javed

A Blind Watermarking Scheme Using Bitplane of DC Component for JPEG Compressed Images 150
Muhammad Imran Khan, Varun Jeoti

Real Time Image Registration Based on Feature Tracking using a Digital Signal Processor 155
Muhammad Asif Manzoor, Muhammad Farooq, Syed Aamir Ali Shah, Arif Ali Shah, Salim Ullah, Abdul Bais, G. M. Hassan, Khawaja M. Yahya

Design and Implementation of Real Time LPR System on a Fixed Point DSP 159
Waqas Ahmad, S. Ali Hassan, M. Abeer Irfan, Abdul Bais, G. M. Hassan, Syed Aamir Ali Shah, Khawaja M. Yahya

Deblocking Filters for Block-Based ICA Transform Coding 164
Asim Munir, Bushra Asghar, Muhammad Nadeem

Lossless Image Compression Using Kernel Based Global Structure Transform (GST) 170
M. Asif Ali, Aftab Khan, M.Younus Javed, Aasia Khanum

Quantification and Visualization of MRI Cartilage of the Knee: A Simplified Approach 175
Syed Afaq Ali Shah, K. M. Yahya, G. Mubashar, Abdul Bais

Image Segmentation using Fuzzy Clustering: A Survey 181
Samina Naz, Hammad Majeed, Humayun Irshad

Design and Development of a Low Cost Satellite Imaging Payload using COTS Components with Added Fault Tolerance 187
Faran Mahmood, Iftekhar Mahmood, Bilal Aktar

A Novel Approach for the Automatic Detection of Microaneurysms in Retinal Images 193
Istvan Lazar, Rashid Jalal Qureshi, Andras Hajdu

A Combined Motion and Appearance Model for Human Tracking in Multiple Cameras Environment 198
Atif Ilyas, Mihaela Scuturici, Serge Miguet

Block-based Digital Image Watermarking using Genetic Algorithm 204
Muhammad Jamil Anwar, Muhammad Ishtiaq, M. Amjad Iqbal, M. Arfan Jaffar

Digital Communication - Communication Systems

Transmit and Receive Crosstalk Cancellation 210
Najam Muhammad Amin, Michael Weber

Sphere Decoding in the Presence of Channel Uncertainty 216
Omar Hayat, M. T. N. Qaisrani, M. Akbar

Analysis of Fading Statistics based on Geometrical and Statistical Channel Models 221
Zia Muhammad Loni, Noor M. Khan

Narrowband Characterization of the 60 GHz Indoor Radio Channel in the presence of Human Bodies 226
Shoaib Ali, M. Junaid Mughal

Design and Implementation of Quadrifilar Helix Antenna for Satellite Communication 230
Sultan Shoaib, Waqar Ali Shah, Ali Fahim Khan, Muhammad Amin

Information Security

Network Intrusion Prevention by Configuring ACLs on the Routers, based on Snort IDS alerts 234
Muhammad Naveed, Shams un Nihar, Mohammad Inayatullah Babar

LASSP: A Logic Analyzer for Tweaking Snort Security and Performance 240
Khalid Hafeez, Muddassar Masood, Owais Malik, Zahid Anwar

Analysis and Detection of SPIM using Message Statistics 246
Uzma Maroof

Dynamic Feedback based Modified SNOW 2.0 250
Saira Khan, Aihab Khan, Sikandar Hayat Khayal, Tarranum Naz, Saba Bashir, Farhan Hassan Khan

SLOGS: Security through predicate LOGic in SSH 256
Shujaat Hussain, Mohsin Abbass, Owais Malik, Zahid Anwar

Software Engineering & HCI

Ontology Driven Semantic Annotation Based GUI Testing 261
Abdul Rauf, Sajid Anwar, Muhammad Ramzan, Shafiq ur Rehman, Arshad Ali Shahid

Guidelines for the Selection of Elicitation Techniques 265
Sumaira Kausar, Saima Tariq, Saba Riaz, Aasia Khanum

Role of Relationships during Clustering of Object-Oriented Software Systems 270
Siraj Muhammad, Onaiza Maqbool, Abdul Qudus Abbasi

Using Meta-data Technique for Component Based Black Box Testing 276
Furqan Naseer, Shafiq ur Rehman, Khalid Hussain

A Structured Goal Based Measurement Framework Enabling Traceability and Prioritization 282
Touseef Tahir, Cigdem Gencel

Efficient Discovery of OWL-S Based HL7 Compliant Healthcare Web Services Profiles 287
Saman Iftikhar, Falak Nawaz, Hafiz Farooq Ahmad, Kiran Fatima

Knowledge Representation of Urdu Text Using Predicate Logic 293
Amjad Ali, Mohammad Abid Khan

Scale and Rotation Invariant Recognition of Cursive Pashto Script using SIFT Features 299
Riaz Ahmad, Syed Hassan Amin, Mohammad A.U. Khan

Automated Generation of Finite State Machine from Object-Oriented Formal Specifications 304
Shafaq Khalid, Aamer Nadeem

Consistency Checking of UML Models using Description Logics: A Critical Review 310
Mahreen Aziz Ahmad, Aamer Nadeem

Lexical-Semantic Divergence in Urdu-to-English Example Based Machine Translation 316
Abdus Saboor, Mohammad Abid Khan

Comparative Evaluation of Native RDF Stores 321
Anila Sahar Butt, Sharifullah Khan, Khalid Latif

Systems

A Low-Power and Low-Noise Neural Amplifier for All-Diamond Neural Probes 327
Ahmad Naeem, Shafaat A. Bazaz, Dean M. Aslam

A Communication-Efficient, Distributed Memory Parallel Code using Discontinuous Galerkin Method for Compressible Flows 331
Amjad Ali, Khalid S. Syed, Muhammad Ishaq, Hong Luo

TRDBAC: Temporal Reflective Database Access Control 337
Zahid Rashid, Abdul Basit, Zahid Anwar

Combinational Digital Circuit Synthesis using Cartesian Genetic Programming from a NAND Gate Template 343
Muhammad Irfan, Qaiser Habib, Ghulam M. Hassan, Khawaja M. Yahya, Samira Hayat

Wireless Networks

Congestion Aware Nodes(CAN) based Scheme for Mobile Adhoc Networks 348
Imran Raza, S. A. Hussain, S. Qayyum Muhammad, Hassan Raza

Topology-based Efficient Downstream Transport in Wireless Sensor Networks 353
M. Qaisar Shafi, Faisal B. Hussain, Usama Ahmed

Cooperative Diversity in Wireless Networks: A Timing Perspective 359
Usman Masud, Muhammad Iram Baig

A Key Management Scheme Supporting Node Mobility in Heterogeneous Sensor Networks 364
Sarmad Ullah Khan, Luciano Lavagno, Claudio Pastrone

Efficient AODV routing based on traffic load and mobility of node in MANET 370
Iftikhar Ahmad, Mata ur Rehman

Gossip-Based Supervision for Wireless Autonomic Networks and Services 376
Fiaz Gul Khan, Moiso Corrado, Bartolomeo Montrucchio, Aamir Saeed

Introducing Semantics in DHTs for Grid Services in a Semantic Registry 382
Saman Iftikhar, Abdul Moiz Ishaq, H. Farooq Ahmad, Kiran Fatima

A Distributive Algorithm for WLAN Localization 388
Adnan Umar Khan, Marwan Al-Akaidi

Backup Channel and Cooperative Channel Switching On-Demand Routing Protocol for Multi-Hop Cognitive Radio Ad Hoc Networks (BCCCS) 394
Muhammad Zeeshan, Muhammad Fahad Manzoor, Junaid Qadir

Broadcasting in Cognitive Wireless Mesh Networks with Dynamic Channel Conditions 400
Muhammad Fahad, Junaid Qadir, Adeel Baig

Carbon Monoxide Detection and Autonomous Countermeasure System for a Steel Mill using Wireless Sensor and Actuator Network 405
Muhammad Fahim Jan, Qaiser Habib, Muhammad Irfan, Mohsin Murad, K. M. Yahya, G. M. Hassan

Engaging the Jammer on the Jammed Channel in MANET 410
Saira Beg, Faraz Ahsan, Sajjad Mohsin

AUTHORS INDEX 414