## 2011 6th International Conference on Broadband and Biomedical Communications

(IB2Com 2011)

Melbourne, Australia 21 – 24 November 2011



IEEE Catalog Number: ISBN:

CFP1180J-PRT 978-1-4673-0768-0

## Table of Contents IB2COM 2011

| Papers                                                                                                                     | Page Number                   |
|----------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| Application Architectures for Machine to Machine Communications                                                            | 1                             |
| Vehicle Tyre Parameterisation using Binary Search                                                                          | 6                             |
| Performance Analysis of Random Multiple Access Protocols used in Wireless Communicat                                       | tion 12                       |
| Context-Awareness for Mobility Management: A Systems Survey for Healthcare Monitoring                                      | 18                            |
| Evolution of the SuperDARN antenna: Twin Terminated Folded Dipole Antenna for HF syste                                     | ems 24                        |
| Performance Improvement of a Power Line Communication System Using OFDM Under the Impulsive Noise with Diversity Reception | Effect of Fading and 30       |
| Molecular Cloning of ERG 2 Gene to Effect Knockdown in Chaetomium cupreum                                                  | 35                            |
| Grayscale MRI Image Compression Using Feedforward Neural Networks                                                          | 39                            |
| BER Analysis for SC-FDMA over Rayleigh fading channels                                                                     | 43                            |
| A method for providing seamless on-demand application service using DPI in IP network                                      | 48                            |
| The QoS Aware Mechanism of an Optical Packet Switch Architecture for Multimedia Application                                | ations 53                     |
| Multiple Access System Capacity with M-ary Orthogonal Modulation                                                           | 58                            |
| Sub-Carrier Allocation for Downlink Multi-User OFDM Cooperative Cellular Networks                                          | 63                            |
| Diagnosing Client Faults Using SVM-based Intelligent Inference from TCP Packet Traces                                      | 68                            |
| Voltage and phase calibration for a quad-channel FPGA controlled EIT modular system                                        | 74                            |
| Fingerprint Template Protection: Development and Open Concerns                                                             | 80                            |
| Neighborhood Components Analysis in sEMG Signal Dimensionality Reduction for Gait Ph                                       | ase Pattern Recognition<br>86 |
| SC-FDMA Performance over Ricean Channel                                                                                    | 91                            |
| Designing PNS (Pupils Network System) for Ethic Education of Mobile Phone Literacy                                         | 97                            |
| Strengthening association between driver drowsiness and its physiological predictors by c measures of body movement        | combining EEG with<br>103     |
| Application of Computer Vision Algorithm in Surgical Skill Assessment                                                      | 108                           |
| A High Capacity Near-Field Inductive Coupled MISO Communication System for Internet of                                     | Things 112                    |

| An algorithm to improve the robustness of imperceptible watermarks against JPEG compression                            | 118          |
|------------------------------------------------------------------------------------------------------------------------|--------------|
| Semi-Automated Segmentation of Accurate Quantisation of PET and Low-Dose CT Phantom Images                             | 122          |
| IR-UWB Tag and Reader for RTLS                                                                                         | 126          |
| On Security Vulnerabilities and Mitigation in the Cognition Cycle of Distributed Cognitive Radio Networks              | 132          |
| Assessing a potential electroencephalography based algorithm during a monotonous train driving task                    | 139          |
| Fall Detection using a Gaussian Distribution of Clustered Knowledge, Augmented Radial Basis                            | 145          |
| Design and Implementation of FPGA based Local Cyclic Code Encoder Decoder                                              | 151          |
| Biometrics, Device Metrics and Pseudo Metrics in a Multifactor Authentication with Artificial Intelligence             | 157          |
| Power Management in LTE Networks by Applying Intelligent Networks                                                      | 163          |
| All-optical Signal Processing Circuits Using Silicon Waveguides                                                        | 167          |
| An FPGA-based Implementation for Repeated Square-and-Multiply Polynomials                                              | 173          |
| Comparing accuracy of two algorithms for detecting driver drowsiness - single source                                   | 179          |
| On Delivering Broadband Telecommunication Services to Rural and Remote Areas                                           | 185          |
| Brief Proof of the Upper Bounds for the Number of Modes in Transponder-Limited SS-TDMA                                 | 190          |
| Packet Scheduling and Bandwidth Allocation Based on Channel Quality in WiMax                                           | 194          |
| A Nature Inspired Anomaly Detection System Using Multiple Detection Engines                                            | 200          |
| Trends in home-based safety and health alert support systems for older people                                          | 206          |
| OFA Opportunistic Forwarding and Acknowledgement for Vehicular Ad Hoc Networks                                         | 213          |
| A Flexible FPGA and SBC Based Electric Vehicle Telemetry System                                                        | 219          |
| Noise immunity enhancement for a distributed clock system in digital HF radar                                          | 227          |
| Design Considerations for Low-Power ADC for Retinal Prosthesis Applications                                            | 232          |
| Design of Low-Power Bandgap Reference Voltage Circuit for Epi-Retinal Prosthesis                                       | 236          |
| Spectral Re-growth due to High Power Amplifier Nonlinearities in MIMO-OFDM Relaying Channels                           | 240          |
| Measurement of correlation coefficient for dynamic WBAN channels in sleep apnoea monitoring system                     | 246          |
| Brief overview of Technology and Applications in Railway Operator Safety                                               | 252          |
| Variable-length Quadratic Envelope Pulse Shaping and Automatic Gain Control for HF radars                              | 260          |
| Design and Implementation of Multimodal Digital Identity Management System Using Fingerprint Matching Face Recognition | g and<br>272 |
| Unmanned Vehicle-Aided Automated Meter Reading                                                                         | 289          |
| Development of Software with Cloud Computing in 3TZ Collaborative Team Environment                                     | 294          |