

# **2012 9th International Conference on Communications**

**(COMM 2012)**

**Bucharest, Romania  
21 – 23 June 2012**



**IEEE Catalog Number: CFP1241J-PRT**  
**ISBN: 978-1-4577-0057-6**

# TABLE OF CONTENTS

## Invited Papers

<b>Blind Algorithms for Timing Acquisition of Impulse Radio UWB Communications</b> .....	3
<i>Stéphane AZOU, Emanuel RĂDOI</i>	
<b>Cognitive Radio Networks</b> .....	11
<i>Adrian POPESCU</i>	

## Signal Processing

<b>Partial Discharge Detection in High Voltage Cables Using Polyspectra and Recurrence Plot Analysis</b> .....	19
<i>Ion CANDEL, Emil SOFRON, Angela DIGULESCU, Alexandru ȘERBĂNESCU</i>	
<b>A Study on Binary Sequences Generated by Tent Map Having Cryptographic View</b> .....	23
<i>Azeem ILYAS, Adrian LUCA, Adriana VLAD</i>	
<b>A Fast Low-Cost TOA Estimation for UWB Impulse Radio Networks</b> .....	27
<i>Jorge A. PARDIÑAS-MIR, Roger LAMBERTI, Muriel MULLER, Claude GIMENES</i>	
<b>A Speed Convergence Least Squares Constant Modulus Algorithm for Smart Antenna Beamforming</b> .....	31
<i>Adrian Ionuț SCUTARIU, Dalina ZEVEDEI, Mariana JURIAN</i>	
<b>Energy Classification-Assisted Fingerprint System for Content-Based Audio Copy Detection</b> .....	35
<i>Yongchao ZHANG, Mingxing XU, Emlyn PRATT</i>	
<b>Several Phase Approximations from Gain Samples – The Linear Frequency Domain</b> .....	39
<i>Lăcrimioara GRAMA, Marius SÎRBU</i>	
<b>On the Performance of Generalized Likelihood Ratio Test for Data-Aided Timing Synchronization of MIMO Systems</b> .....	43
<i>Yi ZHOU, Erchin SERPEDIN, Khalid QARAQE, Octavia DOBRE</i>	
<b>Refining Accuracy of the Spectral Lines Estimation by a Sparsity Based Approach</b> .....	47
<i>Anisia FLORESCU, Silviu CIOCHINĂ</i>	
<b>Development of Multiresolution Hierarchical Trees to Non-Cooperative Target Recognition</b> .....	51
<i>Christian BROUSSEAU</i>	
<b>Optimum Digital Audio Equalizers with Flat Frequency Response</b> .....	55
<i>Lucian STANCIU, Cristian STANCIU</i>	
<b>Correlation Coefficient Based on Independent Component Analysis</b> .....	59
<i>Dragoș FALIE, Livia DAVID</i>	
<b>New Variable Step Size Affine Projection Algorithms</b> .....	63
<i>Felix ALBU, Constantin PALEOLOGU, Silviu CIOCHINĂ</i>	
<b>Improved Nyquist Filters with Piecewise Rectangular-Sine Frequency Characteristics</b> .....	67
<i>Alexandra Ligia BĂLAN, Nicolae Dumitru ALEXANDRU</i>	

## Natural Language and Speech Processing

<b>On Grapheme to Phoneme Conversion for Romanian Using Pronunciation by Analogy</b> .....	73
<i>Traian BÎRSAN, Ștefan Adrian TOMA</i>	
<b>Whisper Vowel Diagrams for Singapore English</b> .....	77
<i>Hamid Reza SHARIFZADEH, Ian V. McLOUGHLIN</i>	
<b>Statistical Study on a Literary Romanian Corpus for the Beginning and Ending of the Words</b> .....	81
<i>Adrian MITREA, Adriana VLAD, Adrian LUCA</i>	
<b>A Possible Annotation Scheme for Romanian</b> .....	85
<i>Amelia MOLEA</i>	

## Image Processing

<b>On Ultrasonic Image Generation with Biomimetic Sonar Head and Narrow Beam</b> .....	91
<i>Dorel AIORDACHIOAIE, Laurențiu FRANGU</i>	
<b>Image Enhancement and Image Quality Analysis Using Fuzzy Logic Techniques</b> .....	95
<i>Alexey SAENKO, Victor MUSALIMOV, Galina POLTE</i>	
<b>Automatic 2D/3D ToF Image Fusion Using the Intrinsic Dimension</b> .....	99
<i>Șerban OPRIȘESCU, Laura Maria FLOREA</i>	
<b>Mouth Area Analysis by the Use of Selected Spectral Energies</b> .....	103
<i>Laura Maria FLOREA, Șerban OPRIȘESCU, Corneliu FLOREA</i>	
<b>Comparative Study of Biometric Optoelectronic Tracking Models</b> .....	107
<i>Marian Dorin PÎRLOAGĂ, Marius Iulian MIHĂILESCU</i>	
<b>Navigation System in a Virtual Environment by Gestures</b> .....	111
<i>Oana Mihaela VULTUR, Ștefan-Gheorghe PENTIUC, Andrei CIUPU</i>	
<b>Method of the Square – A New Algorithm for Image Vectorization</b> .....	115
<i>Marinela NIDELEA, Adrian Mihai ALEXEI</i>	
<b>Appearance-Based Facial Detection for Recognition</b> .....	119
<i>Cristian MOLDER, Romana OANCEA</i>	

## Computational Intelligence

<b>Pattern Recognition Using GMLP Systems: A Comparative View as Performance Level</b> .....	125
<i>Iulian Constantin VIZITIU, Petrică CIOTÎRNAE, Andrei KOVACS, Mădălina MAZILU</i>	
<b>An Efficient Parametric Model for Real-Time 3D Tongue Skeletal Animation</b> .....	129
<i>Mihai Daniel ILIE, Cristian NEGRESCU, Dumitru STANOMIR</i>	
<b>A Concurrent Neural Network Approach to Pedestrian Detection in Thermal Imagery</b> .....	133
<i>Victor Emil NEAGOE, Adrian Dumitru CIOTEC, Andrei Petru BARAR</i>	

## Antennas, Propagation and Microwaves

<b>Equivalent Dipole Distribution for Multiple Obstacle Scattering Study Using Wave Iterative Process</b> .....	139
<i>Nicolae LUCANU, Ion BOGDAN, Henri BAUDRAND</i>	
<b>Evaluation of the Compromising Radiation by Electromagnetic Compatibility Tests</b> .....	143
<i>Andrei SZILAGYI, Ioan NICOLAESCU</i>	
<b>Comparison of the Refractive Index Structure Constant Prediction Using Radiosonde Data to In-Situ Thermosonde Measurements</b> .....	147
<i>Radian Radu BELU, George JUMPER</i>	
<b>The Influence of Radome on Radar Antennas System</b> .....	151
<i>Mihaiță ARHIP, Gheorghe GAVRILĂ</i>	
<b>Beam Synthesis of Phased Circular Antenna Arrays Using Taguchi Method</b> .....	155
<i>Amor SMIDA, Ridha GHAYOULA, Adnen TROUDI, Hichem TRABELSI, Ali GHARSALLAH</i>	
<b>Optical Dielectric Resonator Antenna</b> .....	159
<i>Abhinav BHARDWAJ, Dinesh KUMAR V.</i>	
<b>Design of a Feed Antenna Based on NRD-Guide Structure for Millimeter-Wave Applications</b> .....	163
<i>Milad Sharifi SORKHERIZI, Hadi SAIDIMANESH, Ramezan Ali SADEGHZADEH</i>	
<b>A Low Cost Wide Band Feed Antenna for Point-to-Point WLAN Applications</b> .....	167
<i>Hadi SAIDIMANESH, Milad Sharifi SORKHERIZI, Somayyeh CHAMAANI, Mohsen KABOLI</i>	
<b>Comparative Study of Antenna Embedded in Singly and Doubly Curved Dielectric Surfaces</b> .....	171
<i>Abdul MUEED, Jiadong XU</i>	

## Communications Networks and Systems

<b>System Level Performance of CoMP IR-HARQ over X2 Interface in 3GPP LTE-Advanced System</b> .....	177
<i>Yuan GAO, Yi LI, Hongyi YU, Xianfeng WANG, Shihai GAO</i>	
<b>A Secure Routing Algorithm with Additional Cognitive Information Scalable Features for the Design Approach of the Tactical Frequency Hopping Radios Ad-Hoc Networks (TAFHNET)</b> .....	181
<i>Victor GREU, Petrică CIOTÎRNAE, Iulian Constantin VIZITIU, Sorin CERNEA, Ovidiu PONCEA</i>	
<b>Optimal Energy Efficient Routing in Wireless Sensor Networks with Link Asymmetry</b> .....	185
<i>Sibel Tariyan ÖZYER, Bülent TAVLI, Murat KOYUNÇU</i>	
<b>A Realistic Experiment of a Wireless Sensor Network on Board a Vessel</b> .....	189
<i>Hussein KDOUH, Christian BROUSSEAU, Gheorghe ZAHARIA, Guy GRUNFELDER, Ghais EL ZEIN</i>	
<b>On the Use of Virtual Mobile Nodes with Real-World Considerations in Vehicular Ad Hoc Networks</b> .....	193
<i>Jack Fernando BRAVO-TORRES, Martin LÓPEZ-NORES, Yolanda BLANCO-FERNÁNDEZ</i>	
<b>Adaptive Multiple Relay Selection and Power Optimization for Cognitive Radio Networks</b> .....	197
<i>Hasan KARTLAK, Niyazi ODABAŞIOĞLU, Aydın AKAN</i>	

<b>RFID Network Traffic Analysis Based on an Empirical Model</b> .....	201
<i>Adrian Mihai GĂITAN, Valentin POPA, Vasile Gheorghită GĂITAN, Adrian Ioan PETRARIU, Alexandru LAVRIC, Simona Anda GHERASIM</i>	
<b>A Network Perspective about Communications Services</b> .....	205
<i>Dan DIMOFTE</i>	
<b>System Level Result of a Novel Adaptive Antenna Selection Method in 3GPP LTE-Advanced System</b> .....	209
<i>Yuan GAO, Yi LI, Hongyi YU, Xianfeng WANG, Shihai GAO</i>	
<b>Sensor Network Test Bed for ZBSNTS</b> .....	213
<i>Iulian TIHON, Vlad BIȘTEA, Victor CROITORU</i>	
<b>A New Approach in Using RAPTOR to Evaluate Reliability and Availability for VoIP Systems</b> .....	217
<i>Ioan PALADE</i>	
<b>LwIP Stack Protocol for Embedded Sensors Network</b> .....	221
<i>Sorin ZOICAN, Marius VOCHIN</i>	
<b>A Simple Time-based Threshold Strategy for Dynamic Spectrum Access</b> .....	225
<i>Said Rutabayiro NGOGA, Yong YAO, Adrian POPESCU</i>	
<b>Simulation of the Floyd-Warshall Algorithm Using OMNeT++ 4.1</b> .....	229
<i>Anamaria COMȘA, Andrei Bogdan RUS, Virgil DOBROTĂ</i>	
<b>Effect of Traffic Locality on Power Consumption of Distributed Computing Network with a Data Center</b> .....	233
<i>Yukio OGAWA, Go HASEGAWA, Masayuki MURATA</i>	
<b>On Routing in Cognitive Radio Networks</b> .....	237
<i>Alexandru POPESCU, Markus FIEDLER</i>	
<b>Content Aware Classification Method</b> .....	241
<i>Radu Dinel MIRUȚĂ, Cosmin STĂNUICĂ, Eugen BORCOCI</i>	
<b>Wireless Communications</b>	
<b>SAFS: A Self Adaptive Fuzzy-Based Scheduler for Real Time Services in WiMAX System</b> .....	247
<i>Fatemeh Keshavarz HEDAYATI, Seyed Saeid MASOUMZADEH, Siavash KHORSANDI</i>	
<b>Location of WLAN Devices Based on OFDM Signals Time Synchronization</b> .....	251
<i>Marius SÎRBU, Lăcrimioara GRAMA</i>	
<b>Maintaining IP Connectivity across Heterogeneous Wireless Access Networks</b> .....	255
<i>Roxana ZOICAN</i>	
<b>Packet Error Rate Analysis of IEEE 802.15.4 under 802.11g and Bluetooth Interferences</b> .....	259
<i>Alexandru LAVRIC, Valentin POPA, Ilie FINIS, Adrian Mihai GĂITAN, Adrian Ioan PETRARIU</i>	
<b>Optimization Method for Smart Antenna Use in WiMAX Vehicular Communications</b> .....	263
<i>Mihai CONSTANTINESCU, Eugen BORCOCI</i>	
<b>Study of Energy Absorption Field Emitted by Generic Mobile Phones at 900 MHz Frequency</b> .....	267
<i>Grigore JELER, Cătălin MORARU, Mihai RADU</i>	

<b>Performance Evaluation of a WiMAX Mobile Network using Smart Antennas in a Simulated Environment</b> .....	271
<i>Irinel OLARIU, Șerban OBREJA, Alexey BARAEV</i>	

<b>Design and Analysis of a Micro-Solar Power for Wireless Sensor Networks</b> .....	275
<i>Radian Radu BELU</i>	

## Internet Technologies

<b>Improved Self Adaptive Honeypots Capable of Detecting Rootkit Malware</b> .....	281
<i>Adrian PĂUNA</i>	

<b>Metric Model for IPTV Video Streaming Services Distribution in Content Aware Networks</b> .....	285
<i>George Cristian CERNAT, Vlad Andrei POENARU, George SUCIU</i>	

<b>New Directions in Cloud Computing. A Security Perspective</b> .....	289
<i>Alecsandru PĂTRAȘCU, Diana MAIMUȚ, Emil SIMION</i>	

<b>Web Service Based Platform for Mobile Business</b> .....	293
<i>Eugen POP, Victor CROITORU</i>	

## Communications Security

<b>Implementing Geo-Encryption in GSM Cellular Network</b> .....	299
<i>Mahdi Daghmechi FIROOZJAEI, Javad VAHIDI</i>	

<b>A New DRM Architecture Based on Mobile Code and White-Box Encryption</b> .....	303
<i>Ștefan Vladimir GHIȚĂ, Victor Valeriu PATRICIU, Ion BICA</i>	

<b>A Modified External-Key Cryptosystem for Digital Implementation</b> .....	307
<i>Cristian Iulian RÎNCU, Vasile Gabriel IANA</i>	

<b>Another Steganographic LSB-Based Function</b> .....	311
<i>Alina Felicia DRĂGAN</i>	

<b>Using MTMs to Secure Electronic Signatures Generation</b> .....	315
<i>Mihai ȘERB, Victor Valeriu PATRICIU</i>	

<b>Atmel AVR Microcontroller Implementation of a New Enciphering Algorithm Based on a Chaotic Generalized Hénon Map</b> .....	319
<i>Mihai STANCIU, Octaviana DATCU</i>	

<b>XXTEA, an Alternative Replacement of Kasumi Cipher Algorithm in A5/3 GSM and f8, f9 UMTS Data Security Functions</b> .....	323
<i>Ion SIMA, Daniel ȚĂRMUREAN, Victor GREU, Adrian Viorel DIACONU</i>	

<b>Security Communications Interoperability Protocol Implementation</b> .....	327
<i>Valeriu IONESCU, Ion SIMA, Adrian Viorel DIACONU, Valentin STAN</i>	

<b>A Modified Version of Rijndael Algorithm Implemented to Analyze the Cyphertexts Correlation for Switched S-Boxes</b> .....	331
<i>Marian CREȚU, Cristian Gabriel APOSTOL</i>	

<b>A Solution for Implementing Resilience in Open Source Cloud Platforms</b> .....	335
<i>George SUCIU, George Cristian CERNAT, Gyorgy TODORAN, Victor SUCIU, Vlad Andrei POENARU, Traian MILITARU, Simona HALUNGA</i>	
<b>A New Pseudorandom Bit Generator Using Compounded Chaotic Tent Maps</b> .....	339
<i>Ana Cristina DĂSCĂLESCU, Radu Eugen BORIGA, Ciprian RĂCUCIU</i>	
<b>Optimization Strategies for Data Collections Used in Evaluating Dynamic Signature Authentication Systems</b> ..	343
<i>Marius Iulian MIHĂILESCU, Marian Dorin PÎRLOAGĂ</i>	

## **Special Session: Blind Identification Methods for Military Communications and Cognitive Radio Applications**

<b>Blind Signal Identification: Achievements, Trends and Challenges</b> .....	349
<i>Octavia DOBRE, Robert INKOL</i>	
<b>Focus on Theoretical Properties of Blind Convolutional Codes Identification Methods Based on Rank Criterion</b> .....	353
<i>Yasmine ZRELLI, Roland GAUTIER, Melanie MARAZIN, Eric RANNOU, Emanuel RĂDOI</i>	
<b>Blind Long Spreading Codes DS-CDMA Signal Identification in Frequency Selective Channel</b> .....	357
<i>Cepin Nsiala NZEZA, Bart HIMSCHOOT, Roland GAUTIER</i>	
<b>Cooperative Beamforming for Multi-User Multi-Relay Networks Based on Second-Order Statistics of Channel State Information</b> .....	361
<i>Hamid MEGHDADI, Jean Pierre CANCES, Vahid MEGHDADI</i>	

## **Special Session: Methods for Modeling and Analyzing Very High Resolution SAR Images**

<b>Use of the Second-Kind Statistics for VHR SAR Image Retrieval</b> .....	367
<i>Jagmal SINGH, Mihai DATCU</i>	
<b>Potential of Multipass Very High Resolution SAR Interferometry for Dam Monitoring</b> .....	371
<i>Gabriel VASILE, Didier BOLDO, Remy BOUDON, Guy D'URSO, Robert MUJA</i>	
<b>Wavelet Based Descriptors for Soil Moisture Estimation Using SAR Data</b> .....	375
<i>Dušan GLEICH</i>	
<b>A High Resolution SAR Image Spectral Analysis Framework for Multiple Class Image Mining in Urban Areas</b> .....	379
<i>Anca POPESCU, Inge GAVĂT, Mihai DATCU</i>	
<b>Towards a New Hierarchical Segmentation Algorithm for SAR Scenes</b> .....	383
<i>Cătălin CUCU-DUMITRESCU, Delia TELEAGĂ, Florin ȘERBAN</i>	