# BWCCA 2014

Table of Contents

- Message from BWCCA 2014 Conference Organizers
- Message from BWCCA 2014 Workshops Co-chairs
- BWCCA 2014 Organizing Committee
- BWCCA 2014 Reviewers
- Message from 2ASMUB 2014 Workshop Co-chairs
- 2ASMUB 2014 Organizing Committee
- 2ASMUB 2014 Reviewers
- Message from CWECS 2014 Workshop Organizers
- CWECS 2014 Organizing Committee
- CWECS 2014 Reviewers
- Message from LSNS 2014 Workshop Organizers
- LSNS 2014 Organizing Committee
- LSNS 2014 Reviewers
- Message from MAPWC 2014 Workshop Organizers
- MAPWC 2014 Organizing Committee
- MAPWC 2014 Reviewers

v
BWCCA 2014

Session 1: Wireless Ad-Hoc and Sensor Networks

A Fuzzy-Based Method for Selection of Actor Nodes in Wireless Sensor and Actor Networks ........................................................................................................................................1
Elis Kulla, Tetsuya Oda, and Leonard Barolli

ACE: Adaptive Cooperation in EEDBR for Underwater Wireless Sensor Networks .............................................................................................................................................................................8
H. Nasir, N. Javaid, M. Murtaza, S. Manzoor, Z.A. Khan, U. Qasim, and M. Sher

A Study on the Feasibility of Mobile Ad-Hoc Networks Applied to Foreign Objective Debris Detection System ..................................................................................................................................................15
Liangyou Wang, Liangyou Wang, Wancheng Ge, Haoyu Xu, and Han Zhou
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>THEEM: Threshold-Sensitive Energy Efficient Multi-hop Routing Protocol for WSNs</td>
<td>20</td>
</tr>
<tr>
<td>W. Raza, I. Khan, F. Arshad, I. Naqvi, U. Qasim, Z.A. Khan, and N. Javai</td>
<td></td>
</tr>
<tr>
<td>Underwater Wireless Sensor Network's Performance Enhancement with Cooperative Routing and Sink Mobility</td>
<td>26</td>
</tr>
</tbody>
</table>

**Session 2: Network Algorithms and Systems**

- The Study on Three-Stage Matching Algorithm Framework of Semantic Similarity | 34   |
  Chijun Zhang, Na Huang, Ying Liu, and Zhanwei Du |      |
- Gaussian Process Machine Learning Based ITO Algorithm | 38   |
  Ma Chuang, Yang Yongjian, Zhanwei Du, and Chijun Zhang |      |
- Overview of Routing Algorithm in Pocket Switched Networks | 42   |
  Ma Chuang, Yang Yongjian, Zhanwei Du, and Chijun Zhang |      |
- Research on the User Behavior-Based QoE Evaluation Method for HTTP Mobile Streaming | 47   |
  Yajun Huang, Wen'an Zhou, and Yu Du |      |

**Session 3: Wireless Sensor Networks**

- CoDBR: Cooperative Depth Based Routing for Underwater Wireless Sensor Networks | 52   |
- Research of Optimal Clustering Routing Algorithm for NGB with Small-World Property | 58   |
  Y. Wang, Y. Cui, and Y.L. Wang |      |
- The Location Privacy of Wireless Sensor Networks: Attacks and Countermeasures | 64   |
  Lin Zhou, Changsheng Wan, Jie Huang, Bei Pei, and Changsong Chen |      |
- Volunteer Sensor Networks Node Availability Prediction via Stronger Intelligent Selection Optimization Algorithm | 72   |
  Yu Wang, Wenbin Zhou, and Fanfan Zhou |      |
- TSDDR: Threshold Sensitive Density Controlled Divide and Rule Routing Protocol for Wireless Sensor Networks | 78   |
  M. Behzad, N. Javaid, A. Sana, M.A. Khan, N. Saeed, Z.A. Khan, and U. Qasim |      |
Session 4: Watermarking and Security

A Novel Text Watermarking Algorithm Based on Graphic Watermarking Framework
Xiaowei Liu, Jin Zhang, Haozhou Wang, Xiaoli Gong, and Yuanyuan Cheng

Research on Polymorphism and Inertial Reading Application in Text Watermarking Algorithm
Yuanyuan Cheng, Jin Zhang, Xiaoli Gong, Haozhou Wan, and Xiaowei Liu

On the Security of a Remote Data Possession Checking Scheme in Cloud Storage
Xinlong Liang and Rui Jiang

Shorten Reed-Solomon Code for Wireless USB
Runfeng Yang, Xiaoning Chen, and Jian Zhao

Detecting and Defending against Sybil Attacks in Social Networks: An Overview
Faxin Li, Bo Liu, Zhefeng Xiao, and Yi Fu

Session 5: Wireless Body and Mesh Networks

Incremental Relay-Based Co-CEStat Protocol for Wireless Body Area Networks
S. Yousaf, S. Ahmed, M. Akbar, N. Javaid, Z.A. Khan, and U. Qasim

A GA-Based Simulation System for WMNs: Performance Analysis for Different WMN Architectures Considering TCP
Tetsuya Oda, Shinji Sakamoto, Admir Barolli, Makoto Ikeda, Leonard Barolli, and Fatos Xhafa

Co-CEStat: Cooperative Critical Data Transmission in Emergency in Static Wireless Body Area Network
S. Yousaf, S. Ahmed, M. Akbar, N. Javaid, Z.A. Khan, and U. Qasim

Optimization of Number of Mesh Routers in WMNs Using WMN-SA System Considering Uniform Distribution for Different Number of Mesh Clients
Shinji Sakamoto, Tetsuya Oda, Makoto Ikeda, Leonard Barolli, Santi Caballé, and Fatos Xhafa

Analysis of WMN-GA Simulation System Results: A Comparison Study for Node Placement in WMNs Considering Exponential and Weibull Distributions and Different Transmission Rates
Admir Barolli, Tetsuya Oda, Leonard Barolli, Fatos Xhafa, Makoto Takizawa, and Vincenzo Loia
Session 6: Mobile and Wireless Computing

A Low-Complexity Decoding Algorithm for RaptorQ Code ................................................................. 145
  Rucheng Zhang and Yajun Kou
Non-supervised Rule for Direct Sequence Spread Spectrum Signal Sequence Acquisition ............................................................. 151
  Hao Cheng, Zhenghua Luo, and Guolin Sun
Mobility Model for WBANs ............................................................................................................................. 155
  M.M. Sandhu, M. Akbar, M. Behzad, N. Javaid, Z.A. Khan, and U. Qasim
Impact of Sensor Sensitivity in Assistive Environment ......................................................................................... 161
  Kin Fun Li, Ana-Maria Sevcenco, and Lei Cheng

Session 7: Cloud and Cluster Computing

The Redundant Delay Time-Based (RDTB) Algorithm for Fault Tolerant Server Clusters ................................................................. 169
  Tomoya Enokido and Makoto Takizawa
Multiple DAGs Dynamic Workflow Scheduling Based on the Primary Backup Algorithm in Cloud Computing System ............................................................................................................................. 177
  Yu Wang, Changyun Jia, and Yang Xu
Time Series QoS Forecasting for Management of Cloud Services ......................................................................................... 183
  Zia Ur Rahman, Omar Khadeer Hussain, and Farookh Khadeer Hussain
A Process Migration Approach to Energy-Efficient Computation in a Cluster of Servers ................................................................. 191
  Dilawaer Duolikun, Tomoya Enokido, and Makoto Takizawa

Session 8: Wireless Communication Systems

Coordinated Scan Detection Algorithm Based on the Global Characteristics of Time Sequence ................................................................................................................................. 199
  Yanli Lv, Yuanlong Li, Shouzhong Tu, Shuang Xiang, and Chunhe Xia
An Optimized Resource Allocation and CoMP Based Interference Coordination Scheme for LTE-A Het-Net ......................................................................................................................................... 207
  Du Hai-Tao, Zhou Wen-An, Lu Xian-Qi, and Sun Jing-Yuan
  Honghang Wen, Jianhua Ge, and Jifu Wang
Session 9: Trust Computing and Authentication

An ACO-Based Trust Inference Algorithm .................................................................216
  Leyi Shi, Yao Wang, and Xin Liu

Implementation of a Trust-Behavior Based Reputation System for Mobile Applications ...........................................................................................................221
  Tianli Dang, Zheng Yan, Fei Tong, Weidong Zhang, and Peng Zhang

An Improved Authenticated Skip List for Relational Query Authentication ................................................229
  Jian Xu, Ze Cao, Qiong Xiao, and Fucai Zhou

A New Security and Privacy Risk Assessment Model for Information System Considering Influence Relation of Risk Elements ..........................................................233
  Wu Tianshui and Zhao Gang

An Efficient and Flexible Dynamic Remote Attestation Method ..........................................................239
  Hongjiao Li and Shan Wang

Session 10: Vehicular Networks

Performance Comparison of DTN Routing Protocols in Vehicular-DTN Environment .......................................................................................................................247
  Makoto Ikeda, Taiki Honda, Seiichiro Ishikawa, and Leonard Barolli

Pseudonym-Based Cryptography and Its Application in Vehicular Ad Hoc Networks .........................................................................................................................253
  Chang-Ji Wang, Dong-Yuan Shi, and Xi-Lei Xu

A Jammer Deployment Method for Multi-hop Wireless Network Based on Degree Distribution ............................................................261
  Xianglin Wei, Yongyang Hu, Jianhua Fan, and Baoqiang Kan

QoE Issues of OTT Services over 5G Network .........................................................................267
  Huang Feng-Hui, Zhou Wen-An, and Du Yu

2ASMUB 2014

Session 1: Advanced Applications and Sustainability Management for Ubiquitous E-Business

Estimation on Dynamic Correlations Among Foreign Reserve Growing, Liquidity Shock and Stock Market Fluctuation in China ...........................................................274
  Wang Yongmao

Consumption Tilting and the Current Account: Evidence from China ..................................................277
  Zhou Yajun
A Principal Component Analysis Fusion Method on Infrared Multi-Light-Intensity Finger Vein Images ..........................................................................................................................281
Chen Liukui, Li Zuojin, Wu Ying, and Feng Lixiao

CWECS 2014

Session 1: Network, Security, and Healthcare

S-PMIPv6: Efficient Handover of Proxy Mobile IPv6 by Using SCTP .................................................................287
Chin-Yu Liu, Fang-Yie Leu, and Jung-Chun Liu

Combining IID with BDD to Enhance the Critical Quality of Security Functional Requirements ...........................................................................................................................................292
Sen-Tarng Lai, Fang-Yie Leu, and William Cheng-Chung Chu

Improving Multi-path Congestion Control for Event-Driven Wireless Sensor Networks by Using TDMA .........................................................................................................................................................300
Fang-Yie Leu, Hsin-Liang Chen, and Jung-Chun Liu

A Wandering Path Tracking and Fall Detection System for People with Dementia ...........................................................................................................................................306
Chia-Yin Ko, Fang-Yie Leu, and I-Tsen Lin

LSNS 2014

Session 1: Network Technology and Applications

B-Mobishare: Privacy-Preserving Location Sharing Mechanism in Mobile Online Social Networks ..............................................................................................................................................................312
Nan Shen, Ke Yuan, Jun Yang, and Chunfu Jia

Rule-Based Business Data Processing in Service Coordination Systems ........................................................................317
Jie Yuan and Lirong Qiu

Erasing the JPEG Compression Artifacts: An Improved Counter-Forensic Algorithm Based on Parameter Adjustment .........................................................................................................................................321
Guorui Sheng and Qingtang Su

Session 2: Security Auditing for Sharing Network Data

Construction of Semantic Associative Network Based on Topic Maps .............................................................................325
Lirong Qiu and Jie Yuan

A Method for Tibetan Text Orientation Identification ........................................................................................................329
Xiaodong Yan

A Bidirectional Process Algorithm for Mining Probabilistic Frequent Itemsets ........................................................................334
Xiaomei Yu, Hong Wang, and Xiangwei Zheng
MAPWC 2014

Session 1: Methods and Protocols for Wireless and Mobile Networking

A CAC Scheme Based on Fuzzy Logic for Cellular Networks Considering Security and Priority Parameters .................................................................340
Takaaki Inaba, Shinji Sakamoto, Vladi Kolici, Gjergji Mino, and Leonard Barolli

Experimental Results on Energy Harvesting by Using AM Radio Broadcasting ................................................347
Shingo Otsuka and Norimasa Nakashima

A Message Suppression Method for Vehicular Delay Tolerant Networking ................................................351
Taiki Honda, Seiichiro Ishikawa, Makoto Ikeda, and Leonard Barolli

Session 2: Numerical Analysis for Wireless Communication

Propagation Constant Measurement in Two Dimensional Post Array Waveguide with Triangular Lattice by Metallic Pillars ................................................................................357
Huili Chen, Yuting Bao, Jianming Jin, and Hiroshi Maeda

Numerical Analysis of Y-Shaped Branch Waveguide in Photonic Crystal Structures and Its Application ........................................................................362
Jianming Jin, Yuting Bao, Huili Chen, and Hiroshi Maeda

Experimental Study on Crank-Shaped Waveguide in 2D Post Array ..............................................................................366
Yuting Bao, Huili Chen, Jianming Jin, and Hiroshi Maeda

Optical Ray Tracing Based on Dijkstra Algorithm in Inhomogeneous Medium .........................................................371
Kazunori Uchida

MNSA 2014

Session 1: P2P Systems and 3D Applications

A Fuzzy-Based Reliability System for JXTA-Overlay P2P Platform Considering Number of Interaction, Security, and Packet Loss Parameters .......................................................377
Yi Liu, Shinji Sakamoto, Leonard Barolli, Makoto Ikeda, and Fatos Xhafa

A P2P Model of Publish/Subscribe Systems .........................................................................................383
Hiroki Nakayama, Dilawaer Duolikun, Tomoya Enokido, and Makoto Takizawa

Scalable and Accurate Data Aggregation Mechanism on Structured P2P Network .........................................................................................389
Atsushi Takeda, Takuma Oide, Akiko Takahashi, and Takuo Suganuma

A Digital Fabrication Assistant for 3D Arts and Crafts .................................................................................395
Jiaqing Lin, Hiroaki Nishino, and Tsuneo Kagawa
Session 2: Multimedia Networking

Proposal of Seeking Wireless Station by Flight Drones Based on Delay Tolerant Networks ........................................................................................................................................401
Noriki Uchida, Norihiro Kawamura, Tomoyuki Ishida, and Yoshitaka Shibata

Performance Evaluation of Software Defined and Cognitive Wireless Network Based Disaster Resilient System ........................................................................................................................................406
Goshi Sato, Noriki Uchida, Koji Hashimoto, and Yoshitaka Shibata

User Location Anonymization Based on Secret Computation ..........................................................................................................................410
Fumiaki Sato

A Circuit Switching Method for Improving Congestion of Tor Network .........................................................416
Kale Timothy Girry, Satoshi Ohzahata, Celimuge Wu, and Toshihiko Kato

Session 3: E-Learning and Multimedia Support Systems

A Language-Learning Support System with a Handwriting-Based Communication Interface ........................................................................................................................................422
Shu Li, Masato Kasahara, Kosuke Takano, and Kin Fun Li

An Interactive Learning System Using Smartphone: Improving Students’ Learning Motivation and Self-Learning .....................................................................................................428
Noriyasu Yamamoto

Proposal of the Relief Supplies Support System at the Time of Large-Scale Natural Disaster .................................................................432
Kazuhiro Takahagi, Tomoyuki Ishida, Akira Sakuraba, Kaoru Sugita, Noriki Uchida, and Yoshitaka Shibata

Construction of a Communication Support Tool for Understanding Emotion in an Unstable Narrowband Network ........................................................................................................436
Kaoru Sugita, Kaori Urabe, and Ken Nishimura

NGWMN 2014

Session 1: Wireless Networks and Cognitive Radio

Node Placement in WMNs for Different Movement Methods: A Hill Climbing System Considering Exponential and Weibull Distributions ........................................................................................................440
Xinyue Chang, Shinji Sakamoto, Tetsuya Oda, Makoto Ikeda, Leonard Barolli, and Fatos Xhafa

REEC: Reliable Energy Efficient Critical Data Routing in Wireless Body Area Networks ..........................................................................................................................446
M.M. Sandhu, M. Akbar, M. Behzad, N. Javaid, Z.A. Khan, and U. Qasim
MASEHA: Multi-hop Communication Using Active and Sleep Nodes for Energy Hole Avoidance in Wireless Sensor Networks .................................................................452


Interference Estimation of Analog TV and LTE System Based on Cognitive Radio ........................................................................................................................................458

Mingxing Liu and Wenwen Ma

Session 2: Applications on Wireless Communication Systems

Localization Scheme of Multistatic Radars System Based on the Information of Measured Signal .................................................................462

Jyh-Horng Wen, Jheng-Sian Li, Cheng-Ying Yang, Chun-Hung Chen, and Hsing-Chung Chen

The Performance Analysis of Direct/Cooperative Transmission with TXOP Scheme in WLANs .................................................................467

Chien-Erh Weng, Lie Yang, and Hsing-Chung Chen

A Secure End-to-End Mobile Chat Scheme .................................................................................................................472

Hsing-Chung Chen, Jyh-Horng Wen, and Cheng-Ying Yang

NTCAA 2014

Session 1: Network Algorithms and Applications


F. Saleem, N. Javaid, Y. Moeen, M. Akbar, Z.A. Khan, and U. Qasim

TEECH-ME: Threshold Sensitive Energy Efficient Cluster Heads Based on Maximum Energy Routing Protocol for WSNs .................................................................485

I. Khan, W. Raza, F. Arshad, F. Kalsoom, U. Qasim, Z.A. Khan, and N. Javaid

An Alternative Flocking Algorithm with Additional Dynamic Conditions .........................................................................................491

Ningping Sun and Yusuke Tokunaga

Detection of JavaScript of Malware with Un-readability Using Mahalanobis-Distance .................................................................................................497

Kentaro Takamori, Mai Iwamoto, Shunsuke Oshima, and Takuo Nakashima

The Evaluation Method of Consumer Behavior Pattern Using an Illuminance Sensor Function on a Smart-Tablet ..........................................................................503

Kyoko Taguchi, Masatake Iwasaki, Shinich Ogata, and Yoshifumi Oyama

xiv
### Session 1: Support Systems and Applications

- **Extraction of Physical Motion Dictating the Difference between Skilled Cyclist and Beginner**
  
  Tatsushi Tokuyasu, Takuhiro Sato, Shimpei Matsumoto, and Tomoki Kitawaki
  ............................................................................................................................................509

- **Facial Emotion Recognition Using Active Shape Models and Statistical Pattern Recognizers**
  
  Gil-Jin Jang, Jeong-Sik Park, Ahra Jo, and Ji-Hwan Kim
  ..............................................................................................................................................514

- **An Objective Assessment of Mental Condition Based on EEG and ECG**
  
  Takako Otabe, Tomochika Kaneda, Makoto Yoshikai, and Tatsushi Tokuyasu
  ................................................................................................................518

- **Simulation of Slash-and-Burn Using a Cellular Automaton**
  
  Sayaka Abe and Kaoru Fujioka
  ..............................................................................................................................523

- **An Efficient Head Pose Determination and its Application to Face Recognition Using Multi-pose Face DB and SVM**
  
  Jun Lee and Yong-Ho Seo
  ........................................................................................................................................527

### Session 2: Robotics Systems and Applications

- **Design and Implementation of an Omnidirectional Wheelchair: Control System and Its Applications**
  
  Keita Matsuo and Leonard Barolli
  ...................................................................................................................................532

- **Development of Small Footprint Korean Large Vocabulary Speech Recognition for Commanding a Standalone Robot**
  
  Donghyun Lee, Minkyu Lim, Myoung-Wan Koo, Jungyun Seo, Gil-Jin Jang, Ji-Hwan Kim, and Jeong-Sik Park
  ........................................................................................................................................536

- **Training System for Endoscopic Surgery by Using Augmented Reality and Forceps Control Devices**
  
  Tatsushi Tokuyasu, Wako Okamura, Toru Kusano, Masafumi Inomata, Norio Shiraishi, and Seigo Kitanou
  ........................................................................................................................................541

- **Reconstructing Dynamic Character Font Models with Incorrect Stroke Order**
  
  Hirotugu Matsukida, Yuta Mieno, and Hiroyuki Fujioka
  ........................................................................................................................................545

- **Response Surface Learning for Face Misalignment Correction**
  
  Youngmin Park, Yeongjae Choi, Hyun S. Yang, and Yong-Ho Seo
  ........................................................................................................................................549

- **Controlling Mobile Robot Using IMU and EMG Sensor-Based Gesture Recognition**
  
  Seong-Og Shin, Donghan Kim, and Yong-Ho Seo
  ........................................................................................................................................554
Session 1: Secure Cloud Computing

A XOR Based Public Auditing Scheme for Proof-of-storage ........................................558
   Bei Pei, Changsong Chen, and Changsheng Wan

Online/Offline Attribute Based Signature ........................................................................566
   Shaojun Zhang, Peng Chen, and Jianfeng Wang

Verifiable Algorithm for Secure Outsourcing of Systems of Linear Equations
in the Case of No Solution .................................................................................................572
   Haixin Nie, Hua Ma, Jianfeng Wang, and Xiaofeng Chen

Secure Approximate Nearest Neighbor Search over Encrypted Data ...............................578
   Yaqian Gao, Meixia Miao, Jianfeng Wang, and Xiaofeng Chen

Efficient Verifiable Public Key Encryption with Keyword Search Based
on KP-ABE .......................................................................................................................584
   Pengliang Liu, Jianfeng Wang, Hua Ma, and Haixin Nie

A Study on Service Performance Evaluation of Openstack ................................................590
   Qifeng Xu and Jie Yuan

Author Index .......................................................................................................................594