PROGRAM GUIDE

BWCCA-2018
The 13-th International Conference on Broad-Band and Wireless Computing, Communication and Applications

3PGCIC-2018
The 13-th International Conference on P2P, Parallel, Grid, Cloud and Internet Computing

October 27th - October 29th, 2018
Tunghai University, Taichung, Taiwan

Supported by:
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**Time Table**
BWCCA-2018 Organizing Committee

Honorary Chair
Makoto Takizawa, Hosei University, Japan
Mao-Jiun Wang, Tunghai University, Taiwan
Jyh-Cheng Chen, National Chiao Tung University, Taiwan

General Co-Chairs
Li-Chih Wang, Tunghai University, Taiwan
Fang-Yie Leu, Tunghai University, Taiwan
Leonard Barolli, Fukuoka Institute of Technology, Japan

Program Committee Co-Chairs
Hsing-Chung Chen, Asia University, Taiwan
Tomoya Enokido, Rissho University, Japan
Farookh Hussain, University of Technology Sydney, Australia

Workshops Co-Chairs
Kun-Kin Tsai, Tunghai University, Taiwan
Elis Kulla, Okayama University of Science, Japan
Xiaofeng Chen, Xidian University, China

Finance Chair
Makoto Ikeda, Fukuoka Institute of Technology, Japan

Web Administrator Co-Chairs
Kevin Bylykbashi, Fukuoka Institute of Technology, Japan
Donald Elmazi, Fukuoka Institute of Technology, Japan
Miralda Cuka, Fukuoka Institute of Technology, Japan
Yi Liu, Fukuoka Institute of Technology, Japan
Kosuke Ozera, Fukuoka Institute of Technology, Japan

Local Organizing Co-Chairs
Chin-Yin Huang, Tunghai University, Taiwan
Jeng-Wei Lin, Tunghai University, Taiwan

Steering Committee Co-Chairs
Leonard Barolli, Fukuoka Institute of Technology, Japan
Fatos Xhafa, Technical University of Catalonia, Spain
Welcome Message from the BWCCA-2018 International Conference Organizers

Welcome to the 13-th International Conference on Broadband and Wireless Computing, Communication and Applications (BWCCA-2018), which will be held in conjunction with the 13-th 3PGCIC-2018 International Conference from October 27 to October 29, 2018 at Tunghai University, Taichung, Taiwan.

This International Conference is a forum for sharing ideas and research work in the emerging areas of broadband and wireless computing. Information networking is going through a rapid evolution. Different kinds of networks with different characteristics are emerging and they are integrating in heterogeneous networks. For these reasons, there are many interconnection problems which may occur at different levels of the hardware and software design of communicating entities and communication networks. These kinds of networks need to manage an increasing usage demand, provide support for a significant number of services, guarantee their QoS, and optimize the network resources.

The success of all-IP networking and wireless technology has changed the ways of living the people around the world. The progress of electronic integration and wireless communications is going to pave the way to offer people the access to the wireless networks on the fly, based on which all electronic devices will be able to exchange the information with each other in ubiquitous way whenever necessary. The aim of this conference is to present the innovative research and technologies as well as developments related to broadband networking, and mobile and wireless communications. This edition BWCCA-2018 received 134 paper submissions and based on review results, we accepted 35 papers (about 26% acceptance ratio) for presentation in the conference and publication in the Springer Lecture Notes on Data Engineering and Communication Technologies Proceedings.

The organization of an International Conference requires the support and help of many people. A lot of people have helped and worked hard to produce a successful BWCCA-2018 technical program and conference proceedings. First, we would like to thank all authors for submitting their papers, Program Committee Members and reviewers who carried out the most difficult work by carefully evaluating the submitted papers.

This year in conjunction with BWCCA-2018 we have 7 International Workshops that complemented BWCCA-2018 program with contributions for specific topics. We would like to thank the Workshop Co-Chairs and all workshops organizers for organizing these workshops.

We thank Kevin Bylykbashi, Donald Elmazi, Yi Liu, MiraAla Cuka and Kosuke Ozeru, Fukuoka Institute of Technology (FIT), Japan, as Web Administrators Co-Chairs and Dr. Makoto Ikeda, FIT, Japan, as Finance Chair for their excellent work.

We would like to express our gratitude to Prof. Makoto Takizawa, Hosei University, Japan, Mao-Jiun Wang, Tunghai University, Taiwan and Jyh-Cheng Chen, National Chiao Tung University, Taiwan as Honorary Co-Chairs of BWCCA-2018 for their support and help. We give special thanks to Keynote Speakers of BWCCA-2018 and Local Arrangement Team of Tunghai University for making excellent local arrangement for the conference.

We hope you will enjoy the conference and have a great time in Tunghai, Taiwan.

BWCCA-2018 International Conference Organizers

BWCCA-2018 General Co-Chairs
Li-Chih Wang, Tunghai University, Taiwan
Fang-Yie Leu, Tunghai University, Taiwan
Leonard Barolli, Fukuoka Institute of Technology, Japan

BWCCA-2018 Program Committee Co-Chairs
Hsing-Chung Chen, Asia University, Taiwan
Tomoya Enokido, Rissho University, Japan
Farookh Hussain, University of Technology Sydney, Australia
Welcome Message from BWCCA-2018 Workshops Co-Chairs

Welcome to the Workshops of the 13-th IEEE International Conference on Broadband and Wireless Computing, Communication and Applications (BWCCA-2018), which will be held in conjunction with the 13-th 3PGCIC-2018 International Conference from October 27 to October 29, 2018 at Tunghai University, Taichung, Taiwan.

This year 7 workshops will be held in conjunction with BWCCA-2018 International Conference. The workshops are very important part of the main conference and they cover specific topics related to next generation networks, network traffic analysis, sensor technologies, smart environments, complex systems, wireless communication, mobile networks and multimedia networking.

BWCCA-2018 workshops are listed in following:
2. The 11-th International Workshop on Next Generation of Wireless and Mobile Networks (NGWMN-2018)
5. The 7-th International Workshop on Robot and Vehicle Interaction, Control, Communication and Cooperation (RVI3C-2018)
7. The 4-th International Workshop on Large Scale Networks and Internet Computing (LSNIC-2018)

These workshops bring to the researchers conducting research in specific themes the opportunity to learn from this rich multi-disciplinary experience.

The Workshop Chairs would like to thank the workshop organizers for their great efforts and hard work in proposing the workshop, selecting the papers, the interesting programs and for the arrangements of the workshop during the conference days.

We hope you enjoy the workshops programs and proceedings.

BWCCA 2018 Workshop Co-Chairs

Kun-Kin Tsai, Tunghai University, Taiwan
Elis Kulla, Okayama University of Science, Japan
Xiaofeng Chen, Xidian University, China
3PGCIC-2018 Conference Organizing Committee

Honorary Chair
Makoto Takizawa, Hosei University, Japan
Mao-Jiun Wang, Tunghai University, Taiwan
Jyh-Cheng Chen, National Chiao Tung University, Taiwan

General Co-Chairs
Li-Chih Wang, Tunghai University, Taiwan
Fang-Yie Leu, Tunghai University, Taiwan
Leonard Barolli, Fukuoka Institute of Technology, Japan

Program Committee Co-Chairs
Chao-Tung Yang, Tunghai University, Taiwan
Massimo Ficco, Campania University L. Vanvitelli, Italy
Marcello Luiz Brocardo, Santa Catarina State University, Brazil

Workshops Co-Chairs
Der-Jiunn Deng, National Changhua University of Education, Taiwan
Rubem Pereira, Liverpool John Moores University, UK
Juggapong Natwichai, Chiang Mai University, Thailand

Finance Chair
Makoto Ikeda, Fukuoka Institute of Technology, Japan

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Yi Liu, Fukuoka Institute of Technology, Japan
Kosuke Ozera, Fukuoka Institute of Technology, Japan

Local Organizing Co-Chairs
Chin-Tsun Tsai, Tunghai University, Taiwan
Yu-Chen Hu, Providence University, Taiwan

Steering Committee Co-Chairs
Fatos Xhafa, Technical University of Catalonia, Spain
Leonard Barolli, Fukuoka Institute of Technology, Japan
Message from the 3PGCIC-2018 Organizing Committee

Welcome to the 13th International Conference on P2P, Parallel, Grid, Cloud and Internet Computing (3PGCIC-2018), which will be held in conjunction with BWCCA-2018 International Conference, November 8-10, 2018, Open University of Catalonia, Barcelona, Spain.

P2P, Grid, Cloud and Internet computing technologies have been established as breakthrough paradigms for solving complex problems by enabling large-scale aggregation and sharing of computational, data and other geographically distributed computational resources.

Grid Computing originated as a paradigm for high performance computing, as an alternative to expensive supercomputers. Since late 80’s, Grid computing domain has been extended to embrace different forms of computing, including Semantic and Service-oriented Grid, Pervasive Grid, Data Grid, Enterprise Grid, Autonomic Grid, Knowledge and Economy Grid, etc.

P2P Computing appeared as the new paradigm after client-server and web-based computing. These systems are evolving beyond file sharing towards a platform for large scale distributed applications. P2P systems have as well inspired the emergence and development of social networking, B2B (Business to Business), B2C (Business to Consumer), B2G (Business to Government), B2E (Business to Employee), and so on.

Cloud Computing has been defined as a “computing paradigm where the boundaries of computing are determined by economic rationale rather than technical limits”. Cloud computing is a multi-purpose paradigm that enables efficient management of data centres, timesharing, and virtualization of resources with a special emphasis on business model. Cloud Computing has fast become the computing paradigm with applications in all application domains and providing utility computing at large scale.

Finally, Internet Computing is the basis of any large-scale distributed computing paradigms; it has very fast developed into a vast area of flourishing field with enormous impact on today’s information societies. Internet-based computing serves thus as a universal platform comprising a large variety of computing forms. The aim of the 3PGCIC conference is to provide a research forum for presenting innovative research results, methods and development techniques from both theoretical and practical perspectives related to P2P, Grid, Cloud and Internet computing.

Many people have helped and worked hard to produce a successful 3PGCIC-2018 technical program and conference proceedings. First, we would like to thank all the authors for submitting their papers, the PC members, and the reviewers who carried out the most difficult work by carefully evaluating the submitted papers. Based on the reviewers’ reports, the Program Committee selected 24 papers for the main conference and 22 workshop papers for publication in the Springer Lecture Notes on Data Engineering and Communication Technologies Proceedings. The General Chairs of the conference would like to thank the PC Co-Chairs Chao-Tung Yang, Tunghai University, Taiwan, Massimo Ficco, Campania University L. Vanvitelli, Italy and Marcello Luiz Brocardo, Santa Catarina State University, Brazil. We would like to appreciate the work of the Workshop Co-Chairs Der-Jiunn Deng, National Changhua University of Education, Taiwan, Ruben Pereira, Liverpool John Moores University, UK and Juggapong Natwichai, Chiang Mai University, Thailand, for supporting the workshop organizers. Our appreciation also goes to all workshops organizers for their hard work in successfully organizing these workshops.

We are grateful to Honorary Co-Chairs Prof. Makoto Takizawa, Hosei University, Japan, Mao-Jiun Wang, Tunghai University, Taiwan and Jyh-Cheng Chen, National Chiao Tung University, Taiwan, for their support and encouragement.

Our special thanks to Prof. Han-Chieh Chao, National Dong Hwa University, Taiwan, Dr. Nadeem Javaid, COMSATS Institute of IT, Islamabad, Pakistan and Dr. Jyh-Cheng Chen, Chair Professor, Department of Computer Science, National Chiao Tung University, Hsinchu, Taiwan for delivering inspiring keynotes at the conference.

Finally, we would like to thank the Local Organising Committee of Tunghai University, Taiwan, for making excellent local arrangements for the conference.

We hope you will enjoy the conference and have a great time in Taichung, Taiwan!

3PGCIC-2018 Organizing Committee

3PGCIC-2018 General Co-Chairs

Li-Chih Wang, Tunghai University, Taiwan
Fang-Yie Leu, Tunghai University, Taiwan
Leonard Barolli, Fukuoka Institute of Technology, Japan
Message from the 3PGCIC Workshops Chairs

Welcome to the Workshops of the 13th International Conference on P2P, Parallel, Grid, Cloud and Internet Computing (3PGCIC 2018), held October 27-29, Tunghai University, Taichung, Taiwan. The objective of the workshops was to present research results, work on progress and thus complement the main themes of 3PGCIC 2018 with specific topics of Grid, P2P, Cloud and Internet Computing.

The workshops cover research on Simulation and Modelling of Emergent Computational Systems, Multimedia, Web, Streaming Media Delivery, Middleware of Large Scale Distributed Systems, Network Convergence, Pervasive Computing and Distributed Systems and Security.

The held workshops are as following:

• The 11-th International Workshop on Simulation and Modelling of Emergent Computational Systems (SMECS-2018)

• The 9-th International Workshop on Streaming Media Delivery and Management Systems (SMDMS-2018)

• The 8-th International Workshop on Multimedia, Web and Virtual Reality Technologies and Applications (MWVRTA-2018)

• The 5-th International Workshop on Distributed Embedded Systems (DEM-2018)

• The International Workshop on Business Intelligence and Distributed Systems (BIDS-2018)

We would like to thank all workshop organizers for their hard work in organizing these workshops and selecting high quality papers for presentation at workshops, the interesting programs and for the arrangements of the workshop during the conference days.

We hope you will enjoy the conference and have a great time in Taichung, Taiwan!

3PGCIC-2018 Workshops Organizing Committee

3PGCIC-2018 Workshops Chairs

Der-Jiunn Deng, National Changhua University of Education, Taiwan
Rubem Pereira, Liverpool John Moores University, UK
Juggapong Natwichai, Chiang Mai University, Thailand
BWCCA-2018 & 3PGCIC-2018 Keynote I

Prof. Jyh-Cheng Chen, National Chiao Tung University, Hsinchu, Taiwan

Title: Softwarization and Virtualization of 5G Core Networks

Abstract: It is envisioned in the future that not only smartphones will connect to cellular networks, but also all kinds of different wearable devices, sensors, vehicles, and so on. However, since the characteristics of different devices differ largely, people argue that future 5G communication systems should be designed to elastically accommodate these different scenarios. The evolution of core networks will be driven by integrating heterogeneous networking technologies with the ultimate goal of migrating toward a new form of softwarized and programmable network. In this talk, I will first present the evolution of cellular systems from 1st generation (1G) to 4th generation (4G), with focus on core networks. I will then discuss the softwarization and virtualization of 5G core networks.

Bio: Jyh-Cheng Chen has been a Faculty Member with National Chiao Tung University (NCTU), Hsinchu, Taiwan since 2010. Prior to that, he was with Bellcore/Telcordia Technologies in New Jersey, USA, and National Tsing Hua University (NTHU), Hsinchu, Taiwan. He is also now serving as the Convener, Computer Science Program, Ministry of Science and Technology, Taiwan. Dr. Chen received numerous awards, including the Outstanding Teaching Awards from both NCTU and NTHU, the Outstanding Research Award from the Ministry of Science and Technology, the Outstanding I. T. Elite Award, Taiwan, the K. T. Li Breakthrough Award from the Institute of Information and Computing Machinery, and the Telcordia CEO Award. He is a Fellow of the IEEE and a Distinguished Member of the ACM. He was a member of the Fellows Evaluation Committee, IEEE Computer Society.
Title: Deep Learning Platform for 5G Mobile Network

Abstract: The 3G and 4G mobile communications had been developed for many years. The 5G mobile communication is scheduled to be launched in 2020. In the future, a wireless network is of various size of cells and different type of communication technologies, forming a special architecture of Heterogeneous Networks (HetNet). Under the complex network architecture, interference and handover problems are critical challenges in access network. How to efficiently manage small cells and to choose an adequate access mechanism for the better quality of service is a vital research issue. Traditional network architecture can no longer support existing network requirements. It is necessary to develop a novel network architecture. Therefore, this keynote speech will share a solution of deep learning-based 5G mobile network which can enhance and improve communication performance through combing some specific technologies, e.g., deep learning, fog computing, cloud computing, cloud radio access network (C-RAN) and fog radio access network (F-RAN).

Bio: Han-Chieh Chao received his M.S. and Ph.D. degrees in Electrical Engineering from Purdue University, West Lafayette, Indiana, in 1989 and 1993, respectively. He is currently a professor with the Department of Electrical Engineering, National Dong Hwa University, where he also serves as president. His research interests include IPv6, Cross-Layer Design, Cloud Computing, IoT, and 5G Mobile Networks. He has authored or co-authored 4 books and has published about 400 refereed professional research papers. He has completed more than 150 MSEE thesis students and 11 Ph.D. students. Dr. Chao has been invited frequently to give talks at national and international conferences and research organizations. He serves as the Editor-in-Chief for the Institution of Engineering and Technology Networks, the Journal of Internet Technology, the International Journal of Internet Protocol Technology, and the International Journal of Ad Hoc and Ubiquitous Computing. He is a Fellow of IET (IEE) and a Chartered Fellow of the British Computer Society. Due to Dr. Chao’s contribution of suburban ICT education, he has been awarded the US President’s Lifetime Achievement Award and International Albert Schweitzer Foundation Human Contribution Award in 2016.
BWCCA-2018
Main Conference and Workshops Program

Saturday, October 27, 2018

08:00 Registration

09:00-09:30 Opening Ceremony

09:30-10:30 BWCCA-2018 & 3PGCIC-2018 Keynote I

BWCCA-2018 & 3PGCIC-2018 Keynote Talk I (PLENARY ROOM)

Prof. Jyh-Cheng Chen: Softwarization and Virtualization of 5G Core Networks
10:30-11:00 Coffee Break

11:00-13:00 Parallel Sessions

**BWCCA-S1: Cloud and Parallel Computing**

**Chair:** Makoto Takizawa, Hosei University, Japan

1. Group Migration of Virtual Machines in a Server Cluster  
   *Dilawaer Duolikun, Tomoya Enokido, and Makoto Takizawa*

2. Flexible Resource Management for Raft Clusters  
   *Takuro Nakagawa and Naohiro Hayashibara*

3. The Improved Transmission Energy Consumption Laxity-Based Algorithm with Parallel Data Transmission  
   *Tomoya Enokido, Dilawaer Duolikun, and Makoto Takizawa*

4. Efficient Scheduling for Concurrent Contents Searching with Idle Computational Resources  
   *Chikara Miura and Shinji Sugawara*

5. A Hybrid HS-Mean Technique for Efficient Load Balancing in Cloud Computing  
   *Kainat Ansar, Nadeem Javaid, Maheen Zahid, Komal Tehreem, Hamida Bano, Momina Waheed*

**BWCCA-S2: Security and Privacy**

**Chair:** Masakatsu Nishigaki, Shizuoka University, Japan

1. Privacy Mining from IoT-based Smart Homes  
   *Ming-Chang Lee, Jia-Chun Lin, Olaf Owe*

2. Linguistic and Biometric Approaches for Data and Services Management in Cloud Computing  
   *Urszula Ogiela, Makoto Takizawa, Lidia Ogiela*

3. ASVG: Automated Software Vulnerability Sample Generation Technology Based on Source Code  
   *Jun Yang, Peng Zhou, Yunze Ni*

4. Automatic Examination-based Whitelist Generation for XSS Attack Detection  
   *Keisuke Inoue, Toshiki Honda, Kohei Mukaiyama, Tetsushi Ohki, and Masakatsu Nishigaki*

5. A Proposal and the Evaluation of a Hands-on Training System for Cyber Security  
   *Tamamichi Saito, Satoshi Yashiro, Kazuhisa Tanabe and Yuta Saito*

**LSNIC-S1: Large Scale and Internet Computing**

**Chair:** Tetsuya Shigeyasu, Prefectural University of Hiroshima, Japan

1. Priority Based Load Balancing in Cloud and Fog Based Systems  
   *Subhan Tariq, Nadeem Javaid, Mahad Majeed, Fahad Ahmed, Saqib Nazir*

2. Load Stabilizing in Fog Computing Environment using Load Balancing Algorithm  
   *Sadam Hussain Abbasi, Nadeem Javaid, Muhammad Hassaan Ashraf, Mubashar Mehmood, Maria Naem, Mubariz Rehman*

3. A Virtual Machine Migration for Storage Processes  
   *Naohiro Ogura, Dilawaer Duolikun, Tomoya Enokido, Ryo Watanabe, Makoto Takizawa*

4. A Study on Reducing Network Traffic of Disaster Information Delivery System Based on DTN  
   *Shoko Takabatake and Tetsuya Shigeyasu*

5. Score-based Message Ferrying Approach for Evacuees on Delay Tolerant Networks  
   *Kazuma Ikenoue and Kazunori Ueda*
MAPWC-S1: Methods, Analysis and Protocols for Wireless Communication

Chair: Kazunori Uchida, Fukuoka Institute of Technology, Japan

1. A Threshold-based Adaptive Method for Message Suppression Controller in Vehicular DTNs
   Yu Yoshino, Shogo Nakasaki, Makoto Ikeda, Leonard Barolli

2. A Synchronization Protocol to Prevent Illegal Information Flow Based on Maximal Roles in the Role-based Access Control Model
   Shohei Hayashi, Shigenari Nakamura, Dilawaer Duolikun, Tomoya Enokido, Makoto Takizawa

3. Estimation of Propagation Order of Distance along Random Rough Surface
   Kazunori Uchida and Leonard Barolli

4. Numerical Analysis of Optical Duplexer Composed of Photonic Crystal with Square Lattice
   Keisuke Haari, Hiroshi Maeda, Xiang Zheng Meng, Naoki Higashinaka

13:00-14:00 Lunch Break

14:00-16:00 Parallel Sessions

BWCCA-S3: Next Generation Networks

Chair: Leonard Barolli, Fukuoka Institute of Technology, Japan

1. A Fuzzy-based System for Actor Node Selection in WSANs Considering Load Balancing of Actors
   Donald Elmazi, Miralda Cuka, Makoto Ikeda, Leonard Barolli

2. Performance Behavior of WMN-PSODGA Simulation System for WMNs Considering Uniform and Chi-square Client Distributions
   Admir Barolli, Shinji Sakamoto, Leonard Barolli, Makoto Takizawa

3. Evaluation of Object-based Information Flow Control in P2PPS Systems
   Shigenari Nakamura, Tomoya Enokido, Makoto Takizawa

4. A Prototype System for V2X Communication Platform for Safety Driving by IoT Technology
   Yoshitaka Shibata, Goshi Sato, Noriki Uchida

5. Cooperation for Rechargeable Heterogeneous Sensor Networks
   Li-Ling Hung

BWCCA-S4: Multimedia and Web Applications I

Chair: Hiroaki Nishino, Oita University, Japan

1. On Semantic Annotation for Sports Video Highlights by Mining User Comments from Live Broadcast Social Network
   Po-Fang Hsu, Yao-Chung Fan, and Huan Chen

2. A Real-time Robot Motion Generation System Based on Human Gesture
   Toshiyuki Haramaki, Kenta Goto, Hokuto Tsutsumi, Akihito Yatsuda, Hiroaki Nishino

3. A Framework for Automatically Generating Medical Quizzes with Multi-Media Contents Based on Linked Data
   Wei Shi, Kosuke Kaneko, Chenguang Ma, Yoshihiro Okada

4. Implementation of an Alternating Least Square Model Based Collaborative Filtering Movie Recommendation System on Hadoop and Spark Platforms
   Jung-Bin Li, Scu-Yin Lin, Yu-Hsiang Hsu, Ying-Chu Huang

5. Web-based Operation Training System of Medical Therapy Devices using VR/AR Devices
   Kotaro Kuroda, Kosuke Kaneko, Toshioh Fujibuchi, Yoshihiro Okada
CWECS-S1: Cloud, Wireless and e-Commerce Security

Chair: Fang-Yie Leu, Tunghai University, Taiwan

1. A Banking Chatbot Security Control Procedure for Protecting User Data Security and Privacy
   Sen-Tarng Lai, Fang-Yie Leu, Jeng-Wei Lin

   Chin-Ling Chen, Yue-Xun Chen, Chin-Feng Lee, Yong-Yuan Deng

3. Migration of Edge Computing Services in 5G Networks - Firewall as a Service Example
   Fang-Yie Leu, Heru Susanto, Ping-Hung Chou, Jeng-Wei Lin

4. Non-Contact Pulse Rate Measurement of Hand and Wrist Using RGB Camera
   Chi-Heng Lu, Jen-Hua Low, Chiu-Ching Tuan

5. High Performance Grid Computing: Challenges and Opportunities of High Speed Networking
   Heru Susanto, Leu Fang-Yie, Chin Kang Chen

6. Self-Parameter based Bilateral Session Key Exchange Method
   Kun-Lin Tsai, Fang-Yie Leu, Shuo-Wen Chang

NGWMN-S1: Next Generation Wireless and Mobile Networks

Chair: Hsing-Chung Chen, Asia University, Taiwan

1. Passive Neighbor Discovery with Scanning Mechanism for Mobile Ad hoc Devices in WUR Networks
   Hyunhee Park

2. A Pseudonym Ring Building Scheme for Anonymous Authentication in VANETs
   Tianhan Gao and Xinyang Deng

3. An Anonymous Access Authentication Scheme for VANETs Based on ID-based Group Signature
   Tianhan Gao and Jiayu Qi

4. Vulnerability Analysis on a Secure USB: Based on a Commercial Product A
   Kyungroul Lee, Insu Oh, Wonyoung Jang, Chang Choi, Kangbin Yim

5. Performance of Transmission Latency in Software Defined Vehicle Networks
   Yung-Fa Huang, Hsing-Chung Chen, Bing-Chen He, Tan-Hsu Tan, Shao-Chieh Huang, Fengming Chang

16:00-16:30 Coffee Break

16:30-18:30 Move to Reception Hotel

19:00-21:00 Welcome Reception Party

Welcome reception will be held at Howard Prince Hotel.
Sunday, October 28, 2018

08:00 Registration

09:30-10:30 Single Session: BWCCA-2018 & 3PGCIC-2018 Keynote II

BWCCA-2018 & 3PGCIC-2018 Keynote Talk II

Prof. Han-Chieh Chao: Deep Learning Platform for 5G Mobile Network

10:30-11:00 Coffee Break

11:00-13:00 Parallel Sessions

BWCCA-S5: Network Algorithms and Applications
Chair: Tetsuya Shigeyasu, Prefectural University of Hiroshima, Japan

1. A New Contents Migration Method for Reducing Network Traffic and Improving Cache Hit Rate on NDN
   
   Yuya Nakata and Tetsuya Shigeyasu

2. Intersection Traffic Control Method Considering Remaining Distance to Destination and Congestion of Next Road Segment
   
   Yusuke Okabe, Minato Dan, Hiroshi Shigeno

3. Development of Decision Algorithm for Road Surface Conditions by Crowd Sensing Technology
   
   Takanori Ito, Akira Sakuraba, Yoshitaka Shibata

4. Uplink Multi-User Beamforming for Contention-based Wireless LAN
   
   Yi-Hsiu Lee and Wen-Rong Wu

5. Big Data Analytics for Price and Load Forecasting in Smart Grids
   
   Sana Mujeeb, Nadeem Javaid, Mariam Akbar, Rabiya Khalid, Orooj Nazeer, Mahnoor Khan

BWCCA-S6: Multimedia and Web Applications II
Chair: Yoshiro Okada, Kyushu University, Japan

1. Web based Interactive Viewer for 360VR Images/Videos Supporting VR/AR devices with Human Face Detection
   
   Akira Haga, Wei Shi, Ginpei Hayashida and Yoshihiro Okada

2. Integration of CNN and Faster R-CNN for Tire Bubble Defects Detection
   
   Chan-Yu Chang and Wei-Chun Wang

3. Monocular Camera Tracking Curve Optimization Algorithm In Augmented Reality
   
   Tianhan Gao and Wei Jiang

4. An Implementation of Interactive RFID Positioning Healthcare System on Mobile Platform
   
   Kuang-Yen Tai, Shun-Li Yen, Tzer-Shyong Chen, Yu-Hsuan Tseng

5. Leap Motion for Telerehabilitation: A Feasibility Study
   
   Linlin Zhang, Kin Fun Li, Jingjing Lin, Jenna Ren
ATASP-S1: Advanced Techniques and Algorithms for Security and Privacy

Chair: Takamichi Saito, Meiji University, Japan

1. Combining Features in Browser Fingerprinting
   Kazuhisa Tanabe, Ryohei Hosoya, Takamichi Saito

2. Survey on Joint Operational Intelligence Support in Recent Local Wars
   Pan Xiang, Xu Tianye, Xiao Zhiting, Guo Xuan

3. The Enlightenment of Nine Classical Cyber Warfare to the National Cyberspace Security Strategy
   Pan Xiang, Xu Tianye, Xiao Zhiting, Guo Xuan

4. HACKFOSICS: Forensics Tool for Extract Live Remnant Data and Examine Dead Artifact
   Tin Maung Maung and Mie Mie Su Thwin

5. Feature Recognition Method for Hand-Written Signature Image
   Hsing-Chung Chen, Han-MI Chen

RV13C-S1: Robot and Vehicle Interaction and Communication

Chair: Keita Matsuo, Fukuoka Institute of Technology, Japan

1. Performance Evaluation of a Fuzzy-Based Cluster-Management System for VANETs
   Kosuke Ozera, Kevin Bylykbashi, Yi Liu, Makoto Ikeda, Leonard Barolli

2. A Multi Positions Detection System with Supersonic Sensors for Omnidirectional Wheelchair Tennis
   Keita Matsuo and Leonard Barolli

3. A Fuzzy-based System for Safe Driving Information in VANETs
   Kevin Bylykbashi, Yi Liu, Kosuke Ozera, Leonard Barolli, Makoto Takizawa

4. Proposal of Disaster Mitigation Method using Multiple Robots
   Takahiro Uchiya, Ryuta Sugie, Kota Hayashi, Tetsuo Kinoshita

13:00-14:00 Lunch Break

14:00-16:00 Parallel Sessions

BWCCA-S7: Cloud and Cluster Computing

Chair: Naohiro Hayashibara, Kyoto Sangyo University, Japan

1. Shortest Job First Load Balancing Algorithm For Efficient Resource Management In Cloud
   Moomina Waheed, Nadeem Javaid, Aisha Fatima, Tooba Nazar, Komal Tehreem, Kainat Ansar

   Tooba Nazar, Nadeem Javaid, Moomina Waheed, Aisha Fatima, Hamida Bano, Nouman Ahmed

   Amna Abbas, Nadeem Javaid, Muhammad Ismail, Maria Naeem, Zaheer Ahmed, Tumoor Wakeel

   Saniah Rehman, Nadeem Javaid, Sadia Rasheed, Kanza Hassan, Farkhanda Zafar, Maria Naeem

5. Cloud Computing Based Resource Allocation by Random Load Balancing Technique
   Hamida Bano, Nadeem Javaid, Komal Tehreem, Kainat Ansar, Maheen Zahid, Tooba Nazar
MNSA-S1: Multimedia Network Systems and Applications

Chair: Yoshitaka Shibata, Iwate Prefectural University, Japan

1. Demand Side Management Scheduling of Appliances using Meta Heuristic Algorithms
   Nasir Ayub, Nadeem Javaid, Assad Abbas, Adnan Ishaq, Anam Yousef, Muhammad Awais Ishtiaq

2. Efficient Energy Management Assisted by Fog Computing
   Shakeeb Murtaza, Nadeem Javaid, Muhammad Kaleem-Ullah Khan, Farkhanda Zafar, Rameez Iqbal, Muhammad Abubaker Hamid

   Kanza Hassan, Nadeem Javaid, Farkhanda Zafar, Saniaeh Rehman, Maheen Zahid, Sadia Rasheed

   Takumi Saito, Shigenari Nakamura, Dilawaer Duolikun, Tomoya Enokido, Makoto Takizawa

5. 2 Wavelength V2X Cognitive Wireless Communication System
   Akira Sakuraba, Takanori Ito, Yoshitaka Shibata

16:00-16:30 Coffee Break

16:30-18:00 Move to Banquet Hotel

19:00-21:00 Banquet Party

Banquet Party will be held at Howard Prince Hotel.
Monday, October 29, 2018

BWCCA-2018 Organizing Committee Meeting and Discussion
3PGCIC-2018
Main Conference and Workshops Program

Saturday, October 27, 2018

08:00 Registration

09:00-09:30 Opening Ceremony

09:30-10:30 BWCCA-2018 & 3PGCIC-2018 Keynote I

BWCCA-2018 & 3PGCIC-2018 Keynote Talk I (PLENARY ROOM)

Prof. Jyh-Cheng Chen: Softwarization and Virtualization of 5G Core Networks
10:30-11:00 Coffee Break

11:00-13:00 Parallel Sessions

3PGCIC-S1: Cloud Computing

Chair: Pruet Boonma, Chiang Mai University, Thailand

1. iDBP: A Distributed Min-Cut Density-Balanced Algorithm for Incremental Web-pages Ranking
   Sumalee Sangamuang, Pruet Boonma, Juggapong Natwichai

2. Performance Analysis of WMN-PSOSA Simulation System for WMNs Considering Weibull and Chi-square
   Client Distributions
   Shinji Sakamoto, Leonard Barolli, Shusuke Okamoto

3. Parameterized Pulsed Transaction Injection Computation Model And Performance Optimizer For IOTA-Tango
   Bruno Andriamanalimanana, Chen-Fu Chiang, Jorge Novillo, Sam Sengupta and Ali Tekeoglu

4. Cloud-fog Based Load Balancing Using Shortest Remaining Time First Optimization
   Muhammad Zakria, Nadeem Javaid, Muhammad Ismail, Muhammad Zubair, Muhammad Asad Zaheer, Faizan Saeed

   Hao Qu and Kun Ma

   Chao-Tung Yang, Jung-Chun Liu, Yu-Wei Chan, Endah Kristiani, Chan-Fu Kuo

DEM-S1: Distributed Embedded Systems

Chair: Peter Hellinckx, University of Antwerp, Belgium

1. Contact Detection and Localization for Social Networking of Small Animals
   Ivan Herrera Olivares, Rafael Berkvens, Lucinda Kirkpatrick, Maarten Weyn

2. Introduction of Deep Neural Network in Hybrid WCET Analysis
   Thomas Haybrechts, Thomas Cassimon, Siegfried Mercelis, Peter Hellinckx

   Processing
   Simon Vanneste, Jens de Hoog, Thomas Haybrechts, Stig Bosmans, Muddsair Sharif, Siegfried Mercelis, Peter Hellinckx

4. Context-Aware Distribution In Constrained IoT Environments
   Reinout Eyckerman, Muddsair Sharif, Siegfried Mercelis, Peter Hellinckx

5. Towards a Scalable Distributed Real-Time Hybrid Simulator for Autonomous Vehicles
   Jens de Hoog, Manu Pepermans, Siegfried Mercelis, Peter Hellinckx

6. Challenges of modeling and simulating Internet of Things systems
   Stig Bosmans, Siegfried Mercelis, Joachim Denil, Peter Hellinckx

13:00-14:00 Lunch Break

14:00-16:00 Parallel Sessions
3PGCIC-S2: Distributed and Intelligent Systems

Chair: Dilawaer Duolikun, Hosei University, Japan

1. Fault-tolerant Fog Computing Models in the IoT
   Ryuji Oma, Shigenari Nakamura, Dilawaer Duolikun, Tomoya Enokido, Makoto Takizawa

2. Hill Climbing Load Balancing Algorithm on Fog Computing
   Maheen Zahid, Nadeem Javaid, Kainat Ansar, Kanza Hassan, Muhammad KaleemUllah Khan, Mohammad Waqas

3. A Fuzzy-based Approach for MobilePeerDroid System Considering of Peer Communication Cost
   Yi Liu, Kosuke Ozera, Keita Matsuo, Makoto Ikeda, Leonard Baroli

   Eliza Gomes, Mario Dantas, Patricia Plentz

5. Texture Estimation System of Snacks Using Neural Network Considering Sound and Load
   Shigeru Kato, Naoki Wada, Ryuji Ito, Takaya Shiozaki, Yudai Nishiyama, Tomomichi Kagawa

6. The Implementation of a Hadoop Ecosystem Portal with Virtualization Deployment
   Chao-Tung Yang, Chien-Heng Wu, Wen-Yi Chang, Whey-Fone Tsai, Yu-Wei Chan, Endah Kristiani, Yuan-Ping Chiang

SMDMS-S1: International Workshop on Streaming Media Delivery and Management Systems

Chair: Tomoki Yoshihisa, Osaka University, Japan

1. Evaluation of Scheduling Method for Division Based Broadcasting of Multiple Video Considering Data Size
   Ren Manabe and Yusuke Gotoh

2. A Design of Hierarchical ECA Rules for Distributed Multi-Viewpoint Internet Live Broadcasting Systems
   Satoru Matsumoto, Tomoki Yoshihisa, Tomoya Kawakami, Yuuichi Teranishi

3. An Evaluation on Virtual Bandwidth for Video Streaming Delivery in Hybrid Broadcasting Environments
   Tomoki Yoshihisa

4. A Load Distribution Method for Sensor Data Stream Collection Considering Phase Differences
   Tomoya Kawakami, Tomoki Yoshihisa, Yuuichi Teranishi

16:00-16:30 Coffee Break

16:30-18:00 Move to Reception Hotel

19:00-21:00 Welcome Reception Party

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Sunday, October 28, 2018

08:00 Registration

09:30-10:30 Single Session: BWCCA-2018 & 3PGCIC-2018 Keynote II

BWCCA-2018 & 3PGCIC-2018 Keynote Talk II

Prof. Han-Chieh Chao: Deep Learning Platform for B5G Mobile Network

10:30-11:00 Coffee Break

11:00-13:00 Parallel Sessions

3PGCIC-S3: Reliable and Trusted Systems

Chair: Omar Hussain, University of New South Wales, Australia

1. Cognitive Codes for Authentication and Management in Cloud Computing Infrastructures
   Marek R Ogiela and Lidia D Ogiela

2. A Model for Reasoning over IoT Streams at Edges of Internet
   Reinout Van Hille, Fatou Xhafa, Peter Hellinckx

3. A Fuzzy-based System for Selection of IoT Devices in Opportunistic Networks Considering Number of Past Encounters
   Miralda Cuka, Donald Elmazi, Kevin Bylykbashi, Keita Matsuo, Makoto Ikeda, Leonard Barolli

4. Semi-Synchronicity Enabling Protocol and Pulsed Injection Protocol For A Distributed Ledger System
   Bruno Andriamanalimanana, Chen-Fu Chiang, Jorge Novillo, Sam Sengupta, Ali Tekeoglu

5. Blockchain-based Trust Communities for Decentralized M2M Application Services
   Besfort Shala, Ulrich Trick, Armin Lehmann, Bogdan Ghita, Stavros Shiaeles

6. Automated Risk Analysis for IoT systems
   Massimiliano Rak, Alessandra De Benedictis, Valentina Casola, Umberto Villano

BIDS-S1: Business Intelligence and Distributed Systems

Chair: Kin Fun Li, University of Victoria, Canada

1. Round Robin Inspired History Based Load Balancing Using Cloud Computing
   Talha Saif, Nadeem Javaid, Mubarak Rahman, Hanan Butt, Muhammad Babar Kamal, Muhammad Junaid Ali

2. DAHS: A Distributed Data-as-a-Service Framework for Data Analytics in Healthcare
   Pruet Boonma, Jaggapong Natwichai, Krit Khwanngern, Panutta Nantawad

3. Outsourcing Online/offline Proxy Re-encryption for Mobile Cloud Storage Sharing
   Xu An Wang, Nadia Nedjah, Arun Kumar Sangaiyah, Chun Shan, Zaliang Wang

4. Cyber Incident Classification: Issues and Challenges
   Marina Ibrishimova
13:00-14:00 Lunch Break

14:00-16:00 Parallel Sessions

SMECS-S1: Simulation and Modelling of Engineering & Computational Systems
Chair: Leonard Barolli, Fukuoka Institute of Technology, Japan
1. Integration of Cloud-Fog Based Platform for Load Balancing using Hybrid Genetic Algorithm Using Bin Packing Technique
   Muhammad Zubair, Nadeem Javaid, Muhammad Ismail, Muhammad Zakria, Muhammad Asad Zaheer, Faizan Saeed
2. Load Balancing on Cloud Using Professional Service Scheduler Optimization
   Muhammad Asad Zaheer, Nadeem Javaid, Muhammad Zakria, Muhammad Zubair, Muhammad Ismail, Abdul Rehman
3. Privacy Preservation for Re-publication Data by Using Probabilistic Graph
   Pachara Tinamas, Nattapon Harnsamut, Sarapon Riyana, Juggapong Natwichai
   Xu An Wang, Shuaishuai Zhu, Arun Kumar Sangaiah, Shuai Xue, Yunfei Cao

3PGCIC-S4: Security, Dependability and Reliability in IoT, Grids and Clouds
Chair: Marek R Ogiela, AGH University of Science and Technology, Poland
1. SQL Injection in Cloud: An Actual Case Study
   Xiao Fu, Zhijian Wang, Yong Chen, Yunfeng Chen, Hao Wu
2. Smart Intrusion Detection with Expert Systems
   Flora Amato, Francesco Moscato, Fatos Xhafa
3. Threshold Based Load Balancer for Efficient Resource Utilization of Smart Grid using Cloud Computing
   Mubariz Rehman, Nadeem Javaid, Muhammad Junaid Ali, Talha Saif, Muhammad Hassaan Ashraf, Sadam Hussain Abbasi
4. A Brief History of Self-Destructing Data: From 2005 To 2017
   Xiao Fu, Zhijian Wang, Yong Chen, Yunfeng Chen, Hao Wu
   Xu An Wang, Arun Kumar Sangaiah, Nadia Nedjah, Chun Shan, Zuliang Wang
6. Mining and Utilizing Network Protocol’s Stealth Attack Behaviors
   YanJing Hu, Xu An Wang, HaiNing Luo, Shuaishuai Zhu

MWVRTA-S1: Multimedia, Web and Virtual Reality Technologies and Applications
Chair: Kaoru Sugita, Fukuoka Institute of Technology, Japan
1. Proposal of a Zoo Navigation AR Application using Markerless Image Processing
   Hayato Sakamoto and Tomoyuki Ishida
   Ko Takayama, Yusi Machidori, Kaoru Sugita
3. Remote Voltage Controls by Image Recognitions for Adaptive Array Antenna of Vehicular Delay Tolerant Networks
   Noriki Uchida, Ryo Hashimoto, Goshi Sato, Yoshitaka Shibata
4. A Collaborative Safety Flight Control System for Multiple Drones: Dealing with Weak Wind by Changing Drones Formation
   Noriyasu Yamamoto and Noriki Uchida
16:00-16:30 Coffee Break

16:30-18:00 Move to Banquet Hotel

19:00-21:00 Banquet Party

Banquet Party will be held at Howard Prince Hotel.
Monday, October 29, 2018

3PGCIC-2018 Organizing Committee Meeting and Discussion
# Program Guide

## Time Table

### BWCCA-2018 and 3PGCIC-2018 Session Schedule

**October 27th – 29th, 2018**  
Tunghai University, Taichung, Taiwan

### Saturday (October 27, 2018)

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<td>09:00 – 09:30</td>
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