The 12th International Conference on Future Information Technology (FutureTech 2017)
&
The 11th International Conference on Multimedia and Ubiquitous Engineering (MUE 2017)

May 22-24, 2017
Seoul, Korea

Organized by

FutureTech, MUE & KIPS CSWRG

2017 International Conferences
(Sponsored / Technically Sponsored by KIPS / KIPS SWRG)

Aug 22-24, Jeju, Korea

- The International Conference on Big data, IoT, and Cloud Computing (BIC 2017)

Dec. 18 - 20, Taichung, Taiwan

- The 12th KIPS International Conference on Ubiquitous Information Technologies and Applications (CUTE 2017)

- The 9th International Conference on Computer Science and its Applications (CSA 2017)

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Message from the FutureTech2017 General Chairs

FutureTech2017 is the 12th event of the series of international scientific conference. This conference takes place on May 22-24, 2017 in Seoul, South Korea. The aim of the FutureTech2017 is to provide an international forum for scientific research in the technologies and application of information technology. FutureTech 2017 is the next edition of FutureTech2016 (Beijing, China), FutureTech2015 (Hanoi, Vietnam), FutureTech2014 (Zhangjiajie, China), FutureTech2013 (Gwangju, Korea), FutureTech2012 (Vancouver, Canada), FutureTech2011 (Loutraki, Greece), FutureTech2010 (Busan, Korea, May 2010) which was the next event in a series of highly successful the International Symposium on Ubiquitous Applications & Security Services (UASS-09, USA, Jan. 2009), previously held as UASS-08 (Okinawa, Japan, Mar. 2008), UASS-07 (Kuala Lumpur, Malaysia, August, 2007), and UASS-06 (Glasgow, Scotland, UK, May, 2006).

The conference papers included in the proceedings cover the following topics: Hybrid Information Technology, High Performance Computing, Cloud and Cluster Computing, Ubiquitous Networks and Wireless Communications, Digital Convergence, Multimedia Convergence, Intelligent and Pervasive Applications, Security and Trust Computing, IT Management and Service, Bioinformatics and Bio-Inspired Computing, Database and Data Mining, Knowledge System and Intelligent Agent, Game and Graphics, and Human-centric Computing and Social Networks. Accepted and presented papers highlight new trends and challenges of future information technologies. We hope readers will find these results useful and inspiring for their future research.

We would like to express our sincere thanks to Program Chairs: Ching-Hsien Hsu (Chung Hua University, Taiwan), Yunsick Sung (Dongguk University, Korea), Kwang-il Hwang (Incheon National University, Korea), Houcine Hassan (Universitat Politecnica de Valencia, Spain), Jin Wang (Yangzhou University, China), all Program Committee members, and all reviewers for their valuable efforts in the review process that helped us to guarantee the highest quality of the selected papers for the conference.

We cordially thank all the authors for their valuable contributions and the other participants of this conference. The conference would not have been possible without their support. Thanks are also due to the many experts who contributed to making the event a success.

FutureTech 2017 General Chairs

Kim-Kwang Raymond Choo, University of South Australia, Australia,
Gangman Yi, Dongguk University, Korea,
Jiannong Cao, The Hong Kong Polytechnic University, Hong Kong

Message from the FutureTech2017 Program Chairs

Welcome to the 12th International Conference on Future Information Technology (FutureTech 2017), which will be held in Seoul, Korea on May 22-24, 2017. FutureTech2017 will the most comprehensive conference focused on the various aspects of information technologies. It will provide an opportunity for academic and industry professionals to discuss recent progress in the area of future information technologies. In addition, the conference will publish high quality papers which are closely related to the various theories and practical applications in multimedia and ubiquitous engineering. Furthermore, we expect that the conference and its publications will be a trigger for further related research and technology improvements in these important subjects.

For FutureTech2017, we received many paper submissions, after a rigorous peer review process, we accepted only articles with high quality for the FutureTech2017 proceedings, published by the Springer. All submitted papers have undergone blind reviews by at least two reviewers from the technical program committee, which consists of leading researchers around the globe. Without their hard work, achieving such a high-quality proceeding would not have been possible. We take this opportunity to thank them for their great support and cooperation. We would like to sincerely thank the following invited speakers who kindly accepted our invitations, and, in this way, helped to meet the objectives of the conference: Prof. Weijia Jia, Director of Cyber-Space Intelligent Computing Lab, Shanghai Jiaotong University, China and Prof. Han-Chieh Chao, President of National Dong Hwa University, Taiwan. Finally, we would like to thank all of you for your participation in our conference, and also thank all the authors, reviewers, and organizing committee members. Thank you and enjoy the conference!

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Message from the MUE2017 General Chairs

MUE 2017 is the 11th event of the series of international scientific conference. This conference takes place on May 22-24, 2017 in Seoul, South Korea. The aim of the MUE2017 is to provide an international forum for scientific research in the technologies and application of Multimedia and Ubiquitous Engineering. Ever since its inception, International Conference on Multimedia and Ubiquitous Engineering has been successfully held as MUE-16 (Beijing, China), MUE-15 (Hanoi, Vietnam), MUE-14 (Zhangjiajie, China), MUE-13 (Seoul, Korea), MUE-12 (Madrid, Spain), MUE-11 (Loutraki, Greece), MUE-10 (Cebu, Philippines), MUE-09 (Qingdao, China), MUE-08 (Busan, Korea), and MUE-07 (Seoul, Korea).

The conference papers included in the proceedings cover the following topics: Multimedia Modeling and Processing, Multimedia and Digital Convergence, Ubiquitous and Pervasive Computing, Ubiquitous Networks and Mobile Communications, Ubiquitous Networks and Mobile Communications, Intelligent Computing, Multimedia and Ubiquitous Computing Security, Multimedia and Ubiquitous Services, Multimedia Entertainment. Accepted and presented papers highlight new trends and challenges of Multimedia and Ubiquitous Engineering. We hope readers will find these results useful and inspiring for their future research.

We would like to express our sincere thanks to Steering Chair: James J. (Jong Hyuk) Park (SeoulTech, Korea). Our special thanks go to the Program Chairs: Naveen Chilamkurti (La Trobe University, Australia), Jungho Kang (Soongsil University, Korea), Ka Lok Man, Xi'an(Jiaotong-Liverpool University, China), Joon-Min Gil(Catholic University of Daegu, Korea), all Program Committee members and all reviewers for their valuable efforts in the review process that helped us to guarantee the highest quality of the selected papers for the conference.

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Message from the MUE2017 Program Chairs

Welcome to the 11th International Conference on Multimedia and Ubiquitous Engineering (MUE 2017), which will be held Seoul, South Korea on May 22-24, 2017. MUE2017 will the most comprehensive conference focused on the various aspects of multimedia and ubiquitous engineering. It will provide an opportunity for academic and industry professionals to discuss recent progress in the area of multimedia and ubiquitous environment. In addition, the conference will publish high quality papers which are closely related to the various theories and practical applications in multimedia and ubiquitous engineering. Furthermore, we expect that the conference and its publications will be a trigger for further related research and technology improvements in these important subjects.

For MUE2017, we received many paper submissions, after a rigorous peer review process, we accepted only articles with high quality for the MUE2017 proceedings, published by the Springer. All submitted papers have undergone blind reviews by at least two reviewers from the technical program committee, which consists of leading researchers around the globe. Without their hard work, achieving such a high-quality proceeding would not have been possible. We take this opportunity to thank them for their great support and cooperation. Finally, we would like to thank all of you for your participation in our conference, and also thank all the authors, reviewers, and organizing committee members. Thank you and enjoy the conference!

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Yong-Yoon Cho, Sunchon National University, Korea
Zheng-Jun Zha, National University of Singapore, Singapore

Invited Speaker

Ubiquitous Collaborative Sensing

Dr. Weijia Jia

Professor
Director of Cyber-Space Intelligent Computing Lab
Shanghai Jiaotong University
PR China

Abstract

Ubiquitous Sensing requires the sensing mechanism be deployed in Tenary-Cyberspace (TC) which includes social/Internet and physical world machines interconnected by wired/wireless networks. This talk focuses on the challenges of realizing the Ubiquitous Collaborative Sensing on TC.

Biography

Prof. Weijia Jia is currently a Zhiyuan Chair Professor at the Department of Computer Science & Engineering, Shanghai Jiaotong University, China. He is leading several large R&D projects on next-generation Internet of Things, environmental sensing, smart cities etc. He received BSc and MSc from Center South University, China in 1982 and 1984 and Master of Applied Sci. and PhD from Polytechnic Faculty of Mons, Belgium in 1992 and 1993 respectively, all in Computer Science. He joined German National Research Center for Information Science (GMD) in Bonn (St. Augustine) from 1993 to 1995 as a research fellow. From 1995 to 2013, he has worked in City U-HK as a full professor. His research interests include next generation of IoT, smart cities, wireless communication, protocols and heterogeneous networks; distributed systems, multicast and anycast QoS routing protocols. In these fields, he has a number of publications in the prestige international journals and conference proceedings. In 2005 and 2008, he has been awarded total HK$22 millions from the Innovation & Technology Fund of the HKSAR Government for two projects with intentions of design and implementation of cyber cross-platform secure communications to integrate the Internet with 3G, WiFi, WiMAX, ad-hoc network, Sensor and networks for real-time multimedia communications and mobile video surveillance. He is the Senior Member of IEEE and the Member of ACM.

Invited Speaker

A Bacteria-Inspired Solution for 5G Mobile Communication

Dr. Han-Chieh Chao

President
National Dong Hwa University
Taiwan

Abstract

A surge of innovation in technologies for 5G mobile communication is on the horizon, but its specification is still just being discussed. The only know is that 5G must introduce many novel hardware/software techniques, service types and network interfaces due to the requirement. There is very frequent interaction between these components that is like an ecosystem. An ecosystem has a very diverse species so that there are complex interaction happened. However, it can always maintain a balanced state because an ecosystem is a Self-Organizing Network (SON). 5G should consider to concept of SON so that the interaction of 5G functions can be well managed. This is the first step towards ecosystem by using biologically inspired method. This speech will introduce what is the biologically inspired method and how to use it for the real environment. Finally, we will present a novel network platform for 5G mobile communication system, viz Software Defined Wireless Bacteria-Inspired Network (SDWBIN). The SDWBIN platform integrates the concepts of molecular and bacterial communication into traditional mobile communications so that the features of molecule and bacteria (i.e., perception, infection and diffusion) could be applied to end devices, such as vehicle-to-vehicle, machine-to-machine and device-to-device. In order to realize the design of SDWBIN platform, we exploit the framework of Software Defined Wireless Network to implement the core network in SDWBIN. We expect that the proposed SDWBIN platform can tackle with the communication from an enormous number of devices in 5G systems.

Biography

Dr. Han-Chieh Chao is a joint appointed Chair Professor of the Department of Computer Science & Information Engineering, Electronic Engineering of National Ilan University, I-Lan, Taiwan (NIU) and Fujian University of Technology. He is serving as the President since 2016 for NDHU as well. He was the Director of the Computer Center for Ministry of Education Taiwan from September 2008 to July 2010. His research interests include High Speed Networks, Wireless Networks, IPv6 based Networks, Digital Creative Arts, e-Government and Digital Divide. He received his MS and Ph.D. degrees in Electrical Engineering from Purdue University in 1989 and 1993 respectively. 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 5 PhD students. Dr. Chao is the Editor-in-Chief for IET Networks, Journal of Internet Technology. He is the founding Edtor-in-Chief for International Journal of Internet Protocol Technology, and International Journal of Ad Hoc and Ubiquitous Computing. He is also the associate editor for IEEE Network Magazine and IEEE Wireless Communications Magazine. Dr. Chao has served as the guest editors for Mobile Networking and Applications (ACM MONET), IEEE JSAC, IEEE Communications Magazine, IEEE Systems Journal, Computer Communications, IEE Proceedings Communications, the Computer Journal, Telecommunication Systems, Wireless Personal Communications, and Wireless Communications & Mobile Computing. Dr. Chao is an IEEE senior member and a Fellow of IET (IEE).

PROGRAM SCHEDULE FOR FUTURETECH & MUE 2017

Day 1, May 22, 2017				
Time	**Min**	**HALL A**	**HALL B**	**HALL C**
10: 00-12: 00	120	FutureTech - Organizing Committee Meeting		
13: 00-15: 00	120	MUE - Organizing Committee Meeting		
15: 00-17: 00	120	Local Arrangement Committee Meeting		

Day 2, May 23, 2017				
Time	**Min**	**HALL A**	**HALL B**	**HALL C**
08: 40-09: 00	20	Registration		
09: 00-10: 30	90	**Session A-1** **FT**	**Session B-1** **SMSE**	**Session C-1** **MUE**
10: 30-10: 40	10	Coffee Break		
10: 40-12: 10	90	**Session A-2** **FT**	**Session B-2** **SMSE**	**Session C-2** **MUE**
12: 10-13: 10	60	Lunch		
13: 10-14: 40	90	**Session A-3** **FT**	**Session B-3** **SMSE**	**Session C-3** **MUE**
14: 40-14: 50	10	Coffee Break		
14: 50-15: 40	50	**Keynote I: Ubiquitous Collaborative Sensing** **Dr. Weijia Jia** **Professor** **Director of Cyber-Space Intelligent Computing Lab** **Shanghai Jiaotong University**		
15: 40-15: 50	10	Coffee Break		
15: 50-16: 40	50	**Keynote II: A Bacteria-Inspired Solution for 5G Mobile Communication** **Dr. Han-Chieh Chao** **President** **National Dong Hwa University, Taiwan**		
16: 40-16: 50	10	Coffee Break		

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16: 50-17: 50	60	Session A-4 FT	Session B-4 FIDPS & ACITA Chair: Joon-Min Gil	Session C-4 MUE
18: 00-20: 00	120	Banquet		

Day 3, May 24, 2017				
Time	**Min**	**HALL A**	**HALL B**	**HALL C**
08: 40-09: 00	20	Registration		
09: 00-10: 30	90	Session A-5 FT	Session B-5 HRH Chair: Jun-Ho Huh	Session C-5 MUE
10: 30-10: 40	10	Coffee Break		
10: 40-12: 10	90	Session A-6 FT	Session B-6 HRH Chair: Jun-Ho Huh	Session C-6 FT

1. A paper presentation should be made by one of authors of the paper for20 minute (15 minutes for the presentation itself and 5 minutes for Q/A).
2. All speakers of each session should meet the session chair at their room 10 minutes before the session begins.
3. Windows 7 laptops running the Adobe Reader and Microsoft Office for paper presentations will be prepared. Please prepare for your presentation.

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DETAILED SCHEDULE FOR
THE 12TH INTERNATIONAL CONFERENCE ON FUTURE INFORMATION TECHNOLOGY (FUTURETECH2017)
AND
THE 11TH INTERNATIONAL CONFERENCE ON MULTIMEDIA AND UBIQUITOUS ENGINEERING (MUE2017)

Day 1, May 22, 2017 (Monday)

10:00-12:00   FutureTech - Organizing Committee Meeting

13:00-15:00   MUE - Organizing Committee Meeting

15:00-17:00   Local Arrangement Committee Meeting

Day 2, May 23, 2017 (Tuesday)

08:40-09:00   Registration

09:00-10:30   Session A-1 : FT
(HALL A)
(Chair: N/A)

1. **Senior Tourism and Information and Communication Technologies**
   Blanka Klimova
2. **Wearable and Portable Monitoring Devices for Older People**
   Blanka Klimova, Petra Maresova
3. **A Novel Anomaly Detection Method in Wireless Network Using Multi-level Classifier Ensembles**
   Bayu Adhi Tama, Kyung-Hyune Rhee
4. **Rule-based Topic Trend Analysis by Using Data Mining Techniques**
   Yunwan Jeon, Chanho Cho, Jongwoo Seo, Kyunglag Kwon, Hansaem Park, In-Jeong Chung
5. **A Case Study of Hierarchical Safety Analysis for Eliciting Traceable Safety Requirements**
   Daehui Jeong, Anit Thapaliya, Gihwon Kwon
6. **Smart Home Technology and Energy Savings with a Special Focus on Europe**
   Petra Maresova, Blanka Klimova, Ondrej Krejcar

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7. **Senior Citizens' Views of Using Medical Technologies– Case Study in Central Europe**
   Petra Maresova, Jaroslav Kacetl
8. **Audiences Counting in Cinema by Detecting Occupied Chairs**
   Zhitong Su, Jun Lan, Wei Song, Simon Fong, Yifei Tian
9. **Efficient Distributed Index Structure and Encrypted Query Processing Scheme for Cloud Computing Environment**
   Yeonwoo Jang, Hyunjo Lee, Jae-Woo Chang

09:00-10:30   Session B-1 : SMSE
(HALL B)
(Chair: N/A)

1. **Minimum-cost consensus models for group decision making under intuitionistic fuzzy environment**
   Yuanyuan He, Chengshan Qian, Neal N. Xiong
2. **Digraph-based Requirement Prioritization for Comparisons Reduction**
   Wanyu Chen, Honghui Chen, Tao Chen, Fei Cai
3. **Evaluating Military System of Systems Resilience Using Super Networks**
   Jianwei Shi, Junxian Liu, Qingwei Li
4. **A Dual-loop and Three-layer Architecture based Parallel Simulation Framework and Its Implementation**
   Lin Liu, Tao Jing, Tao Li, Xuexian Pi
5. **Hidden Markov Model for Floating Car Trajectory Map Matching**
   Chengbo Song, Xuefeng Yan
6. **Simulation Game System: a Possible Way to Realize Intelligent Command and Control**
   Xin Jin
7. **A VxWorks based magnetic tape operation record keeping method**
   Guangkun Lei
8. **A hybrid Semi-Physical Simulation approach of LEO satellite communication**
   Xin-dong Zhao, Wei Liu, Wei Dai, Jian Shao
9. **Experiential Interaction Modeling for Virtual Training of Ultra-High Voltage Power System and Its Application**
   Jian Shao, Wei Liu, Xue-feng Yan, Xin-dong Zhao, Wei Dai
10. **Analysis on the Technology of the Internetware Comprehensive Testing**
    Zhenxian Wei, Min Song, Hongbin Wang, Zhe Zhang

09:00-10:30   Session C-1 : MUE
(HALL C)
(Chair: N/A)

1. **On Bypassing Page Cache for Block Devices on Storage Class Memory**
   Jin Baek Kwon
2. **Applying tensorflow with convolutional neural networks to train data and recognize national flags**
   Hoang Huu Duc, Jung Keechul
3. **An Empirical Study on the Effect of the interpretability of metaphors in UI on**

the learnability of Mobile Apps
Wonjin Jung, HyungRok Yim

4. **A Density-aware Data Encryption Scheme with Query Auditing Index for Secure Mobile Services**
Moon-Hwan Kang, Min Yoon, Jae-Woo Chang

5. **A Kernel Density Estimation Model for Moving Object Detection**
Yulong Qiao, Wei Xi

6. **Detecting Bases of Maximal Cliques in Social Networks**
Fei Hao, Doo-Soon Park, Zheng Pei

7. **Forecasting Cultivable Region-Specific Crops Based on Future Climate Change Utilizing Public Big Data**
Yoo-Jin Moon, Won Whee Cho, Jieun Oh, Jeong Mok Kim, Sang Yub Han, Kee Hwan Kim, Sungkap Cho

8. **Statistical Analysis of Determinants of Intention to Use Virtual Reality Services and Moderating Effects**
Young-Ho Hwang, Yoo-Jin Moon

9. **Real-time Human Depression Diagnosis System Using Brain Wave Analysis**
Dongmin Shin, Yunjin Nam, Dongil Shin, Dongkyoo Shin

10. **Deep Belief Network Based on Double Weber Local Descriptor in Micro-expression Recognition**
Xiao-li Hao, Miao Tian

10:30-10:40   Coffee break

10:40-12:10   <u>Session A-2 : FT</u>
(HALL A)
(Chair: N/A)

1. **A Data Encryption Scheme using Periodic Functions for Efficient Query Processing on Encrypted Data**
Hyunjo Lee, Youngho Song, Jae-Woo Chang

2. **Software Product Line Lifecycle Management-Integration Engineering and Management Process**
Jeong Ah Kim, Jin Seok Yang

3. **OLSR Improvement with Link Live Time of FANETs**
Yan Jiao, Wenyu Li, Inwhee Joe

4. **An Efficient Partition-based Filtering for Similarity Joins on MapReduce Framework**
Miyoung Jang, Archana B. Lokhande, Naeun Baek, Jae-Woo Chang

5. **A study of algorithm replacement mechanism for environment adaptive load balancer**
Jongmin Lee, Young.B Park

6. **Face Recognition Based on Enhanced CSLBP**
Chen Li, Shuai Zhao, Ke Xiao, Yanjie Wang

7. **A Supporting Environment for Formal Analysis of Cryptographic Protocols**
Jingchen Yan, Kazunori Wagatsuma, Hongbiao Gao, Jingde Cheng

8. **Modeling and Simulation of LoRa in OPNET**
Andrew D. Jun, Seokjoon Hong, Wooyeob Lee, Kyungrak Lee, Inwhee Joe, Kyeseon

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Lee, Tae-Joon Park

9. **Dynamic Analysis Bypassing Malware Detection method Utilizing Malicious Behavior Visualization and Similarity**
   Jihun Kim, Jonghee M. Youn

10. **Mongolian Internet Consumers' Attitude towards Web Advertising**
    Bulganmaa Togookhuu, Junxing Zhang

10:40-12:10   Session B-2 : SMSE
(HALL B)
(Chair: N/A)

1. **Analysis and Inspiration to Intelligent Command and Control**
   Tingting Li
2. **Exploratory Search for Learning: Finding the Concept with Minimal Cognitive Load**
   Zhuyin Xue, Zhen Hu
3. **Predicting the Metro Passengers Flow by Long-Short Term Memory**
   Zhen Hu, Yi Zuo, Zhuyin Xue, Wenting Ma, Guilin Zhang
4. **Research on Hierarchical Aggregation Method for Situation Assessment**
   Wang Xiaoxuan, Zhao Zhenyi
5. **Stripe noise correction for infrared imaging system using neural network theory**
   Junqi Bai, Chuanwen Chang
6. **Infrastructure Design of Military Simulation and Analysis System**
   Yitao Wang, Xinye Zhao, Kedi Huang, Haiming Liang
7. **The Testing Execution Mechanism on Internetware Oriented Flow Dynamic Building**
   Min Song, Ying Song, Zhengxian Wei, Hongbin Wang, Albert M. K. Cheng
8. **A Model and Application of Collaborative Simulation Training System for Substation Based on Virtual Reality**
   Wei Dai, Wei Liu, Xue-feng Yan, Xin-dong Zhao, Jian Shao
9. **A User-defined Code Reinforcement Technology based on LLVM-Obfuscator**
   Xue Yao, Bin Li, Yahong Sun

10:40-12:10   Session C-2 : MUE
(HALL C)
(Chair: N/A)

1. **Design for Network File Forensics System based on Approximate Matching**
   Aonan Zhai, Fei Xu, Haiqing Pan, Junzheng Shi, Gang Xiong
2. **An Examination of the Effect of the Contextual UI Design Quality of Mobile Shopping Applications on the Loyalty of Users to the Applications**
   Wonjin Jung
3. **Securing Intelligent Vehicular Ad Hoc Networks**
   Wedad Ahmed, Mourad Elhadef
4. **An Approach of Test Case Generation for Spreadsheet Cells**
   Bo Yang, Qian Yu, Xiang Wang
5. **Bearings Fault Diagnosis Based on Convolutional Neural Networks with the**

Kurtogram Representation of Acoustic Emission Signals
Alexamder Prosvirin, Jaeyoung Kim, Jong-Myon Kim

6. **CHMM-Based Classification of Dynamic Textures**
Yulong Qiao, Na Li, Yufei Wang, Wei Xi

7. **An Efficient Daubechies-based Pipelined Discrete Wavelet Package Transform for Sub-Band Analysis using Advanced Functional Sharing**
Hung Nguyen, Cheol-Hong Kim, Jong-Myon Kim

8. **An Effective Forensic Watermark in VoD**
Donghwan Shin, Kyungjun Park

9. **The comparative analysis of the repeat regions from the assembled contigs**
Jaehee Jung

10. **Envelope analysis-based sub-band selection and improved support vector machines for reliable bearing multi-fault diagnosis**
Manjurul Islam, Jong-Myon Kim

12:10-13:10   Lunch break

13:10-14:40   <u>Session A-3 : FT</u>
(HALL A)
(Chair: N/A)

1. **The Effect of the Intrinsic Quality of UI of Mobile Apps on the Behavioral Intention to Use the Apps**
Wonjin Jung

2. **Consideration of Privacy Risk Assessment of the "My Number" in the Financial Industry in Japan**
Sanggyu Shin, Yoichi Seto, Kei Sakamoto, Mayumi Sasaki

3. **VANETs-Based Intelligent Transportation Systems: A Survey**
Sarah Baras, Iman Saeed, Hadeel A. Tabaza, Mourad Elhadef

4. **Designing Network-Attached Storage Architecture for Small and Medium Enterprise Applications**
Andy Shui-Yu LAI, Anson Man-Sing MA

5. **Study on urban emergency traffic oriented route coordinated control model with green wave**
Jiao Yao, Kaimin Zhang, Yuanyuan Yang, Yuhui Zheng, Jin Wang

6. **Limited Constraint Problems Reasoning on Computer Based on "And/Or" Tree**
Danyang Cao, Lina Duan, Xue Gao, Lei Gao

7. **Impact of the Selection of a Communication Tool on the Effectiveness of Media Outputs about the Results of Science and Research**
Zuzana Bouckova, Blanka Klimova

8. **TCP performance of CSMA/CA Wireless Networks in Stochastic Geometry Setups**
Soohyun Cho

9. **Expected Patch Log Likelihood Based on Multi-layer Prior Information Learning**
ShunFeng Wang, JiaCen Xie, YuHui Zheng, Tao Jiang

10. **Password-based Authenticated Key Exchange from Lattices for Client/Server**

Model
Yi-Siou Jheng, Raylin Tso, Chien-Ming Chen, Mu-En Wu

11. **An Improved Trust Model Based on Time Effect**
Zhichao Yin, Hui Zhang, Chunyong Yin, Jin Wang

13:10-14:40   Session B-3 : SMSE
(HALL B)
(Chair: N/A)

1. **A Model-based Transformation from SCR Specification Models into Altatica3.0 Design Models**
Mingming Wang, Jun Hu, Weijun Zhang, Wanqian Li
2. **Simulation and Verification of Software Architecture for Loosely-Coupled Distributed System**
Shen Jun, Shen Xuan, Gao Wen, Zhang Yong
3. **Research on Ontology-based Data Fusion**
Shun Wang, Dazhou Kang, Zhibo Zhang, Dongyu Jiang
4. **Research on Hybrid Storage Method of Massive Heterogeneous Data for Mobile Environment**
Shan-shan WU
5. **The mechanism analyzing and use of corner Reflector against anti-ship missiles**
Liying Wang, Ning Jiang, Yi Sun
6. **Research on horizontal Damage Zone Airspace of Ship-to-Air Missile under cooperative operation**
Yitao Wang, Haiming Liang, Liying Wang
7. **Key Issues of Military Simulation and Analysis System**
Yitao Wang, Xinye Zhao, Kedi Huang, Haiming Liang
8. **Comparison study of "International plus" s paradigm and means and analysis and evaluation of its typical development path**
Chao Geng, Shiyou Qu, Guoqiang Shi, Baocun Hou, Mei Wang, Tingyu Lin, Yingying Xiao, Zhengxuan Jia
9. **PCA-Copula Software Defect Prediction Model Based on Principal Component Analysis**
Zhang Deping, Dong xue, Zhe Zhang, Zhengxian Wei

13:10-14:40   Session C-3 : MUE
(HALL C)
(Chair: N/A)

1. **A Study on Lightweight Mutual Authentication Protocol For Low-cost RFID Tags**
Yong-Woon Hwang, Im-Yeong Lee
2. **Performance Analysis of Spark-DLF: Spark Based Distributed Deep Learning Framework for Article Headline Generation**
Khumoyun Akhmedov, Yun Cui, Myoungjin Kim, Hanku Lee
3. **Cartoon zero-watermark algorithm based on image normalization and non-subsampled shearlet transform**
YuChao Sun, De Li

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4. **Robust Animation Zero Watermarking Based on Visual Cryptography and Complete Complementary Code**
   De Li, XueLi Gao, LiHua Cui

5. **Secure Multicast using Proxy Re-Encryption in IoT Environment**
   SuHyun Kim, ImYeong Lee

6. **Fast Provisioning Service in Shared-Storage Based DaaS According to User's Type**
   Dae-Won Kim, Soo-Cheol Oh, Jae-Geun Cha, Ji-Hyeok Choi, Sun-Wook Kim, Seong-Woon Kim

7. **Transformation of EEG Signal for Emotion Analysis and Dataset Construction for DNN Learning**
   Yeahoon Kwon, Yiyan Nan, Shin-Dug Kim

8. **Impact of Passive UHF RFID Reader Antenna Locations for Immobile Object Localization**
   Jae Sung Choi

9. **Development of 3D surface shape analysis system using white light scanning interference**
   Yong-Tae Jeon, Hyun Lee, Jae Sung Choi

10. **Life Log Collection and Analysis System Using Mobile Device**
    Yunjin Nam, Dongil Shin, Dongkyoo Shin

14:40-14:50   Coffee break

14:50-15:40   <u>Keynote I</u>

   Ubiquitous Collaborative Sensing

   Dr. Weijia Jia
   Director of Cyber-Space Intelligent Computing Lab
   Professor, Shanghai Jiaotong University

15:40-15:50   Coffee break

15:50-16:40   <u>Keynote II</u>

   A Bacteria-Inspired Solution for 5G Mobile Communication

   Dr. Han-Chieh Chao
   President, National Dong Hwa University, Taiwan

16:40-16:50   Coffee break

16:50-17:50   <u>Session A-4 : FT</u>
(HALL A)
(Chair: N/A)

1. **Ocean Adventure Cell Phone Adventure Game Design and Implementation**
   Xingquan Cai, Chao Chen
2. **The Thermocline Influencing Factors Based on Decision Tree Methods**
   Chengquan Hu, Yu Gou, Tong Zhang, Kai Wang, Lili He, Yu Jiang
3. **Thermocline Analysis Based on Entropy Value Methods**
   Chengquan Hu, Yu Gou, Tong Zhang, Kai Wang, Lili He, Yu Jiang
4. **Revised Simplex Algorithm for Linear Programming on GPUs with CUDA**
   Lili He, Hongtao Bai, Yu Jiang, Dantong Ouyang, Shanshan Jiang
5. **Design and implement of intelligent insole system**
   Ruisheng Li, Bin Ma, Lili He, Jin Wang
6. **Fitness Sport Data Recording System Design and Implementation on Smart Phone**
   Xingquan Cai, Runbo Cai

16:50-17:50   Session B-4 : FIDPS & ACITA
(HALL B)
(Chair: N/A)

1. **Bayesian Probability-based Indoor environment Segmentation Method**
   Yunsick Sung, Jeonghoon Kwak
2. **Bayesian Probability-based Situation Recognition Method**
   Yunsick Sung, Jeonghoon Kwak
3. **A Smart Indoor Gardening System Using IoT Technology**
   Byoungwook Min, Sung Jun Park
4. **A Cloud Consolidation Algorithm for Multimedia Big Data Applications**
   JongBeom Lim, HeonChang Yu, Joon-Min Gil
5. **Seamless Reconfiguration of Virtual Dedicate Network based on Software Defined Network**
   Yong-hwan Kim, Ki-Hyeon Kim, Joon-Min Gil, Dongkyun Kim
6. **Learning Reaction Analysis Engine for Interactive Digital Textbook Platform**
   Kwang-Sik Chung

16:50-17:50   Session C-4 : MUE
(HALL C)
(Chair: N/A)

1. **Low Energy Network Synchronization for LoRaWAN**
   Kwang-il Hwang
2. **Introduction of an Interactive Growing Robot/Toy for Babies**
   Jiyong Kim, Hyunsu Jeong, Azure Pham, Changhyeon Lee, Thiha Soe, Pilwoo Lee, Seong-Woo Kim, Juhyun Eune
3. **Multiclass Data Classification Using Variational Bayesian Multinomial Logistic Gaussian Process Model**
   Wanhyun Cho, Myunghwan Na, Soonja Kang, Soonyoung Park, Sangkyoon Kim
4. **Improving Top-K Contents Recommendation Performance by Considering Bandwagon Effect: using Hadoop-Spark Framework**
   Suk-kyoon Kang, Kiejin Park

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5. **Design and Implementation of Digital Doorsign System Based on E-paper Display**
Bong-Ki Son, Jaeho Lee

6. **A Novel for Light-Weighted Indoor Positioning Algorithm with Hybridizing Trilateration and Fingerprinting Method Considering Bluetooth Low Energy Environment**
Jaeho Lee, Bong-Ki Son

18:00 -   **Banquet**

Day 3, May 24, 2017 (Wednesday)

08:40-09:00   Registration

09:00-10:30   Session A-5 : FT
(HALL A)
(Chair: N/A)

1. **A New Approach for Deriving Temperature and Salinity Fields in the South China Sea Using Support Vector Regression**
Chengquan Hu, Tong Zhang, Jin Wang, Yu Gou, Kai Wang, Hongtao Bai, Yu Jiang

2. **Construction of High Resolution Thermocline Grid Data Sets**
Chengquan Hu, Tong Zhang, Jin Wang, Yu Gou, Kai Wang, Hongtao Bai, Yu Jiang

3. **Service Identification Framework for Systems of Systems Based on MPLS Technology**
Sahel Alouneh, Dhiah el Diehn Abou-Tair, Ala Khalifeh, Roman Obermaisser

4. **FPGA based Face detection using Local Ternary Pattern under Variant Illumination Condition**
Jin Young Byun, Jae Wook Jeon

5. **Finding Similar Microblogs According to Their Word Similarities and Semantic Similarities**
Yuan Wang

6. **Human Kinematics HMM-based Gesture Learning and Recognition System using an RGB-D Sensor**
Yong Jin, Yulong Xi, Seoungjae Cho, Yoonchang Kook, Tony Hong, Kyungeun Cho

7. **A Ground Segmentation Method Based on Gradient Fields for 3D Point Clouds**
Hoang Vu, Hieu Trong Nguyen, Phuong Chu, Seoungjae Cho, Kyungeun Cho

8. **Recognizing the Adhesion Hollow Characters Based On the Closed Cutting Algorithm**
Chunyong Yin, Kaiwen Zhu, Jin Wang

9. **Ensemble R-FCN for Object Detection**
Jian Li, Jianjun Qian, Yuhui Zheng

10. **A Design of Evolutionary Personal Information Partner Based on Software as a Service**
Yifeng Han, Hongbiao Gao, Jingde Cheng

09:00-10:30   Session B-5 : HRH
(HALL B)
(Chair: N/A)

1. **Implementation of Redundant Digital Excitation Control System Algorithm**
   Hoon-Gi Lee, Hie-Sik Kim
2. **A Method for Replacing Protective Relay at Kanudi Power Plant and Validation**
   Hoon-Gi Lee, Hie-Sik Kim
3. **A Critical Review on Operation and Management System of Doping Control Officer in Korea Anti-Doping Agency**
   Seung-Hoon Lee, Chang-Hyeok Seok
4. **The Issues of Media and Public Ethics on Doping Problems**
   Seung-Hoon Lee, Chang-Hyeok Seok
5. **Factors of Social Exclusion of Alienated Groups Affecting the Digital Divide and the Need for Information Welfare**
   Wongeun So, Hakyun Kim
6. **An Elderly Nursing Care Facility Search System based on User's Location and Disease**
   Tae-Jung Kim, Sang-Hoon Han, Jun-Ho Huh, Sunghyun Weon
7. **A Study on Design Methodology for Animal Care Plan based on Respect of Life**
   Hui-Su Gong, Sunghyun Weon, Jun-Ho Huh
8. **A Design of Scheduling Program for Diabetic Patients: A Software Engineering Approach**
   Jeong-Hoon Choi, Jun-Ho Huh, Sunghyun Weon
9. **A Simulated Infiltration Test for Network in Virtual Environment Using VMware Virtualization Technique**
   Guk-IL Kim, Jonghyeon Kim
10. **Development of Network Cyber Attack Training Curriculum for Security Staff**
    Guk-IL Kim, Jonghyeon Kim

09:00-10:30   Session C-5 : MUE
(HALL C)
(Chair: N/A)

1. **Design of Beacon-Based Positioning System Using RF and Sound Wave in Smartphone**
   Hyun-Seong Lee, Seoung-Hyeon Lee, Jae-Gwang Lee, Jae-Kwang Lee
2. **A Study on the Designing of a Laboratory Accident Cognition Model Using Smart Sensor Based Decision Tree**
   Ki-Su Yoon, Seoung-Hyeon Lee, Jae-Pil Lee, Jae-Kwang Lee
3. **Positioning model design using Beacon and Geomagnetic sensor of Smartphone**
   Jae-Gwang Lee, Seoung-Hyeon Lee, Jae-Kwang Lee
4. **Geometry-based Spatial Task Assignment Method for Privacy-aware Crowd Sensing**
   Yan Li, Byeong-Seok Shin
5. **Efficient resource integration simulator for MRM infrastructure construction**
   Hyun-Woo Kim, Seok-Hyeon Han, Young-Sik Jeong

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6. **A Research on System Requirements for Cloud-based Intelligent Video Security Incubating Platform**
   Kyung-Soo Lim, Geon-Woo Kim

10:30-10:40   Coffee break

10:40-12:10   <u>Session A-6 : FT</u>
(HALL A)
(Chair: N/A)

1. **Hyperspectral Classification based on Spatial-spectral Low Rank Representation in Hidden Field**
   Le Sun, Yili Wang, Jin Wang, Yuhui Zheng
2. **A New Method of Arm Motion Detection Based on MEMS Sensor**
   Kai Wang, Chengquan Hu, Lili He, Fenglin Wei, Yu Jiang
3. **Fitness Device Based on MEMS Sensor**
   Fenglin Wei, Chengquan Hu, Lili He, Kai Wang, Yu Jiang
4. **A Security Framework for Systems-of-Systems**
   Dhiah el Diehn I. Abou-Tair, Sahel Alouneh, Ala Khalifeh, Roman Obermaisser
5. **Performance Prediction of Virtual Machines based on Random Forests**
   Juan Wang, Binbin Zhang, Kun Yue, Jia Hao
6. **Attack Tree Generation and Real-Time Attack Detection System Using Log Analysis**
   Duhoe Kim, Yong-Hyun Kim, Dongil Shin, Dongkyoo Shin
7. **System Information Comparison and Analysis Technology for Cyber Attacks**
   Hyeonsu Youn, Duhoe Kim, Yong-Hyun Kim, Dongkyoo Shin, Dongil Shin
8. **A Study on comparison of KDD CUP 99 and NSL-KDD using artificial neural network**
   Hyunjung Ji, Donghwa Kim, Dongil Shin, Dongkyoo Shin
9. **The Application of Augmented Reality Based on Body Parts Recognition**
   JianFeng Hou, Wei Song, MengXuan Li
10. **A Novel Subspace Super-pixel based Low Rank Representation Method for Hyperspectral Denoising**
    Le Sun, Yili Wang, Jin Wang, Yuhui Zheng

10:40-12:10   <u>Session B-6 : HRH</u>
(HALL B)
(Chair: N/A)

1. **A Design of Portable Continuous Passive Joint Mobilization Equipment System**
   Do Yeon Jeon, Young Hyo Kim, Ha Yeon Park, Jun-Ho Huh, Hyeok Gyu Kwon
2. **Design and Implementation of Bi-directional Education Contents Using VR Equipments and Augmented Reality**
   Dong-Kyu Lee, Ban-Seok Seo, Tae-Jung Kim, Jun-Ho Huh, Jin-Mo Kim
3. **Delivering Historical Information Shown in Korean TV Drama over Smart TV**
   Jisun Byun
4. **Cost-Effective Redundant Digital Excitation Control System**

      Hoon-Gi Lee, Hie-Sik Kim

5. **Analysis Experiment Model utilizing Exponentiation of Unstructured Data**
   Yonghoon Kim, Mokdong Chung

6. **An Improving Algorithm of Generator Reactive Power Reserves Calculation Considering Effective Generators in IEEE-39 System**
   Moonsung Bae, Byongjun Lee

7. **An Approach to Secure Generator Reactive Power Reserve using Transformer Tap Sensitivities**
   Moonsung Bae, Byongjun Lee

8. **Load Loss Coefficient and Power Loss Tracing in Power Systems**
   Moonsung Bae, Byongjun Lee

9. **A Power Generation Rescheduling Method Under Power Flow Constraints Using Power Flow Tracing**
   Moonsung Bae, Byongjun Lee

10:40-12:10   <u>**Session C-6 : FT**</u>
(HALL C)
(Chair: N/A)

1. **Efficient Nested Cloud System Configuration using Performance Analysis**
   Yunbin Kim, Jaewon Sa, Sunwook Kim, Yongwoo Chung, Sungju Lee

2. **Simulation-based Reliability Improvement Factor for Safety-Critical Embedded Systems**
   Jongwhoa Na, Dongwoo Lee

3. **SBraille: A New Braille Input Method for Mobile Devices**
   Soonyong Lee, Ji Su Park, Jin Gon Shon

4. **Failure Analysis in Safety Critical Systems Using Failure State Machine**
   Anit Thapaliya, Daehui Jeong, Gihwon Kwon

5. **Simple and Low-cost Heartbeat-based Dual Modular Redundant Systems for Wireless Sensor Networks**
   Jongwhoa Na, Dongwoo Lee, Munkh Zorigbold, Dongmin Lee, Sungyup Moon

6. **Semi-Real Time Removable of Baseline Fluctuations in Electrocardiogram (ECG) by Infinite Impulse Response Low-Pass Filter (IIR-LPF):**
   Jeong-Hwan Kim, Kang-Hwi Lee, Jeong-Whan Lee, Kyeong-Seop Kim

7. **Complex Context Description and Rule-matrix Design for User targeting SaaS Application Mash-Up Service**
   Jong Jin Jung, Yun Cui, Myoungjin Kim

8. **Design of Device Group Authentication Using Block chain in a Smart Home Environment**
   Jae Pil Lee, Seoung Hyeon Lee, Kyung Soo Lim, Jae Kwang Lee

9. **A Framework for Preventing Illegitimate e-Prescribing Practices**
   Deuk-Hun Kim, Jin Kwak

10. **Stripe Noise Correction for Infrared Imaging System using Neural Network Theory**
    Junqi Bai, Chuanwen Chang, Wen Liu

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