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

August 22-24, 2017
Jeju, Korea

Organized by

KIPS CSWRG

KIPS CSWRG
Korea Information Processing Society
Computer Software Research Group

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

The 11th International Conference on Multimedia and Ubiquitous Engineering (MUE2017)
- May, 22-24, 2017, Seoul, Korea
- http://www.mue-conference.org/2017

The 12th International Conference on Future Information Technology (FutureTech2017)
- May, 22-24, 2017, Seoul, Korea
- http://www.futuretech-conference.org/2017

The 2017 International Conference on Big data, IoT, and Cloud computing (BIC 2017) (The UCAWSN conference name has been changed.)
- Aug. 22-24, 2017, Jeju, Korea
- http://www.bic-conference.org

The 9th International Conference on Computer Science and its Applications (CSA 2017)
- December, 18-20, 2017, Taichung, Taiwan
- http://www.csa-conference.org/2017

The 12th KIPS International Conference on Ubiquitous Information Technologies and Applications (CUTE 2017)
- December, 18-20, 2017, Taichung, Taiwan
- http://www.cute-conference.org/2017

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Message from the BIC2017 General Chairs

The 2017 International Conference on Big data, IoT, and Cloud Computing will be held in Jeju, Korea, August 22-24, 2017. The BIC 2017 is the newly renamed conference from highly successful series of the International Conference on Ubiquitous Computing Application and Wireless Sensor Network (UCAWSN) - 4th UCAWSN (July, 2016), 3rd UCAWSN (July, 2015), 2nd UCAWSN (July, 2014), and 1st UCAWSN (July, 2013) since 2013.

The BIC 2017 will be the most comprehensive conference focused on Big data, IoT, and Cloud Computing (BIC). The BIC 2017 will provide an opportunity for academic and industry professionals to discuss the latest issues and progress in the area of BIC such as model, algorithms, applications, services, performance and reliability for Big data, IoT, Cloud Computing. Also, the conference will publish high-quality papers which are closely related to the various theories and practical applications in Big data, IoT, and Cloud computing. Furthermore, we expect that the conference and its publications will be a trigger for further related research and technology improvements in those important subjects. Accepted and presented papers highlight new trends and challenges of Computer Science and its Applications. The presenters showed how new research could lead to novel and innovative applications. We hope you will find these results useful and inspiring for your future research.

We would like to express our sincere thanks to Steering Committee: Doo-soon Park (SoonChunHyang University, Korea), James J. (Jong Hyuk) Park (SeoulTech, Korea), Young-Sik Jeong (Dongguk University, Korea). Our special thanks go to the Program Chairs, all Program Committee members and all the additional reviewers for their valuable efforts in the review process, which 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.

BIC 2017
General Chairs

Yi Pan, Georgia State University, USA
Gangman Yi, Dongguk University, Korea
Han-Chieh Chao, National Ilan University, Taiwan
Jungho Kang, Soongsil University, Korea
Qun Jin, Waseda University, Japan

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Message from the BIC 2017 Program Chairs

Welcome to the BIC 2017 which will be held in Jeju, Korea on Aug 14~16, 2017. The BIC 2017 provides an opportunity for academic and industry professionals to discuss the latest issues and progress in the area of Computer Science. In addition, the conference contains high quality papers which are closely related to the various theories and practical applications in Computer Science. Furthermore, we expect that the conference and its publications will be a trigger for further related research and technology improvements in this important subject. The BIC 2017 contains high quality research papers submitted by researchers from all over the world. Each submitted paper was peer-reviewed by reviewers who are experts in the subject area of the paper. Based on the review results, the Program Committee accepted papers.

For organizing an International Conference, the support and help of many people is needed. First, we would like to thank all authors for submitting their papers. We also appreciate the support from program committee members and reviewers who carried out the most difficult work of carefully evaluating the submitted papers.

We would like to give my special thanks to Doo-soon Park (SoonChunHyang University, Korea), James J. (Jong Hyuk) Park (SeoulTech, Korea), Young-Sik Jeong (Dongguk University, Korea) as the Steering Committee of BIC for their strong encouragement and guidance to organize the conference. We would like to thank BIC2017 General Chairs for their advices to make possible organization of The BIC2017. We would like to express special thanks to execute members for their timely unlimited support.

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Jaehwa Chung, Korea National Open University, Korea
Jin Wang, Yangzhou University, China
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Muhammad Naufal Mansor, University Malaysia Perlis, Malaysia
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Sun-Yuan Hsieh, National Cheng Kung University, Taiwan
Tzung-Pei Hong, National University of Kaohsiung, Taiwan
Yan Jun, University of Wollongong, Australia
Yu-ChenHu, Providence University, Taiwan
Yutaka Watanabe, University of Aizu, Japan

Plenary Speaker

The 4th wave, Smart Society and Convergence Innovation Economy

Seang-Tae Kim Ph.D.
Congressman at the National Assembly of the Republic of Korea

Abstract

The inappropriate parts of society require a variety of changes to improve and develop society. I must point out the importance of ICT to energize social and economic development. ICT can be the focus point of a convergent economic system and the method for the success of the Korean government. Thus, I want to touch on the issue of innovative strategies and the advantages ICT can provide for Korea. I propose a new government system to enhance Korean economic system convergence. The new system will feature cooperation, openness, creativeness and communication. In order to accomplish a new convergent economic system, the new government body will have to break away from outmoded systems and traditions and adopt a fresh, modern approach.

Biography

Mr. Seang-Tae Kim is a Congressman at the National Assembly of the Republic of Korea. He is one of the most active lawmakers in the Science, ICT, Future Planning, Broadcasting and Communications Committee where all legislations regarding the ICT sector are discussed and agreed. Information Technology has been a key driving force of economic development in Korea since the early 2000s. After suffering a financial crisis in the late 1990s, Korea improved its economic fundamentals with Information Technology. Companies introduced advanced IT system to enhance efficiency and transparency in business decisions. Government encouraged Telcos' broadband rollout which boosted domestic demand. As a result, Korea was able to successfully recover from financial shock, and turn itself into a the global leader in transition to an information society. In 2005, Mr. Kim met extraordinary opportunity to become a member of ICT Committee of the National Assembly, where he could directly involve in the policy making process for the country's successful transition to an information society. With his expertise and experience in academia and public sector, Mr. Kim was appointed as the president of National Information Society Agency(NIA) in 2008. Under his leadership for five years, NIA played a critical role in establishing national strategies for convergence and innovation, as well as solving problems such as digital divide and privacy issue. After being elected as a congressman in 2016, Mr. Kim continues to make effort, as a lawmaker, to reform the ICT regulation system in Korea. Currently he is developing a new legal foundation, which supports industry growth and maximizes consumer welfare under rapidly changing environment. As a milestone, he recently proposed an amendment to the Telecom Business Law. Mr. Kim pursues human-centric convergence and innovation. He published more than 20 papers and books including "Digital Government", and "Korea's Future Strategy toward Smart Society". He also held various positions in the international organizations including ITU/UNESCO Broadband Commission.

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Keynote Speaker

Data-Driven Analysis of Human Dynamics using Wireless Signals

Jian-Nong Cao, Ph.D.
Professor,
Chair Professor and Head
Hong Kong Polytechnic University
Hung Hom, Kowloon, Hong Kong

Abstract

Human dynamics refer to movement and interactions of large crowd. Analysis of human dynamics is important for both social science and computer science. It enables a wide range of applications in many areas like marketing, management, and sociology. For example, understanding customers' shopping behaviors is vital for retailers to adapt their marketing strategies. However, studying human dynamics requires massive data, which is non-trivial to collect. Previous research mainly focuses on phone call records collected by network operators to study coarse-grained human activities. Nowadays, Wi-Fi-enabled smartphones are increasingly ubiquitous throughout the world and open up a great opportunity to collect massive human activity data in an effective and efficient way. On the other hand, however, it also raises new challenges due to vulnerability and sparsity of wireless signal. Besides, how to extract effective features from Wi-Fi packets still remains an open challenge. In this talk, I will introduce recent advances in human dynamics and then discuss opportunities and challenges followed by future research directions. I will also describe our recent work on analysis of human dynamics using Wi-Fi.

Biography

Dr. Cao is currently a chair professor and head of the Department of Computing at Hong Kong Polytechnic University, Hung Hom, Hong Kong. His research interests include parallel and distributed computing, wireless networks and mobile computing, big data and cloud computing, pervasive computing, and fault tolerant computing. He has co-authored 3 books, co-edited 9 books, and published over 300 papers in major international journals and conference proceedings. He is a fellow of IEEE, a senior member of China Computer Federation, and a member of ACM. He was the Chair of the Technical Committee on Distributed Computing of IEEE Computer Society from 2012 - 2014. Dr. Cao has served as an associate editor and a member of the editorial boards of many international journals, including ACM Transactions on Sensor Networks, IEEE Transactions on Computers, IEEE Transactions on Parallel and Distributed Systems, IEEE Networks, Pervasive and Mobile Computing Journal, and Peer-to-Peer Networking and Applications. He has also served as a chair and member of organizing / program committees for many international conferences, including PERCOM, INFOCOM, ICDCS, IPDPS, ICPP, RTSS, DSN, ICNP, SRDS, MASS, PRDC, ICC, GLOBECOM, and WCNC. Dr. Cao received the BSc degree in computer science from Nanjing University, Nanjing, China, and the MSc and the Ph.D degrees in computer science from Washington State University, Pullman, WA, USA.

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Workshop Keynote Speaker

Smart Wellness and Healthcare Systems

Fei Hao, Ph.D.
Associate Professor,
the School of Computer Science,
Shaanxi Normal University, China

Abstract

Social Computing, the main computing paradigm for the social spaces in ubiquitous computing, are playing a critical role in analyzing the behavior of users and their interactions over social networks. Importantly, the knowledge and social computational intelligence hiding behind social networks can help us to uncover and understand the behaviors and organization styles of users in social networks. Soft Computing, rather than routine "hard" computing, is a procedure that exploits the tolerance for imprecision, uncertainty, and partial truth in order to achieve tractability, robustness, low cost solutions, and close to human mind. The soft computing technologies like fuzzy logic, rough sets, soft sets, artificial neural networks and evolutionary algorithms have been applied successfully to data mining, natural language processing, bio-informatics, medical and u-health, social sciences, manufacturing, economics, and business. Aiming to bridge the research gap between social network analysis and soft computing, in this talk, I will present a series of comprehensive soft computing-based analytical theories for the exploration of topological structures and the promising applications of social networks, and then discuss the opportunities and insights in Health 3.0.

Biography

Dr. Hao is an associate professor, in the School of Computer Science, Shaanxi Normal University, China, and he is also an executive director of Shanxi Association of Experts and Scholars (SAES) Information Branch. He received the B.Sc. degree in Information and Computing Science and the M.Sc. degree in Computer Software and Theory from Xihua University, China, in 2005 and 2008, respectively, and the Ph.D. degree in Computer Science and Engineering from Soonchunhyang University, South Korea, in 2016. He worked as a research fellow at the School of Computer Science and Technology, Huazhong University of Science and Technology, China from 2012 to 2014. Since 2016, he has been with the School of Computer Science, Shaanxi Normal University, China, where he is currently an associate professor. His research interests include social computing, soft computing, big data analytics, pervasive computing, and data mining. Dr. Hao holds a world-class research track record of publication in the top international journals and the prestigious conferences. He has published more than 60 papers in the leading international journals and conference proceedings, such as IEEE Transactions on Parallel and Distributed Systems, IEEE Transactions on Services Computing, IEEE Communications Magazine, IEEE Internet Computing, ACM Transactions on Multimedia Computing, Communications and Applications as well as GlobeCom. In addition, he was the recipient of five Best paper awards from CUTE 2016, UCASWSN 2015, MUE2015, IEEE GreenCom 2013 and KISM 2012 conferences, respectively. He was also the recipient of the IEEE Outstanding Leadership Award at IEEE CPSCom 2013 and the 2015 Chinese Government Award for Outstanding Self-Financed Students Abroad. Since 2017, he has joined JIPS (Journal of Information Processing Systems) editorial board, where he is currently an associate editor, and he is an initiator and general chair of IEEE SMMA, IWSCA and DSCI workshops. He is also a member of ACM, CCF and KIPS.

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PROGRAM SCHEDULE FOR
BIC 2017

Day 1, Aug. 22, 2017				
Time	**Min**	**HALL –A**	**HALL B**	**HALL C**
08:40-09:00	20	**Registration**		
09:00-10:30	90	**Session A-1** Chair :	**Session B-1** Chair :	**Session C-1** **HRH 2017** Chair :
10:30-10:40	10	**Coffee Break**		
10:40-12:00	80	**Session A-2** Chair :	**Session B-2** Chair :	**Session C-2** Chair :
12:00-13:00	60	**Lunch**		
13:00-13:30	30	**The 4th wave, Smart Society and Convergence Innovation Economy** **Seang-Tae Kim Ph.D.** Congressman at the National Assembly of the Republic of Korea Chair:		
13:30-14:00	30	**Data-Driven Analysis of Human Dynamics using Wireless Signal** **Jian-Nong Cao, Ph.D.** Professor at Hong Kong Polytechnic University Chair:		
14:00-14:10	10	**Coffee Break**		
14:10-15:30	80	**Session A-3** Chair :	**Session B-3** Chair :	**Session C-3** Chair :
15:30-15:40	10	**Coffee Break**		
15:40-17:00	80	**Session A-4** Chair :	**Session B-4** Chair :	**Session C-4** **Smart Wellness and** **Healthcare SystemsHS** Chair :
18:00-		**Banquet (HALL B)**		

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Day 2, Aug. 23, 2017		
Time	**Min**	**HALL –A**
10:00-12:00	120	**Session A-5** Chair :
13:00-15:00	120	Organizing Committee Meeting (Only for Invited Members)
16:00-17:30	90	Local Arrangement Committee Meeting (Only for Invited Members)

Day 3, Aug. 24, 2017		
Time	**Min**	**HALL -A**
10:00-12:00	120	**Session A-6** Chair :
13:00-15:00	120	Executive Meeting - Organized by BIC2017 (Only for Invited Members)
16:00-17:30	90	Organizing Committee Meeting II (Only for Invited Members)

1. **A paper presentation should be made by one of authors of the paper for20 minute.**
   (10 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.**

DETAILED SCHEDULE FOR
THE BIG DATA, IOT, AND CLOUD COMPUTING
(BIC 2017)

Day 1, Aug. 22, 2017 (Tuesday)

08:40-09:00 Registration

09:00-10:30 Session A-1 : Big Data
(HALL A)
(Chair: N/A)
1. **Extracting the Web-Scale Topological Relations Based on Hadoop MapReduce**
   Seok-Jun Lee, In-Cheol Kim
2. **Large-Scale Qualitative Temporal Reasoning Based on MapReduce Framework**
   Jonghoon Kim, Incheol Kim
3. **A Study on Subsequence Similarity Join in Time Series Data Using MapReduce**
   Kyounghyun Park, Hee Sun Won, Keun Ho Ryu
4. **Flu-rate Prediction System Based on Social Network Big Data Analytics**
   Mihui Kim, Shikha Verma, Younghee Park
5. **Multi-sensor data collection and data fusion: A Step towards Self Driving Car**
   Shoaib Azam, Aasim Rafique, Ahmed Muqeem Sheri, Moongu Jeon
6. **Dynamic billboard calibration for remote mobile robot control systems**
   Phuong Minh Chu, Seoungjae Cho, Kyungeun Cho
7. **Identify specific risks and prevent damage based on Ransomware's recent trends and accurate data information**
   Min-Gyu Shim, Jae-Woong Jeong
8. **Improvement of Personal Information Detection Performance by Classification of Trained Data**
   Youngkyung Lee, Jinho Song, Yoojae Won
9. **A Study on Local Consumer Behavior User Modeling for Extended O2O Services**
   Jinah Kim, Nammee Moon

09:00-10:30 Session B-1 : ICT Applications and Services
(HALL B)
(Chair: N/A)
1. **Design of Bloom Filter-based Data De-duplication Algorithm for Efficient Data Management**
   Seung-Su Yang, Nam-Uk Lee, Yong-Wan Ju, Seok-Cheon Park
2. **Design of Comparison Verification Algorithm for Information System Data Quality Management**
   Min-Hyung Park, Nam-Uk Lee, Yong-Wan Ju, Seok-Cheon Park
3. **Design of Nonlinear Data-based Wellness Content Recommendation Algorithm**

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Seung-Su Yang, Young-Hwan Jang, Yong-Wan Ju, Seok-Cheon Park

4. **Factors Affecting e-Impression Formations based on SNS**
   Su-e Park, Hun Choi
5. **A Study on Practical Technology for Sensor IoT for Gas Safety**
   JeongSeok Oh
6. **Customized Recommendation System for SaaS Aggregation Service**
   Yun Cui, Myoungjin Kim, Khongmin Kwon, Jongjin Jung, Hanku Lee
7. **Processing-based IoT Visualization for Fast Development of Safe Collision-Free Autonomous Driving**
   Dongkyu Lee, Moon Gi Seok, Jeonghun Cho, Daejin Park
8. **Design and Implementation of NAND Simulator for Bit Error Rate Model**
   Seungho Lim
9. **New user management technique for stronger privacy and its application to storage-based services**
   Taek-Young Youn, Ku-Young Chang
10. **A Study on the Application of Unidirectional Security Gateway to Enhance the Inter-VTS Exchange Format Service Security**
    Yong-Kyun Kim, Young-Jun Heo

09:00-10:30 Session C-1 : w3 HRH 2017
(HALL C)
(Chair: N/A)

1. **Design and Implementation of Mobile Fingerprint Recognition and Automatic Log-In Platform Framework**
   Jun-Ho Huh, Kyungryong Seo
2. **Operational Reliability Analysis of Guided Weapon Systems**
   ju-seok Ha, Kyung-mo Kim
3. **A Study on Optimal Warranty Period for Repairable Weapon Systems**
   ju-seok Ha, Kyung-mo Kim
4. **Study on Personal Information Leak Detection Based on Machine Learning**
   Sangdo lee, Yangtae shin
5. **The Direction of Information Security Control Analysis Using Artificial Intelligence**
   Sangdo Lee, Yangtae Shin
6. **A Study of Service Quality in Multi-Cloud Computing**
   Sangdo Lee, Yangtae Shin
7. **Anonymous Signature with Signer-Controlled Opening Capability**
   Sungwook Eom, Eunsung Lee, Pil Joong Lee
8. **Group Signature with Signer-Controlled Opening Capability: Separate Token Generator**
   Sungwook Eom, Eunsung Lee
9. **Group Signature with Restrictive Linkability**
   Sungwook Eom
10. **The Personal Information Overload Effect Information Protective Responses in the Internet of Thing(IoT) Era**
    Wonguen So, Hakyun Kim

10:30-10:40   Coffee break

10:40-12:00   Session A-2 : Big Data
(HALL A)
(Chair: N/A)

1. **Detect Alzheimer's disease by Multimodal Deep Learning Network using Convolutional Autoencoder**
   Tien-Duong Vu, Ngoc-Huynh Ho, Jong-Min Joo, Soo-Hyung Kim, Young-Chul Kim, Hyung-Jeong Jang, Jahae Kim, Ho-Chun Song
2. **Essential Protein Discovery Based on Improved Particle Swarm Optimization**
   Wei Liu, Jin Wang, Ling Chen, Bin Li, Bolun Chen, Haiyan Hong
3. **An Efficient Method for Essential Proteins Identifying Based on Genetic Algorithm**
   Wei Liu, Qiangmei Wu, Jin Wang, Bolun Chen, Ling Chen
4. **Influence Maximization Based on Propagation Path Analysis Under Independent Cascade Model**
   Wei Liu, Xin Chen, Bolun Chen, Jin Wang, Ling Chen
5. **A Study of Seasonal ARIMA Model-Based Forecasting Method for Intelligent Food Control in a Livestock Environment**
   Saraswathi Sivamani, Saravana Kumar Venkatesan, Hyunwook Cho, Changsun Shin, Jangwoo Park, Yongyun Cho
6. **Object Recognition in Low Resolution Images by Combining Deep Neural Networks**
   Jeongin Seo, Injae Choi, Hyeyoung Park
7. **Device Dedication on Embedded Virtual Machine**
   Suyoung Kim, Min Choi
8. **Asynchronous Actuator Management with Node.js**
   Cheol Shim, Min Choi

10:40-12:00   Session B-2 : ICT Applications and Services
(HALL B)
(Chair: N/A)

1. **Real-time 3D scene modeling for LiDAR point cloud**
   Seoungjae Cho, Phuong Minh Chu, Kyungeun Cho
2. **An Enhanced Digital Blood Pressure Estimation by using P-Peak Analysis**
   Boyeon Kim, Munseong Jeong, Yunseok Chang
3. **Fault Diagnosis of Rolling Element Bearings Using Complex Envelope Spectrum and Stacked Autoencoders**
   Sohaib Muhammad, Jong-Myon Kim
4. **Vision-based Mobile Robot Localization Method using Two-dimensional Barcode Detection**
   Jong Hwan Beck, Myeong Suk Pak, Sang Hoon Kim
5. **Induction Range Control Application on Android**

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Min Choi

6. **Integrity Assurance Method of Distributed Personal Information Access Records**
Manki Baek, Yoojae Won

7. **A Study on User Modeling through Location-based Smart Media Data Analysis**
HyeJin Song, Nammee Moon

8. **A Study of Multilateral Context-Awareness based Ransomware Detection and Response Method**
Sangmoon Jung, Heebeom Kim, Yoojae Won

9. **Patch Integrity Verification using Multiple Digital Signatures**
Junhee Kim, Yoojae Won

10. **Digital Shredder: Secure Data Storage without Encryption**
Taek-Young Youn, Nam-Su Jho

11. **A Solution for Reducing Redistribution Costs of HAIL**
TaeHyuk Kim, MinSeok Lee, DooHo Choi, TaekYoung Youn

10:40-12:00   Session C-2 : Cloud Computing
(HALL C)
(Chair: N/A)

1. **Validating CPU frequency control on the energy of Clouds**
Youngpil Kim, Chuck Yoo

2. **Hybrid Medical Cloud Models for the Medical Big Data Analytics using Collaborative Processing Method**
Yong-Hyun Kim, Eui-Nam Huh

3. **Issues and Concerns: Record Management in Cloud Service**
Youngkon Lee, Ukhyun Lee

4. **Study of Application Design Using File Encryption in Cloud Storage**
Minseok Sohn, YooJae Won

5. **Research on cloud-based web application malware detection methods**
Ki-hwan KIM, Dong-Il LEE, Yong-Tae Shin

6. **An Efficient Resource Management Method for DASH Streaming in Cloud Environment**
Linh Van Ma, Jaehyung Park, Suil Choi, Yonggwan Won, Jinsul Kim

7. **A Study on the Software as a Service Cloud Scientific Computing Platform for Education and Research in Nanoscience**
Inho Jeon, Jerry H. Seo, Jongsuk Ruth Lee, Kumwon Cho, Hoon Ryu

12:00-13:00   Lunch break

13:00-13:30   Plenary Speaker
(Chair: N/A)

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Ph.D. Seang-Tae Kim
Congressman at the National Assembly of the Republic of Korea

13:30-14:00   Keynote Speaker
(Chair: N/A)

Data-Driven Analysis of Human Dynamics using Wireless Signal

Ph.D. Jian-Nong Cao
Professor at Hong Kong Polytechnic University

14:00-14:10   Coffee break

14:10-15:30   Session A-3 : Big Data
(HALL A)
(Chair: N/A)

1. **Recognition of Multiple Facial Attributes through Learning of Joint Relationship among Attributes**
    Changhun Hyun, Jeongin Seo, Hyeyoung Park
2. **Pairwise Relation Analysis and Quality Estimation of Classical Chinese Poetry in Ancient Korea**
    Shohrukh Bekmirzaev, Byoung-Chan Lee, Tae-Hyong Kim
3. **Data Stream Clustering Algorithm Based on Bucket Density for Intrusion Detection**
    Chunyong Yin, Lian Xia, Jin Wang
4. **Strategies for Data Stream Clustering Applied in Anomaly Detection**
    Chunyong Yin, Sun Zhang, Jin Wang
5. **Distributed Approach for the Security of P2P Wireless Network**
    Chunyong Yin, Nimenya Stacey, Tatiana Moreira Beita, Jin Wang
6. **Public Data Visualization and Forecast Analysis about Apartment Sale Price**
    Jiwon Oh, Unil Yun, Gangin Lee, Judae Lee
7. **Analyzing cache miss ratio of FIFO and LRU algorithms**
    Seungyong Lee, Unil Yun, Yongguk Go, Jisu Lee, Hyoju Nam

14:10-15:30   Session B-3 : ICT Applications and Services
(HALL B)
(Chair: N/A)

1. **A Novel Chinese Word Segmentation Model based on Recurrent Neural Networks**
    Jin Liu, Li Lin, Yunlu Liaozheng, Jin Wang, Hye-jin Kim

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2. **Conditional Generative Adversarial Networks for Multi-class Handwriting Characters Generation**
   Chenkai Gu, Jin Liu, Jin Wang, Geumran Youn, Jeong-Uk Kim

3. **Stochastic Conjugate Gradient Optimization for Neural Network**
   Haoliang Ren, Jin Liu, Minghao Gu, Geumran Youn, Jeong-Uk Kim
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4. **Reliable Fault Diagnosis of Bearings Using Convolutional Neural Networks in Vibration Patterns**
   Dileep Appana, Manjurul Islam, Jong-Myon Kim

5. **Study on Malicious Code Behavior Analysis Using Windows Kernel Function Call Sequence**
   Kangsik Shin, Yoojae Won

6. **Building a Notification Model based Test-bed for Second Battery Pin Testing**
   Yunhee Kang

14:10-15:30   Session C-3 : Internet of Things
(HALL C)
(Chair: N/A)

1. **Maximum Stack Memory Monitoring Method Assisted by Static Analysis of the Stack Usage Profile**
   Kiho Choi, Seongseop Kim, Moon Gi Seok, Jeonghun Cho, Daejin Park

2. **DEVS-based Embedded Device Modeling and Simulation for Application-Specific IoT prototyping**
   Moon Gi Seok, Tag Gon Kim, Dongkyu Lee, Kiho Choi, Jeonghun Cho, Daejin Park

3. **Energy Efficient File Sharing Scheme for PAN in Heterogeneous Wearable Devices Environment**
   Young-Hoon Park, Jung-Eun Park, Kwangman Ko

4. **IoT Gateway Development for AEO application**
   Haedong Lee, Kiyoung Moon

5. **A PSO based Coverage Hole Patching Scheme for WSNs**
   Jin Wang, Chunwei Ju, Hye-jin Kim, R. Simon Sherratt, Sungyoung Lee
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6. **Development of Extended-STIL Pattern Compiler for Test Programming Environment**
   Seongjin Kim, Younghoon Park, Chansung Jung

7. **Method to modify the Android manifest file for dynamic analysis of Android apps**
   Suh Yoo Lee, Junhoo Park, Jaecheol Ryu

8. **Data Forwarding Algorithm Based on Energy Efficiency in Multi-hop Device to Device Network**
   Yong Zhang, Ruonan Li, Yanan Zhang, Mei Song

9. **Smart Crossing System for Pedestrian safety based on Internet of Things**
   Kwang Eun An, Sung Won Lee, Young Ju Jeong, Dongmahn Seo

15:30-15:40   Coffee break

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15:40-17:00   Session A-4 : ICT Applications and Services
(HALL A)
(Chair: N/A)

1. **A Study on the Influence of Patent Development Strategies on Technological Innovation Performance Using the Big Data**
   Kyeong-Rae Cho
2. **Image-Based Artificial Intelligence Deep Learning to Protect Big Data from Malware**
   Kim Hae-Jung
3. **Measurement Framework for Measuring Firm Smart Business Capability in a Smart Business Environment**
   Chui Young Yoon
4. **Interworking Service System for Closed Plant Factories**
   Myeongbae Lee, Hyunwook Cho Cho, Vasanth Ragu, Youngyun Cho, Jangwoo Park, Changsun Shin
5. **Frame Rate Control Buffer Management Technique for High-quality Real-time Video Conferencing System**
   SangHyong Kim, Yoojae Won
6. **Optimization of Greenhouse Control System to Minimize Energy Cost using PID Controller**
   Vasanth Ragu, Myeongbae Lee, Changsun Shin
7. **Analysis of Top-rank-k Erasable Pattern Mining Techniques without threshold settings**
   Unil Yun, Gangin Lee, Judae Lee, Jiwon Oh
8. **Performance and Characteristic Analysis of Tree-based Erasable Pattern Mining Approach**
   Gangin Lee, Unil Yun, Jiwon Oh, Seungyong Lee
9. **Development of Spam-mail Filtering System based on Neural Network**
   Judae Lee, Unil Yun, Jiwon Oh, Yongguk Go
10. **Design and Implementation of Relational Database for Ship Classification**
    Yongguk Go, Unil Yun, Jisu Lee, Hyoju Nam, Gangin Lee
11. **Reviewing and Testing of Single-Cycle Data path in Processor**
    Jisu Lee, Unil Yun, Hyoju Nam, Seungyong Lee, Judae Lee
12. **Game design and implementation using Windows Form**
    Hyoju Nam, Unil Yun, Seungyong Lee, Yongguk Go, Jisu Lee

15:40-17:00   Session B-4 : Internet of Things
(HALL B)
(Chair: N/A)

1. **Location Recognition System using Random Forest**
   Sunmin Lee, nammee Moon
2. **Smart Automated Sales System with Blockchain-based Data Storage and Management**
   Minjae Yoo, Yoojae Won
3. **Analysis of Traffic Congestion and Identification of Peak Hour for Intelligent Transportation Services Based on IoT Environments**
   Vasanth Ragu, Saraswathi Sivamani, Myungbae Lee, Chulyoung Park, Yongyun Cho, Jangwoo Park,

Changsun Shin

4. **SINR Based MCS Level Adaptation in CSMA/CA Wireless Networks**
   Soohyun Cho
5. **Stochastic Geometry based Uplink Power Allocation in Ultra-Dense Networks**
   Mengting Liu, Ning An, Yinglei Teng, Yong Zhang
6. **Implementation of NFC-Based Smart-Drug Information Management System**
   Kyeong-Rae Cho, Tae-Bok Yoon
7. **Requirements for Internetworking Terrestrial Sensor Networks and Underwater Acoustic Sensor Networks**
   Pan-Jun Kim, Donghyun Shin, Changhwa Kim
8. **Threat Analysis for an In-Vehicle Telematics Control Unit**
   Sungbum Lee, Jong-Hyouk Lee, Byoungsoo Koh
9. **Study on Manipulator Hydrodynamic Calculation Method Based on the Microtomy Theory**
   Hongde Qin, Chuanqi Liu, Gang Wang
10. **Research on the Structure Design and Control Technology of Bionic Fish**
    Hongde Qin, Xiang Yu, Chuanqi Liu

15:40-17:00   Session C-4 : Workshop on Smart Wellness and Healthcare SystemsHS
(HALL C)
(Chair: N/A)

    Workshop Keynote Speaker
    Ph.D. Fei Hao
    the School of Computer Science, Shaanxi Normal University, China

1. **θ-Iceberg Core Decomposition in Graphs**

   Fei Hao, Khamphaphone Xinchang, Doo-Soon Park
2. **Sleep Monitoring System using Kinect and Thermovision**
   Kwi-Bin Seo, Sung-Yeup Kim, Min Hong
3. **Electropulsegraph Waveform Classification Based on Deep Learning Technologies**
   JinSoo Park, Doo-soon Park, Dong Hag Choi, You-Boo Jeon
4. **A Model of a Dialogue Supporting System using FSM based Planner for Emergency Calls**
   Keonsoo Lee, Yunyoung Nam, Doo-Soon Park
5. **Virtual Reality-Based Exercise Game for Finger Rehabilitation Following Chronic Stroke**
   Hee-Woo Park, Doo-Soon Park, HwaMin Lee
6. **Development of A Textile Capacitive Proximity Sensor and Gait Monitoring System for Smart Healthcare**
   Changwon Wang, Doo-Soon Park, Se Dong Min

Day 2, Aug. 23, 2017 (Wednesday)

10:00-12:00   Session A-5 :
(HALL A)

(Chair N/A)

1. **Photosensors based Motion Artifacts Cancellation**
   Hooseok Lee, Hoon Ko, Jinseok Lee
2. **Smartphone Built-in Camera based Lung Function Test**
   Heewon Chung, Hoon Ko, Hooseok Lee, Jinseok Lee
3. **Smartphone Built-in Microphone based Lung Function Test**
   Heewon Chung, Hoon Ko, Hooseok Lee, Jinseok Lee
4. **Towards the Development of Tele-rehabilitation System based on Virtual Reality Environment and Cloud Service**
   Ye-Rin Cha, Jung-Yeon Kim, Bong-Keun Jung
5. **Dynamic OTP matching-based Authentication as a Service**
   NamYong Kim, Kyung Yeob Park, Jong Hyuk Park
6. **The Study on Data of Smart Home System as Digital Evidence**
   Jung Hyun Ryu, Seo Yeon Moon, Jong Hyuk Park
7. **An automatic gene annotation system for the organellar by maximizing the sequence similarity of references**
   Jaehee Jung, Mingeun Ji, Gangman Yi

Day 3, Aug. 24, 2017 (Thursday)

10:00-12:00   Session A-6 : Convergence Security
(HALL A)
(Chair N/A)

1. **Method for Indoor Positioning using BITON and Linear Kalman Filter**
   Seoung-Hyeon Lee, Kyung-Soo Lim
2. **The Proposal for Codec-Independent Video Privacy Masking and Evaluation**
   Geon-Woo Kim, Kyung-Soo Lim
3. **Image Preprocessing Revisited for Robust Face Recognition**
   Seon Ho Oh, Geon-Woo Kim, Kyung-Soo Lim
4. **Large-Scale Person Re-identification via Adaptive Hierarchical Clustering**
   Seon Ho Oh, Seung-Wan Han, Bum-Seok Choi, Geon-Woo Kim, Kyung-Soo Lim
5. **A Functional Consideration for Cloud-based Video Surveillance Platform**
   Kyung-Soo Lim, Jong Wook Han, Geon-Woo Kim
6. **Laboratory safety sensor data based accident prediction study**
   Ki-Su Yoon, Seoung-Hyeon Lee, Jae-Pil Lee, Kyung-Soo Lim, Jae-Kwang Lee
7. **Trends of In-Vehicle Infotainment Platform based on Open Source for Security Research**
   Joongyong Choi, Seong-il Jin
8. **EEG Based on Smart Driving System for Intelligent Accident Management**
   Byung Wook Kwon, Jong Hyuk Park
9. **DSS-SL: Dynamic Signage System based on SDN with LiFi Communication for Smart Buildings**

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

Pradip Kumar Sharma, Byung Wook Kwon, Jong Hyuk Park

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