The 2018 World Congress on Information Technology Applications and Services

"Advanced Mobile, Communications, Security, Multimedia, Vehicular, Cloud, IoT, and Computing"

February 20-22, 2018
Jeju, Korea

Organized by
World IT Congress & KIPS SWRG
2018 International Conferences
(Sponsored / Technically Sponsored by KIPS / KIPS SWRG)

The 12th International Conference on Multimedia and Ubiquitous Engineering
(MUE 2018)
- April 23-25, Salerno, Italy
- http://www.mue-conference.org/2018

The 13th International Conference on Future Information Technology
(FutureTech 2018)
- April 23-25, Salerno, Italy
- http://www.futuretech-conference.org/2018

The 2018 International Conference on Big data, IoT, and Cloud computing
(BIC 2018) (The UCAWSN conference name has been changed.)
- August, 21-23, 2018, Jeju, Korea
- http://www.bic-conference.org/2018

The 10th KIPS International Conference on Computer Science and its Applications
(CSA 2018)
- December, 17-19, 2018, Okinawa, Japan
- http://www.csa-conference.org/2018

The 13th KIPS International Conference on Ubiquitous Information Technologies and Applications
(CUTE 2018)
- December, 17-19, 2018, Okinawa, Japan
- http://www.cute-conference.org/2018
Message from the World IT Congress 2018 General Chairs

The 2018 World Congress on Information Technology Applications and Services "Advanced Mobile, Communications, Security, Multimedia, Vehicular, Cloud, IoT, and Computing" will be held in Jeju, Korea on Feb 20–22, 2018. The World IT Congress 2018 Jeju is aimed at addressing key themes on "Advanced Mobile, Communications, Security, Multimedia, Vehicular, Cloud, IoT, and Computing". World IT 2018 will be the most comprehensive conference focused on Information Technology, computing, and applications, and will provide an opportunity for academic and industry professionals to discuss the latest issues and progress in the area of Advances in IT, Applications, and Services (AITA). In addition, the conference will publish high-quality papers which are closely related to the various theories and practical applications in advanced IT. Furthermore, we expect that the conference and its publications will be a trigger for further related research and technology improvements in this important subject.

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: James J. (Jong Hyuk) Park (SeoulTech, Korea), Hamid R. Arabnia (The University of Georgia, USA), Han-Chieh Chao (National Ilan University, Taiwan), Young-Sik Jeong (Dongguk University, Korea), Jianhua Ma (Hosei University, Japan), Qun Jin (Waseda University, Japan). 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.

World IT Congress 2018  
General Chairs

Yi Pan, Georgia State University, USA  
Gangman Yi, Dongguk University, Korea  
Ka Lok Man, Xi'an Jiao tong-Liverpool University, China
Message from the World IT Congress 2018 Program Chairs

Welcome to the 2018 World Congress on Information Technology Applications and Services "Advanced Mobile, Communications, Security, Multimedia, Vehicular, Cloud, IoT, and Computing" which will be held in Jeju, Korea on Feb 20–22, 2018. This congress will be the most comprehensive conference focused on the various aspects of Advances in IT, Applications, and Services (AITA).

The World IT 2018 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 World IT 2018 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 James J. (Jong Hyuk) Park (SeoulTech, Korea), Hamid R. Arabnia(The University of Georgia, USA), Han-Chieh Chao (National Ilan University, Taiwan), Young-Sik Jeong (Dongguk University, Korea), Jianhua Ma (Hosei University, Japan), Qun Jin (Waseda University, Japan) as the Steering Committee of World IT for their strong encouragement and guidance to organize the conference. We would like to thank World IT 2018 General Chairs for their advices to make possible organization of The World IT 2018. We would like to express special thanks to execute members for their timely unlimited support.

World IT Congress 2018
Program Chairs

Byoungwook Kim, Korea University, Korea
Jin Wang, Yangzhou University, China
Muhammad Khurram Khan, King Saud University, Kingdom of Saudi Arabia
Organization

Honorary Chair
Doo-Soon Park, Soonchunhyang University, Korea

Steering Committee
James J. Park, SeoulTech, Korea (Chair)
Hamid R. Arabnia, The University of Georgia, USA (Co-Chair)
Han-Chieh Chao, National Ilan University, Taiwan
Young-Sik Jeong, Dongguk University, Korea
Jianhua Ma, Hosei University, Japan
Qun Jin, Waseda University, Japan

General Chairs
Yi Pan, Georgia State University, USA
Gangman Yi, Dongguk University, Korea
Ka Lok Man, Xi'an Jiaotong-Liverpool University, China

General Vice-Chairs
Deok Gyu Lee, Seowon University, Korea
Neil Yen, University of Aizu, Japan
Daewon Lee, Seokyeong University, Korea

Program Chairs
Byoungwook Kim, Korea University, Korea
Jin Wang, Yangzhou University, China
Muhammad Khurram Khan, King Saud University, Kingdom of Saudi Arabia

Publicity Chairs
Jungho Kang, Soongsil University, Korea
Kyung-Soo Lim, ETRI, Korea
Yunsick Sung, Dongguk University, Korea
Byeong-Seok Shin, Inha University, Korea

Local Chairs
Hwamin Lee, Soonchunhyang University, Korea
Kwang-il Hwang, Incheon National University, Korea
Joon-Min Gil, Catholic University of Daegu, Korea
Jaehwa Chung, Korea National Open University, Korea
Seokhong Min, The MINDATA Corporation, Korea
Hyun-Woo Kim, Dongguk University, Korea

Program Committee
Erik Geslin, Ecole Nationale Supérieure d'Arts et Métiers, France
Abdel-Badeeh M.Salem, Ain Shams University, Egypt
Ana Isabel Pereira, Polytechnic Institute of Bragança, Portugal
Cho-Chin Lin, National Ilan University, Taiwan
Chih-Lin Hu, National Central University, Taiwan
Ahmed EL Oualkadi, Abdelmalek Essaadi University, Morocco
Gyu Myoung Lee, Liverpool John Moores University, UK
Jerzy Respondek, Silesian University of Technology, Poland
Ladislav Burita, Brno University of Defence, Czech
Lu Leng, Nanchang Hangkong University, China
Maumita Bhattacharya, Charles Sturt University, Australia
Manuel Domínguez-Morales, University of Seville, Spain
Michaela Geierhos, Paderborn University, Germany
Soon M. Chung, Wright State University, USA
Tzung-Pei Hong, National University of Kaohsiung, Taiwan
Vitaly Klyuev, University of Aizu, Japan
Yue-Shan Chang, National Taipei University, Taiwan
Marco Furini, University of Modena and Reggio Emilia, Italy
Hamid Hrimech, EST de Berrechid-Université Hassan Premier, Morocco
El-Sayed M. El-Alfy, King Fahd University of Petroleum and Minerals, Saudi Arabia
Cheonshik Kim, Sejong University, Korea
Ion Tutanescu, University of Pitesti, Romania
Jalal Habibi, McGill University, Canada
Nelson L. Passos, Midwestern State University, USA
Malinka Ivanova, Technical University of Sofia, Bulgaria
Sheng-Shih Wang, Minghsin University of Science and Technology, Taiwan
Jorge A. Silva, Universidade de Coimbra, Portugal
Yu-Chen Hu, Providence University, Taiwan
JaeSuhp Oh, Sookmyung Women’s University, Korea
Yutaka Watanobe, University of Aizu, Japan
Frank Schulz, SAP Research, Germany
Juan Martinez, Acantelys Research Group, Venezuela
Kuei-Ping Shih, Tamkang University, Taipei
Marco Listanti, University of Roma La Sapienza, Roma
Sylvia Encheva, Western Norway University of Applied Sciences, Norway
Ryszard Tadeusiewicz, AGH University of Science and Technology, Poland
Invited Speaker I

Internet of Battlefield Things: Challenges and Research Opportunities

Kim-Kwang Raymond Choo, Ph.D.
Cloud Technology Endowed Professorship
Department of Information Systems and Cyber Security
The University of Texas at San Antonio, USA

Abstract
Internet of Things (IoT) deployed in military and adversarial settings, such as battlefields, generally consist of a diverse range of Internet-connected devices and nodes (e.g. medical devices, wearable combat uniforms, unmanned aerial vehicles and military vehicles), which are a valuable target for cyber criminals, particularly state-sponsored or nation state actors. While IoT and Internet of Battlefield Things (IoBT) share many of the underpinning cyber security risks, the sensitive nature of IoBT deployment (e.g. military and warfare) makes IoBT architecture and devices more likely to be targeted by cybercriminals. In addition, actors who target IoBT devices and infrastructure are more likely to be state-sponsored, better resourced, and professionally trained. This presentation will highlight some of the security and privacy challenges associated with IoBT as well as research opportunities (e.g. what can be done to address IoBT cybersecurity challenges?).

Biography
Invited Speaker II

Intelligent Decision Computing Paradigms in Sustainable Computing

Arun Kumar Sangaiah, Ph.D.
VIT University
Vellore, India

Abstract
In sustainable computing, Intelligent Decision Support Systems (IDSS) has been adopted for prediction, optimization and decision making challenges under variable number constraints based on un-structured data. The traditional systems are lack of efficiency, limited computational ability, inadequate and impreciseness nature of handling sustainable problems. Despite, Computational Intelligence (CI) paradigms have used for high computational power of intelligence system to integrate, analyze and share large volume of un-structured data in a real time, using diverse analytical techniques to discover sustainable information suitable for better decision making. In addition, CI has the ability to handle complex data using sophisticated mathematical models, analytical techniques. This key note talk provides a brief overview of computational intelligence (CI) paradigms and its noteworthy character in intelligent decision support and analytics of sustainable computing problems. The objective of this talk is to study and analyze the effect of CI for overall advancement of emerging sustainable computing technologies.

Biography
Dr. Arun Kumar Sangaiah received his Ph.D from VIT University and Master of Engineering from Anna University, in 2007 and 2014, respectively. He is currently Associate Professor at School of Computing Science and Engineering, VIT University, Vellore, India. He was a visiting professor at School of computer engineering at Nanhai Dongruan Information Technology Institute in China (September. 2016-Jan. 2017). He has published more than 100 scientific papers in high standard SCI journals like IEEE-TII, IEEE-Communication Magazine, IEEE systems, IEEE-IoT, IEEE TSC, IEEE ETC and etc. In addition he has authored/edited over 8 books (Elsevier, Springer, Wiley, Taylor and Francis) and 50 journal special issues such as IEEE-Communication Magazine, IEEE-IoT, IEEE consumer electronic magazine etc. His area of interest includes software engineering, computational intelligence, wireless networks, bio-informatics, and embedded systems. Also, he was registered a one Indian patent in the area of Computational Intelligence. Besides, Prof. Sangaiah is responsible for Editorial Board Member/Associate Editor of various international SCI journals.
# PROGRAM SCHEDULE FOR WORLD IT CONGRESS 2018

## Day 1, Feb. 20, 2018

<table>
<thead>
<tr>
<th>Time</th>
<th>Min</th>
<th>HALL -A</th>
<th>HALL B</th>
<th>HALL C</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:00-12:00</td>
<td>120</td>
<td><strong>Session A-0</strong>&lt;br&gt;ANMT 2018 (Closed Workshop)&lt;br&gt;Chair: JoonMin Gil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13:00-15:00</td>
<td>120</td>
<td></td>
<td><strong>Organizing Committee Meeting</strong>&lt;br&gt;(Only for Invited Members)</td>
<td></td>
</tr>
<tr>
<td>16:00-17:30</td>
<td>90</td>
<td></td>
<td><strong>Local Arrangement Committee Meeting</strong>&lt;br&gt;(Only for Invited Members)</td>
<td></td>
</tr>
</tbody>
</table>

## Day 2, Feb. 21, 2018

<table>
<thead>
<tr>
<th>Time</th>
<th>Min</th>
<th>HALL -A</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:40-09:00</td>
<td>20</td>
<td><strong>Registration</strong></td>
</tr>
<tr>
<td>09:00-10:30</td>
<td>90</td>
<td><strong>Session A-1</strong>&lt;br&gt;<strong>Session B-1</strong>&lt;br&gt;<strong>Session C-1</strong></td>
</tr>
<tr>
<td>10:30-10:40</td>
<td>10</td>
<td><strong>Coffee Break</strong></td>
</tr>
<tr>
<td>10:40-12:00</td>
<td>80</td>
<td><strong>Session A-2</strong>&lt;br&gt;Chair: Soohyun Cho&lt;br&gt;<strong>Session B-2</strong>&lt;br&gt;<strong>Session C-2</strong></td>
</tr>
<tr>
<td>12:00-13:10</td>
<td>70</td>
<td><strong>Lunch</strong></td>
</tr>
<tr>
<td>13:10-14:00</td>
<td>50</td>
<td><strong>Keynote I: Internet of Battlefield Things: Challenges and Research Opportunities</strong>&lt;br&gt;Kim-Kwang Raymond Choo, Ph.D.&lt;br&gt;Professor at the University of Texas at San Antonio, USA&lt;br&gt;Chair: Kyung-Soo Lim</td>
</tr>
<tr>
<td>14:00-14:10</td>
<td>10</td>
<td><strong>Coffee Break</strong></td>
</tr>
<tr>
<td>14:10-15:30</td>
<td>80</td>
<td><strong>Session A-3</strong>&lt;br&gt;<strong>Session B-3</strong>&lt;br&gt;<strong>Session C-3</strong>&lt;br&gt;HRH 2018 (Closed Workshop)&lt;br&gt;Chair: Jun-Ho Huh</td>
</tr>
<tr>
<td>15:30-15:40</td>
<td>10</td>
<td><strong>Coffee Break</strong></td>
</tr>
</tbody>
</table>
1. A paper presentation should be made by one of authors of the paper for 20 minutes.
   (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 2018 WORLD CONGRESS ON
INFORMATION TECHNOLOGY, APPLICATIONS
AND SERVICES

(WORLD IT CONGRESS 2018)

Day 1, Feb. 20, 2018 (Tuesday)

10:00-12:00  Session A-0 ANMT 2018 (Closed Workshop)
(HALL A)
(Chair: JoonMin Gil)

1. Application of Weighted Bayesian Algorithm in Spam Messages Detection
   Quanzhu Yao, Huimin Fan, Rong Fei, Zan Bai, Jin Wang, Yuhui Zheng

2. End to End Performance Maximization through Data Transfer Node in a High-speed Network
   Jongseon Park, Jinhuyung Park, Seunghae Kim, Minki Noh

3. How to detect and respond to the malicious website modified by a drive-by download attack
   Seung-Yup Jun, Young-Ho Shin, Hyuk-ro Lee

4. IT Security compliance issues in public sector and response plans
   Gwang-il Ju, Jinhyung Park, Wanyoung Heo, Hark-Soo Park

5. An Intelligent Residual Resource Monitoring Scheme in Cloud Computing Environments
   JongBeom Lim, HeonChang Yu, Joon-Min Gil

6. Accelerated Bulk Memory Operations on Heterogeneous Multi-Core Systems
   JongHyuk Lee, Weidong Shi, JoonMin Gil

7. Automatic Enhancement of Spatial Resolution to Local Area for Satellite Imagery Using Projection Transform
   Jea hee kim, Wanyoung Heo, Jinhuyung Park

13:00-15:00  Organizing Committee Meeting I

16:00-17:30  Local Arrangement Committee Meeting
Day 2, Feb. 21, 2018 (Wednesday)

08:40-09:00  Registration

09:00-10:30  Session A-1 World-IT 2018  
(HALL A)

1. Recovery Techniques for Bigdata in Distributed File Systems  
   Dong-Jin Shin, Ho-geun Lee, Jong-min Eun Sung-Hoon Cho, Jeong-Joon Kim

2. Visualizing Reusable Code patterns based on Object-Oriented Reusability Metrics  
   Eun Young Byun, R. Young Chul Kim

3. An Estrus Detection Method based on Impulse and Fingerprint Indoor Location Information  
   Jemin Song, Bong-Ki Son, Keun Ho Ryu

4. A novel Digital Auscultation Method using a Skin Image  
   Sang-II Jo, Kwang-Seok Hong

5. Timeliness Guarantee Method of Electronic Record Based on Digital Continuity  
   Yongjun Ren, Yuvi Huo, Xiaohua Wang, Jin Wang

6. Design of Blockchain-Based Decentralized Integrity Preservation In Digital Investigation  
   Jung Hyun Ryu, Jong Hyuk Park

7. Experimental Study on the Impact of Electrical shock in Vehicle Wireless Charging Environments  
   Taejun Park, Kwang-il Hwang

09:00-10:30  Session B-1 World-IT 2018  
(HALL B)

1. A Performance Model for CAN over Noisy Channels  
   Jin Yeong Um, Jong suk Ahn

2. Design of mutual authentication protocol among NFC devices using NDEF digital signature  
   Seung-Su Yang, Seung-Ho Han, Hyung-Joon Kim, Seok-Cheon Park

3. A Relay-Selection Technique Based on Near Future Location to Solve Broadcast Storm Problem in Vehicle Ad-hoc Networks  
   Tae-Hwan Choi, Jong-Suk Ahn, Jin-Yeong Um

4. One Lightweight Security Authentication Protocol Based on Static ID Mechanism  
   Ying Zheng, Longhai Jin, Yu Jiang, Hongtao Bai, Lili He

5. A Link Prediction Algorithm Based on Information Propagation in Uncertain Protein-protein Interaction Network  
   Wei Liu, Liangyu Ma, Ling Chen, Jin Wang, Yili Wang

   Aaron Nichie, Sukyung Kang, Younygynn Kim, Myung-hye Park, Honggeun Kim

7. Eye-tracking and SNS Analysis-based User Modeling for Recommendation Reflecting Personal Preference  
   Hyejin Song, Nammee Moon
09:00-10:30  Session C-1 World-IT 2018
(HALL C)

1. Differential Privacy Protection Based on Sensitivity Control
   Chunyong Yin, Yuhang Zhu, Jin Wang, Suk-min Kang, Jeong-Uk Kim
2. SMS-based Database Security System for smart hospital
   Byung Wook Kwon, Jong Hyuk Park
3. A Cost optimization scheme using advanced attack graph for efficient security risk mitigation
   Jun Young Park, Eui-Nam Huh
4. A Study on Malicious Code Similarity Analysis Using API Call Sequence
   Kangsik Shin, Yoojae Won
5. Personalized (α, l)-Anonymity Method Based on Granularity Division
   Chunyong Yin, Shilei Ding, Jin Wang
6. Improved Deep Packet Inspection Technology in Data Stream Detection
   Chunyong Yin, Hongyi Wang, Jin Wang, Suk-min Kang, Jeong-Uk Kim
7. Code-based Preservation Mechanism of Electronic Record in Electronic Record Center of Cloud Storage
   Yongjun Ren, Zixuan Shen, Yaping Cheng, Jin Wang

10:30-10:40  Coffee break

10:40-12:00  Session A-2 World-IT 2018
(HALL A)
(Chair: Soohyun Cho)

1. Based on priority data with Adaptive IFS Channel Hopping in IoT Environment
   Gayoung Kim, Min-Su Seok, Jin-Yeong Um
2. Design of Improved Data Quality Management System for Providing Reliable Data
   Min-Hyung Park, Hyung-Joon Kim, Seung-Ho Han, Seok-Cheon Park
3. Incentive Mechanism of Data Storage for Wireless Sensor Network
   Yongjun Ren, Sai Ji, Jin Wang, Suk-min Kang, Jeong-Uk Kim
4. Design of Movie Information Service System Based on Augmented Reality
   Seung-Ho Han, Seung-su Yang, Hyung-Joon Kim, Seok-Cheon Park
5. A Method to Identify the High Significance Input Factors in Strawberry Growth and Production
   Vasanth Ragu, Myeongbae Lee, Salman Rahman, Jangwoo Park, Yongyun Cho, Changsun Shin
6. An Application of linear regression and Correlation for the prediction of Strawberry Growth
   Venkatesan Saravana Kumar, Saraswathi Sivamani, Myeongbae Lee, JangWoo Park, Changsun Shin, Yongyun Cho
7. Multithreaded Execution Method on Non-Volatile Memory File System for Object Storage and Cloud/Data-center Storages
   Jung-Geun Kim, Sang-Jae Nam, Su-Kyung Yoon, Shin-Dug Kim

10:40-12:00  Session B-2 World-IT 2018
(HALL B)

1. **2-Hop Label Size Reduction for Directed Acyclic Graph**  
   Jinhyun Ahn, Dong-Hyuk Im

2. **Anlayzing Big Data Issues in IIoT Environment Using Topic Modeling**  
   Ji Yeon Cho, Hye Sun Lee, Bong Gyou Lee

3. **A Signal CFAR Detection Algorithm Based on Generalized S Transform**  
   Wang Jie, Lin Yun, Yu Xiaowan

4. **Fuzzy Rule Mining by Clustering Approach to Estimate the Difficulty of Programming Problems**  
   Chowdhury Md Intisar, Yutaka Watanobe

5. **Motion Adaptive Recursive Denoising Filter for Low-dose X-ray Fluoroscopy**  
   Sang Wook Park, Hui Jin Joo, Sung Suk Oh, Jeongwoo Sohn, Soowon Seo

6. **Textile Fabric Defect Detection Via Sparse Subspace Clustering**  
   Peng Li, Junli Liang, Minghua Zhao, Xubang Shen, Jin Wang

7. **Personalized Diet Recommendation Algorithm Based on Probabilistic Matrix Factorization with Adaboost for Diabetes**  
   Hongtao Bai, Xuan Li, Jin Wang, Ming-hao Zhao, Lili He, Yu Jiang

8. **A Novel Feature Clustering and Weighting for Sentiment Estimation**  
   Yili Wang, Jin Wang, Hee Yong Youn

10:40-12:00 Session C-2 World-IT 2018 (HALL C)

1. **A workqueue based interrupt handling mechanism for improving delay time of a real-time operating system**  
   Tae-eun Yoon, Jeaho Hwang

2. **Design and Implementation of Smart-Mirror supporting Apparel Image Collection Function and Costume Matching Recommendation Service**  
   Hyeon-woo An, Jae-hyeon Cho, Ki-hoon Lee, Nammee Moon

3. **Design and Implementation of Board Management Controller for High Performance Computing**  
   Cheol Shim, Min Choi

4. **Cognitive Model for Sentimental Service Based on Multi-Modal Sensing**  
   Svetlana Kim, Yonglk Yoon

5. **A Secure and Efficient KSI System based on Threshold-Signature for Electronic Document Protection**  
   Gyeong-Jin Ra, Im-Yeong Lee

6. **Parallel Hybrid Algorithms for Tridiagonal Equations on a GPU**  
   Xuan Li, Longhai Jin, Ximing Li, Yu Jiang, Hongtao Bai

7. **Improved Superpixel based Graph Kernel Method for Hyperspectral Classification**  
   Chenyang Ma, Yunjie Chen, Yili Wang, Le Sun

8. **Plan Recognition Method based on Intuitionistic Fuzzy Theory and Event-Driven**  
   Xiaofan Wang, Lei Wang, Yuhui Zheng, Jin Wang
12:00-13:10 Lunch break

13:10-14:00 Keynote Speech
(HALL A)
(Chair: Kyung-Soo Lim)

“Internet of Battlefield Things: Challenges and Research Opportunities”
Kim-Kwang Raymond Choo, Ph.D.
The University of Texas at San Antonio, USA

14:00-14:10 Coffee break

14:10-15:30 Session A-3 World-IT 2018
(HALL A)

1. Balancing Between Replication and Deduplication for Flash Storage Systems
   Seung-Ho Lim
   Kyong-Hee Lee, Hui Kim, Do-Hyun Kim
3. A Low Cost IoT-based Traceability System for Perishable Food Supply Chain
   Ganjar Alfian, Muhammad Fazal Ijaz, Muhammad Syafrudin, Jae Ho Lee, Jongtae Rhee
4. An Internet of Things System Architecture for Aiding Firefighters in the Scene of Disaster
   Hyesun Lee, Sang Gi Hong, Myungnam Bae, Kyoo-Hoon Son, Mingi Jeong, Kang Bok Lee
5. A New Anomaly Detection Method of Spectrum Based on Deep Neural Networks
   Q. S. Feng, Y. B. Zhang, Z. Dou, Y. Lin, J. Wang

14:10-15:30 Session B-3 World-IT 2018
(HALL B)

1. A Study of Nuclear cyber security regulation guideline inspection automation and information providing list derivation using ICT vulnerability check tool
   Jae-hong Kim, Yang-seo Choi, Jung-chan Na
2. Consensus Building Algorithm with BFT for Permissioned Blockchain
   Takumi Yamashita, Yutaka Watanobe
3. Blockchain-based Multiple AAA System in Edge Computing for IoT Networks
   N. Y. Kim, S.K. Suk, J. H. Park
4. Detection scheme of man-in-the-middle attack on smart devices
   Seung-Hak Kim, Sang-Jun Yoon, Bo-Geun Jang, Ki-Hyun Jung
5. Design of a De-identification Framework for Utilizing Various Clinical Research Data in a General Hospital
   Jae Dong Lee, Jipmin Jung, Phillip Park, Ki Chung Ryu, Seunghyun Chung, Hyosyoung Cha
6. Undetectable malicious attack using scheduler freezing in operating system
   Soung-Ho Choi, Kyeong-Joo Jung, Ki-Hyun Jung
14:10-15:30  Session C-3 HRH 2018 (Closed Workshop)
(HALL C)
(Chair: Jun-Ho Huh)

1. Case Studies on the Measures on Efficient Processes in Overseas Procurement of Military Supplies
   YK Jung, Jun-Ho Huh
2. Study on Policing for Open Innovation in Defense Science and Technology: Focused on the government-funded research institutions
   YK Jung, Jun-Ho Huh
   Wonseop Lee, Jun-Ho Huh
4. Efficient LMS System Development and Its Test Bed for e-Learning and Mobile Based Learning
   Sooyoung Jung, Jun-Ho Huh, Seung-il Moon
5. Design System and Method of Server Based Firefighting Sprinkler Equipment
   Sooyoung Jung, Jun-Ho Huh, Seung-il Moon
6. A Study on the Device that Controls Power Dispersion of Distribution Line and Its Method
   Sooyoung Jung, Jun-Ho Huh, Seung-il Moon
   Sooyoung Jung, Jun-Ho Huh, Seung-il Moon
8. The Social Coding of Software Development: Focused on the Case Examples of Git-Hub and Stackoverflow
   Wonseop Lee, Jun-Ho Huh
9. Journalism Based Summary Algorithm in Python
   Wonseop Lee, Jun-Ho Huh
10. OSS Core Component: A Case of Korean IT Company Open Source Group
    Wonseop Lee, Jun-Ho Huh
11. A Study on Export Control Policies of Strategic Materials in Korea
    YK Jung, Jun-Ho Huh

15:30-15:40  Coffee break

15:40-17:00  Session A-4 World-IT 2018
(HALL A)
(Chair: Sangkee Suk)

1. An Application Case of Process Asset Library (PAL) for Small & Medium Sized Software Companies
   So Young Moon, Bo Kyung Park, Woo Sung Jang, R. Young Chul Kim
2. A Systematic Method to Design Automation for Enterprise System based on .NET with MDA
   Deuk Kyu Kum
3. Signal Outages of CSMA/CA based Wireless Networks with Different AP Densities
   Soohyun Cho
4. An approach to enhance data transfer performance utilizing a DTN in cloud environment
   Wontaek Hong, Jeonghoon Moon, Woojin Seok, Jinwook Chung
5. Time Synchronization Method for LPWA Using Simple Sync Procedure in IoT Wireless Network
   Sungwhan Kang, Minseok Seo, Joonyoung Eom, Bong-Hwan Lee

15:40-17:00  Session B-4 VASSI 2018 (Closed Workshop)
   (HALL B)
   (Chair: Hwankuk Kim)

1. Study on Binary Auto-Analysis Tools for Detecting Vulnerability
   Soojin Yoon, Geonbae Na, TaeEun Kim, Hwankuk Kim

2. A Study on Automatic Patch Model to Respond to Memory Corruption Vulnerabilities
   Geonbae Na, Sanghwan Oh, TaeEun Kim, Jungho Kang, Hwankuk Kim

3. Design of Hybrid Fuzzing System Based on Software Complexity Metrics
   JeeSoO Jurn, TaeEun Kim, Hwankuk Kim

4. A study on improvement of the existing vulnerability assessment system for the IoT environment
   Daeil Jang, Eunhye Ko, HwanKuk Kim

5. Keyword Generation for Vulnerability Information Using Multiple Topic Models
   Sarang Na, TaeEun Kim, Hwankuk Kim

6. A study on a scanning engine for discovering vulnerable Internet-connected devices
   Hwankuk Kim, TaeEun Kim, Daeil Jang

15:40-17:00  Session C-4 ISWP 2018 (Closed Workshop)
   (HALL C)
   (Chair: Yunsick Sung)

1. Cognitive Decision Engine Based on Binary Particles Swarm Optimization with Non-liner Decreasing Inertia Weight
   Chengzhuo Shi, Zheng Dou, Yun Lin

2. Real-time 3D Reconstruction for Objects using Sparse Point Clouds
   Seoungjae Cho, Kyungeun Cho

3. Collected Data Analysis-based RSSI Revision Method for UAVs
   Woonam Kim, Yunsick Sung

4. A Ground Smoothing Method based on Median Filter in 3D Environment Reconstruction System
   Mingyun Wen, Seoungjae Cho, Kyungeun Cho

5. Efficient Hierarchical Scheme for Sensor Data Management on Internet of Things with Cloud Computing
   Seungchul Kim, Hyun-Woo Kim, Gangman Yi, Young-Sik Jeong

6. Method for Object Removal from Ground Mesh and Billboard for Multi-sensor Fusion System
   Mingyun Wen, Seoungjae Cho, Kyungeun Cho

18:00  Keynote II
   Banquet [HALL-B]
Day 3, Feb. 22, 2018 (Thursday)

10:00-12:00 Session A-5 IWIoE 2018 (Closed Workshop) (HALL A) (Chair: Daewon Lee)

1. Cooperative Situation Awareness for User Authentication Using Smart Wearable
   Seung-Hyun Kim, Soo-Hyung Kim, Kyung-Soo Lim

2. Parallel Hough Transform Method Based on GPU
   Qianlong Yang, Lili He, Longhai Jin, Ting Li, Hongtao Bai

3. Job Submission Manager for Modeling and Simulation in Integrated Computing Environment
   Daejong Jung, Myungil Kim, Jungha Lee, Han-Yee Kim, Daewon Lee

4. Context-Aware Multimodal Authentication for FIDO Authenticator
   Seung-Hyun Kim, Jong-Hyuk Roh, Seok-Hyun Kim, Soo-Hyung Kim, Kyung-Soo Lim

5. A Survey on Mobile Edge Cloud Computing
   Thanongsak Xayasouk, DaeWon Lee, HwaMin Lee

6. An Implicit Privacy Risk Assessment Based on Accumulated Exposure of Private Information for Unmodified Android
   Seung-Hyun Kim, Soo-Hyung Kim, Kyung-Soo Lim

7. Data deduplication system in cloud storage environment
   Won-Bin Kim, Im-Yeong Lee

8. A Functional Consideration for Intelligent Video Surveillance using Cloud Computing
   Kyung-Soo Lim, Jong Wook Han, Geon-Woo Kim

13:00-15:00 Executive Meeting - Organized by World IT 2018

16:00-17:30 Organizing Committee Meeting II
Conference Venue

Booyoung Jeju Hotel

Booyoung Hotel & Resort Jeju
222, Jungmungwangwang-ro, Seogwipo-si,
Jeju Special Self-Governing Province, South Korea

Tel: +82-64-731-5500
Fax: +82-64-731-5555
Web: http://www.booyoungjejuhotel.com/
MUE 2018 & FutureTech 2018

April 23-25, 2018, Salerno, Italy

- **Introduction**
  
  **MUE2018**: The new multimedia solutions and ubiquitous computing environments facilitate the seamless integration of diverse kinds of intelligent devices based on multiple modalities into interoperable multimedia frameworks. These key technologies of multimedia solutions and ubiquitous computing environments interact and collaborate with each other in increasingly effective ways across a wide spectrum of consumer, business, healthcare, education, and governmental domains.

  **FutureTech2018**: Future technology information technology would stand for all of continuously evolving and converging information technologies, including digital convergence, multimedia convergence, intelligent applications, embedded systems, mobile and wireless communications, bio-inspired computing, grid and cloud computing, semantic web, user experience and HCI, security and trust computing and so on, for satisfying our ever-changing needs.

  In the future world, IT will play a very important role in convergence of computing, communication, and all other computational sciences and application and IT also will influence the future world's various areas, including science, engineering, industry, business, law, politics, culture, medicine, and so on. Our conference is intended to foster the dissemination of state-of-the-art research in all future IT areas, including their models, services, and novel applications associated with their utilization.

- **Publication & Special Issue**

  All accepted papers will be published by LNEE (indexed by SCOPUS / EI). After conference, the accepted and presented papers will be recommended to Special Issues of the Intl’ Journals indexed by SCI/SCIE/SCOPUS.

Hosted by KIPS-CSWRG