

The 2016 Global Conference on Information Technology, Computing, and Applications (Global IT 2016)

January 12 - 14, 2016

Hawaii, USA

Organized by

Global IT



2016 International Conferences

- **February 17-19, 2016, Jeju, Korea**
 - The 2016 World Congress on Information Technology Applications and Services (WorldIT2016)
 - <http://www.worlditcongress.org/2016jeju>
- **April, 20-22, 2016, Beijing, China**
 - The 10th International Conference on Multimedia and Ubiquitous Engineering (MUE2016)
 - <http://www.mue-conference.org/2016/>
 - The 11th International Conference on Future Information Technology (FutureTech2016)
 - <http://www.futuretech-conference.org/2016>

Message from the Global IT 2016 General Chairs

The 2016 Global Conference on Information Technology, Computing, and Applications (GlobalIT 2016) will be held in Hawaii, USA, January 12~14, 2016. GlobalIT 2016 will be the most comprehensive conference focused on Information Technology, computing, and applications. GlobalIT 2016 will provide an opportunity for academic and industry professionals to discuss the latest issues and progress in the area of advanced IT such as Ubiquitous computing, Wireless sensor network/RFID, Pervasive platform and middleware, Mobile multicasting, Wireless communication technology, Security and trust Computing, Future internet, Internet of Things, Cloud computing, Big data, Intelligence and Neuro computing, etc.

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.

The papers included in the proceedings cover the following topics: Mobile and ubiquitous computing, Dependable, reliable and autonomic computing, Security and trust management, Multimedia systems and services, Networking and communications, Database and data mining, Game and software engineering, Grid and scalable computing, Embedded system and software, Artificial intelligence, Distributed and parallel algorithms, Web and internet computing and IT policy and business management.

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 Honorary Chair, Doo-Soon Park (SoonChunHyang University, Korea). Our special thanks go to the Program Chairs: Yu Chen (State University of New York - Binghamton, USA), Deok-Gyu Lee (Seowon University, Korea), Jason C. Hung (Oversea Chinese University, Taiwan), and Marek R. Ogiela (AGH University of Science and Technology, Poland), 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.

Global IT 2016 General Chairs

Hamid R. Arabnia, The University of Georgia, USA
Gangman Yi, Gangneung-Wonju National University, Korea



Message from the Global IT 2016 Program Chairs

Welcome to the 2016 Global Conference on Information Technology, Computing, and Applications (GlobalIT 2016) which will be held in Hawaii, USA, January 12~14, 2016. GlobalIT 2016 will be the most comprehensive conference focused on the various aspects of advances in Information Technology, computing, and applications.

GlobalIT 2016 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. Global IT 2016 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), the Honorary Chair of Global IT for their strong encouragement and guidance to organize the conference. We would like to thank Global IT2016 General Chairs, Hamid R. Arabnia (The University of Georgia, USA), and Gangman Yi (Gangneung-Wonju National University, Korea) for their advices to make possible organization of Global IT2016. We would like to express special thanks to execute members for their timely unlimited support.

Global IT 2016 Program Chairs

Yu Chen, State University of New York - Binghamton, USA
Deok-Gyu Lee, Seowon University, Korea
Jason C. Hung, Oversea Chinese University, Taiwan
Marek R. Ogiela, AGH University of Science and Technology, Poland



Organization

Honorary Chair

Doo-Soon Park, SoonChunHyang University, Korea

General Chairs

Hamid R. Arabnia, The University of Georgia, USA
Gangman Yi, Gangneung-Wonju National University, Korea

Program Chairs

Yu Chen, State University of New York - Binghamton, USA
Deok-Gyu Lee, Seowon University, Korea
Jason C. Hung, Oversea Chinese University, Taiwan
Marek R. Ogiela, AGH University of Science and Technology, Poland

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Ford LumbanGaol, Bina Nusantara University, Indonesia

Jiankun Hu, RMIT University, Australia

Invited Speaker



Context-based Information Technology and its Applications

Yunsick Sung

Assistant Professor
Keimyung University, Korea

Abstract

Human activities in smart spaces are traced by sensors and logged, as sensor events, in the form of sensory values, when the sensors detect elements of the activities. The event-driven approach that models the combination of the sensor events is one of the most common human activity simulation approaches. However, this approach is scale-wise challenged as activities and spaces get more complex. A large volume of sensor events demands more human efforts in modeling, and requires higher processing overhead. We observe that rather than simulating by combining sensor events, semantical abstraction could offer a scalable alternative in managing such complexity. A context-driven such an approach was proposed, which scales well in complex simulation. The approach evaluates current state space and advances the simulation loop by units of context, not by sensor events. By changing the domain of simulation from event to context, we could measure a remarkable performance advantage.

Biography

Yunsick Sung is currently an Assistant Professor in the Faculty of Computer Engineering at Keimyung University, Daegu, Republic of Korea. He received the BS degree in Division of Electrical and Computer Engineering from Pusan National University, Busan, Republic of Korea, in 2004, the MS degree in Computer Engineering from Dongguk University, Seoul, Republic of Korea, in 2006, and the Ph.D degree in Game Engineering from Dongguk University, Seoul, Republic of Korea, in 2012. He was employed as a Member of the Researcher at Samsung Electronics in Republic of Korea, between 2006 and 2009. He was the Plural Professor at Shinheung College, Gyeonggi-do, Republic of Korea, in 2009, and at Dongguk University, Seoul, Republic of Korea, in 2010. He was also the postdoctoral fellow at University of Florida, Florida, USA, between 2012 and 2013. His research interests are focused on the areas of Games, Pervasive Computing, and Robotics.

PROGRAM SCHEDULE FOR GLOBAL IT 2016

Day 1, January 12, 2016		
Time	Min	HALL -A
08:40-09:00	20	Registration
09:00-10:30	90	Session 1 Chair : Lee HwaMin
10:30-10:40	10	Coffee Break
10:40-12:10	90	Session 2 Chair : Choi Min
12:10-13:30	80	Lunch
13:30-14:30	60	Keynote: Context-based Information Technology and its Applications Prof. Yunsick Sung, Keimyung University, Korea Chair : Choi Min
14:30-14:40	10	Coffee Break
14:40-16:10	90	Session 3 Chair : Gangman Yi
16:10-16:20	10	Coffee Break
16:20-17:50	90	Session 4 Chair : Hao Fei
18:00 -		Banquet (HALL B)

Day 2, January 13, 2016		
Time	Min	HALL -A
09:00-12:00	240	Local Arrangement Committee Meeting
13:00-15:00	120	Organizing Committee Meeting I
16:00-17:00	60	Executive Meeting I - Organized by Global IT 2016

[ONLY FOR INVITED MEMBERS]

Day 3, January 14, 2016		
Time	Min	HALL -A
09:00-12:00	240	Organizing Committee Meeting II
13:00-15:00	120	Executive Meeting II - Organized by Global IT 2016
16:00-17:00	60	Organizing Committee Meeting III

[ONLY FOR INVITED MEMBERS]

1. A paper presentation should be made by one of authors of the paper for 20 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.

**DETAILED SCHEDULE FOR
THE 2016 GLOBAL CONFERENCE ON
INFORMATION TECHNOLOGY, COMPUTING,
AND APPLICATIONS (GLOBAL IT 2016)**

January 12, 2016 (Tuesday)

08:40-09:00 **Registration**

09:00-10:30 **Session1**
(HALL A)
(Chair: Lee HwaMin)

- 1. Buffer Overflow Free TCP Performance over Science DMZ Networks**
Choi Wonjun
- 2. Design and Analysis of Underwater wireless Sensor Network applied Secured MAC protocol**
Yun Chae-Won, Lee Jae-Hoon, Yi Okyeon, Shin Soo-Young, Park Soo-Hyun
- 3. Effective Dynamic-page-migration Technique Using Monitoring in Cloud Computing**
Han Sangwook, Lee HwaMin
- 4. Material Dependent Volume Illumination**
Lee Byeonghun, Jeong Young-Sik, Shin Byeong-Seok
- 5. Vulnerability Analysis and Security Modeling of MODBUS**
Kwon Taeyean, Lee Jaehoon, Yi Okyeon
- 6. Random Number Sharing using Time Interval**
Moon Jae-geun, Jung Im
- 7. Development of a Custom DSP for a Vision System**
Shin Jangseop, Kim Moonkwon, Paek Yunheung, Ko Kwangman
- 8. A Study on Security Diagnosis using Automated Google Hacking Tools- Focusing on the US Government Website**
Cho Dae Jea , Bae Mi Young, Lim Han Kyu
- 9. Parallel Tracking and Mapping for Large AR Workspace on a Cluster**
Cho Kyu Nam, Kim Do Hyoung, Seo Jae Min, Jeong Chang-Sung

10:30-10:40 **Coffee break**

10:40-12:10 **Session2**
(HALL A)
(Chair: Choi Min)

- 1. Design of a Filter Bank for Convolutional Neural Network Based on Genetic Algorithm**
Ko ByoungChul, Lee Eun Ju, Nam Jae-Yeal
- 2. Controlling the Flow of Flocks through Cubic B-Spline Curves based on Hub-controls**
Sung Mankyu

3. **Image Authentication Scheme for Forgery Detection**
Kim Eun-Ji, Jung Ki-Hyun
4. **The Performance Enhancement of KVM-QEMU Virtualization with ARM 64bit Server System**
Ma Jin-Suk, Kim Hak-Young, Choi Wan
5. **Rough k-cliques Theory and Its Applications**
Hao Fei, Park Doo-Soon, Shao Yingchao
6. **Optimization of Inter-Dependent Requirement's Prioritization Using Fuzzy ANP**
Jahangir Zarmina, Zafar Kashif
7. **A Survey of Microarray Gene Expression Data Analysis Techniques**
Zahoor Javed, Zafar Kashif
8. **Feature Selection Based Classification of Sentiment Analysis using Biogeography Optimization Algorithm**
Shahid Ramsha, Tariq Sobia, Zafar Kashif
9. **Security Framework using SIEM in Big Data Environment**
Kim Nanju, Kim Yujin, Park Joonwoo, Choi Euin

12:10-13:30 **Lunch break**
13:30-14:30 **Keynote Speech**
(HALL A)
(Chair: Choi Min)

Context-based Information Technology and its Applications

Prof. Yunsick Sung,
Faculty of Computer Engineering
Keimyung University, Korea

14:30-14:40 **Coffee break**

14:40-16:10 **Session 3**
(HALL A)
(Chair: Gangman Yi)

1. **Effectiveness Of Online Simulation-Based E-Learning For Computational Science And Engineering In Higher Education**
Park Sun-Rae
2. **An Implementation of Context Reasoning Process For MobileCAF Framework**
Bang Dae-Wook, Jang Dae-Jin
3. **Implementation of Positioning System for Mobile X-ray Device Using Multi-Sensors**
Jeong Chang-Won, No Si-Hyung, Seang Lypengleang, Yoon Kwon-Ha, Joo Su-Chong
4. **3D User Signature System using Location Tracking Techniques**
Ko Kwangman, Jung Jinwoo, Lim Junghoon, Kang Yunhee, Paek Yunheung
5. **Distance Revising Method in Active Media Control Environments**
Sung Yunsick, Kwak Jeonghoon, Park Jong Hyuk, Jeong Young-Sik
6. **Improved Relative Location Estimation Method using Intermediate Reference Beacons for UAVs**
Kwak Jeonghoon, Sung Yunsick, Park Jong Hyuk

7. **Human Body Reaction Information Measurement System Based on Color Environments**
Kim Ji Eon, Joo Su Chong, Jeong Chang Won, Yoon Kwon-Ha
8. **A Robust Hand Gesture Recognition Using Moment Features in Hand Shape**
Kim Sungyoung, Jeong Hyeonseok
9. **Efficient Acceptance Testing Framework for Interactive Computer Game Applications**
Kim Wook Hyun, SohnYoung-Ho, ParkDong Won
10. **An Algorithm for Identifying Protein Families based on Directed Graph for Unknown Proteins**
Seok-Hyeon Han, Jaehee Jung, Gangman Yi

16:10-16:20 **Coffee break**

16:20-17:50 **Session 4**
(HALL A)
(Chair: Hao Fei)

1. **Learning Management System using Spring MVC and Mybatis**
Joo Youngwoong, Choi Min
2. **Patient Monitoring System for Cardiovascular Disease Based on Smart Mobile Healthcare Environments**
Ban Vathana, Lee Sung Gwon, Jeong Chang Won, Yoon Kwon-Ha, Joo Su Chong
3. **Design of Concurrency-guaranteed Code Simulator for Embedded System**
Lee Sunghee, BeakTae-San, Lee Woo Jin
4. **Dynamic Auto Scaling and Load Balancing in Docker Container Environment**
Kim Won-Yong, Huh Eui-Nam
5. **Impacts of Innovativeness and Perception Factors on Usage Behavior of Smart Payment Services: Their Interaction Effects among Perception Factors**
Hwang Young-Ho, Moon Yoo-Jin, Cho Sungkap, Min Kyongho
6. **RSSI-based Indoor Location Estimation Method**
Wei Xiong
7. **3D Simulation-based Scenario Generation Method**
Kenji Gimura

18:00 - **Banquet [HALL-B]**

Day 2, January 13, 2016 (Wednesday)

- 09:00-12:00 Local Arrangement Committee Meeting
- 13:00-15:00 Organizing Committee Meeting I
- 16:00-17:00 Executive Meeting I - Organized by Global IT 2016

Day 3, January 14, 2016 (Thursday)

- 09:00-12:00 Organizing Committee Meeting II
- 13:00-15:00 Executive Meeting II - Organized by Global IT 2016
- 16:00-17:00 Organizing Committee Meeting III

Conference Venue



University of Hawaii at Manoa

<http://manoa.hawaii.edu>

Conference:

Room CC203 at Campus Center, University of Hawaii at Manoa

Address:

Campus Center 2465 Campus Rd
Honolulu, HI 96822, USA

