The 2015 Global Conference on Information Technology, Computing, and Applications (Global IT 2015)

January 13 - 15, 2015

Las Vegas, USA

Organized by

Global IT

2015 International Conferences

- **December 16-19, Kota Kinabalu, Malaysia**

  -The 7th FTRA International Conference on Computer Science and its Applications (CSA-15)

  -The 10th International Conference on Ubiquitous Information Technologies and Applications (CUTE-15)

- **Sept 16-18, Gwangju, Korea**

  -The 8th International Conference on Human-centric Ubiquitous Computing and Applications (HumanCom 2015)

  -The 13rd IEEE International Conference on Embedded Computing (EmbeddedCom 2015)

  -The 13rd IEEE International Conference on Pervasive, Intelligence and Computing (PiCom 2015)

  -The 13rd IEEE International Conference on Dependable, Autonomic and Secure Computing (DASC 2015)

  -The 7th FTRA International Conference on Creative Converged IT (CCIT 2015)

- **July 8-10, Jeju, Korea (Hosted by S/W Research Group @ KIPS)**

  -The 7th FTRA International Conference on Information Technology Convergence and Services (ITCS 2015)

  -The 2015 International Conference on Advanced Information Technology and Services (InfoTech 2015)

  -The 12nd FTRA International Conference on Secure and Trust Computing, data management, and Applications (STA2015)

  -The 4th FTRA International Conference on Ubiquitous Computing Applications and Wireless Sensor Network (UCAWSN-15)

- **May 18-20, 2015, Hanoi, Vietnam**

  -The 10th FTRA International Conference on Future Information Technology (FutureTech 2014)

  -The 9th FTRA International Conference on Multimedia and Ubiquitous Engineering (MUE 2014)

  -The 2015 FTRA International Conference on advanced Mechanical and Industrial engineering, and Control Systems (MICS-14)

- **Middle of April, Busan**

  -WNGS-15 (Hosted by Prof. Deokgyu Lee)

- **March 24-27, Gwangju, Korea**

  -The 29th IEEE International Conference on Advanced Information Networking and Applications (AINA 2015)

- **February 23-26, Jeju, Korea**

  -The 5th International Conference on Advanced Intelligent Mobile Computing (AIM 2015)

  -The 2015 International Conference on Advanced Computing and Services(ACS 2015)

  -The 6th FTRA International Symposium on Advances in Computing, Communications, Security, and Applications (ACSA 2015)

  -The 2014 International Workshop on Advanced Multimedia Computing (AMC 2015)

Message from the Global IT 2015 General Chairs

The 2015 Global Conference on Information Technology, Computing, and Applications (Global IT 2015) will be held in Las Vegas, USA, January 13~15, 2015. Global IT 2015 will be the most comprehensive conference focused on Information Technology, computing, and applications. Global IT 2015 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 2015 General Chairs

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

Message from the Global IT 2015 Program Chairs

Welcome to the 2015 Global Conference on Information Technology, Computing, and Applications (Global IT 2015) which will be held in Las Vegas, USA, January 13~15, 2015. Global IT 2015 will be the most comprehensive conference focused on the various aspects of advances in Information Technology, computing, and applications.

Global IT 2015 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 2015 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 IT 2015 General Chairs, Hamid R. Arabnia (The University of Georgia, USA), Gangman Yi (Gangneung-Wonju National University, Korea), and Ivan Stojmenovic (University of Ottawa, Canada) for their advices to make possible organization of Global IT 2015. We would like to express special thanks to execute members for their timely unlimited support.

Global IT 2015 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
Ivan Stojmenovic, University of Ottawa, Canada

Program Chairs

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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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Yong-Yoon Cho, Sunchon University, Korea
Weiwei Fang, Beijing Jiaotong University, China
Neil Y. Yen, The University of Aizu, Japan

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Invited Speaker

Shaping the Next-Generation Computing Paradigm – A human-centric perspective to the survival challenge in post-Internet era

Neil Y. Yen

Professor
The University of Aizu, Japan

Abstract

With the supports of advanced computational network paradigms, people tend to make themselves available online, which often manifests their willingness of placing almost everything (e.g., data, private information) on the Internet. This leads to the increasing dependency on more and more complex computer networking paradigms and associated techniques. However, it is never possible to obtain systems, even human beings with relative good relationship that is fully trustable or dependable. Thus issues concerning the survivability of humans in such environment, especially in emergency scenarios, remains a challenging issue. From this perspective, we introduce a new computing paradigm, named Independent Computing, to study means, ways, mechanisms that prompts humans to be relatively independent of the present computing paradigms. We do not intent to separate the human and technology, but attempt to understand the perfect co-existence among them instead. These means, ways or mechanisms are also machines, but they should not be dependent entirely on the computing paradigms.

This talk will address the issues related to new (and multi-disciplinary as well) computing paradigms that prevent potential threats caused by uncertain future (e.g., natural disasters, human beings themselves, etc.) and the extensive dependence on the Internet and computer networks. Interdisciplinary issues are expected to be the focus of the symposium. Three major portions will be covered: (1) How can humans be shielded from the potential damage caused by the excessive information overload through various computer and internet channels; (2) How can human beings survive if the infrastructures of network and information are significantly damaged due to natural disasters (e.g., earthquake, tsunami,) or caused by adversary human activity (e.g., hacking, terrorist attacks); and (3) How can human beings survive if the Internet or part of it becomes self-aware (e.g., using our data without permission, trying to control human behaviors, etc.), and turns against human beings..

Biography

Dr. Neil Y. Yen received his doctorates in Human Sciences at Waseda University, Japan, and in Engineering at Tamkang University, Taiwan. He joined the University of Aizu since April, 2012. He has been engaged in the interdisciplinary research domains including computer science and engineering, information management and human informatics. His research interests are primarily in the realm of big data sciences, computational intelligence, and human-centered computing where both theoretical and practical issues are concentrated. Dr. Yen serves as execution coordinator of ACTC in IEEE SMCS, as managing editor of HCIS, and as key representatives in several academic activities including book-editing, conference-organizing, etc. He has been published many papers in international journals and conferences.

PROGRAM SCHEDULE FOR GLOBAL IT 2015

Day 1, January 13, 2015		
Time	**Min**	**HALL -A**
08:40-09:00	20	**Registration**
09:00-10:30	90	**Session 1** **Chair : Hwamin Lee**
10:30-10:40	10	**Coffee Break**
10:40-12:10	90	**Session 2** **Chair : Deok Gyu Lee**
12:10-13:30	80	**Lunch**
13:30-14:30	60	**Session 3** **Chair : Jung Im**
14:30-14:40	10	**Coffee Break**
14:40-16:10	90	**Session 4** **Chair : Hwamin Lee**
16:10-16:20	10	**Coffee Break**
16:20-18:00	100	**Session 5** **Chair : Jung Joon-Young**
19:00-21:00	110	**Banquet (HALL B)**

Day 2, January 14, 2015		
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 2015

[ONLY FOR INVITED MEMBERS]

Day 3, January 15, 2015		
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 2015
16:00-17:00	60	TBA

[ONLY FOR INVITED MEMBERS]

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.**

DETAILED SCHEDULE FOR
THE 2015 GLOBAL CONFERENCE ON
INFORMATION TECHNOLOGY, COMPUTING,
AND APPLICATIONS (GLOBAL IT 2015)

January 13, 2015 (Thuseday)

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

09:00-10:30   <u>Session 1</u>
(HALL A)
(Chair: Hwamin Lee)

1. **Study on speech recognition system denoising algorithm based on EMD**
   Jing Xinxing, Zhong Jinliang, Yang Haiyan, Zhou Ping
2. **Reduction of Media Servers Overload with Energy-saving Adaptive Streaming**
   Ko Kwangman, Cho Yeongpil, Oparin Mikhail, Paek Yunheung
3. **Concept-based Compound Keyword Extraction**
   Lee Samuel Sangkon
4. **Needs for the establishment of special legislation for preventing infringement of privacy by using the movie recording function in smart devices**
   Lee Juyoung, Nam Choi, Lee Kyungho
5. **A Study on Exercise Guide Information System UsingBio-Signal for Rehabilitation Training Program**
   Lypengleang Seang, Jeong ChangWon, Joo SuChong
6. **A Study of a Licensing Verification ServiceAimed at Preventing Illegal Copies of Contents Distributed Through Web App Stores**
   Jo Inhee, Shin Suhong, Jin Seunghee, Oh Sungheun
7. **Proxy based Mobility Management Scheme for Transportation Environment**
   Daewon Lee, Jaehwa Chung, Hwamin Lee
8. **The NetCamo Data Communication System**
   Haraty Ramzi, Zantout Bassam

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

10:40-12:10   <u>Session 2</u>
(HALL A)
(Chair: Deok Gyu Lee)

1. **Study on international judicial assistance center to cope with cybercrime**
   Ko Mooseong, Lee Heejoo, Lee Kyungho
2. **A Study on Intellectual Property Rights Infringement in the Cyber Space : Focused on Personal Websites**

Yun JangHo, Jo InHyun, Lee KyungHo

3. **Graphical programming of new generation. Single universal graphical shell for all programming languages**
   Igor Velbitsky

4. **A Fault Tolerant Election Protocol in Asynchronous Distributed Systems with Fail-Stop Model**
   Park Sung-Hoon

5. **Patient Status-Based Dynamic Access System for Medical Information**
   Kim WooHong, Lee SungGwon, Jeong ChangWon, Yoon KwonHa, Joo SuChong

6. **An Efficient and Secure Mutual Authentication Application for Patient in U- Healthcare System**
   Ndibanje Bruce, Sain Mangal, Lee HoonJae

7. **Ultra-heterogeneous Mobile Computing**
   La HyunJung, Kim SooDong

8. **A Protection Method of Mobile Sensitive Data and Applications over Escrow Service**
   Su-Wan Park, Deok Gyu Lee, Jeong Nyeo Kim

9. **ICT Convergenced Agriculture Supporting System for Chilli Harvestment**
   Min Choi, Young-Hwan Byun, Chang-Soo Kim, Jong-Hyuk Park

12:10-13:30   Lunch break

13:30-14:30   Session 3
(HALL A)
(Chair: Jung Im)

1. **Accuracy Improvement Method for Measuring String Similarity in POI Data Retrieval in Navigation**
   Ko Eunbyul, Lee Jongwoo

2. **Optimal Energy Consumption Scheduling for the Smart Grid Considering Storage Appliance: A Game-Theoretic Approach**
   Yeo Sangmin, Lee Deok-Joo, Kim Taegu

3. **ARPC: RPC Framework for Android Devices**
   Jeong Kihyun, Kang HeeEun, Lee Kwonyong, Park Sungyong

4. **Hierarchical Clustering using One-Class Support Vector Machines**
   Lee Gyemin

5. **A Simple Location Tracking using Snapshot for IoT**
   Lee Eung-Jong, Kim Cheol-Hong, Jung Im

6. **Incremental Processing for Massive Security Event Aggregation**
   Jinoh Kim, Ilhwan Moon, Kyungil Lee, Sang C. Suh, Ikkyun Kim

7. **A Post-accident Handling System for Traffic Environments**
   JeongKyu Lee, WonMin Kang, JongHyuk Park

8. **A Location Recommendation Scheme Considering Companions in Social Network Environments**
   Kyoungsoo Bok, Jaehong Cha, Jongtae Lim, Jaesoo Yoo

9. **A Group Recommendation Scheme Using Dynamic User Profiles in Social Networks**
   Kyoungsoo Bok, Heetae Yang, Jongtae Lim, Jaesoo Yoo

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

14:40-16:10   <u>Session 4</u>
(HALL A)
(Chair: Hwamin Lee)

1. **Design of Cooperative Robot Teaching Assistants in a Kindergarten**
   You SuJeong, Han JaeSung, Lee SangMoo, Ji SangHoon, Cho HyeKyung
2. **An Internet of Things Framework for Integrating Heterogeneous Data/Event/Service in Smart Environments**
   Yim Hyung-Jun, Lee Kyu-Chul
3. **On HIP-integrated Handoff Scheme Based on Multicasting Support in Proxy Mobile IPv6 Networks**
   Choi Jae-Young, Jeong Jongpil
4. **Data collecting scheme in wireless sensor networks**
   Kim Sungsuk, Gil Joon-Min, Yang SunOk
5. **Analysis of Adhesion Force of Climbing Robot for Wall Inspection**
   Kim Taewhan, Park Joowhan, Shin Jaewoong, Kim Sanghoon
6. **Analysis of a Case Study of FDA Adverse Events Regarding Depression**
   Jin Hoon, Lee Ji-Hyung
7. **Efficient Visualization Scheme with Augmented Reality on Smart Device**
   Jun-Ho Kim, Hyun-Woo Kim, Young-Sik Jeong
8. **Evaluation of Brainstem Auditory Evoked Response in 2 Dogs and 1 Cat**
   Byeong-Teck Kang, Min Choi
9. **Realtime multimedia data transfer mechanism in heterogeneous monitoring systems**
   Hansol Ji, Min Choi, Namgi Kim
10. **Hierarchical Configuration Strategy for Digital Signage**
    Wonjae Lee, Jong-Hyuk Park, Min Choi

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

16:20-18:20   <u>Session 5</u>
(HALL A)
(Chair: Jung Joon-Young)

1. **Security Mechanisms for Copyright Protection of HTML5-based Web Application Packages**
   Jin Sungheun, Jo Inhee, Shin Su-hong, Oh Sunheun
2. **Zone Awareness Algorithm using Wireless Signal for Zone Based Service**
   Jung Joon-young, Kang Dong-oh, Choi Jang-ho, Bae Changseok, Kim Dae-young
3. **An energy-aware hybrid cache management technique**
   Jonghee M Youn, Doosan Cho
4. **Enhancing Immediate Instructions with Dynamic Implied Addressing Mode**
   Jonghee M Youn, Doosan Cho
5. **Fast Generation of Exploded-View for Medical Applications**
   Dongsoo Kang, Byeong-Seok Shin
6. **Accelerating Terrain Ray-casting Method using GPU-based Shell Subdivision**
   Eun-Seok Lee, Jin-Hee Lee, Byeong-Seok Shin

7. **Interactive Exploded-View Generation using Block-based Re-rendering**
   Dongsoo Kang, Byeong-Seok Shin
8. **Motivation-based Behavior Generator for Smart House Simulation**
   Wonsik Lee, Seoungjae Cho, Sumi Helal, Wei Song, Kyungeun Cho
9. **Remote Live Holographic Projection System Design and Implementation**
   Wei Song, Mingyun Wen, Weiqiang Zhang, Jiaxue Li, Yulong Xi, Kyhyun Um, Kyungeun Cho
10. **Context-Aware Social Support System for Medication Adherence in Chronic Illnesses**
    Bezabih Alemitu, Kim Taehun, Hyun Soon Joo

19:10-21:00   Banquet [HALL-B]

Day 2, January 14, 2015 (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 2015

Day 2, January 14, 2015 (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 2015

Conference Venue

University of Nevada, Las Vegas
UNLV Student Union, Meeting Room 213 & 208C

University of Nevada, Las Vegas
4505 S. Maryland Pkwy.
Las Vegas, NV 89154

Directions to UNLV

From McCarran Intl. Airport
Take the Swenson Street exit towards Tropicana Avenue
Go East (right) on Tropicana Avenue
Go North (left) on Maryland Parkway
Go West (left) on Harmon Avenue/Maude Fraizer Way

From Southern California
Take Interstate 15 North
Once in city limits, exit onto Interstate 215 East
Take McCarran International Airport exit
Exit Russell Road East (right)
Go North (left) on Maryland Parkway
Go West (left) on Harmon Avenue/Maude Frazier Wayv

From Arizona
Take US 93/Interstate 515 North
Once in city limits, exit onto Interstate 215 West
Take McCarran International Airport exit
Exit Russell Road East (right)
Go North (left) on Maryland Parkway
Go West (left) on Harmon Avenue/Maude Fraizer Way

From Utah
Take Interstate 15 South
Once in city limits, exit onto Flamingo Road East (left)
Go South (right) on Maryland Parkway
Go West (right) on Harmon Avenue/Maude Frazier Way