The 9th International Conference on Computer Science and its Applications (CSA 2017)
&
The 12th KIPS International Conference on Ubiquitous Information Technologies and Applications (CUTE 2017)

December 18-20, 2017
Taichung, Taiwan

Organized by

KIPS CSWRG

KIPS
Korea Information Processing Society

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Computer Software Research Group

Conferences

The 2018 Global Conference on Information Technology, Computing, and Applications (GlobalIT 2018)
- January 15-17 2018, Manila, Philippines.
- http://www.globalitconf.org/2018

The 2018 World Congress on Information Technology Applications and Services "Advanced Mobile, Communications, Security, Multimedia, Vehicular, Cloud, IoT, and Computing" (WorldIT Congress 2018 Jeju)
- February 20-22 2018, Jeju, Korea.
- http://www.worlditcongress.org/2018

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

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

Message from the CSA 2017 General Chair

International Conference on Computer Science and its Applications (CSA 2017) is the 9th event of the series of international scientific conference. This conference takes place Taichung, Taiwan, Dec. 18 - 20, 2017. CSA 2017 will be the most comprehensive conference focused on the various aspects of advances in computer science and its applications. CSA 2017 will provide an opportunity for academic and industry professionals to discuss the latest issues and progress in the area of CSA. In addition, the conference will publish high quality papers which are closely related to the various theories and practical applications in CSA. Furthermore, we expect that the conference and its publications will be a trigger for further related research and technology improvements in this important subject. CSA 2017 is the next event in a series of highly successful International Conference on Computer Science and its Applications, previously held as CSA 2016 (8th Edition: Bangkok, Thailand, 2016), CSA 2015 (7th Edition: Cebu, December, 2015), CSA 2014 (6th Edition: Guam, December, 2014), CSA 2013 (5th Edition: Danang, December, 2013), CSA 2012 (4th Edition: Jeju, November, 2012), CSA 2011 (3rd Edition: Jeju, December, 2011), CSA 2009 (2nd Edition: Jeju, December, 2009), and CSA 2008 (1st Edition: Australia, October, 2008).

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 Steering Chairs: James J. (Jong Hyuk) Park (SeoulTech, Korea), Yi Pan (Georgia State University, USA), Han-Chieh Chao (National Ilan University, Taiwan), Young-Sik Jeong (Dongguk University, Korea), Vincenzo Loia (University of Salerno, Italy).

Our special thanks go to the Program Chairs: Yunsick Sung (Dongguk University, Korea), Arun Kumar Sangaiah (VIT University, India), Mu-Yen Chen (National Taichung University of Science and Technology, Taiwan), Houcine Hassan (Universitat Politècnica de València, Spain), Wei Song (North China University of Technology, China) 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.

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Ka Lok Man, Xi'an Jiaotong-Liverpool University, China
Victor Leung, The University of British Columbia, Canada
Ching-Hsien Hsu, Chung Hua University, Taiwan

Message from the CSA 2017 Program Chairs

Welcome to the 8th International Conference on Computer Science and its Applications (CSA 2017) which will be held in Bangkok, Thailand, Dec. 18 - 20, 2017. CSA 2017 will be the most comprehensive conference focused on the various aspects of advances in computer science and its applications.

CSA 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. CSA 2017 is the next event in a series of highly successful International Conference on Computer Science and its Applications, previously held as CSA 2016 (8th Edition: Bangkok, Thailand, 2016), CSA 2015 (7th Edition: Cebu, December, 2015), CSA 2014 (6th Edition: Guam, December, 2014), CSA 2013 (5th Edition: Danang, December, 2013), CSA 2012 (4th Edition: Jeju, November, 2012), CSA 2011 (3rd Edition: Jeju, December, 2011), CSA 2009 (2nd Edition: Jeju, December, 2009), and CSA 2008 (1st Edition: Australia, October, 2008).

CSA 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 Prof. James J. (Jong Hyuk) Park, Prof. Yi Pan, Prof. Han-Chieh Chao, Prof. Young-Sik Jeong, and Prof. Vincenzo Loia the Steering Committee Chairs of CSA for their strong encouragement and guidance to organize the symposium. We would like to thank CSA 2017 General Chair, Prof. Gangman Yi, Prof. Kim-Kwang Raymond Choo, Prof. Ka Lok Man, Prof. Victor Leung, Prof. Ching-Hsien Hsu. We would like to express special thanks to committee members for their timely unlimited support.

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Message from the CUTE 2017 General Chairs

On behalf of the organizing committees, it is our pleasure to welcome you to the 12th International Conference on Ubiquitous Information Technologies and Applications (CUTE 2017), will be held in Taichung, Taiwan on December 18-20, 2017.

This conference provides an international forum for the presentation and showcase of recent advances on various aspects of ubiquitous computing. It will reflect the state-of-the-art of the computational methods, involving theory, algorithm, numerical simulation, error and uncertainty analysis and/or novel application of new processing techniques in engineering, science, and other disciplines related to ubiquitous computing.

The papers included in the proceedings cover the following topics: Ubiquitous Communication and Networking, Ubiquitous Software Technology, Ubiquitous Systems and Applications, Ubiquitous Security, Privacy and Trust. Accepted papers highlight new trends and challenges in the field of ubiquitous computing technologies. We hope you will find these results useful and inspiring for your future research.

We would like to express our sincere thanks to Steering Committees: James J. Park (SeoulTech, Korea), Young-Sik Jeong (Dongguk University, Korea), Doo-Soon Park (SoonChunHyang University, Korea), Laurence T. Yang (St.Francis Xavier University, Canada), Hai Jin (Huangzhong University of Science and Technology, China), Chan-Hyun Youn (KAIST, Korea), Jianhua Ma (Hosei University, Japan), Minyi Guo (Shanghai Jiao Tong University, Japan), and Weijia Jia (City University of Hong Kong, Hong Kong). We would also like to express our cordial thanks to the Program Chairs & Program Committee members for their valuable efforts in the review process, which helped us to guarantee the highest quality of the selected papers for the conference.

Finally, we would 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.

CUTE 2017 General Chairs

Sanghoon Kim, Hankyong National University, Korea
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Luis Javier Garcia Villalba, Universidad Complutense de Madrid, Spain
Yu-Chen Hu, Providence University, Taiwan
Che-Lun Hung, Providence University, Taiwan
Jason C. Hung, Oversea Chinese University, Taiwan
Gangman Yi, Dongguk University, Korea

Message from the CUTE 2017 Program Chairs

Welcome to the 12th International Conference on Ubiquitous Information Technologies and Applications (CUTE 2017), will be held in Taichung, Taiwan on December 18-20, 2017.

The purpose of the CUTE 2017 conference is to promote discussion and interaction among academics, researchers and professionals in the field of ubiquitous computing technologies. This year the value, breadth, and depth of the CUTE 2017 conference continues to strengthen and grow in importance for both the academic and industrial communities. This strength is evidenced this year by having the highest number of submissions made to the conference.

For CUTE 2017, we received a lot of paper submissions from various countries. Out of these, after a rigorous peer review process, we accepted only high-quality papers for CUTE 2017 proceeding, published by the Springer. All submitted papers have undergone blind reviews by at least two reviewers from the technical program committee, which consists of leading researchers around the globe. Without their hard work, achieving such a high-quality proceeding would not have been possible. We take this opportunity to thank them for their great support and cooperation.

We would also like to sincerely thank the following invited speakers who kindly accepted our invitations, and, in this way, helped to meet the objectives of the conference:

- Chin-Chen Chang, Ph.D., Professor at Feng Chia University Taichung, Taiwan

Finally, we would like to thank all of you for your participation in our conference, and also thank all the authors, reviewers, and organizing committee members. Thank you and enjoy the conference!

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Jin Wang, Yangzhou University, China
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Hong-Wook Huh, Pusan National University, Republic of Korea
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Local Arrangement Chairs
Chih-Hung Chang, Providence University, Taiwan
Tsan-Ching Kang, Providence University, Taiwan

Invited Speaker

Turtle Shell Based Information Hiding Mechanism

Chin-Chen Chang, Ph.D.

Professor at Feng Chia University Taichung, Taiwan

Abstract:
Steganography is the science of secret message delivery using cover media. A digital image is a flexible medium used to carry a secret message because the slight modification of a cover image is hard to distinguish by human eyes. In this talk, I will introduce some novel steganographic methods based on different magic matrices. Among them, one method that uses a turtle shells magic matrix to guide cover pixels modification in order to imply secret data is the newest and the most interesting one. Experimental results demonstrated that this method, in comparison with previous related works, outperforms in both visual quality of the stego image and embedding capacity. In addition, I will introduce some future research issues that derived from the steganographic method based on the magic matrix.

Biography:
Professor C.C. Chang was born in Taichung, Taiwan on Nov. 12th, 1954. He obtained his Ph.D. degree in computer engineering from National Chiao Tung University. He's first degree is Bachelor of Science in Applied Mathematics and master degree is Master of Science in computer and decision sciences. Both were awarded in National Tsing Hua University. Dr. Chang served in National Chung Cheng University from 1989 to 2005. His current title is Chair Professor in Department of Information Engineering and Computer Science, Feng Chia University, from Feb. 2005. Prior to joining Feng Chia University, Professor Chang was an associate professor in Chiao Tung University, professor in National Chung Hsing University, chair professor in National Chung Cheng University. He had also been Visiting Researcher and Visiting Scientist to Tokyo University and Kyoto University, Japan. During his service in Chung Cheng, Professor Chang served as Chairman of the Institute of Computer Science and Information Engineering, Dean of College of Engineering, Provost and then Acting President of Chung Cheng University and Director of Advisory Office in Ministry of Education, Taiwan. Professor Chang's specialties include, but not limited to, data engineering, database systems, computer cryptography and information security. A researcher of acclaimed and distinguished services and contributions to his country and advancing human knowledge in the field of information science, Professor Chang has won many research awards and honorary positions by and in prestigious organizations both nationally and internationally. He is currently a Fellow of IEEE and a Fellow of IEE, UK. On numerous occasions, he was invited to serve as Visiting Professor, Chair Professor, Honorary Professor, Honorary Director, Honorary Chairman, Distinguished Alumnus, Distinguished Researcher, Research Fellow by universities and research institutes. He also published over 1,100 papers in Information Sciences. In the meantime, he participates actively in international academic organizations and performs advisory work to government agencies and academic organizations.

PROGRAM SCHEDULE FOR CSA & CUTE 2017

Day 1, December 18 , 2017					
Time	**Min**	**HALL A**	**HALL B**	**HALL C**	**HALL D**
08: 40-09: 00	20	**Registration**			
09: 00-10: 30	90	**Session A-1** **CUTE** **Chair: Suchong Joo**	**Session B-1** **SDNMC** **Chair: KwangMan Ko**	**Session C-1** **CSA** **Chair: Byoung Wook Kim**	**Session D-1** **SLLS** **Chair: Mincheol Whang**
10: 30-10: 40	10	**Coffee Break**			
10: 40-12: 10	90	**Session A-2** **CUTE** **Chair: Young-Hoon Park**	**Session B-2** **HRH** **Chair: Jun-Ho Huh**	**Session C-2** **CSA** **Chair: Byoung Wook Kim**	**Session D-2** **SLLS** **Chair: Mincheol Whang**
12: 10-13: 30	80	**Lunch**			
13: 30-14: 30	60	**Keynote: Chin-Chen Chang, Ph.D.** **Professor at Feng Chia University Taichung, Taiwan**			
14: 30-14: 40	10	**Coffee Break**			
14: 40-16: 10	90	**Session A-3** **CUTE** **Chair: Jungho Kang**	**Session B-3** **ATFC** **Chair: Yoo-Joo Choi**	**Session C-3** **CSA** **Chair: Young-Hoon Park**	**Session D-3** **NGFS** **Chair: Deok Gyu Lee**
16: 10-16: 20	10	**Coffee Break**			
16: 20-17: 50	90	**Session A-4** **CUTE** **Chair: Jungho Kang**	**Session B-4** **SPOCCD** **Chair: Hsuan-Fu Wang**	**Session C-4** **CSA** **Chair: Yunsick Sung**	**Session D-4** **HRH** **Chair: Jun-Ho Huh**
18: 00-20: 00	120	**Reception**			

Day 2, December 19 , 2017					
Time	**Min**	**HALL A**	**HALL B**	**HALL C**	**HALL D**
08: 40-09: 00	20	**Registration**			
09: 00-10: 30	90	**Session A-5** **CUTE** **Chair: Kwang-il Hwang**	**Session B-5** **IRuH** **Chair: Seokhoon Kim**	**Session C-5** **CSA** **Chair: Jaehwa Chung**	**Session D-5** **CUTE** **Chair: Kyung-Soo Lim**
10: 30-10: 40	10	**Coffee Break**			
10: 40-12: 10	90	**Session A-6** **CUTE** **Chair: Kwang-il Hwang**	**Session B-6** **IRuH** **Chair: Seokhoon Kim**	**Session C-6** **CSA** **Chair: Joon-Min Gil**	**Session D-6** **CSA** **Chair: Kyung-Soo Lim**
12: 10-13: 30	80	**Lunch**			
13: 30-15: 00	90	**Session A-7** **CUTE** **Chair: Young-Hoon Park**	**Session B-7** **ISWP** **Chair: Yunsick Sung**	**Session C-7** **CSA** **Chair: Joon-Min Gil**	**Session D-7** **SoReMo** **Chair: Jae-Young Choi**
15: 00-16: 00	60	**Break**			
16:00-		**Shuttle Bus to Tempus Hotel for Banquet**			
16: 00-18: 00	120	**Break**			
18: 00-20: 00	120	**Banquet**			

Day 3, December 20, 2017					
Time	**Min**	**HALL A**	**HALL B**	**HALL C**	**HALL D**
10: 00-12: 00	120	**CSA - Organizing Committee Meeting**			
13: 00-15: 00	120	**CUTE - Organizing Committee Meeting**			
15: 00-17: 00	60	**Local Arrangement Committee Meeting**			

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 9TH INTERNATIONAL CONFERENCE ON COMPUTER SCIENCE AND ITS APPLICATIONS (CSA 2017) & THE 12TH KIPS INTERNATIONAL CONFERENCE ON UBIQUITOUS INFORMATION TECHNOLOGIES AND APPLICATIONS (CUTE 2017)

Day 1, December 18, 2017 (Monday)

08: 30-09: 00 Registration

09: 00-10: 30 Session A-1 : CUTE
(HALL A)
(Chair: Suchong Joo)

1. **Continuous-Time Estimation Filtering with Incorporation of Temporary Model Uncertainty**
   Pyung Soo Kim
2. **Design and Implementation of a Wearable Device for the Blind by using Deep Learning based Object Recognition**
   Bongjae Kim, Hyuntae Seo, Jeong-Dong Kim
3. **Glove type Air Mouse powered by Kalman Filtering and Complementary Filtering**
   Jae Sung Choi, Won Jun Byoun, Ji Su Park, Min Hyung Lee, Ye Seul Kang, Hyun Lee
4. **IoT-based VR Service Model to Improve Exercise Capacity**
   Jeong-Dong Kim, Min-Gyu Park, Do-Yeon Ki, Bum-Hee Cho, Gil-Yong Lee, Bongjae Kim
5. **Multi-screen Patterns and Multi-device Experiences in Multi-screen Ecosystem**
   Geun-Hyung Kim
6. **A Study on resource scaling scheme for energy efficiency in cloud datacenter**
   A-Young Son, Eui-Nam Huh
7. **The Study of Classification Method Using Skyline for Educational Data**
   Jong-Hyeok Choi, Jeong-Hun Kim, Uygun Shadikhodjaev, Aziz Nasridinov

09: 00-10: 30 Session B-1 : SDNMC
(HALL B)
(Chair: KwangMan Ko)

1. **Software Defined Personal Area Network for Secure and Efficient File**

Management
Young-Hoon Park, Kwangman Ko

2. **A QoE based Trustable SDN Framework for IoT Devices in Mobile Edge Computing**
   Hamid Tahael, Nor Badrul Anuar, Rosdli Shalleh, Kwangman Ko, Suchong Joo
3. **Adaptive Opportunistic Routing over DTMANETS: Proposals and Issues**
   Javid Ali, Raja Wasim, Tahir Maqsood, Junaid Shuja, Soongohn Kim, Kwangman Ko
4. **Advertise based Adaptive Model for IoT device in Network Virtualization Environment**
   Yunhee Kang, Younghoon Park, Kwangman Ko
5. **Building the de-obfuscation platform based on LLVM**
   Jijhun Kim, Kwangman Ko, Jonghee Youn
6. **Energy Estimation Framework for IoT Devices in Mobile Edge Computing**
   Raja Wasim Ahmad, Soongohn Kim, KwangMan Ko, Young-Hoon Park

09: 00-10: 30 Session C-1 : CSA
(HALL C)
(Chair: Byoung Wook Kim)

1. **Cost Effective Online Traffic Engineering Algorithm on Inter-Datacenter**
   Jun Zhao, Congxiao Bao, Xing Li
2. **ICN Based Disaster Area Network Platform**
   Masashi Katsumata
3. **Analysis of agenda prediction according to big data based creative education performance factors**
   JiHoon Seo, Eunmi Cho, KilHong Joo
4. **Image-Based Malware Classification using Convolutional Neural Network**
   Kim Hae-Jung
5. **Deep Representation of Raw Traffic Data: An Embed-and-Aggregate Framework for High-Level Traffic Analysis**
   Woosung Choi, Jonghyeon Min, Taemin Lee, Kyeongseok Hyun, Taehyung Lim, Soonyoung Jung
6. **A Study on Traffic Signal Waiting Model Using Queuing Theory**
   JoongHoon Lee, HyuckJoong Yoon, Tae-Sun Chung
7. **Intrusion Detection in High-Speed Big Data Networks: A Comprehensive Approach**
   Kamran Siddique, Zahid Akhtar, Yangwoo Kim
8. **Measurement of Enterprise Smart Business Performance in a Smart Management Environment**
   Chui Young Yoon

09: 00-10: 30 Session D-1 : SLLS
(HALL D)
(Chair: Mincheol Whang)

1. **Multimedia Design Approaches by Just noticeable difference(JND) of**

Audiovisual Modalities
Suhhee Yoo, Mincheol Whang

2. **Usability Improvement of Life-logging Content Based on Gamification Factor**
   Sojung Kwak, Jieun Kwon
3. **The Relationships between Behavioral Patterns and Emotions in Daily Life**
   Hyunwoo Lee, Ayoung Cho, Youseop Jo, Mincheol Whang
4. **Correlation Analysis between Environmental Sound and Human Emotion**
   Min Woo Park, Hyeonsang Hwang, Eui Chul Lee
5. **Classification of Web Content by Category Generation in Social Life Logging**
   Youngho Jo, Heajin Kim, Hana Lee, Mincheol Whang
6. **Embodied Emotion Recognition System**
   Ayoung Cho, Hyunwoo Lee, Hyeonsang Hwang, Youseop Jo, Mincheol Whang
7. **Patterns of Cardiovascular and Behavioral Movements in Life-Logging According to Social Emotions**
   Hana Lee, Youngho Jo, Heajin Kim, Mincheol Whang

10: 30-10: 40 Coffee break

10: 40-12: 10 Session A-2 : CUTE
(HALL A)
(Chair: Young-Hoon Park)

1. **Ubiquitous Authentication and Authorization Mechanism for Enterprise Resources Acquisition**
   Mei-Yu Wu, Chih-Kun Ke, Ming-Ru Lee
2. **Hybrid sensing and behavior-aware in pedestrian hazard detection**
   Svetlana Kim, Yong-Ik Yoon
3. **Cross-cultural Touch-based SNS Interface Design for Elderly**
   Fanny Febriani Susilo, Jung-Ho Lee, Ji-Hyung Park, Jung-Min Park
4. **A Framework for Blockchain based Secure Smart Green House Farming**
   Akash Suresh Patil, Bayu Adhi Tama, Yongho Park, Kyung-Hyune Rhee
5. **Multi-Level Key Establishment with Space-Time Graphs for Delay Tolerant Networks**
   Jinyeong Kang, Inwhee Joe
6. **Comparison and Analysis of Operating System Fingerprinting Tools**
   JinHo Song, Yonggun Kim, Yoojae Won
7. **A Selective Data Protection Method using Encryption Folder in Public Cloud Environment**
   Minseok Sohn, Yoojae Won

10: 40-12: 10 Session B-2 : HRH
(HALL B)
(Chair: Jun-Ho Huh)

1. **Study on the Screen Design Technique for Designing Applications**
   Taewoo Kim, Sunyi Park, Jeongmo Yeo

2. **Study on the Business Process Design Method for Designing Applications**
   Sunyi Park, Taewoo Kim, Jeongmo Yeo
3. **A System Design for Application of Sound Color Conversion System on TV Music Programs**
   Jeongmin Lee
4. **Design of Mobile Atmospheric Pollution Monitoring System**
   Kyeongseok Park, Sungkuk Kim, Sojeong Lee, Kyoung-Sook Kim, Soyoung Hwang
5. **Simulator Design of Remote Synchronization Method for Onboard Clock**
   Donghui Yu, Soyoung Hwang
6. **A Network Clock Model for the Internet of Things**
   Soyoung Hwang, Dong-Hui Yu

10: 40-12: 10 Session C-2 : CSA
(HALL C)
(Chair: Byoung Wook Kim)

1. **Service Aware Orchestration for Dynamic Network Slicing in 5G Networks**
   Jeongyun Kim
2. **Improved Schedulability Analysis of Fixed-Priority for Mixed-Criticality Real-Time Multiprocessor Systems**
   Namyong Jung, Jinkyu Lee
3. **Analysis of the Elements of future development of Korean style Software Education through the Opinion Mining Technique**
   JiHoon Seo, KilHong Joo
4. **Design of Zigbee-BLE Gateway Direct Communication System for Smart Home Environment**
   Jae-Sung Shim, Hyung-Joon Kim, Nam-Uk Lee, Seok-Cheon Park
5. **Design of Automatic Source Code Generation based on User Pattern Definition**
   Seung-Su Yang, Hyung-Joon Kim, Nam-Uk Lee, Seok-Cheon Park
6. **Design of TDD-based Automation System for Android Application Test Automation**
   Min-Hyung Park, Hyung-Joon Kim, Young-Hwan Jang, Seok-Cheon Park
7. **Deep Learning based Spammer Detection in Social Networking Services**
   Shailendra Rathore, Byung Wook Kwon, Nam Yong Kim, Seo Yeon Moon, Jae Dong Lee, Jong Hyuk Park
8. **Job Scheduling verification simulator for high availability of mobile resources in MRM environment**
   Hyun-Woo Kim, Seungchul Kim, Jueun Jeon, Hoyong Kim, Mu He, Gisung Yu, Gangman Yi, Young-Sik Jeong

10: 40-12: 10 Session D-2 : SLLS
(HALL D)
(Chair: Mincheol Whang)

1. **The Two Dimensional Model of Social Emotion based on Social Life Logging**
   Heajin Kim, Youngho Jo, Hana Lee, Mincheol Whang
2. **Emotion Recognition through Cardiovascular Response in Daily life using**

KNN Classifier
Youseop Jo, Hyunwoo Lee, Ayoung Cho, Mincheol Whang

3. **Heart rate measurement using thermal imaging camera**
   Yosep Park, Yoonkyoung Kim, Jinman Kim, Eui Chul Lee
4. **Single-Camera Vision-Based Vein Biometric Authentication and Heart Rate Monitoring via Infrared Imaging Analysis**
   Hyun Han, Jinman Kim, Eui Chul Lee
5. **Automated verification method of Korean word handwriting using geometric feature**
   Woohyuk Jang, Sehee Kim, Yoonkyoung Kim, Eui Chul Lee
6. **Comparison of 2D&3D Performances of Facial Feature Analysis Using RGB-D Vision Sensor**
   Kunyoung Lee, Eui Chul Lee
7. **Convolutional Neural Network based Serial Number Recognition Method for Indian Rupee Banknotes**
   Unsoo Jang, Kun Ha Suh, Eui Chul Lee

12: 10-13: 30 Lunch

13: 30-14: 30 <u>Keynote Speech</u>
(HALL A)
(Chair: Kwang-il Hwang)

Turtle Shell Based Information Hiding Mechanism

Chin-Chen Chang, Ph.D.
Professor at Feng Chia University Taichung, Taiwan

14: 30-14: 40 Coffee break

14: 40-16: 10 <u>Session A-3 : CUTE</u>
(HALL A)
(Chair: Jungho Kang)

1. **An Analysis of Online Learning Tools based on Participatory Interaction: Focused the Minerva School Case Analysis**
   Dae Hyun Lee, Yen-Woo You, Yong Kim
2. **Ventricular Arrhythmia Classification Based on High-order Statistical Features of ECG Signals**
   Sunghyun Moon, Jungjoon Kim
3. **Compression and Variable-sized ECC scheme for the Reliable Flash Memory System**
   Ki-jin Kim, Seung-Ho Lim
4. **A New Direction-based Routing Protocol in WSNs**
   Kyeong Mi Noh, JiSu Park, Jin Gon Shon
5. **Multi-Chain PEGASIS in Wireless Sensor Networks Using Relative Distance**

and Differential Data Transfer
Bok Gi Min, JiSu Park, Jin Gon Shon

6. **Design and Implementation of an Enhanced Transaction Document Archive System**
   Hyun Cheon Hwang, JiSu Park, Jin Gon Shon

14: 40-16: 10 Session B-3 : ATFC
(HALL B)
(Chair: Yoo-Joo Choi)

1. **Multi-Scale Surface Curvature based on Mesh Simplification**
   Jaeyong Lee, Kyong-Ah Kim, Yoo-Joo Choi
2. **A Machine Learning Approach to Classification of Case Reports on Adverse Drug Reactions using Text Mining of Expert Opinions**
   Hyon Hee Kim, Ki Yon Rhew
3. **The Congestion Control Model for Unmanned Aircraft System Traffic Management**
   Jung-In Choi, Seung-Hyun Seo, Taenam Cho
4. **A Study on Local Consumer Behavior User Modeling for Extended O2O Services**
   Jinah Kim, Nammee Moon
5. **User Modeling based on Smart Media Eye Tracking depending on the Type of Interior Space**
   HyeJin Song, Nammee Moon
6. **Indoor Location Recognition System using RSSI and BSSID**
   Sunmin Lee, Nammee moon
7. **An Ontology-based Approach to Finding Influential Topics of Scientific Articles by Combining Topic Modeling and Social Network Analysis**
   Hyon Hee Kim, Hey Young Rhee
8. **Automatic base ontology generation from distributed domain knowledge**
   JungHyen Ahn, Young.B Park

14: 40-16: 10 Session C-3 : CSA
(HALL C)
(Chair: Young-Hoon Park)

1. **UBIQUITOUS LEARNING AND DIGITAL BADGES IN THE AGE OF HYPER-CONNECTIVITY**
   Yoonil Auh, Heejung Raina Sim
2. **Private Data Protection of Android Application**
   Jinseong Kim, Im Jung
3. **A Distributed inVANETs-Based Intersection Traffic Control Algorithm**
   Iman Saeed, Mourad Elhadef
4. **Sybil Attacks in Intelligent Vehicular Ad hoc networks: A Review**
   Aveen Muhamad, Mourad Elhadef
5. **The Development of General-Purpose 3-D Visualization Analyzer for Big Data Repository**

Jaesung Kim, Jeongcheol Lee, Sunil Ahn, Sik Lee, Kumwon Cho

14: 40-16: 10 Session D-3 : NGFS
(HALL D)
(Chair: Deok Gyu Lee)

1. **Hybrid OCR Approach for Reading Analog Meters**
   Kwang-il Hwang
2. **A study on Ownership Management Scheme Using Linkage of Data Blocks in Secure Data Deduplication Environments**
   Won-Bin Kim, Im-Yeong Lee
3. **Security Consideration of Fuzzy Vault based on Photoplethysmogram**
   Juyoung Kim, Kwantae Cho, Sang Uk Shin
4. **Recovery of Peak Misdetection for IPI-based Key Exchange**
   Juyoung Kim, Kwantae Cho, Yong-Kyun Kim, Kyung-Soo Lim, Sang Uk Shin
5. **Biometrics Service and Protection referring to EU GDPR**
   Boo-Geum Jung, Hun-Young Kwon, Jong-In Im
6. **Secure Data Deduplication Scheme Using Linkage of Data Blocks in Cloud Storage Environment**
   Won-Bin Kim, Im-Yeong Lee

16: 10-16: 20 Coffee break

16: 20-17: 50 Session A-4 : CUTE
(HALL A)
(Chair: Jungho Kang)

1. **An Integrated Evolutionary and Revolutionary Safety Analysis Methodology for Safety Critical Systems**
   Anit Thapaliya, Gihwon Kwon
2. **Extended Hierarchical Safety Analysis Safety Analysis for Software-intensive System**
   Daehui Jeong, Gihwon Kwon
3. **A Study on Local Consumer**
   Daehui Jeong, Gihwon Kwon
4. **Comparing IO Visor and Pcap for Security Inspection of Traced Packets from SmartX Box**
   Muhammad Ahmad Rathore, Aris Cahyadi Risdianto, Taekho Nam, JongWon Kim
5. **Understanding Automated Continuous Integration for Containerized Smart Energy IoT-Cloud Service**
   Chorwon Kim, Seungryong Kim, JongWon Kim
6. **Comparing the Effectiveness of SFMEA and STPA in Software-Intensive Railway Level Crossing System**
   Tung La-Ngoc, Gihwon Kwon
7. **Vision Based Humanoid Control Using FIR Filter**
   Kim Kwan Soo, Ahn Choon Ki

16: 20-17: 50 Session B-4 : SPOCCD
(HALL B)
(Chair: Hsuan-Fu Wang)

1. **The Development of a Caffe Deep Learning Framework**
   Chan-Fu Kuo, Hou Lin, Chao-Tung Yang, Jung-Chun Liu, Yu-Wei Chan
2. **On Construction of A Cloud-based Big Data Platform**
   Yuan-Ping Chiang, Ching-Fang Lee, Chao-Tung Yang, Chien-Heng Wu, Wen-Yi Chang, Whey-Fone Tsai, Yu-Wei Chan
3. **The Effects of IT System Factors and Social-Psychological Factors on Knowledge Sharing Intention: A Perspective of Theory of Planned Behavior**
   Yu-Wei Chuang, Shiuann-Shuoh Chen
4. **Measurement of Presbyopia by the Cover Test and the Brain Wave Patterns**
   Der-Chin Chen, Kuo-Yi Peng, Shih-Tsung Chang, Hsin-Chi Hsu and Feng-Ming Yeh
5. **Satisfaction, Loyalty and Continuance Intention of Mobile Game: Roles of Utilitarian and Hedonic Value**
   Yu-Wei Chuang
6. **A Preliminary Study of Driving Behaviors Analysis Based on Feature Selection**
   Mu-Song Chen, Chi-Pan Hwang, Hsuan-Fu Wang, Chih-Min Shih, Hsing-Yu Chen and Wen Kai Liu
7. **Optimum Starting Point of Refractive Error by Brain Wave Patterns and Fogging Method of Refraction**
   Der-Chin Chen, Chi-Chuan Fan, Ya-Chun Yu, Yung-Kuang Huangh and Kuang-Min Chen
8. **High Precision Laser Guide Device of Automatic Guided Vehicle**
   Der-Chin Chen, Wei-Hsin Chen, Lung-Chi Chien, Pin-Chao Tseng and Te-Chang Chen

16: 20-17: 50 Session C-4 : CSA
(HALL C)
(Chair: Yunsick Sung)

1. **Benchmark for efficient workload distribution between CPU and GPU according to the cache performance in on-die integration of GPU**
   Beomjun Kim, Byung-Seok Shin
2. **Developing Large amount of Data Conversion Algorithm in Hadoop for 3D printer**
   Sungsuk Kim, Joon-Min Gil, Sun Ok Yang, Kwangsik Chung, Heonchang Yu
3. **A Health Management Service in Preventive Care for the Elderly**
   Jian-Wei Li, Chang-Ju Yang, Chia-Ching Lin, Yi-Chun Chang, De-Yao Huang, Min-Xiong Xu
4. **A Novel Genome Searching Approach for Analyzing BLAST Results of Whole Targeted Reads**
   Jaehee Jung
5. **Proposal of Container-based HPC Structures and Performance Analysis**
   Yong Chanho, Na Sang-Ho, Lee Pill-Woo, Huh Eui-Nam
6. **An Expression-invariant Facial Image Retrieval using SIFT and Gabor-LBP**
   Sohee Park, Geonwoo Kim

7. **Design of Readability Enhancement Technique of Information Displayed through Electric Signboard**
   Phyoung Jung Kim, Sung Woong Hong
8. **Location based Attendance Verification for Retailers**
   Cheol Shim, Min Choi

16: 20-17: 50 Session D-4 : HRH
(HALL D)
(Chair: Jun-Ho Huh)

1. **Communication System of e-Navigation between Vessel and Shore utilizing Representation State Transfer at Sea**
   Teahoon Koh, Yonghoon Kim, Kamyoung Park, Jeongho Lee, Kyungryong Seo
2. **Traffic Prediction System utilizing Application and Control of Environmental Information**
   Yonghoon Kim, Mokdong Chung
3. **A Keyword-based Big Data Analysis for Individualized Health Activity Using Keyword Analysis Technique: A Methodological Approach Using National Health Data**
   Sangdo Lee, Le Hoanh Su, Jun-Ho Huh
4. **Construction of Clustering System-based Light-weight Test Bed Environment for Learners in Smart Grid Security Education Using Linux and Virtualization Technology**
   Jun-Ho Huh, Sangdo Lee, Kyungryong Seo
5. **The Effect of Business Environment Factors on Business Strategy and Business Performance**
   Wonhyun So, Hakyun Kim
6. **Corporate Social Responsibility and Its Effect on the Social Environment and Corporate Value**
   Wonhyun So, Hakyun Kim
7. **The Effect of Information Welfare Policies on the Activation of Information Welfare and Information Satisfaction**
   Wonguen So, Hakyun Kim
8. **Demand Response Resource Energy Optimization System for Smart Home**
   Sooyoung Jung, Jun-Ho Huh
9. **A Research on Demand Response Energy Optimization System for Smart Grid: Focusing on Commercial Buildings**
   Sooyoung Jung, Jun-Ho Huh

18: 00-20: 00 Reception

Day 2, December 19, 2017 (Tuesday)

08: 40-09: 00 Registration

09: 00-10: 30 Session A-5 : CUTE

(HALL A)
(Chair: Kwang-il Hwang)

1. **Prototype Implementation of Site Visibility Framework employing IO Visor-based Packet Tracing**
   Taekho Nam, JongWon Kim
2. **Analysis of Recent Mobile Payment Trends**
   Mansik Kim, Jungho Kang, Seokhong Min
3. **Deep Learning-Based Intrusion Detection Systems for Intelligent Vehicular Ad Hoc Networks**
   Ayesha Anzer, Mourad Elhadef
4. **Enhanced Image Identifier Generation based on Luminance and Parallel Processing**
   Mi-Eun Ko, Young B. Park, Je-Ho Park
5. **A Study on Technology Trends for Industry 4.0; 3D Printing, Artificial Intelligence, Big Data, Cloud Computing, and Internet of Things**
   Ki Woo Chun, Haedo Kim, Keonsoo Lee
6. **A Fairness Resource Allocation for UAV Telecommunication Networks**
   Wooyeob Lee, Daol Kim, Inwhee Joe

09: 00-10: 30 Session B-5 : IRuH
(HALL B)
(Chair: Seokhoon Kim)

1. **Security Mechanism in NFV using Light Weight PKI**
   Sangho Park, HyunJin Kim, Jaehyung Park, JaeCheol Ryou
2. **A Study on Adaptive Based HEVC 3D Multi-view Video Streaming over P2P Network**
   Linh Van Ma, Jin-Young Kim, Jonghyun Jang, Gwanghyun Yu, Jinsul Kim
3. **Traffic Classifier for Long Range IoT Networking to Reduce Processing Loads**
   Dae-Young Kim, Seokhoon Kim
4. **Automated Realization of Service Function Chaining in Distrubuted Cloud**
   Taeheum Na, Ho-Yong Ryu, Jinsul Kim, Jaehyung Park
5. **Performance Comparison between GPU and CPU in CNN Learning Process**
   EunKwang Jeon, JungYeon Seo, HwaMin Lee
6. **A preliminary study on gait recognition between hemiplegic patients and normal people using a textile capacitive pressure sensor**
   Changwon Wang, Jonggab Ho, Daegyeom Kim, Young Kim, Se Dong Min
7. **Algorithm for Cell Counting using Distance Transform and Radius Variation Analysis**
   Donggeun Kim , Seokhoon Jeong, Jaeyoung Park, Taehoon Kim, Kuk Won Ko, Sangjoon Lee
8. **Intelligent Access Control in Access Points of Wireless Sensor Networks**
   Dae-Young Kim, Seokhoon Kim
9. **A Study on Reducing Entropy Rate of Adaptive Streaming Bitrate Fluctuation**
   Linh Van Ma, Baeho Lee, YoungYun Lee, Sung-June Baek, Jinsul Kim

09: 00-10: 30 Session C-5 : CSA

(HALL C)
(Chair: Jaehwa Chung)

1. **The Hardware Design of 4x4 Block-based SAO for High-performance HEVC**
   Seungyong Park, Kwangki Ryoo
2. **Runtime Software Monitoring based on Binary Code Translation for Real-time Software**
   Kiho Choi, Seongseop Kim, Jeonghun Cho, Daejin Park
3. **A Lightweight Cryptographic Core for Encryption and Authentication**
   Dennis Gookyi, Kwangki Ryoo
4. **High Throughput ASIC Implementation of AES**
   Alexander O.A Antwi, Kwangki Ryoo
5. **Hardware Implementation of Elliptic Curve Integrated Encryption Scheme based on AES**
   Guard Kanda, Alexander Antwi, Kwangki Ryoo
6. **Efficient Hardware Design of Modular Exponentiation based on Montgomery Multiplier for Low Area RSA**
   Richard Boateng Nti, Kwangki Ryoo
7. **The Hardware Design of Adaptive Search Range Assignment for High Performance HEVC Encoder**
   Inhan Hwang, Kwangki Ryoo

09: 00-10: 30 Session D-5 : CUTE
(HALL D)
(Chair: Kyung-Soo Lim)

1. **Case Study of In-vehicle Infotainment Threat in Connected Car Environment**
   Joongyong Choi, Seong-il Jin
2. **The Implementation of Hand Detection using Convolutional Neural Network**
   Myeongsuk Pak, Sanghoon Kim
3. **Object Classifications in CCTV with Trajectory and Size Based on Neural Network**
   Taewoo Kim, Hyungheon Kim, Pyeongkang Kim, Yuna Lee
4. **Information Communication Technology Convergence for Solar Energy Utilization**
   Jihyun Lee, Youngmee Shin, Ilwoo Lee
5. **Advanced Altitude Control Strategy for Rapid Target Detection**
   Il-Kyu Ha
6. **High Precision Laser Guide Device of Automatic Guided Vehicle**
   Chen Der, Chen wei, Chien Lung, Tseng Pin, Chen Te
7. **Accelerated purge processes of parallel file system on HPC by using MPI programming**
   Min-Woo Kwon, JunWeon Yoon, TaeYoung Hong, ChanYeol Park

10: 30-10: 40 Coffee break

10: 40-12: 10 Session A-6 : CUTE
(HALL A)
(Chair: Kwang-il Hwang)

1. **A Study on K-means Algorithm based on PCA for Clustering of Multidimensional Non-labeling Big-data**
   Jung SeHoon, Kim KyoungJong, Sim ChunBo
2. **A staged parallel line-sweep method for fast visibility detection in virtual terrain**
   Hua Li, Chao Xu, Wei Quan, Jianping Zhao
3. **DoS Attacks and Countermeasures in VANETs**
   Wedad Ahmed, Mourad Elhadef
4. **Smart home energy management model based on awareness things**
   Hana Jo, Yong Ik Yoon
5. **A Study on the Method for Integrity Transmission Enhanced Security for Ship Information Database using A Unidirectional Security Gateway in GICOMS**
   Yong-Kyun Kim, Seoung-Hyeon Lee
6. **Modeling of Next-Generation Security Monitoring System Using Remote Forensic Analysis**
   Sangmoon Jung, Yoojae Won
7. **Artificial Intelligence-based IoT Security**
   Byung Wook Kwon, Jae Dong Lee, Jong Hyuk Park

10: 40-12: 10 Session B-6 : IRuH
(HALL B)
(Chair: Seokhoon Kim)

1. **Analysis of the GNSS Navigation Message**
   HyunJin Kim, JaeCheol Ryou
2. **A Study of Auto Focus Algorithm for Cell Health Status Analysis**
   Jaeyoung Park , Seokhoon Jeong, Donggeun Kim, Taehoon Kim, Kuk Won Ko, Sangjoon Lee
3. **A QoS Aggregation Mechanism for Virtual EPC using Service Chains**
   Taeheum Na, Ho-Yong Ryu, Su-il Choi, Yong Gwan Won
4. **A Multi-Path Security-aware Routing Scheme in Mobile Ad-hoc Networks**
   Seonhyuk Lee, Sung-Hoon Hong, Taeksoo Ji, Yong Kwan Won, Jaehyung Park, Tae Heum Na, PyungKoo Park, Ho Yong Ryu
5. **Open Source based Neutralized Network Operating System (OpenN2OS) for NFV platform**
   Changsik Lee, Hoyong Ryu
6. **A Research on an Intelligent Urban Disaster Control with an Integrated Management and Monitoring System Using IoT Smart Sensors**
   Linh Van Ma, Yonggwan Won, Taeksoo Ji, Sung-Hoon Hong, Jinsul Kim
7. **Android Application based practical implementation of Scream Recognition System**
   Gwanghyun Yu, Linh Van Ma, Sung-Hoon Hong, Jin-Young Kim, Jinsul Kim
8. **A Page Turner Application based on the OpenCV for Various Performing Artists**
   EunGyeong Kim, Seokhoon Kim

9. **Fairness Maximization aware Diversified Experts Recruitment for Crowdsourcing**
   Fei Hao, Doo-Soon Park

10: 40-12: 10 Session C-6 : CSA
(HALL C)
(Chair: Joon-Min Gil)

1. **The Lane Area Image-segmentation Algorithm Based on Statistics**
   Qi Qin, Xiaomei Xia, Yongtao Guo, Jin Wang
2. **Setting Method of Integrated Waiting Area at Signalized Intersection**
   Xiaomei Xia, Xiaodan Ma, Jin Wang
3. **Risk Analysis and Evaluation of Taxi Quota Adjustment**
   Jie Liu, Xiaodan Ma, Jin Wang
4. **Sensing Range Adaptive Coverage Control Algorithm based on Particle Swarm Algorithm for WSNs**
   Jin Wang, Yu Gao, Chunwei Ju, Gyeong-jin Kim, Jeong-Uk Kim
5. **Chinese Character Segmentation with Fully Convolutional Network**
   Li Lin, Jin Liu, Zhenkai Gu, Jin Wang, Gyeong-jin Kim, Jeong-Uk Kim
6. **Character Area Detection in Natural Background**
   Yunhui Li, Jin Liu, Jin Wang, Gyeong-jin Kim, Jeong-Uk Kim

10: 40-12: 10 Session D-6 : CSA
(HALL D)
(Chair: Kyung-Soo Lim)

1. **Application of outlier detection in bus digital tachograph data for estimating fuel consumption of intracity bus**
   Oh Hoon Kwon, Yongjin Park, Shin Hyoung Park
2. **A study on Ownership Management Scheme Using Linkage of Data Blocks in Secure Data Deduplication Environments**
   Won-Bin Kim, Im-Yeong Lee
3. **Security Consideration of Fuzzy Vault based on Photoplethysmogram**
   Juyoung Kim, Kwantae Cho, Sang Uk Shin
4. **Recovery of Peak Misdetection for IPI-based Key Exchange**
   Juyoung Kim, Kwantae Cho, Yong-Kyun Kim, Kyung-Soo Lim, Sang Uk Shin
5. **Location Privacy for HIP based Internet of Things**
   Kyung Choi, Mihui Kim

12: 10-13: 30 Lunch

13: 30-15: 00 Session A-7 : CUTE
(HALL A)
(Chair: Young-Hoon Park)

1. **Vehicular Architecture for lowering the Barriers to Applications of Cloud-Based Vehicular Network.**
   Lionel Nkenyereye, Jong-Wook Jang

2. **Analysis of Pixel and Sub-pixel Accurate Shadow Techniques**
   Hua Li, Huamin Yang, Chunyi Chen, Jianping Zhao
3. **Real-time Pose estimation using Fiducial Marker Detection for Efficient Collaboration between Drone and Ground Vehicle**
   Jong Hwan Beck, Myeong Suk Pak, Sang Hoon Kim
4. **A Reduction of Middle Letters Glyphs for Jeongeum-Font**
   Seongbum Hong, Hoyoung Kim, Gayeon Kim, Jeongyong Byun
5. **A Secure Operating System Architecture based on Linux against Communication Offense with Root Exploit for Unmanned Aerial Vehicle**
   Kwangmin Koo, Wooyeob Lee, Sung-Ryung Cho, Inwhee Joe
6. **Path Privacy Preservation using Threshold Secret Sharing via Distributed Obfuscators in Directions Search**
   Mihui Kim
7. **IPC Multi-label Classification Applying the Characteristics of Patent Documents**
   Sora Lim, YongJin Kwon

13: 30-15: 00 Session B-7 : ISWP
(HALL B)
(Chair: Yunsick Sung)

1. **Fast Animation Crowds using GPU Shaders and Motion Capture Data**
   Mankyu Sung
2. **Crash risk prediction on arterial roads using the k-Nearest Neighbors algorithm**
   Min Ji Kang, Oh Hoon Kwon, Shin Hyoung Park
3. **Improvement of Usability Assessment on User Satisfaction in Multiple Devices**
   Jeyoun Dong, Myunghwan Byun
4. **Linear Motion Guide-based SMART based Isolation Techniques for System-Level Designs**
   Chang ChunHo, Shin SangYoung
5. **Location and Movement-based Behavior Recognition Method for NUI/NUX**
   Jeonghoon Kwak, Ryong Choi, Joonmin Gil, Yunsick Sung
6. **System Identification of TRC Strengthen Beams using Big Data**
   Dohyueong Kim, Sungjig Kim, Chunho Chang, Siyun Kim

13: 30-15: 00 Session C-7 : CSA
(HALL C)
(Chair: Joon-Min Gil)

1. **Entity Attribute Extraction Based on Distant Supervision and LSTM**
   Xiaohu Tian, Jin Liu, Wenxi Yao, Jin Wang, Gyeong-jin Kim, Jeong-Uk Kim
2. **A Novel Feature Weighting Scheme Leveraging Emotional Words in Twitter Sentiment Analysis**
   Yili Wang, Le Sun, Jin Wang, Hee Yong Youn
3. **Hyperspectral Mixed Denoising via Cross Total Variation and Weighted Low Rank Decomposition**

Le Sun, Jin Wang, Byeungwoo Jeon

4. **Superpixel based Low Rank Representation in Spectral Difference Space for Hyperspectral Denoising**
   Le Sun, Jin Wang
5. **An Anomaly Detection Method Using Clustering Technology for Wireless Sensor Networks**
   Lian Xia, Chunyong Yin, Jin Wang
6. **An Improved Method in Deep Packet Inspection Based on Regular Expression**
   Ruxia Sun, Lingfeng Shi, Chunyong Yin, Jin Wang
7. **Application of Sub-lattice Binary Search in Personal Information Protection**
   Xiaokang Ju, Hongyi Wang, Chunyong Yin, Jin Wang

13: 30-15: 00 Session D-7 : SoReMo
(HALL D)
(Chair: Jae-Young Choi)

1. **The microComponent and its Extension Patterns for Flexible Reuse of Software Artifacts**
   Doohwan Kim, Jang-Eui Hong
2. **Using Code Skeleton Patterns for Open Source Reuse**
   Seungwoo Nam, Doohwan Kim, Jang-Eui Hong
3. **Toward Offline Contents based Software R&D Support System**
   Suntae Kim, Joongi Hong, Seounghan Song, Sangchul Choi, JeongAh Kim, Jae-Young Choi, Young-Hwa Cho
4. **Visualization Approach for R&D Monitoring – A Tracking of Research Contents Changes Perspective**
   Jae-Young Choi, Jong-Won Ko, Suntae Kim, Young-Hwa Cho
5. **Internet Articles Classification by Type of Industry Based on TF-IDF**
   Jonghun Cha, Jee-Hyong Lee
6. **System for the Researcher Map to Promote Convergence Research**
   Sangwon Hwang, Kangwon Seo, Woncheol Ryu, Youngkwang Nam
7. **Towards Recovering Fault Traceability Links by Using Information Retrieval Technique**
   Seungsuk Baek, Jung-Won Lee, Byungjeong Lee
8. **Defect Management Method for Content-based Document Artifact Test in Software R&D Project**
   Dusan Baek, Jong-Hwan Shin, Byungjeon Lee, Jung-Won Lee
9. **Association-based Process Integration for Compliance with Core Standards in Development of Medical Software**
   DongYeop Kim, Ye-Seul Park, Byungjeong Lee, Jung-Won Lee
10. **Toward Providing Automatic Program Repair by Utilizing Topic-based Code Block Similarity**
    Youngjun Jeong, Keyongsic Min, Geunseok Yang, Jung-Won Lee, Byungjeong Lee

15: 00-18: 00 Break

18: 00-20: 00 Banquet

Day 3, December 20, 2017 (Wednesday)

10:00-12:00 **CSA - Organizing Committee Meeting**

13:00-15:00 **CUTE - Organizing Committee Meeting**

15:00-17:00 **Local Arrangement Committee Meeting**

Conference Venue

Providence University Information

•Address: 200, Sec. 7, Taiwan Boulevard, Shalu Dist., Taichung City, 43301 Taiwan
•Phone: +886-4-2326-8008

HOW TO GET TO PROVIDENCE UNIVERSITY ?

I. By Car

A. Through National Freeway No.1
(Both Northbound and Southbound) Drive along National Free way No.1, then, take the exit at Jhonggang Interchange (178.6km) and follow the direction to Shalu. Drive along Taiwan Boulevard (about 11 km) and you'll see Providence University on the right.

B. Through National Freeway No.3
1. Northbound from National Freeway No.3, take the exit at Longjing Interchange (182.8 km) and follow the direction to Taichung, turn left at the first traffic light (about 700m after exit) and follow the direction to Shalu. Turn left at Taiwan Boulevard (about 4km) and you'll see Providence University on the right. 2. Southbound from National Freeway No.3, take the exit at Shalu Interchange (176.1 km) and follow the direction to Shalu then turn left at Taiwan Boulevard (about 2km) and you'll see Providence University on the left.

II. By Bus

A. From Chaoma Station
From Chaoma, take the local bus, such as Juye Bus (which goes to Dajia, Chingshuei,) or Dajiahang Bus. It takes about 20 minutes to get to Providence University.
B. From Taichung Train Station
From Taichung Train Station take Juye Bus (which goes to Dajia, Chingshuei, at Jianguo Road, get off at Providence University. It takes about 50 minutes to get to Providence University.

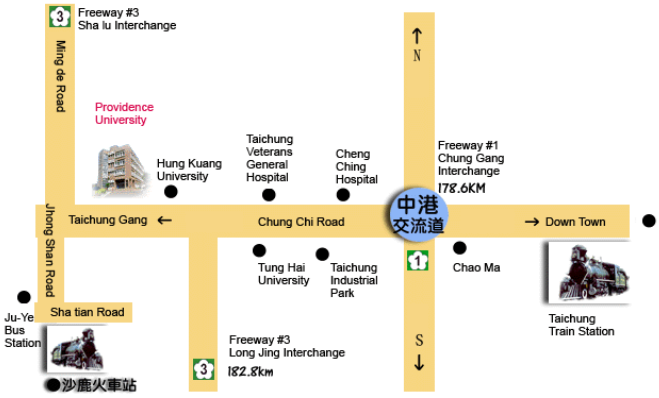
III. By Train (Taiwan Railway Administration Time Table Query System)

A. Mount Line
Get off at Taichung Station and take Juye Bus (which goes to Dajia, Chingshuei) at Jianguo Road, then get off at Providence University. It takes about 50 minutes to get to Providence University.

B. SEA Line
From Shalu Station, either take a taxi or a bus to Providence University.
(1) by taxi: It costs about NT$150.
(2) by bus: From Juye Bus Shalu Main Station at Jung Shang Rd. take the bus which goes to Taichung, then get off at Providence University. It takes about 10 minutes to get to Providence University.

IV. By Taiwan High Speed Rail

Get off at the Taichung Station. From Taichung Station, take a taxi to Providence University. It costs about NT$500.

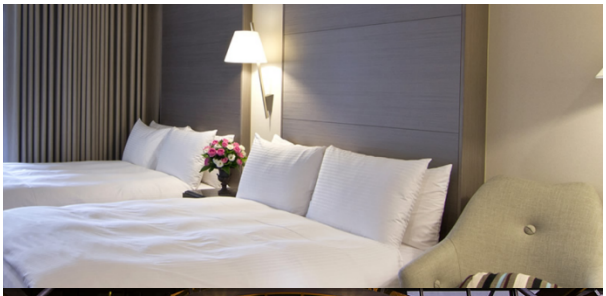


HOW TO GET TO PROVIDENCE HALL in PROVIDENCE UNIVERSITY ?

Providence Hall is located in the inside of Providence University as below.

Tempus Hotel Information

- Address: No. 689, Sec. 2, Taiwan Boulevard, Xitun Dist., Taichung City, 407 Taiwan
- Phone: +886-4-2326-8008
- FAX: +886-4-2326-8060



Tempus Hotel Taichung is situated in the center of Taichung's commercial, business, and shopping district. It is about 10~20 minutes by car from the National Highway No.1 interchange, making it easily accessible from Northern and Southern Taiwan. With the convenience of the Taiwan High Speed Rail, Taichung is only one hour away from Taipei and Kaohsiung, making the city a central hub of Western Taiwan. Be it business, entertainment, shopping or sightseeing, Tempus Hotel is but a heartbeat away.

HOW TO GET TO TEMPUS HOTEL ?

I. Via Car: From the National Highway No. 1 interchange, follow Taichung Port Road and head towards Taichung city center. Turn right at DongXing Road and the hotel will be on your right about one block down. The total trip time is around 5~10 minutes.

II. Via Train (From Taichung Station): 1. Taxi: The total trip time is around 15~20 minutes and the fare will be approximately NT$150 2. City Bus: Take Renyou Bus 48, Taichung City Bus 70, 88, Taichung Highway Bus 106, 147. Get off at DingHeCuo or HeCuo Station 3. Chartered Bus: Take Taichung TTJ Bus ZhongGang Line (purple) 83 and get off at DingHeCuo or HeCuo Station.

III. Via Airplane: 1. Taxi from Taoyuan International Airport: The total trip time is around 2 hours and the fare will be approximately NT$3,000. We will charge according to the actual costs. 2. Chartered Bus (Kuo-Kuang Bus): The total trip time is around 2.5 hours and the fare will depend on current company prices. 3. Taxi from Taichung Airport: The total trip time is around 50~60 minutes and the fare will be approximately NT$500. 4. Please contact Tempus Hotel Taichung regarding its pick-up service at an additional charge. For further details and assistance, please call (04)2326-8008 and ask for the Concierge.

IV. Via Taiwan High Speed Rail (THSR):【Taichung Station → Tempus Hotel Taichung】1. Taichung Station Bus and Transfer Information: THSR Bus – Exit 6 ; Taiwan Railway – Exit 3 ; Various express city buses – Exit 5, 6 ; Taxi service – Exit 7, left side 2. Free THSR Shuttle Bus Available from 07:35 to 00:10 – One bus every 15~20 minutes and the total trip time is around 30 minutes; closest stop to Tempus Hotel Taichung is SOGO Department Store, which is around 5~10 minutes from the hotel via car 3. Taxi Service Total trip time is around 20~30 minutes and the fare is approximately NT$250 4. Please contact Tempus Hotel Taichung regarding its pick-up service at an additional charge For further details and assistance, please call (04)2326-8008 and ask for the Concierge