



KOREAN SOCIETY FOR INTERNET INFORMATION

The 14th Asia Pacific International Conference on Information Science and Technology (APIC-IST 2019)

June 23-26, 2019, Grand Gongda JianGuo Hotel, Beijing, China
<http://www.apicist.org/2019>

Conference Program

| Organized by |
Korean Society for Internet Information (KSII)
Beijing University of Technology (BJUT)

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A Message from Honorary Co-Chairs

I express my warm heartfelt welcome to all of attendants of the 14th Asia Pacific International Conference on Information Science and Technology (APIC-IST 2019) that will be held from June 23~26, 2019 in Grand Gongda JianGuo Hotel, Beijing, China .I deeply appreciate all contributors for submitting papers, chairing sessions, and reviewing papers. And I must thank for the support we received from many companies.

Over the past 19 years, KSII (Korea Society for Internet Information) has increased its academic impact and influence in the area of Information Science, Computer Engineering and Internet Technology both worldwide and nationwide through this international conference and its SCIE-indexed journal, the *KSII Transactions on Internet and Information Systems* (TIIS).

As many of you have witnessed, APIC-IST is one of important International Conferences which KSII have provide annually. The amount of interest towards the internet is never decreasing among both the international academic and practitioners' communities. Topics covered in APIC 2019 truly represent the comprehensiveness of this conference. We are sure that APIC-IST 2019 will provide you with a wealth of information and many opportunities for future discussion.

Many people have worked hard to make APIC 2019 successful. A variety of conference arrangements and special events as well as well organized program have been prepared by the Conference Chairs Dr. Jaehyoun Kim, Dr. Junzhong Ji, Program Chairs Dr. Min Hong, Dr. Xibin Jia, Dr. Jongho Paik and Dr. Xibin Jia. I also express my special thanks to the Keynote Speakers, Dr. Jongwook Woo and Dr. Armagan Elibol and Dr. Zhen Yang and Beijing University of Technology (BJUT).

In addition, my special thanks go to Advisory Board members, Program Committee members, Steering Committee members.

Last but not least, I would like to thank all authors and speakers again for their valuable research papers and efforts to make the 14th APIC-IST 2019 a success!

I wish a great success in their future endeavor and look forward to meeting you all again at ICONI 2019 that will be held on December in Vietnam.



Dr. Mingoo Kang

Hanshin Univ., ROK

Dr. Junfei Qiao

Beijing Univ. of Tech., China

Honorary Co-Chairs of APIC-IST 2019



A Message from Conference Chair

Welcome to the 14th Asia Pacific International Conference on Information Science and Technology (APIC-IST 2019). which will be held on June 23-26, 2019, at Beijing, China. APIC-IST is an annual conference organized by KSII providing an open forum for researchers, engineers, policy makers, and service providers in the Information Science and Technology.

In this year, we are glad to invite the prospective authors to submit papers / poster papers in the following areas: Smart Phone Applications and Service / Mobile Internet Computing & Wireless and Sensor Network / Security and Privacy in Internet & IoT (Internet of Things) / Machine to Machine & Multimedia / Image Processing / HCI / Intelligent Systems & Database / Data Mining / Big Data / Mobile Object Database & Software Engineering and Architecture / Cloud Computing & Smart Learning / e-Learning / Learning Contents Management Systems & Management of Internet Application / E-Business / E-Commerce & SNS and Communications / Digital media use and effects & AI and Resilience in Smart City & Smart Rehabilitation and Wellness Technology & Future Information Security & Platform Technology and Applications for Computational Science and Engineering

As time goes on, annual APIC-IST conference becomes more qualified conference in which many honorable researchers participate to share their valuable research results. APIC-IST 2019 offers 3 invited talks, 14 sessions that present the latest results in various research fields of ICT. I would like to thank to Dr. Jongwook Woo and Dr. Armagan Elibol and Dr. Zhen Yang for their keynote speeches participation.

I must thank to all the authors and speakers for the research papers on their precious achievements. Beijing, the most popular tourist destinations of China is known as a beautiful and historical place in the world. I hope all participants of APIC-IST take this opportunity to explore and encounter beautiful nature and UNESCO-designated World Heritage simultaneously while staying in China.



Dr. Jaehyoun Kim
Sungkyunkwan
Univ., ROK



Dr. Junzhong Ji
Beijing Univ. of
Technology, China

Dr. Jaehyoun Kim Dr. Junzhong Ji
Conference Chairs of APIC-IST 2019

A Message from Program Chairs

It is a pleasure to welcome you to the 14th Asia Pacific International Conference on Information Science and Technology (APIC-IST 2019). The APIC-IST, hosted by Korean Society for Internet Information (KSII) is the premier conference in the Asia Pacific region. The hosting organization (KSII) is the largest Internet academic society in Korea.

Over the past 14 years, APIC-IST has grown to be the major international conference in Information Science and Technology area. APIC-IST continues the endeavor of high-quality, broad international participation in all areas of Information Science and Technology.

The APIC-IST 2019 will be held at Beijing, China on June 23-26. It aims to provide a high quality forum for researchers and practitioners to share research findings, practices and ideas on key issues in Internet related technologies, services, and administrations. The APIC-IST 2019 Program Committee organizes as a set of 18 tracks, and welcomes presentations of completed research papers as well as research-in-progress papers, panel discussion, and posters covering those issues.

The successful organization of APIC-IST has required the talents, dedication and time of many volunteers from China, Germany, USA, Vietnam, Japan, Pakistan, Thailand, Cambodia, Bangladesh, Norway, Philippines and Republic of Korea. Special gratitude and appreciation go to Dr. Mingoo Kang, Dr. Jaehyoun Kim and various session chairs. We would also like to thank the various session chairs as they are primarily responsible for the content of the technical program.

We hope that you will find the conference both enjoyable and valuable, and also enjoy the architectural, cultural and natural beauty of Beijing and China. Beijing is one of the most popular tourist destinations in China and is well situated for welcoming the APIC-IST 2019 participants from around the world.

Dr. Min Hong Dr. Xibin Jia
Dr. Jongho Paik Dr. Jianbiao Zhang

Program Chairs of APIC-IST 2019



Dr. Min Hong
Soonchunhyang
Univ., ROK



Dr. Xibin Jia
Beijing Univ. of
Technology, China



Dr. Jongho Paik
Seoul Women's
Univ., ROK



Dr. Jianbiao Zhang
Beijing Univ. of
Technology, China

Keynote Speakers

Keynote Speaker Dr. Jongwook Woo

The Information Systems Department of California State University
Los Angeles, USA.

**Title: The History and Trend of Data Analysis and Prediction
with Big Data and Artificial Intelligence**



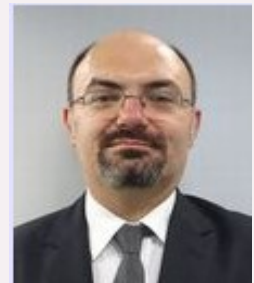
Abstract:

Big Data has been popular last 10 years using Hadoop and Spark for data analysis and prediction with large scale data sets in distributed parallel computing systems. Its platform has expanded using NoSQL DB and Search Engine as well and has been more popular along cloud computing. Then, Deep Learning has become a buzzword past several years using GPU and Big Data. It makes even small companies and labs to own supercomputers with a small amount of budgets, which is the situation of "Dream Comes True" in the IT and business. We live in the era of excitement and concerns from this drastic IT technical changes and recognize the movement of culture and wealth between major and startup companies and even between eastern and western worlds. In this talk, the history and trends of Big Data and AI platforms are introduced and its use cases should be presented.

Keynote Speaker Dr. Armagan Elibol

Japan Advanced Institute of Science Technology, JAPAN (JAIST)

Title: Optical Sea-Floor Mapping using Underwater Robots



Abstract:

Large scale optical mapping (mosaicking) methods are in great demand among scientists who study different aspects of the seabed, and have been fostered by impressive advances in the capabilities of unmanned underwater robots in gathering optical data from the seabed. This talk is intended to underline the capabilities, limitations and possible application areas of optical sea-floor mapping approaches opening a way to further develop new strategies and methodologies.

Keynote Speakers

Keynote Speaker Dr. Zhen Yang

The computer science and engineering at Beijing University of Technology (BJUT), CHINA

Title: Security Reference Model for Industrial Internet Platform



Abstract:

The industrial Internet platform is a service system built based on collection, aggregation and analysis of massive data to meet the demand of digitalization, networking and intellectualization of manufacturing industry, and an industrial cloud platform used to support the ubiquitous connection manufacturing resources, elastic supply and efficient configuration. Its essence involves creating, via establishment of an accurate, real-time and efficient data acquisition system of Internet, a quality development environment for big data storage, integration access, analysis, management with the view to enabling a better production and utilization of the industrial technology, experience and knowledge. With this environment, a non-stop optimization of resource configuration will become increasingly possible for the R&D, production and management as a new win-win manufacturing ecology is taking shaping, characterized by better resources utilization, multiple participation, co-ordinated efforts. As the industrial Internet platform will serve as the hub for the industrial full element link, the establishment of the industrial Internet platform security reference model is very important for ensuring the information security of the platform, which will also provide infrastructure support and essential guarantee for the establishment of a security management system covering the entire industrial system. My talk will focus on the Internet platform security reference model (SRM-IIP) and how the SRM-IIP is established on the basis of analysis of industrial Internet security needs, risks and threats.

Organizing Committee

| Honorary Co-Chairs |

Mingoo Kang, Hanshin Univ., ROK

Junfei Qiao, Beijing Univ. of Technology, China

| Conference Co-Chairs |

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Junzhong Ji, Beijing Univ. of Technology, China

| Program Chairs |

Min Hong, Soonchunhyang Univ., ROK

Xibin Jia, Beijing Univ. of Technology, China

Jongho Paik, Seoul Women's Univ., ROK

Jianbiao Zhang, Beijing Univ. of Technology, China

| Publication Chairs |

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Jong-Moon Chung, Yonsei Univ., ROK

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| Financial Chairs |

Jun Hwang, Seoul Women's Univ., ROK

Sangmin Lee, CHA Univ., ROK

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Zhiming Ding, Chinese Academy of Sciences Software Institute, China

Myung-Mook Han, Gachon Univ., ROK **Kwanghoon Pio Kim**, Kyonggi Univ., ROK

Yanfeng Sun, Beijing Univ. of Technology, China **Namgi Kim**, Kyonggi Univ., ROK

Seok-Pil Lee, Sangmyung Univ., ROK **Changsoo Kim**, Pukyong National Univ., ROK

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Organizing Committee

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Kiwon Kwon, KETI, ROK

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| Program Committee |

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Yoo-Joo Choi, Seoul Media Institute of Technology, ROK

Jin Kwak, Ajou Univ., ROK **HwaMin Lee**, Soonchunhyang Univ., ROK

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Beomjin Kim, Indiana U.-Purdue U. Fort Wayne, USA

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Jeongwook Seo, NamSeoul Univ., ROK **Dongjyoo Shin**, Sejong Univ., ROK

Shingchern D. You, National Taipei Univ. of Technology, Taiwan

Liming Guo, Beijing Univ. of Technology, China ology, Taiwan

Roy Morien, Naresuan Univ., Thailand **Jongchang Ahn**, Hanyang Univ., ROK

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Jihwan Kim, Sogang Univ., ROK **Moonseong Kim**, Seoul Theological Univ., ROK

Woochan Lee, Incheon National Univ., Korea **Sovila Srun**, Royal Univ. of Penh, Cambodia

Tong Li, Beijing Univ. of Technology, China **Paisarn Muneesawang**, Naresuan Univ., Thailand

Conference Program

Sun / Jun. 23, 2019	Room 1
16:00-18:00	VIP Reception & Greeting

Mon / Jun. 24, 2019	Room 1 (Grand Ballroom)	Room 2 (Hibiscus Room)	Room 3 (Peony Room)
08:30 ~	Registration		
09:00-10:30	Session 1	Session 2	Session 3
10:40-12:10	Session 4	Session 5	Session 6
12:20-13:10	Opening Ceremony / Keynote Speeches		Session 7
13:10-14:20	Lunch		
14:20-15:50	Session 8	Session 9	Session 10
16:00-17:30	Session 11	Session 12	Session 13
18:00-19:30	Keynote Speech / Award Ceremony / Banquet		

Conference Program

Tue / Jun. 25, 2019	Room 1
09:30 ~	Registration
10:00-11:30	Session 14
15:00-16:00	Visit the BJUT lab Big Data Perception and Intelligent analysis Institute
16:00-17:00	Visit the BJUT lab Multimedia and Intelligent Software Beijing Key Lab

Wed / Jun. 26, 2019	Room 1
09:00-10:30	Panel Discussion: Collaborative Research

Conference Program

Sun, Jun. 23, 2019

17:30-18:30

VIP Reception & Greetings

Mon, Jun. 24, 2019

09:00-10:30

Session 1: Database / Data Mining / Big Data / Mobile Object Database & Software Engineering & Architecture / Cloud Computing & Smart Learning / e-Learning / Learning Contents Management Systems & Management of Internet Application / E-Business / E-Commerce

Session 2: IoT (Internet of Things) / Machine to Machine & Software Engineering & Architecture / Cloud Computing & Management of Internet Application / E-Business / E-Commerce

Session 3: Multimedia / Image Processing / HCI / Intelligent Systems & Database / Data Mining / Big Data / Mobile Object Database

10:40-12:10

Session 4: Smart Phone Applications and Service / Mobile Internet Computing

Session 5: Wireless and Sensor Network / Security & Privacy in Internet

Session 6: Database / Data Mining / Big Data / Mobile Object Database

12:20-13:10

Opening Ceremony / Keynote Speeches

Dr. Zhen Yang / Beijing University of Technology (BJUT), CHINA

Dr. Armagan Elibil / Japan Advanced Institute of Science Technology, JAPAN

Conference Program

Mon, Jun. 24, 2019

12:20-13:10	Session 7: KETI WS session & Interactive Presentation Session
13:10-14:20	Lunch
14:20-15:50	Session 8: Multimedia / Image Processing / HCI / Intelligent Systems & Database / Data Mining / Big Data / Mobile Object Database
	Session 9: SNS & Communications / Digital media use & effects & AI and Resilience in Smart City / Smart Rehabilitation & Wellness Technology / Future Information Security
	Session 10: Platform Technology and Applications for Computational Science and Engineering
16:00-17:30	Session11: Multimedia / Image Processing / HCI / Intelligent Systems
	Session12: Multimedia / Image Processing / HCI / Intelligent Systems & Database / Data Mining / Big Data / Mobile Object Database
	Session13: Interactive Presentation Session I
18:30-20:00	Keynote Speech / Award Ceremony / Banquet <i>Dr. Jongwook Woo / California State University, USA.</i>

Conference Program

Tue, Jun. 25, 2019

10:00-11:30

Session 14: Interactive Presentation Session II

15:00-16:00

Visit the BJUT lab
Big Data Perception and Intelligent analysis Institute

16:00-17:00

Visit the BJUT lab
Multimedia and Intelligent Software Beijing Key Lab

Wed, Jun. 26, 2019

09:00-10:30

Panel Discussion: Collaborative Research

* Presentation Time

- Oral Session: 10 minutes Presentation / 5 minutes Q&A

Conference Program

| 09:00-10:30, Mon, June 24, 2019 |

Session 1: Database / Data Mining / Big Data / Mobile Object Database & Software Engineering & Architecture / Cloud Computing & Smart Learning / e-Learning / Learning Contents Management Systems & Management of Internet Application / E-Business / E-Commerce

09:00-10:30, Mon, June 24, 2019

Chair: Dr. KONG Dehui
(Beijing Univ. of Tech., China)

1-1	Complex Event Processing Model for Effective Service Monitoring in Enterprise Systems
	Deuk Kyu Kum (Yuhan Univ., ROK)
1-2	Experimental Performance Evaluation of SDN-based Cloud Computing Networking
	Adam L. Grady, Ahyoung Lee (Univ. of South Dakota, USA)
1-3	LERNEN: Connecting Professionals and Students
	Memoona Sami, Junaid Baloch, Mariam Memon, Rabeea Jaffari, Isma Farah (Mehran Univ. of Engineering and Technology, Pakistan)
1-4	An Automatic Continuous Integration in Complicated Scenarios
	Zhao Wenbing, Zhang Zheyuan, Jiang Yunpeng, Wang Dan (Beijing Univ. of Technology, China)
1-5	A Conceptual Initiation of Deliberate Noises of Event Logs and its Implications in Workflow Process Mining
	Dinh-Lam Pham, Kyoungsook Kim, Hyun Ahn, Kwanghoon Pio Kim (Kyonggi Univ., ROK)
1-6	Correlation Analysis of Factors of Computational Thinking
	Oakyoun Han, Jaehyoun Kim (Sungkyunkwan Univ., ROK)
1-7	Predicting fraud of AD click using Traditional and Spark ML
	Neha Gupta, Hai Anh Le, Maria Boldina, Jongwook Woo (California State Univ., Los Angeles, USA)

Conference Program

| 09:00-10:30, Mon, June 24, 2019 |

Session 2: IoT (Internet of Things) / Machine to Machine & Software Engineering & Architecture / Cloud Computing & Management of Internet Application / E-Business / E-Commerce

09:00-10:30, Mon, June 24, 2019

Chair: Dr. SHI yunhui
(Beijing Univ. of Tech., China)

2-1	A Study about the Role of Social Enterprises, Ethical Management and Information on Disclosure on Self-esteem of the Organization
	Kundong Choi (KWANG DONG PHARMACEUTICAL CO., LTD, ROK), SangWoo Hahm (Soongsil Univ., ROK)
2-2	Design and Implementation of a Novel Flash Controller
	Feihu Wang, Wanrong Zhang, Weicong Na, Hongyun Xie, Dongyue Jin, Zhao Zhang, Hezhan Wan, Sijia Zhang (Beijing Univ. of Technology, China)
2-3	A MapReduce-Based Temporal Workcase Clustering Approach with Folding Simple Loopcases
	Seonghun Ham, Jaeyoung Yun, Hyun Ahn, Kwanghoon Pio Kim (Kyonggi Univ., ROK)
2-4	Design of Verification and Re-Recommendation Algorithm Using Collaborative Filtering Based on User Review
	Seung-Su Yang, Gyu-Seung Sim, Pyeong-Kang Kim, Young-Hwan Jang (Gachon Univ., ROK), Seok-Cheon Park, Bong Gyou Lee (Yonsei Univ., ROK)
2-5	A Framework for LPWAN Data Transmission to Support Industrial IoT Services
	Dae-Young Kim (Daegu Catholic Univ., ROK), Seokhoon Kim (Soonchunhyang Univ., ROK)
2-6	A Review of the Leadership needed for the New Digital Era: Leadership Styles that Improve Change Acceptance
	SangWoo Hahm (Soongsil Univ., ROK)
2-7	A Distributed Multi-Objective Particle Swarm Optimization Algorithm Based on Spark
	Debin Fan (Jiujiang Univ., China), Jaewan Lee (Kunsan National Univ., ROK)

Conference Program

| 09:00-10:30, Mon, June 24, 2019 |

Session 3: Multimedia / Image Processing / HCI / Intelligent Systems & Database / Data Mining / Big Data / Mobile Object Database

Chair: Dr. Muhammad Tal

09:00-10:30, Mon, June 24, 2019 (Mehran Univ. of Engineering & Tech., Pakistan)

3-1	Study on Sound Improvement of Flat Panel Display Exciter Speaker by Propagation Analysis
	Hyungwoo Park (Soongsil Univ., ROK), Sungtae Lee, Kwanho Park (LG Display, ROK)
3-2	Semantic Web based Healthcare Data Management
	Sorath Buriro, Isma Farah Siddiqui, Qasim Arain, Uroosa Shaikh, Nasreen Babar (Mehran Univ. of Engineering & Technology, Pakistan)
3-3	Improved Conditional GAN-based Shadow Removal
	Heejin Yoon, Junchul Chun (Kyonggi Univ., ROK)
3-4	An Efficient Approach for Predicting Shortest Path to Travel over Road Traffic
	Junaid Baloch, Memoona Sami, Rabeea Jaffari, Amirita Dewani (Mehran Univ. of Engineering & Technology, Pakistan)
3-5	Classification of the Cuisine using Multi-class Classification Method
	In Seop Na (Chosun Univ., ROK), Seung Yeun Bang (Gangdong Univ., ROK), Sunghwan Kim (Chosun Univ., ROK)
3-6	A Study on Improvement of Korean Pronunciation by Foreign Speaker
	Hyungwoo Park, Kyungham Jang (Soongsil Univ., ROK)
3-7	A Comprehensive Ontology for Human Resource Management in the context of Software Industry
	Komal Naz, Isma Farah Siddiqui, Qasim Arian (Mehran Univ. of Engineering & Technology, Pakistan), Saqib Ali (Indus Univ., Pakistan)

Conference Program

| 10:40-12:10, Mon, June 24, 2019 |

Session 4: Smart Phone Applications and Service / Mobile Internet Computing

10:40-12:10, Mon, June 24, 2019

Chair: Dr. Wenbo Zhang
(Beijing Univ. of Tech., China)

4-1	A tensor-based approach for trust evaluation in web-based service-oriented environments
	Xing Su, Xibin Jia, Zhi Cai, Limin Guo, Juncheng Chen (Beijing Univ. of Technology, China)
4-2	The Effect of the Specific Attitude and Future Expectations toward the Fourth Industrial Revolution Technologies on the and Current Job Satisfaction
	SangWoo Hahm, HwaJeong, Lee (Soongsil Univ., ROK)
4-3	A Study on the Determination of Noncontact Alcohol Through Machine Learning
	Wonhee Lee, Hyungwoo Park (Soongsil Univ., ROK)
4-4	Of Gods and Devils, Angels and Demons: An Allegorical Discourse on the Ethical and Moral Considerations in Internet Research
	Roy Morien (Naresuan Univ., Thailand)
4-5	Development of Mobile-based Enterprise Resource Planning System for Advertising Media Business
	Pharinya Boonchai, Paisarn Muneesawang (Naresuan Univ., Thailand)
4-6	Outdoor Mixed Reality Model based on Location and Its Application
	Jong-gak Choe, YongJin Kwon (Korea Aerospace Univ., ROK)

Conference Program

| 10:40-12:10, Mon, June 24, 2019 |

Session 5: Wireless and Sensor Network / Security & Privacy in Internet

10:40-12:10, Mon, June 24, 2019

Chair: Dr. LIANG Yi
(Beijing Univ. of Tech., China)

5-1	A Survey on Satellite Communication Based on Blockchain Technology
	Chiyong Jeong, Soohyeong Kim, Yongseok Kwon, Sejong Lee, Teasung Kim, Yushin Kim, Jaehyeon Kim, Sunghyun Cho (Hanyang Univ., ROK)
5-2	A Survey on Internet Traffic Classification using Statistical Features
	Seyoung Ahn, Jeehyeong Kim, Joohan Park, Sol Lee, Chiyong Jeong, Sunghyun Cho (Hanyang Univ., ROK)
5-3	A Design of XXTEA for Variable-Length Message Block Cipher
	Seungil Sonh, Hyeopgoo Yeo (Hanshin Univ., ROK)
5-4	Design of Block Chain Based Re-encryption Algorithm for Power Data Trade in Smart Grid Environments
	Seung-Su Yang, Hyung-Seok Kang, Pyeong-Kang Kim, Young-Hwan Jang (Gachon Univ., ROK), Seok-Cheon Park, Bong Gyou Lee (Yonsei Univ., ROK)
5-5	An approach for hazard analysis in UAV based on STPA Model
	Palash Sontakke, Chang Soo Kim (PuKyong National Univ., ROK), Kwanghyeon Lee (Konkuk Univ., ROK), Il-Kyeun Ra (Univ. of Colorado, Denver, USA)
5-6	Block based Fragmented File Identification and Smart Carving Mechanism for Forgery Analysis
	Hanseong Lee, Hyung-Woo Lee (Hanshin Univ., ROK)

Conference Program

| 10:40-12:10, Mon, June 24, 2019 |

Session 6: Database / Data Mining / Big Data / Mobile Object Database

10:40-12:10, Mon, June 24, 2019

Chair: Dr. Armagan Elibol
(JAIST, Japan)

6-1	Traffic Data Analysis and Prediction using Big Data
	Dalyapraz Dauletbak, Jongwook Woo (California State Univ., Los Angeles, USA)
6-2	Visualization methods and functional design of disability and infrastructure distribution
	Xuanzhi Han, Zhi Cai, Shaofu Lin (Beijing Univ. of Technology, China)
6-3	A Study on the Anomaly Detection in Energy Consumption of the Real-time Monitoring System
	Youngwon Seo, Hyunsuk Hwang, Namhun Kim, Taegun Jeon (New Communication Infotech Co., Ltd., ROK)
6-4	Big Data Predictive Analysis of Amazon Product Review
	Monika Mishra, Jaydeep Chopde, Maitri Shah, Pankti Parikh, Rakshith Chandan Babu, Jongwook Woo (California State Univ., Los Angeles, USA)
6-5	A hybrid CNN-RNN model for particulate matter forecasting in Seoul
	Guang Yang, Thanongsak Xayasouk, HwaMin Lee (Soonchunhyang Univ., ROK)
6-6	Analysis of Consumers' Consumption patterns by Analysis of Big Data of Online Shopping Mall
	Jun-Ki Hong (Yongsan Univ., ROK), Ji-Su Lee (ELLEN Corporate, ROK), Seung-Hoon Back (Hanshin Univ., ROK)

Conference Program

| 12:20-13:10, Tue, June 24, 2019 |

Session 7: KETI WS session & Interactive Presentation Session

Chair: Dr. Kiwon Kwon
(KETI, ROK)

12:20-13:10, Tue, June 24, 2019

7-1	A Hand Gesture Recognition Method using Inertial Sensor for Embedded Device Operation
	Sangyub Lee, Jaekyu Lee (Korea Electronics Technology Institute, ROK), Hyeonjoong Cho (Korea Univ., ROK)
7-2	Enhanced Slow Electric Vehicle Charge Scheme for no communication between EV and Charger
	Youngsu Ryu, Donghyun Kim, Kyungwon Park, Kiwon Kwon (Korea Electronics Technology Institute, ROK)
7-3	Design of Common Alerting Protocol based on MQTT
	Jinhee Park (Korea Electronics Technology Institute, ROK)
7-4	Mixed Reality platform for industrial applications
	Inpyo Cho, Yeongchan Kim, Heami Song, Jaejin Ko (Korea Electronics Technology Institute, ROK)
7-5	A Study on the Collection and Visualization of In-Vehicle Data based on Open Source Monitoring Solution
	Jaekyu Lee, Sangyub Lee, Hyosub Choi, Jeonghoon Kang, Jaejin Ko (Korea Electronics Technology Institute, ROK)
7-6	Design and Implementation of Drowsiness Recognition System using Neuron Module based on Embedded Platform
	Jaekyu Lee, Gyutae Oh, Sangyub Lee, Jaejin Ko (Korea Electronics Technology Institute, ROK)
7-7	Designing Application of a Speaker Recognition in low power small platform using RBF Parallel Calculator
	Inpyo Cho, Jaekyu Lee, Sangyub Lee, Jaejin Ko (Korean Electronic Technology Institute, ROK)

Conference Program

| 14:20-15:50, Mon, June 24, 2019 |

Session 8: Multimedia / Image Processing / HCI / Intelligent Systems & Database / Data Mining / Big Data / Mobile Object Database

Chair: Dr. Sokchea Kor

14:20-15:50, Mon, June 24, 2019 (Royal Univ. of Phnom Penh, Cambodia)

8-1	A comparative study of manifold learning and PCA in the application for 3D facial modeling
	Dexiang Yao (PaiChai Univ., ROK), Shin-JinKang (Hongik Unive., ROK), Soo Kyun Kim (PaiChai Univ., ROK)
8-2	Dynamic Hand Gesture Recognition Combining Temporal and Spatial Features
	Jinghua Li, Yingxin Xing, Lichun Wang, Dehui Kong, Baocai Yin, Shenglei Ma (Beijing Univ. of Technology, China)
8-3	Comparison of Preprocessing method of Liver segmentation Using U-Net
	Kangjik Kim, Juncul Chun (Kyonggi Univ., ROK)
8-4	On the Optimal Ordering of Overlapping Image Pairs for Image Mosaicing
	Armagan Elibol, Nak-Young Chong (Japan Advanced Institute of Science and Technology, JAPAN)
8-5	Action Unit Recognition With 3D CNN
	Xibin Jia, Yuechen Wang (Beijing Univ. of Technology, China), SungChan Hong (Hanshin Univ., ROK)
8-6	Design of Web Application Based GUI Test Automation Algorithm
	Seung-Su Yang, Jin-Young Kim, Pyeong-Kang Kim, Young-Hwan Jang (Gachon Univ., ROK), Seok-Cheon Park, Bong Gyou Lee (Yonsei Univ., ROK)

Conference Program

| 14:20-15:50, Mon, June 24, 2019 |

Session 9: SNS & Communications / Digital media use & effects & AI and Resilience in Smart City / Smart Rehabilitation & Wellness Technology / Future Information Security

Chair: Dr. Roy Morien
(Naresuan Univ., Thailand)

14:20-15:50, Mon, June 24, 2019

9-1	Effects of E-Word of Mouth Data on Viewer Ratings
	Takhun Kim (KAIST, ROK), Kyungran Ma (Univ. of Cologne, Germany), Jongchang Ahn (Hanyang Univ., ROK)
9-2	Security Considerations for AI Services Provisioning
	Sanggon Lee, Byunggook Lee (Dongseo Univ., ROK)
9-3	Correlation Analysis of Vestibular Rehabilitation Training Based on Eye Tracking
	Sungjin Lee, Seong Jun Choi, Sung Yup Kim, Min Hong (Soonchunhyang Univ., ROK)
9-4	Intelligent Cyber Incident Analysis based on Data Mining and Inference
	Sung-Sam Hong, Dong-Wook Kim, Gun-Yoon Shin, XIAOYUN YE, Myung-Mook Han (Gachon Univ., ROK)
9-5	Binary Code Authorship Attribution Using CNN
	Youngjeon Lee, Myungmook Han, Dongwook Kim, Gunyun Shin (Gachon Univ., ROK)
9-6	A study on the UAV safety regulations system between China and USA
	Xiaorui Shao, Chang Soo Kim, Kyung Hyun Rhee (Pukyong National Univ., ROK), Kwanghyeon Lee (Konkuk Univ., ROK), Il-Kyeun Ra (Univ. of Colorado Denver, USA)

Conference Program

| 14:20-15:50, Mon, June 24, 2019 |

Session 10: Platform Technology and Applications for Computational Science and Engineering

14:20-15:50, Mon, June 24, 2019

Chair: Dr. Jong Ho Paik
(Seoul Women's Univ., ROK)

10-1	EDISON-VIEW: A RAD Tool for Representation and Visualization of Computational Science Data
	Jaesung Kim, Sunil Ahn, Jeongcheol Lee, Jongsuk Ruth Lee (Korea Institute of Science and Technology Information, ROK)
10-2	Design and construction of data type plug-in module for execution of workflow simulation connection
	Yejin Kwon, Inho Jeon, Jongsuk R. Lee, Jerry H. Seo (Korea Institute of Science and Technology Information, ROK)
10-3	Analysis of Data Format for Development of Visualization Tool for Computational Science Simulation SW
	Gimyeong Ryu, Jaesung Kim, Junghyun Seo, Jongsuk Ruth Lee (Korea Institute of Science and Technology Information, ROK)
10-4	Quality Factors of Computational Science Engineering Platform System influence on User Satisfaction by Research Field: EDISON Platform
	Noo Ri On, Nam-Gyu Kim, HyunJi NOH, Yejin Kwon, Jong Suk Ruth Lee (Korea Institute of Science and Technology Information, ROK)
10-5	Development of Web-based Visualization Tools for CFD field Based on EDISON Platfor
	Inho Jeon, Yejin Kwon, Huiseung Chae, Jerry H. Seo, Jong Suk Ruth Lee (Korea Institute of Science and Technology Information, ROK)

Conference Program

| 16:00-17:30, Mon, June 24, 2019 |

Session 11: Multimedia / Image Processing / HCI / Intelligent Systems

16:00-17:30, Mon, June 24, 2019

Chair: Dr. Jongwook Woo
(California State Univ., USA)

11-1	Plant Seedlings Classification with Deep Neural Network and Image Processing
	In Seop Na (Chosun Univ., ROK)
11-2	Air Quality Factor PM2.5 Estimation from Images
	Xiaoli Li, Shan Zhang, Kang Wang (Beijing Univ. of Technology, China)
11-3	Advanced Human Skeleton Tracking using Kinect v2 and Deep Learning
	Beanbonyka Rim, Nak-Jun Sung, Jun Ma (Soonchunhyang Univ., ROK), Yoo-Joo Choi (Seoul Media Institute of Technology, ROK), Min Hong (Soonchunhyang Univ., ROK)
11-4	Rethinking Faster R-CNN for Window Detection in Street Scenes
	Wenguang Ma, Wei Ma (Beijing Univ. of Technology, China)
11-5	Wave Assessment for Intelligent Beach Safety Accident System
	Dong-Wook Kim, Sung-Sam Hong, Gun-Yoon Shin, Cheol-Hoon Hwang, Myung-Mook Han (Gachon Univ., ROK)
11-6	Gastromod: An interactive tool for 3D Gastropod Modeling
	Sokchea Kor (Royal Univ. of Phnom Penh, Cambodia), Susanne Krömker (Heidelberg Univ., Germany)
11-7	DCT-based color image watermarking method by modifying pixel values
	Sung-Woo Byun, Seok-Pil Lee (Sangmyung Univ., ROK)

Conference Program

| 16:00-17:30, Mon, June 24, 2019 |

Session 12: Multimedia / Image Processing / HCI / Intelligent Systems & Database / Data Mining / Big Data / Mobile Object Database

Chair: Dr. Sorath Buriro

16:00-17:30, Mon, June 24, 2019 (Mehran Univ. of Engineering & Tech., Pakistan)

12-1	Beach risk assessment using Fuzzy Linear Regression method
	Gun-Yoon Shin, Sung-San Hong, Dong-Wook Kim, Chul-Hoon Hwang, Myung-Mook Han (Gachon Univ., ROK)
12-2	DATA ANALYTICS ON BIG HEALTH CARE DATA USING HADOOP & HIVE
	Muhammad Talha, Danish Kumar, Kanwal Aftab, Isma Farah Siddiqui (Mehran Univ. of Engineering & Technology, Pakistan)
12-3	The perception and comprehension of drifting accident situation awareness in the beach
	Cheol-Hoon Hwang, Gun-Yoon Shin, Dong-Wook Kim, Sung-Sam Hong, Myung-Mook Han (Gachon Univ., ROK)
12-4	Pseudo diversion onto persistent IoT-botnet connectivity through data analytics
	Nawab Muhammad Faseeh Qureshi (Sungkyunkwan Univ., ROK), Isma Farah Siddiqui (Mehran Univ. of Engineering & Technology, Pakistan), Asad Abbas (Univ. of Lahore, Pakistan), Ali Kashif Bashir (Manchester Metropolitan Univ., Pakistan)
12-5	A Best Driving Solution(BDS) using Road Slope and Curvature based on a Genetic Algorithm for an Autonomous Vehicle
	YiNa Jeong, KyungDeuk Kim, SuRak Son, ByungKwan Lee (Catholic Kwandong Univ., ROK)
12-6	Robust Real-time Detection of Abandoned and Stolen Objects for Intelligent Video Surveillance System
	Hyeseung Park, Seungchul Park, Youngbok Joo (Korea Univ. of Technology and Education, ROK)
12-7	Calculating Short Text Similarity Using Dependency Based Semantic Graph
	Rui Song, Tong Li, Xin Dong, Zhiming Ding (Beijing Univ. of Technology, China)
12-8	Applying Augmented Reality to Telemedicine in Thailand, using the HoloLens
	Paisan Muneesawang, Roy I. Morien (Naresuan Univ., Thailand)

Conference Program

| 16:00-17:30, Mon, June 24, 2019 |

Session 13: Interactive Presentation Session I

16:00-17:30, Mon, June 24, 2019

Chair: Dr. Jinghua Li
(Beijing Univ. of Tech., China)

13-1	Cost-Effective Surveillance System using Microphones
	Hyungwoo Park (Soongsil Univ., ROK), James Mu (Kampuchea Thmey Daily, Cambodia), Hyungbae Park (Soongsil Univ., ROK)
13-2	The Design and Optimization of Teacher Actions Recognition Algorithm in Intelligent Recording System
	Zhenshan Bao, Wanqing Zhou, Wenbo Zhang (Beijing Unive. of Technology, China)
13-3	Analysis of Hybrid ARQ for User-specific 5G Service Scenarios
	Junsung Kim, Jong-Moon Chung (Yonsei Univ., ROK)
13-4	Intelligent Road Traffic Recognition for Precision Maps of Self-driving Cars
	Juho Jung, Ryumduk Oh, Manbok Park, Junho Ahn (Korea National Univ. of Transportation, ROK)
13-5	Analysis of 5G Security for Trusted Blockchain System
	Jusik Yun, Yunyeong Goh, Jong-Moon Chung (Yonsei Univ., ROK)
13-6	A Survey on Vulnerabilities and Mitigations of Trusted Execution Environment
	Hyundo Yoon, Junbeom Hur (Korea Univ., ROK)
13-7	Differential influence of White Noise on Individual Concentration and Performance Improvement through Individual's Personality: Focused on Big five Personality Types
	SangWoo Hahm (Soongsil Univ., ROK), Marvin Salganov (Blueline TM, USA), Hela Chang (YKC inc,USA), Sunghan Kim (Soongsil Univ., ROK)

Conference Program

| 16:00-17:30, Mon, June 24, 2019 |

Session 13: Interactive Presentation Session I

16:00-17:30, Mon, June 24, 2019

Chair: Dr. MA Wei
(Beijing Univ. of Tech., China)

13-8	Internal and External Performance Improvement Plan for Sales Employees of Pharmaceutical Companies Using Big Data and IoT
	SangWoo Hahm (Soongsil Univ., ROK), Gabriel Berenfus (waterpurificationsupplies, USA), Xiu Jin (Soongsil Univ., ROK)
13-9	A Study on the improvement of the existing UVA model for safety and security
	Se Hun Jeong, Chang Soo Kim (Pukyong National Univ., ROK)
13-10	Study on Sound Analysis and enhancement of OLED Display Exciter Speaker using Multi-rate Control
	Hyungwoo Park (Soongsil Univ., ROK), Sungtae Lee (LG Display, ROK)
13-11	Methodology for Finding Underground Pipes in GPR Images
	Jihun Chae, Hyoung Yong Ko, Byoungil Lee, Namgi Kim (Kyonggi Univ., ROK)
13-12	Private based Health Block-chain for Knowledge Mining in Lifecare Platform
	Ji-Won Baek, Sung-Soo Park, Joo-Chang Kim (Kyonggi Univ., ROK), Hyun Yoo (Sangji Univ., ROK), Kyungyong Chung (Kyonggi Univ., ROK)
13-13	A Fault Cause Finding System for Vehicle Parts using in-Vehicle Gateway
	YiNa Jeong, KyungDeuk Kim, SuRak Son, ByungKwan Lee (Catholic Kwandong Univ., ROK)
13-14	An Autonomous Vehicle Self-diagnosis System based on Random Forest
	YiNa Jeon, SuRak Son, ByungKwan Lee (Catholic Kwandong Univ., ROK)

Conference Program

| 10:00-11:30, Tue, June 25, 2019 |

Session 14: Interactive Presentation Session II

10:00-11:30, Tue, June 25, 2019

Chair: Dr. Yoosin Kim
(Alticast Inc, ROK)

14-1	Analyzing Household Types from IPTV Channel Log Data Yoosin Kim (Alticast Inc, ROK), Seung Ryul Jeong (Kookmin Univ., ROK)
14-2	Implementation Scheme of User-Customized Odor Recommendation Engine Based on Content-Based Filtering Song Yeon Lee, Minjae Seo, Yumin Cho, Jong Ho Paik (Seoul Women's Univ., ROK)
14-3	A Study on Implementation of Mobile Messenger Weegle Service Based on 4thgeneration Blockchain, Cubechain Sangyep Nam (Kookje Univ., ROK), YunJung Kwon (Semyung Univ., ROK)
14-4	Design of Block-chain Platform based on Biometric Authentication for CCTV/NVR Log-Information Frank Elijorde, Bobby Gerarado (West Visayas State Univ., Philipphines), J.W., Lee (Kunsan National Univ., ROK), M.G., Kang (Hanshin Univ., ROK), S.P., Hong (Hancorn Secure Co.LTD, ROK)
14-5	Artificial Intelligent of Things-Based Monitoring Service for Pig Farming Wonseok Jung (Namseoul Univ., ROK), Hyeon Park, Se-Han Kim (ETRI, ROK), Jeongwook Seo (Namseoul Univ., ROK)
14-6	Design of Active Push Services based on Cognition Sensors for Smart Mirror Bobby Gerarado, Frank Elijorde (West Visayas State Univ., Philipphines), J.W., Lee (Kunsan National Univ., ROK), M.G., Kang (Hanshin Univ., ROK), C.S. Kim (Quber Co.LTD, ROK)
14-7	An Aquaculture's Environmental Prediction System Considering the Relationship Between Water Environment Measurement Data and Control Equipment Data Taeuk Chang (Quantum Solution, Co., LTD, ROK), Song Yeon Lee, Yumin Cho, Jong Ho Paik (Seoul Women's Univ., ROK)
14-8	A Body Sensor and CNN-Based Activity Recognition System Md. Golam Rabiul Alam (BRAC Univ., Bangladesh), Md. Zia Uddin (Univ. of Oslo, Norway)

Venue Information

| Grand Gongda JianGuo Hotel, Beijing, China |

<http://www.grandgongdajianguoohotel.com/>



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Venue Information

| **Grand Gongda JianGuo Hotel, Beijing, China** |

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