



ICONI 



KOREAN SOCIETY FOR INTERNET INFORMATION

The 12th International Conference on Internet (ICONI 2020)

Dec. 13-16, 2020, Landing Convention Center,

Jeju Shinhwa World, Korea

<http://www.iconi.org>

Conference Program

| Organized by |

Korean Society for Internet Information (KSII)

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Message from Honorary Chair

We express our warm welcome to all of attendants of the 12th International Conference on Internet (ICONI) that will be held from December 13~16, 2020, in the Jeju Shinhwa World, Jeju Island, Korea.

Over the past 12 years, ICONI has increased its academic impact and influence in the area of Information Science, Computer Engineering and Internet Technology by bringing together international researchers from academia, industry, and government to exchange novel ideas, explore enabling technologies, discuss innovative designs, and share field trial experiences and lessons learned.

This year, ICONI 2020 again covers broad range of topics which are related with Internet technologies and applications such as Wireless and Sensor Network, Security & Privacy and Multimedia, Image Processing, Intelligent Systems and mobile computing, Internet of Things, wireless communications. It is firmly believed that each paper to be presented will be a basis for further constructive discussion.

We would like to express our heartfelt gratitude to every one who makes this conference successful. First of all, we are so grateful to all contributors who submit their valuable papers, review the papers, and chair the sessions. We also thank many sponsors for their enormous support. Our special thanks must go to the Keynote Speaker Dr. Dayang N. A. Jawawi from Universiti Teknologi Malaysia, Malaysia.

Last, but not least, we deeply appreciate limitless devotion of Organizing Committee members. Without their contribution, this conference would not be realized.

We truly welcome you all to this beautiful Island and wish you pleasant and joyous stay in Jeju Island!



Dr. Jaehyoun Kim
Sungkyunkwan
University, Rep. of
Korea

Dr. Jaehyoun Kim
Honorary Chair of ICONI 2020

Message from Conference Chair

On behalf of the organizing committee of ICONI 2020 as well as on my own behalf, I welcome you to the 12th International Conference on Internet (ICONI). In particular, I sincerely thank you for participating in this international conference to present and discuss valuable research results even in the midst of the pandemic.

As you all know, COVID-19 has brought about many changes and challenges. Academic conferences seem to be no exception, as we are forced to hold conferences in a contactless environment. Despite these difficulties, we have been able to successfully plan for ICONI 2020, prioritizing safety measures. More than 203 papers have been submitted in 21 Internet-related fields, including mobile Internet computing, Internet security, Internet of Things (IoT), wireless and sensor networks and multimedia, image processing and Internet application management. Of these, more than 150 papers will be presented both online and offline. Moving forward, ICONI 2020 will be a leading example for non-contact conferences.

I owe a great amount of gratitude to the organizing committee members and all contributors for the extraordinary work they have done in organizing this conference. Without their dedicated support, this event would never have been possible.

I wish you all a very pleasant time here in Jeju Island and a productive and successful conference.



Dr. Seung Ryul Jeong
Kookmin Univ.,
Rep. of Korea

Dr. Seung Ryul Jeong
Conference Chair of ICONI 2020

Message from Program Chairs

It is a pleasure to welcome you to the 12th International Conference on Internet, 2020 (ICONI 2020) to be held in the Landing Convention Center, Jeju Shinhwa World, Korea

Over the past 12 years, ICONI has grown to be the major international conference in Internet Technology area. The conference is organized as a set of 21 tracks in the Internet Technology area. ICONI continues the endeavor of high-quality, broad international participation in all areas of Internet Technology.

The successful organization of ICONI has required the talents, dedication and time of many volunteers from Malaysia, USA, China, Saudi Arabia, Pakistan, Nepal, Nigeria, Turkey, Morocco, and Rep. of Korea. Special gratitude and appreciation go to all of organizing committee members as they are primarily responsible for the conference.

We hope that you will find the conference both enjoyable and valuable, and also enjoy the architectural, cultural and natural beauty of Jeju island.

Jeju Island is one of the most popular tourist destinations in Korea and well situated for welcoming the ICONI 2020 participants from around the world.



Dr. Soo-Kyun Kim
Jeju National Univ., Rep.
of Korea



Dr. Imran Ghani
Indiana Univ. of Pennsylvania,
USA

Dr. Soo-Kyun Kim Dr. Imran Ghani
Program Chairs of ICONI 2020

Keynote Speaker

Keynote Speaker Prof. Dr. Dayang N. A. Jawawi

**School of Computing, Faculty of Engineering,
Universiti Teknologi Malaysia, Malaysia**



Title: Computational Thinking through Educational Robotics

Abstract of the talk

Robots are becoming a popular educational tool in areas of science and technology for primary and secondary school and in several areas of engineering and technology in universities for teaching several subjects, such as math, computer science, mechanics, technology, electronics, programming, artificial intelligence, and computer vision. Thus, the popularity of Educational robotics (ER) has resulted to the proliferations of similar ER pedagogical tool being developed with slight differences based on its educational context level.

In the recent digital revolution, digital literacy is becoming a key factor in education today. Computational Thinking (CT) is a new digital literacy which is gradually being introduced in school education due to its applicability in daily problem-solving process. ER has been increasingly used as a pedagogical tool to attract students in learning computer programming, and when integrated with CT, they can be used to develop high-order thinking skills. In this talk I will present the challenges in intertwining between CT and ER in teaching computing and solving problem skills.

Realizing the benefits of robots in teaching, in 2008 Universiti Teknologi Malaysia (UTM) has introduced ER in class formal education for computing students and in 2012 ER for Co-Curricular Service Learning (CCSL) program was initiated for the purpose of teaching the problem solving and computer programming for school students. An action research conducted in an outreach program aimed at nurturing CT to school student; and promoting generic skills to university student. Finally, in my talk I will discuss the relevance, impact, and prospects of ER in CT and computing education.

Organizing Committee

| Honorary Chair |

Jaehyoun Kim, Sungkyunkwan University, Rep. of Korea

| Conference Chair |

Seung Ryul Jeong, Kookmin University, Rep. of Korea

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Imran Ghani, Indiana University of Pennsylvania, USA

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Yoosin Kim, Alticast, Rep. of Korea

| International Program Committee |

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Jin Kwak, Ajou University, Rep. of Korea

Jaewan Lee, Kunsan National University, Rep. of Korea

Ali Safaa Sadiq, Univ. of Wolverhampton, UK

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In Kuk Song, Dankuk University, Rep. of Korea

Soon Ja Yeom, Univ. of Tasmania, Australia

Wangcheol Song, Jeju National University, Rep. of Korea

Isma Farah Siddiqui, Mehran Univ. of Engineering & Technology, Pakistan

Nawab Muhammad Faseeh Qureshi, Sungkyunkwan University, Rep. of Korea

Conference Program

Sun / Dec. 13, 2020	Room 1
16:00-18:00	VIP Reception & Greetings

Mon / Dec. 14, 2020	Room 1	Room 2	Room 3
08:00-	Registration (GF)		
08:30-11:00	Session 1	Session 2	Session 3
11:10-12:40	Opening Ceremony & Keynote Speech / Landing Ballroom A		
12:40-13:30	Lunch (12:00-13:30) / Landing Ballroom B		
14:00-16:30	Session 6	Session 7	Session 8
16:40-18:00	Session 11	Session 12	Session 13
18:30-20:00	Award Ceremony & Banquet / Landing Ballroom A & B		

Conference Program

Sun / Dec. 13, 2020	Room 1
16:00-18:00	VIP Reception & Greetings

Mon / Dec. 14, 2020	Room 4	Room 5
08:00-	Registration (GF)	
08:30-11:00	Session 4	Session 5
11:10-12:40	Opening Ceremony & Keynote Speech / Landing Ballroom A	
12:40-13:30	Lunch (12:00-13:30) / Landing Ballroom B	
14:00-16:30	Session 9	Session 10
16:40-18:00	Session 14	Session 15
18:30-20:00	Award Ceremony & Banquet / Landing Ballroom A & B	

Conference Program

Tue / Dec. 15, 2020	Room 1	Room 2
09:00-	Registration (GF)	
09:30-11:00	Session 16	Session 17
11:10-12:40	Session 18	Session 19
12:40-13:30	Lunch (12:00-13:30) / Halla Room A & B & C	
13:40-15:10	Session 20	Session 21
15:20-17:00	Session 22	Session 23

Wed / Dec. 16, 2020	Room 1
09:00-11:00	Panel Discussion: Joint Research in the Era of Pandemic

* Presentation Time

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

Conference Program

Sun, Dec. 13, 2020

16:00-18:00

VIP Reception & Greetings

Mon, Dec. 14, 2020

08:30-11:00

**Session 1: Smart Phone Applications and Service /
Mobile Internet Computing**

**Session 2: Database / Data Mining / Big Data /
Mobile Object Database & Software Engineering &
Architecture / Cloud Computing**

**Session 3: Smart Learning / e-Learning / Learning
Contents Management Systems & Future Internet &
Industrial Convergence Service**

**Session 4: IoT (Internet of Things) / Machine to
Machine**

**Session 5: Multimedia / Image Processing / HCI /
Intelligent Systems**

11:10-12:40

Opening Ceremony / Keynote Speech

***Prof. Dr. Dayang N. A. Jawawi
/ Universiti Teknologi Malaysia, Malaysia***

Title: Computational Thinking through Educational Robotics

12:40-13:30

Lunch (12:00 ~ 13:30)

Conference Program

Mon, Dec. 14, 2020

14:00-16:30	Session 6: Database / Data Mining / Big Data / Mobile Object Database
	Session 7: IoT (Internet of Things) / Machine to Machine & Software Engineering & Architecture / Cloud Computing
	Session 8: Wireless and Sensor Network / Security & Privacy in Internet
	Session 9: Management of Internet Application / E-Business / E-Commerce & SNS & Communications / Digital media use & effects & DLMAT workshop
	Session 10: Interactive Presentation Session I
16:40-18:00	Session 11: Smart Phone Applications and Service / Mobile Internet Computing & Wireless and Sensor Network / Security & Privacy in Internet & Multimedia / Image Processing / HCI / Intelligent Systems
	Session 12: Multimedia / Image Processing / HCI / Intelligent Systems
	Session 13: Interactive Presentation Session II
	Session 14: Interactive Presentation Session III
	Session 15: Interactive Presentation Session IV
18:20-20:00	Award Ceremony / Banquet

Conference Program

Tue, Dec. 15, 2020

09:30-11:00	Session 16: KETI Workshop
	Session 17: Computational Science and Engineering Platform, and Education based on HPC
11:10-12:40	Session 18: AI and Big Data Technologies for Crime Prevention I
	Session 19: AI and Big Data Technologies for Crime Prevention II
12:40-13:30	Lunch (12:00 ~ 13:30)
13:40-15:10	Session 20: Interactive Presentation Session V
	Session 21: AVIGCVPR: AI / Visual Intelligence / Big Data / Computer Vision / Pattern Recognition
15:20-17:00	Session 22: "Jeju, COVID-19, and Data Analytics"
	Session 23: Interactive Presentation Session VI

Wed, Dec. 16, 2020

10:00-11:30	Panel Discussion: Joint Research in the Era of Pandemic
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Conference Program

| 08:30-11:00, Mon, Dec.14, 2020 |

Session 1: Smart Phone Applications and Service / Mobile Internet Computing (Room 1)

08:30-11:00, Mon, Dec. 14, 2020

Chair: Dr. Jong-Moon Chung
(Yonsei Univ., ROK)

1-1	Self-Adaptive Mobile Web Service Categorization Approach for Self-Adaptive Discovery
	Salisu Garba, Radziah Mohamad, Nor Azizah Saadon (Universiti Teknologi Malaysia, Malaysia)
1-2	Future Evaluation of COVID-2019 to 2021
	Soobia Saeed (Universiti Teknologi Malaysia, Malaysia)
1-3	Securing Internet Banking Transmission in the ERA of High-speed Computing : A Critical Review for better Confidentiality and Non-Repudiation
	Muhammad Saidu Aliero (Monash Univ., Malaysia), Imran Ghani (Indiana Univ. of Pennsylvania, USA), Muhammad Fermi Pasha (Monash Univ., Malaysia)
1-4	Personal Authentication using Corresponding Relationship between Objects
	Gi-Chul Yang (Mokpo National Univ., ROK)
1-5	Eliciting User Requirements for Designing Mobile Application of Eco-Care Drainage with Waste Trap Device
	Nor Azman Ismail, Shukur Abu Hassan, Mohd Sharul Hafiz Razak, Aimi Rusdi, Nurul Najiha Hamdan, Aqilah Hanim Mohd Taufik (Universiti Teknologi Malaysia, Malaysia)

Continue next page (session 1)

Conference Program

| 08:30-11:00, Mon, Dec.14, 2020 |

Session 1: Smart Phone Applications and Service / Mobile Internet Computing (Room 1)

08:30-11:00, Mon, Dec. 14, 2020

Chair: Dr. Jong-Moon Chung
(Yonsei Univ., ROK)

1-6	Exploration of Web Links and Network Collaboration Between University's Libraries in Southeast Asia
	Su Elya Namira Mohamed, Nor Azman Ismail (Universiti Teknologi Malaysia, Malaysia)
1-7	Replay attack to DRM in music streaming service on Android
	Sunghee Lim, Jaehyeok Han, Sang Jin Lee (Korea Univ., ROK)
1-8	A Context-aware Solution to locate Objects using Google Awareness API
	Maheen Gul Mastoi, Isma Farah Siddiqui, Shafiya Qadeer Memon, Mariam Jawaid Memon (Mehran Univ. of Engineering and Technology, Pakistan)
1-9	A Review of Machine Learning Path Planning Algorithms for Autonomous Underwater Vehicles (AUV) in Internet of Underwater Things (IoUT)
	Chinonso Okereke, Nur Haliza Abdul Wahab, Mohd Murtadha (Universiti Teknologi Malaysia, Malaysia)

Conference Program

| 08:30-11:00, Mon, Dec.14, 2020 |

Session 2: Database / Data Mining / Big Data / Mobile Object Database & Software Engineering & Architecture / Cloud Computing (Room 2)

08:30-11:00, Mon, Dec. 14, 2020

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

- | | |
|-----|--|
| 2-1 | Forecasting Hourly Electricity Trading Volume based on Weather Forecast Data Using Deep Learning |
| | Junmo An, Hoonseok Park (Kyung Hee Univ., ROK), Hanee Ryu (Hyundai Research Institute, ROK), Jae-Yoon Jung (Kyung Hee Univ., ROK) |
| 2-2 | Analyzing Senior content trend in Social Media Service |
| | Yoosin Kim, Doohong Min, Yeonjin Ju, Heejoo Kang (Alticast Inc., ROK) |
| 2-3 | Reusable Patient Navigation System Architecture using Component Based Approach |
| | Muhammad Syafiq A. Manan, Dayang N.A. Jawawi, Shahliza Abd Halim (University Teknologi Malaysia, Malaysia), Ushananthiny Suvelayutnan, Mohamad Noor Hakim Mohamad (Hospital Sultanah Aminah, Malaysia) |
| 2-4 | Weighted Distance-Based: An Enhanced String Technique for Test Case Prioritization |
| | Muhammad Khatibsyarbini, Mohd Adham Isa, Dayang Norhayati Abang Jawawi (Universiti Teknologi Malaysia, Malaysia) |
| 2-5 | Analysis of Level of Service on Sewage Treatment Facility's Efficiency Improvement and Electricity Reduction |
| | Soyeong Park, Jungwoo Shin (Kyung Hee Univ., ROK) |

Continue next page (session 2)

Conference Program

| 08:30-11:00, Mon, Dec.14, 2020 |

Session 2: Database / Data Mining / Big Data / Mobile Object Database & Software Engineering & Architecture / Cloud Computing (Room 2)

08:30-11:00, Mon, Dec. 14, 2020

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

2-6	Impact Analysis of Change Event on Execution Time of IT Service Process
	Hoonseok Park, Jae-Yoon Jung (Kyung Hee Univ., ROK)
2-7	Forecasting of Energy Demand in the Railway Sector Using Machine Learning
	Myoungjin Oh, Jungwoo Shin (Kyung Hee Univ., ROK)
2-8	Partition-based Big Data Analysis and Visualization
	Jun-Ki Hong (Pai Chai Univ., ROK)
2-9	Factors Influencing the Interoperability of Building Information Modeling in Architecture, Engineering and Construction Industry
	Hafiz Muhammad Faisal Shehzad (Univ. of Sargodha, Pakistan), Roliana Binti Ibrahim, Ahmad Fadhil Yusof, Khairul Anwar Mohamed khaidzir, Israr Ghani, Abba Kyari Buba (University Technology Malaysia, Malaysia)
2-10	An Enhanced String Algorithm Prioritizing Technique
	M. Irsyad Kamil R., Dayang N.A. Jawawi, Rosbi Mamat (Universiti Teknologi Malaysia, Malaysia)

Conference Program

| 08:30-11:00, Mon, Dec.14, 2020 |

Session 3: Smart Learning / e-Learning / Learning Contents Management Systems & Future Internet & Industrial Convergence Service (Room 3)

08:30-11:00, Mon, Dec. 14, 2020

Chair: Dr. Jang Hyun Kim
(Sungkyunkwan Univ., ROK)

3-1	Finding ways to improve student satisfaction with online-based team activities
	Sangwoo Hahm (Semyung Univ., ROK), Marvin Salganov (Bluline, FL, USA), Kundong Choi (Kwang Dong Pharmaceutical Co., Ltd., ROK)
3-2	Solving Job Shop Scheduling Problem for Multi-Objective with Nondominated Sorting Genetic Algorithm
	Fuladi Shubhendu, Chang Soo Kim (Pukyong National Univ., ROK)
3-3	Readiness Factors Influencing the Internet of Things (IoT) in Higher Learning Institutions (HLIs) for E-Learning
	Javed Ali (Saudi Electronic Univ., Saudi Arabia), Muhammad Shafie Abd Latiff, Hafiz Muhammad Faisal Shehzad, Syed Hamid Hussain Madni (Universiti Teknologi Malaysia, Malaysia)
3-4	Integration of Artificial Intelligence in Adaptive Learning Model
	Nurul N. Jamal, Dayang N. A. Jawawi, Rohayanti Hassan, M. Irsyad Kamil R (Universiti Teknologi Malaysia, Malaysia)
3-5	The ways to solve educational and Psychological problems by Based Educational Helping Intervention and Online-Based Emotional Helping Intervention: Focusing on Chinese International Students in Korea
	Xiu Jin (Honam Univ., ROK), Sangwoo Hahm (Semyung Univ., ROK)

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Conference Program

| 08:30-11:00, Mon, Dec.14, 2020 |

Session 3: Smart Learning / e-Learning / Learning Contents Management Systems & Future Internet & Industrial Convergence Service (Room 3)

08:30-11:00, Mon, Dec. 14, 2020

Chair: Dr. Jang Hyun Kim
(Sungkyunkwan Univ., ROK)

3-6	Secure Password Awareness Educational Gamification System
	Anis Erdina Amirullah, Cik Feresa Mohd Foozy, Nordiana Rahim (University Tun Hussein Onn Malaysia, Malaysia), Adila Firdaus Arbain (Universiti Teknologi Malaysia, Malaysia), Palaniappan Shamala (Universiti Teknologi MARA Malaysia), Naqliyah Zainuddin (CyberSecurity Malaysia, Malaysia)
3-7	2D-Based Interactive Media English Learning For Elementary School Students
	Endah Sudarmilah, Taufiq Aryanto (Universitas Muhammadiyah Surakarta, Indonesia), Adila Firdaus Binti Arbain (University Technology Malaysia, Malaysia)
3-8	The Effect of Job Anxiety by Artificial Intelligence in the 4th Industrial Revolution Era on Job Satisfaction: Focusing on Moderating Role of Job Unclear
	Xiu Jin (Honam Univ., ROK), Chunfan Jin (Yanbian Univ., China), Sangwoo Hahm (Semyung Univ., ROK)
3-9	Implementation of NSI Framework on KREONet2: Towards future Internet
	Mazahir Hussain, Buseung Cho (KISTI, ROK)
3-10	Evolution of Information Exchange Models on Open Dynamic Chatbot Marketplace
	KangYoon Lee (Gachon Univ., ROK)

Conference Program

| 08:30-11:00, Mon, Dec.14, 2020 |

Session 4: IoT (Internet of Things) / Machine to Machine (Room 4)

08:30-11:00, Mon, Dec. 14, 2020

Chair: Dr. Jeongwook Seo
(Hanshin Univ., ROK)

4-1	Pose estimation performance analysis of PoseNet model based on edge devices
	Min-jun Kim, Young-woo Lee, Hye-min Kwon (Namseoul Univ., ROK), Chang-kyo Lee (Gumi Electronics & Information Technology Research Institut, ROK), Jong-Han Choi, Min-Goo Kang, Jeongwook Seo (Hanshin Univ., ROK)
4-2	Smart home energy management market segment review
	BadrAlsolami (Umm-Al-Qura Univ., Saudi Arabia), Muhammad Saidu Aliero (Monash Univ., Malaysia), YakubuAminu Dodo (Istanbul Gelisim Univ., Turkey), Nusa Jibril Danlamil (Niger State Ministry of Works & Transport Minna Niger State, Nigeria), Erekpitan Omoikhefe Ola-Adisa (Univ. of Jos, Nigeria)
4-3	Review on smart home energy management system approaches
	Yakubu Aminu Dodo (Istanbul Gelisim Univ., Turkey), Muhammad Saidu Aliero (Monash Univ., Malaysia), Amina Batagarawa (Baze Univ., Abuja-Nigeria), Soumia Mounir (FEZ Morocco New Univ., Morocco), Lawrence Pendo Moveh (Lagos State Univ. Teaching Hospital, Nigeria)
4-4	Smoking Detection Algorithm using Indoor Air Quality Sensor
	Yoosin Kim, Jeajin Lee, Hyun-young Kim (Alticast Inc., ROK)
4-5	Analysis of Research Trends for Anti-GPS Spoofing
	Jiwon Lee, Yebin Park, Jong-ho Bang (Seoul Women's Univ., ROK)

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Conference Program

| 08:30-11:00, Mon, Dec.14, 2020 |

Session 4: IoT (Internet of Things) / Machine to Machine (Room 4)

08:30-11:00, Mon, Dec. 14, 2020

Chair: Dr. Jeongwook Seo
(Hanshin Univ., ROK)

4-6	A System Structure for Detecting the Anomaly Data and Energy Consumption in the Real-time Energy Monitoring System
	Yeonjee Choi, Hyunsuk Hwang, Taeyeon Kim (New Communication Infotech, ROK)
4-7	Consumer Preference for Electricity Pricing's Choice Rate System based on IoT : The case of South Korea
	Solji Nam, Jungwoo Shin (Kyung Hee Univ., ROK)
4-8	Analysis of Compressed Sensing Method and Performance of Large IoT Sensor Data
	Hyemin Kwon, Young-woo Lee, Min-jun Kim (Namseoul Univ., ROK), Chang-kyo Lee (Gumi Electronics & Information Technology Research Institute, ROK), Jong-Han Choi, Min-Goo Kang, Jeongwook Seo (Hanshin Univ., ROK)
4-9	Security Challenges of Blockchain in Digital Healthcare and Internet of Things Systems: A Review
	Aitizaz Ali, Muhammad Fermi Pasha, Muhammad Hasnain, Rafia Afzal (Monash Univ., Malaysia)
4-10	Positive Experience Design Methods of IOT Intelligent Product
	Chun-mao Wu, Hua-yuan Xu (Donghua Univ., China)

Conference Program

| 08:30-11:00, Mon, Dec.14, 2020 |

Session 5: Multimedia / Image Processing / HCI / Intelligent Systems (Room 5)

08:30-11:00, Mon, Dec. 14, 2020

Chair: Dr. Min Hong
(Soonchunhyang Univ., ROK)

5-1

Research on Multi-channel Face Recognition Based on Siamese Network

Xibin Jia, Ntazana Mazimba Windi Siluyele, Meng Yukun, Yao Jigang
(Beijing Univ. of Technology, China)

5-2

Efficient Object Counting Method for Object Detection and Tracking Services

Youngchan Lee, SoYeon Lee (Daegu Catholic Univ., ROK), Seokhoon Kim
(Soonchunhyang Univ., ROK), Dae-Young Kim (Daegu Catholic Univ., ROK)

5-3

Dialogue Agent for Parent Management Training

Liguo Zhang, Joon-Young Paik (Tiangong Univ., China)

5-4

Performance Analysis the of Cerebrospinal Fluid (CSF) Cell Diseases

Soobia Saeed, Afnizanfaizal Abdullah (Universiti Teknologi Malaysia, Malaysia)

5-5

Coronary artery calcium detection from heart CT scans using deep learning

Sungjin Lee, Beanbonyka Rim, Junseob Kim (Soonchunhyang Univ., ROK),
Xibin Jia (Beijing Univ. of Technology, China), Min Hong (Soonchunhyang Univ., ROK)

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Conference Program

| 08:30-11:00, Mon, Dec.14, 2020 |

Session 5: Multimedia / Image Processing / HCI / Intelligent Systems (Room 5)

08:30-11:00, Mon, Dec. 14, 2020

Chair: Dr. Min Hong
(Soonchunhyang Univ., ROK)

5-6	Deep Learning based Cardiac Arrest Prediction using Vital sign and Lab code
	Minsu Chae, SangWook Han, Geonil Yun (Soonchunhyang Univ., ROK), Hyo-Wook Gil (Soonchunhyang Univ., Cheonan hospital, ROK), Min Hong, DoKyeong Lee, HwaMin Lee (Soonchunhyang Univ., ROK)
5-7	A Customer Demographics-aware Restaurant Recommendation System: A Deep Learning Approach
	Afaq Muhammad, Gangseok Kim, Jie Xu, Yong-doo Jin, Wang-Cheol Song (Jeju National Univ., ROK)
5-8	Classification of knee Osteoarthritis in Anterior Cruciate Ligament with Convolution Neural Network
	Mazhar Javed Awan, Mohd Shafry Mohd Rahim, Naomie Salim (University Technology Malaysia, Malaysia), Hassan Shabir (Univ. of Management & Technology, Pakistan)
5-9	Real-time Vehicle Tracking Management System using GPS & GPRS
	Afnan Badar Sadhaya, Qasim Ali Arain, Isma Farah Siddiqui, Zahid Hussain Khaskali (Mehran Univ. of Engineering and Tehnology, Pakistan)

Conference Program

| 14:00-16:30, Mon, Dec.14, 2020 |

Session 6: Database / Data Mining / Big Data / Mobile Object Database (Room 1)

14:00-16:30, Mon, Dec. 14, 2020

Chair: Dr. Jihwan Kim
(Sogang Univ., ROK)

6-1	Solving Complex Job Shop Scheduling Problem Using Self-Supervised LSTM
	Xiaorui Shao, Chang-Soo Kim (Pukyong National Univ., ROK), Dae Geun Kim (Korea Dyeing & Finishing Technology Institute, ROK), Ilkyeun Ra (Univ. of Colorado Denver, USA)
6-2	Enhancing Environmental Data Forecasting Performance by Utilizing Multi-region Data with Hard-parameter sharing
	Jang-Ho Choi, Miyoung Jang, Taewhi Lee, Jongho Won, Jiyong Kim (ETRI, ROK)
6-3	A Study on the Frame on News of VR and AR
	Sang Hee Kweon, Hyeon Ju Cha (Sungkyunkwan Univ., ROK)
6-4	A Unique Approach towards Database Service Recovery using Centrally Managed Backup Containers
	Adnan Younas, Hussein A Mubaireek (Saudi Aramco, Saudi Arabia)
6-5	Comparative Evaluation of State-of-the-Art Approaches in Association Rules Mining
	Syed Mazhar Ali Shah, Anazida Zainal (University Technology Malaysia, Malaysia)

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Conference Program

| 14:00-16:30, Mon, Dec.14, 2020 |

Session 6: Database / Data Mining / Big Data / Mobile Object Database (Room 1)

14:00-16:30, Mon, Dec. 14, 2020

Chair: Dr. Jihwan Kim
(Sogang Univ., ROK)

6-6	RuleLat: A Rule-based Model Visualization Tool for Machine Learning Interpretability
	Josue Obregon, Jae-Yoon Jung (Kyung Hee Univ., ROK)
6-7	Comparative Study of Database Tools for Android Application: A Bird's Eye View
	Hina Hussain (Mehran Univ. of Engineering and Tehnology, Pakistan), Nawab Muhammad Faseeh Qureshi (Sungkyunkwan Univ., ROK), Qasim Ali (Mehran Univ. of Engineering and Tehnology, Pakistan), Isma Farah Siddiqui (Mehran Univ. of Engineering and Technology, Pakistan)
6-8	Hyperledger Fabric for Livestock Traceability: Addressing the Impact of Poultry Supply Chain on Human Health and Climate Change
	Aliyu Ibrahim, Cen Senfeng, Usmonov Kamoliddin, Ju Ho Kim, Akromjon Obidov, Chang Gyoon Lim (Chonnam National Univ., ROK)
6-9	Prediction Modeling For Vision Screening Of Heavy Transport Vehicle (HTV) Drivers
	Tayaba Jawed, Isma Farah Siddiqui, Qasim Ali (Mehran Univ. of Engineering & Technology, Pakistan)
6-10	Interpretability of Machine Learning Based Forecasting Models of Wind Power Generation in Jeju Island, South Korea
	Young-Suk Han, Donghyun Park, Minwoo Baek, Jae-Yoon Jung (Kyung Hee Univ., ROK)

Conference Program

| 14:00-16:30, Mon, Dec.14, 2020 |

Session 7: IoT (Internet of Things) / Machine to Machine & Software Engineering & Architecture / Cloud Computing (Room 2)

14:00-16:30, Mon, Dec. 14, 2020

Chair: Dr. Kwanghoon Pio Kim
(Kyonggi Univ., ROK)

7-1	A Web-based AI Platform for Interactive Supercomputing Service
	Guohua Li, Joon Woo, Seongjun Kim, Minwoo Kwon, Taeyoung Hong (KISTI, ROK)
7-2	To Improve Software Testing in Crowd-based Outsourcing Environment by Relating Levels of Testing with Personality Characteristics
	Zainab Umair Kamangar, Isma Farah Siddiqui, Qasim Ali, Umair Ayaz Kamangar, Sunbul Sajid Khawaja (Mehran Univ. of Engineering & Technology, Pakistan)
7-3	Ensemble Learning Models for Classification and Selection of Web Services: A Review
	Muhammad Hasnain (Monash Univ., Malaysia), Imran Ghani (Indiana Univ. of Pennsylvania, USA), Seung Ryul Jeong (Kookmin Univ., ROK)
7-4	An Automatic Approach to Identifying Tasks from a Code Change
	Taeyoung Kim, Suntae Kim (Chonbuk National Univ., ROK)
7-5	Business Process Feature Model in Identifying Potential Core Assets
	Ain Balqis Md Nor Basmmi, Shahliza Abd Halim, Dayang N. A. Jawawi (Universiti Teknologi Malaysia, Malaysia)

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Conference Program

| 14:00-16:30, Mon, Dec.14, 2020 |

Session 7: IoT (Internet of Things) / Machine to Machine & Software Engineering & Architecture / Cloud Computing (Room 2)

14:00-16:30, Mon, Dec. 14, 2020

Chair: Dr. Kwanghoon Pio Kim
(Kyonggi Univ., ROK)

7-6	Extended Feature Model for Quality Attribute Identification in Software Product Line Architecture
	Afifah M. Ashari, Shahliza A. Halim, Dayang N. A. Jawawi (Universiti Teknologi Malaysia, Malaysia), Ushananthiny Suvelayutnan (Hospital Sultanah Aminah, Malaysia)
7-7	Hybrid in-memory storage for stable and high-performance virtual desktop Infrastructure
	Dae Won Kim, Soo Cheol Oh, Ji Hyeok Choi, Seong Woon Kim (ETRI, ROK)
7-8	An Efficient Test Case Selection and Change Detection Framework for Regression Testing
	Israr Ghani, Wan M.N. Wan-Kadir, Adila Firdaus Binti Arbain, Omeed Kamal Khursheed (University Technology Malaysia, Malaysia)
7-9	Product Identification Technique Using Deep Learning in Smart Factory
	Yewon Choi, JongEon Byeon, NaHun Lee, Sanghwa Lee, Hayong Jeon (Kyungnam Univ., ROK)
7-10	Development of an Air Quality Monitoring Device for Accommodation Facilities based on Service Design Methods
	Kwanpyo Choi, Taekheon Ahn, Semi Park (Grib Co., Ltd. ROK), Mihee Han (P&D Design, ROK), Ilsoon Bang (ELT Sensor, ROK)

Conference Program

| 14:00-16:30, Mon, Dec.14, 2020 |

Session 8: Wireless and Sensor Network / Security & Privacy in Internet (Room 3)

14:00-16:30, Mon, Dec. 14, 2020

Chair: Dr. Seokhoon Kim
(Soonchunhyang Univ., ROK)

8-1	Fingerprint-based Beam Selection and Cooperation for Millimeter-wave UAV Communication
	Huaping Liu (Oregon State Univ., USA), Hyeonsung Kim, Intae Hwang, Sangmi Moon (Chonnam National Univ., ROK)
8-2	Bit Swarm Enhancements based Wireless Sensor Networks
	Hawezi Omeed kamal khorsheed, MD Asri Bin Ngadi, Abdul Hanan Abdullah, Israr Ghani (University Technology Malaysia, Malaysia)
8-3	A Survey of Deep Learning Techniques used for Ransomware Attacks Detection
	Umara Urooj, Mohd Aizaini Bin Maarof (University Technology Malaysia, Malaysia), Bander Ali Saleh Al-rimy (Unitar International Univ., Malaysia)
8-4	Recent Advancement in Wireless Sensor Networks: Model, Architecture, Standards, Challenges and Future Aspect
	Hawezi Omeed kamal khorsheed, MD Asri Bin Ngadi, Abdul Hanan Abdullah, Israr Ghani (Universiti Teknologi Malaysia, Malaysia)
8-5	A Study on the Response of Cyber Threats Based on ATT&CK to Mitigate Vulnerability in the National Defense Network
	GwangHyun Ahn (Sejong Univ., ROK), WonHyung Park (Sangmyung Univ., ROK), Ji Won Kang, DongKyoo Shin (Sejong Univ., ROK)

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Conference Program

| 14:00-16:30, Mon, Dec.14, 2020 |

Session 8: Wireless and Sensor Network / Security & Privacy in Internet (Room 3)

14:00-16:30, Mon, Dec. 14, 2020

Chair: Dr. Seokhoon Kim
(Soonchunhyang Univ., ROK)

8-6	Empirical evaluation on a multipath routing protocol for low-duty-cycled WSNs
	Hyo Won Cho, Hyungkeun Lee (Kwangwoon Univ., ROK)
8-7	Clustering Techniques to Reduce Routing Overhead in Ad hoc Networks
	Hawezi Omeed kamal khorsheed, MD Asri Bin Ngadi, Abdul Hanan Abdullah, Israr Ghani (University Technology Malaysia, Malaysia)
8-8	Comparative Analysis of Access Control Models: Types and Challenges
	Aitizaz Ali, Muhammad Fermi Pasha, Ong Hue, Muhammad Hasnain (Monash Univ., Malaysia)
8-9	A Permission Blockchain-based Chain of Custody at a First Glance
	Seolah Jang, Kyung-Hyune Rhee (Pukyong National Univ., ROK)
8-10	A Study on an Efficient Certificate-Based Aggregate Signature Scheme Providing Key Insulated in IIoT Environment
	Yong-Woon Hwang, Im-Yeong Lee (Soonchunhyang Univ., ROK)

Conference Program

| 14:00-16:30, Mon, Dec.14, 2020 |

**Session 9: Management of Internet Application / E-Business / E-Commerce
& SNS & Communications / Digital media use & effects & DLMAT workshop
(Room 4)**

**Chair: Dr. Sangmin Lee
(CHA Univ., ROK)**

14:00-16:30, Mon, Dec. 14, 2020

9-1	A Study on the Major Factors Affecting Government Policy in the Corona-19 Situation
	Jung Chan Lee, Do Hoon Kim, Bong Gyou Lee (Yonsei Univ., ROK)
9-2	NepaliKisan: A Web based Agriculture Management Information System (A-MIS)
	Deepanjal Shrestha, Tan Wenan (Nanjing Univ. of Aeronautics and Astronautics, China), Neesha Rajkarnikar (Nanjing Tech Univ., China), Deepmala Shrestha (Pokhara Univ., Nepal), Seung Ryul Jeong (Kookmin Univ., ROK)
9-3	Automation Mechanism of Detecting Suspected Piracy Video Streaming Sites
	Minkyung Lee, Deuk-Hun Kim, Jin Kwak (Ajou Univ., ROK)
9-4	Prediction Method for New Domain of Suspected Copyright Infringement Site
	Hae-Seon Jeong, Deuk-Hun Kim, Jin Kwak (Ajou Univ., ROK)
9-5	Automated Detection Architecture for Piracy Sites Based on Link Collection Sites
	Eui-Jin Kim, Deuk-Hun Kim, Jin Kwak (Ajou Univ., ROK)

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Conference Program

| 14:00-16:30, Mon, Dec.14, 2020 |

Session 9: Management of Internet Application / E-Business / E-Commerce & SNS & Communications / Digital media use & effects & DLMAT workshop (Room 4)

Chair: Dr. Sangmin Lee
(CHA Univ., ROK)

14:00-16:30, Mon, Dec. 14, 2020

9-6	Usability and Performance Evaluation of Medical Institution Websites in Malaysia
	Nor Azman Ismail, Mohd Ainal Farhan Mohamad Johari, Mohammad Ridzwan Syah Irwan, Mohamad Faiz Hakimi Ishak, Su Elya Namira Mohamed (Universiti Teknologi Malaysia, Malaysia)
9-7	Exploring Levels of Credit Risk in P2P Lending: A Quantitative and Qualitative Emotion Mining Method
	Min Gyeong Kim, Francis Joseph Costello, Tolchinski Rita, Kun Chang Lee (Sungkyunkwan Univ., ROK)
9-8	Sentiment Analysis: Study of Social Behaviour of Youth in Different Social Class
	Nor Azman Ismail, Siti Noorafishah Abd Latif, Su Elya Namira Mohamed (Universiti Teknologi Malaysia, Malaysia)
9-9	A Novel Approach for Airport Recommendation Using the Comparison of Hierarchical Regression, PLS-SEM, and Bayesian Network-Based PSEM
	Cheong Kim, Dong Eun Lee, Kyun Sun Eo, Kun Chang Lee (Sungkyunkwan Univ., ROK)
9-10	C3BR: A Novel Multi-Label Classification Ensemble Mechanism
	Jong Yoon Won, Chang Min Kang, Dong Eun Lee, Kun Chang Lee (Sungkyunkwan Univ., ROK)

Conference Program

| 14:00-16:30, Mon, Dec.14, 2020 |

Session 10: Interactive Presentation Session I (Room 5)

14:00-16:30, Mon, Dec. 14, 2020

Chair: Dr. Seok-Pil Lee
(Sangmyung Univ., ROK)

10-1	Glass Shape and the Perception of Orange Juice
	Chun-mao Wu, Hong-lei Zhou (Donghua Univ., China)
10-2	Research on the Influence of Cross-border E-commerce on Consumers' Purchasing Intention under the Internet+
	Ziyang LIU, XiaoYin LIU, JiaYu LIU (Zhengzhou University, China)
10-3	Unsupervised Image-to-Image Translation Using Generative Adversarial Networks Based on Dual Attention Network
	Yulin Yang, Rize Jin (Tiangong Univ., China)
10-4	MVC based Approach to Consume Weather API: A Mobile Phone System
	Maria Clara Gracia, Cassandra Lefever, Dana Long, Franklin May, Imran Ghani (Indiana Univ. of Pennsylvania, USA)
10-5	MVC Based Approach to Implement Employees Time Tracking System
	Rohith Gattu, Shane Peterson. Tyler Omune, Logan Peters, Imran Ghani (Indiana Univ. of Pennsylvania, USA)
10-6	MVC Based Approach to Implement Prediction and Betting System
	Hunter M. Sargent, Jonathan Shar, Trent Moorhead, Joseph Mundell, Imran Ghani (Indiana Univ. of Pennsylvania, USA)

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Conference Program

| 14:00-16:30, Mon, Dec.14, 2020 |

Session 10: Interactive Presentation Session I (Room 5)

14:00-16:30, Mon, Dec. 14, 2020

Chair: Dr. Seok-Pil Lee
(Sangmyung Univ., ROK)

10-7	MVC based Approach to Implement Online Educational Plant Content Management System
	Neil Yoder, Brooklyn Kotula, Seth Edwards, Michaela Lutz, Imran Ghani (Indiana Univ. of Pennsylvania, USA)
10-8	MVC based Approach to Implement Web-based Food Ordering System
	Preston Dulion, Luke Tvarozna, Joseph Gula, Nicholas Villano, Imran Ghani (Indiana Univ. of Pennsylvania, USA)
10-9	MVC Based Implementation for Online Surveys
	Gayah Karmo, Jeffrey Cook, Joseph Frantzen, Zachary Boyer, Imran Ghani (Indiana Univ. of Pennsylvania, USA)
10-10	The impact of online business service quality of Chinese snack foods on consumer satisfaction and willingness to buy back
	Dandan Yu, Lanmeng Wu (Peking Univ., China)
10-11	Research on Satisfaction Evaluation Based on Tourist Big Data
	Rui LIANG, Hanwen GUO, Zeyu JIAO (Beijing Union Univ., China), Ziyang Liu (Kyonggi Univ., ROK)
10-12	A Study on the Influence Factors of User's Will to Use on Shared Residential Platform
	Zhouyang Li (Xinxiang Univ., China), Weijia Li, Ziyang Liu (Kyonggi Univ., ROK)

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Conference Program

| 14:00-16:30, Mon, Dec.14, 2020 |

Session 10: Interactive Presentation Session I (Room 5)

14:00-16:30, Mon, Dec. 14, 2020

Chair: Dr. Seok-Pil Lee
(Sangmyung Univ., ROK)

10-13	The Impact of Creating Shared Value (CSV) Activities on the Image, Attitude and Purchase Intention in E-commerce
	Huijie REN (Taiyuan Univ. of Technology, China), Dai Hao (Kyonggi Univ., ROK)
10-14	The Influence of Service Quality of High-star Hotels and Online Word-of-mouth Marketing on Customer Loyalty
	Yixuan Zhu, Kang Peng (Hunan Institute of Technology, China)
10-15	An Analysis of Chinese Local College Students Employment Choices and Factors Influencing the Choice
	Shuo Liu (Xinyang Normal Univ., China)

Conference Program

| 16:40-18:00, Mon, Dec.14, 2020 |

**Session 11: Smart Phone Applications and Service / Mobile Internet
Computing & Wireless and Sensor Network / Security & Privacy in Internet
& effects & Multimedia / Image Processing / HCI / Intelligent Systems
(Room 1)**

16:40-18:00, Mon, Dec. 14, 2020

**Chair: Dr. Jeongwook Seo
(Hanshin Univ., ROK)**

11-1	Deep Neural Network-Based Deep Packet Inspection for Improving Traffic Steering in Real-Time IoT Network
	Sa Math, Prohim Tam, Seokhoon Kim (Soonchunhyang Univ., ROK)
11-2	Traceability Issues in Segregated Learning with Decentralized Incentives
	Sandi Rahmadika, Kyung-Hyune Rhee (Pukyong National Univ., ROK)
11-3	Optimizing Actuators Deployment with Multi-layer particle swarm optimization for wireless sensor and actuator networks
	Yamin Han, Heejung Byun (Univ.of Suwon, ROK)
11-4	Optimized Encoder Settings in Vehicle Network Environment
	Byoungman An, Youngseop Kim (Dankook Univ., ROK)

Conference Program

| 16:40-18:00, Mon, Dec.14, 2020 |

Session 12: Multimedia / Image Processing / HCI / Intelligent Systems (Room 2)

16:40-18:00, Mon, Dec. 14, 2020

Chair: Dr. Min Hong
(Soonchunhyang Univ., ROK)

12-1

A Survey on Deep Learning Approach in ECG Signals for Cardiac Arrhythmias Classification

Beanbonyka Rim, Jun Ma, Lyudmila Dmitrievna Khan, Min Hong
(Soonchunhyang Univ., ROK)

12-2

A Design of Multi-Condition Emotional Speech Synthesizer

Sung-Woo Byun, Seok-Pil Lee (Sangmyung Univ., ROK)

12-3

A CNN-based Place Recognition with Attention Method in Broadcasting Video

Giseok Choe, Jongho Nang (Sogang Univ., ROK)

12-4

AR based realistic cloth simulation using spatial mapping

Jun Ma, Lyudmila Dmitrievna Khan, Va Hongly, Min Hong (Soonchunhyang Univ., ROK)

Conference Program

| 16:40-18:00, Mon, Dec.14, 2020 |

Session 13: Interactive Presentation Session II (Room 3)

16:40-18:00, Mon, Dec. 14, 2020

Chair: Dr. Jong-Moon Chung
(Yonsei Univ., ROK)

13-1	Suggestions of plans for revitalizing online-based education and the 4th industrial revolution technology development in the Cameroon environment
	Sangwoo Hahm, Mbong Kome Ngole, Isaac Umalaka (Semyung Univ., ROK), Eta Ngole (Ministry of public health, Cameroon)
13-2	A Study on Hash Chain-based Authentication to Improve the Security of the VMF Military Standard
	Dohoon Kim, Sang Seo, Heesang Kim (Kyonggi Univ., ROK), Won-Gi Lim (Agency for Defense Development, ROK)
13-3	A Practical Data Preparation Approach for Machine Learning ovrogeous Data Sources
	Taewhi Lee, Jang-Ho Choi, Miyoung Jang, Jongho Won, Jiyong Kim (ETRI, ROK)
13-4	A study of building techniques for easy and fast implement an application in various mobile environments
	Kunjung Sim, LIN BIN, YoungHwan Lim (Soongsil Univ., ROK)
13-5	Region-based video software game sharing application
	Yoseb Lee, YoungHwan Lim, Kunjung Sim, LIN BIN (Soongsil Univ., ROK)
13-6	Runtime Memory Usage Optimization For 64-bit OS
	Jinman Kwon, Chungki Woo, Jaekook Kwon (Samsung Electronics Co., Ltd ROK)

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Conference Program

| 16:40-18:00, Mon, Dec.14, 2020 |

Session 13: Interactive Presentation Session II (Room 3)

16:40-18:00, Mon, Dec. 14, 2020

Chair: Dr. Jong-Moon Chung
(Yonsei Univ., ROK)

13-7	Optimizing Interprocess Communication for Embedded OS
	Yonghyeok Lee, Chungki Woo, Jaeook Kwon (Samsung Electronics Co., Ltd, ROK)
13-8	Blockchain-based AI Malware Detection Knowledge-Sharing and Private Data Market Platform
	Uk Jo, Dohun Kim, Howon Kim (Pusan National Univ., ROK)
13-9	Traffic Demand Generation for Urban Road Network
	Hyewon Song, Moonyoung Chung (ETRI,ROK)
13-10	Adjustment of color coordinates to improve JPEG compression performance
	Shahid Abbas, Oh-Jin Kwon, Seungcheol Choi (Sejong Univ., ROK)
13-11	Experience Augmentation for Fast Deep Reinforcement Learning
	Mingyu Pi, Moonyoung Chung (ETRI, ROK)

Conference Program

| 16:40-18:00, Mon, Dec.14, 2020 |

Session 14: Interactive Presentation Session III (Room 4)

16:40-18:00, Mon, Dec. 14, 2020

Chair: Dr. In Seop Na
(Chosun Univ., ROK)

14-1	An Efficient Method for Ground-truth Generation of Image Forgery Datasets
	Nam Pham (AI Pro Inc., ROK), Sihyun Park, Chunsu Park (Sungkyunkwan Univ., ROK)
14-2	A Study on Control Platform Based on Arduino Uno
	Dongeon Yoon, Hyosang Lee, Amsuk Oh (Tongmyong Univ., ROK)
14-3	A Study on Implementation of Computer Programming Language by Flowgorithms
	Kalaphath Kounlaxay (Souphanouvong Univ., Laos), Shin-Jin Kang (Hongik Univ., ROK), Yoon-sik Shim (Pai Chai Univ., ROK), Soo Kyun Kim (Jeju National Univ., ROK)
14-4	Development of portable plantar pressure mat sensor and monitoring system
	Dae Gyeom Kim, Young Kim, Jun Ma, Lyudmila Dmitrievna Khan, Min Hong, Se Dong Min (Soonchunhyang Univ., ROK)
14-5	Design of Untact Distance Learning Platform based on OTT devices
	Yejin Jang, Hajeong Yoo, Yumin Jo, Jongho Paik (Seoul Women's Univ., ROK), Si Young Lee (Aloys, ROK)
14-6	The Effect of Quality of Education System and Teachers' Characteristics on Educational Performance: Focusing on the Moderating Role of Online Educational Fitness
	Xiu Jin (Honam Univ., ROK), Chunfan Jin (Yanbian Univ., China), Sangwoo Hahm (Semyung Univ., ROK)

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Conference Program

| 16:40-18:00, Mon, Dec.14, 2020 |

Session 14: Interactive Presentation Session III (Room 4)

16:40-18:00, Mon, Dec. 14, 2020

Chair: Dr. In Seop Na
(Chosun Univ., ROK)

14-7	An Energy-efficient Control Approach for Configuration Propagation with Self-triggered Control in Multi-agent Networking Systems
	Yamin Han, Heejung Byun (Univ. of Suwon, ROK)
14-8	Performance Evaluation of Container-Based Clouds with Kubernetes
	Younghwan Shin, Byounghoon Son, Jeongyoon Shin, Sangdo Kim, Jong-Moon Chung (Yonsei Univ., ROK)
14-9	A Study on Cross-Domain Data Integration Strategy in Post-Pandemic Era
	Jeonghoon Lee (KISTI, ROK)
14-10	Expansion of English Corpus for Training by Sentence Transformation Rules
	Sungho Shin, Sa-Kwang Song (KISTI, ROK)
14-11	A Preliminary Study on UI/UX Design Evaluation Guidelines for XR Contents
	Eeksu Leem (Hongik Univ., ROK), Jeongwook, Seo, Mingoo, Kang, Hyoseok Yoon (Hanshin Univ., ROK), Sangyep Nam (Kookje Univ., ROK), Hyunsik Kim (KETI, ROK)
14-12	Emotion analysis and behavior prediction using layered voice analysis
	Min Jae Park (DaelimUniv. College, ROK), Sanghyun Paik (MIRAESON Co., Ltd, ROK), Kwanghoon Pio Kim (Kyonggi Univ., ROK)

Conference Program

| 16:40-18:00, Mon, Dec.14, 2020 |

Session 15: Interactive Presentation Session IV (Room 5)

16:40-18:00, Mon, Dec. 14, 2020

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

15-1	Method of Calibrating Inertial Measurement Unit for Recording Human Pose Data
	Meejin Kim, Byung-Ha Park (KETI, ROK)
15-2	Two Hands Segmentation from Depth Images with a Neural Network
	Sukwon Lee, Sungoh Jung, Byung-Ha Park (KETI, ROK)
15-3	Remote Synchronization for Identifying the LED Markers
	Sukwon Lee, Byung-Ha Park (KETI, ROK)
15-4	The study of complex sensor using the IoT sensor and artificial intelligence model
	Youngmin Ji, Dongwoo Kwon (KETI, ROK)
15-5	Sensor Configuration-based IoT Environmental Sensor Device Management
	Dongwoo Kwon (KETI, ROK), Kisu Ok (Seoul National Univ., ROK), Youngmin Ji (KETI, ROK)
15-6	VR-Based Simulation System for the Coriolis Illusion During Flight
	YoungBeom Kim, Kwang-Mo Jung (KETI, ROK)

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Conference Program

| 16:40-18:00, Mon, Dec.14, 2020 |

Session 15: Interactive Presentation Session IV (Room 5)

16:40-18:00, Mon, Dec. 14, 2020

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

15-7	Training Monitoring System for Spatial Disorientation Simulators
	YoungBeom Kim, Kwang-Mo Jung (KETI, ROK)
15-8	An automatic generation of scene description for video retrieval by Korean image captioning and face recognition
	Choongsang Cho, Young Han Lee, Min Soo Ko, Hyok Song (KETI, ROK)
15-9	A real-time de-identification by object detection and elimination of human identification information from video contents
	Min Soo Ko, Young Han Lee, Choongsang Cho, Hyok Song (KETI, ROK)
15-10	Entry Prediction into Hazardous Areas with Encoding Crowd Interaction
	Inkyu Choi, Min Soo Ko, Young Han Lee, Hyok Song (KETI, ROK)
15-11	Design and Implementation BMC based Edge Server System Control Module in Rugged Environment
	Seung Gwon Kim, Younghwan Kim, Jae-Hoon An (KETI, ROK)
15-12	Design and Implementation of Chassis Manager to control and Manage Edge Server in Rugged Environment
	Young-Rim Choi, Jae-Hoon An, Young-Hwan Kim (KETI, ROK)

Conference Program

| 09:30-11:00, Tue, Dec.15, 2020 |

Session 16: KETI Workshop (Room 1)

09:30-11:00, Tue, Dec. 15, 2020

Chair: Dr. Kiwon Kwon
(KETI, ROK)

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| 16-1 | Demonstration of disaster information and evacuation support services for the disabled and the elderly
Ilryong Kweon, Minho Son (PODO Inc., ROK), Taeho Jung (National Disaster Management Research Institute, ROK), Hanjun Lee, Onyu Kim, Yugyeong Kang (PODO Inc., ROK) |
| 16-2 | Real-Time Automobile Type and License Plate Recognition System
Jeong-Ah Kim, Ju-Yeong Sung, Se-Ho Park (KETI, ROK) |
| 16-3 | Self-attention Hough Voting Network for 3D Object Detection in Point Clouds
HyeOk Choi, Seho Park, Kyung-Taek Lee (KETI, ROK) |
| 16-4 | Pose Tracking in Dynamic Scene using Monocular Camera and IMU sensor
Sukwoo Jung, Seho Park, KyungTaek Lee (KETI, ROK) |
| 16-5 | Automatic Video Splitting System based on Inter-frame Similarities
Jaewon Lee, Dalwon Jang, JongSeol Lee (KETI, ROK) |
| 16-6 | Demonstration of High-precision 3D Spatial Data Sharing Platform Services
Ilryong Kweon, Minho Son, Jungsun Ryu (PODO Inc., ROK) |
| 16-7 | Semantic REST API: Towards Interoperability in Semantic and Non-semantic Environments
Sunil Kumar, Jieun Lee, SeungMyeong Jeong (KETI, ROK) |

Conference Program

| 09:30-11:00, Tue, Dec.15, 2020 |

Session 17: Computational Science and Engineering Platform and Education based on HPC (Room 2)

09:30-11:00, Tue, Dec. 15, 2020

Chair: Dr. Nam-Gyu Kim
(KISTI, ROK)

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| 17-1 | Analysis of the moderating effect of fields, grades, and experience on the platform quality and reuse intention of computational science and engineering
Nam-Gyu Kim, Noo Ri On, Myoung-Ju Koh, Inho Jeon, Jong Suk Ruth Lee (KISTI, ROK) |
| 17-2 | A Study on Satisfaction of Users in Computational Science and Engineering Platform - the case of University
Noori On, INHO JEON, Namgyu Kim, and Jongsuk Ruth Lee (KISTI, ROK) |
| 17-3 | Automation technique of parallel distributed processing for machine learning on HPC-based AI platform
Seokkeun Yi (KISTI, ROK) |
| 17-4 | Data science education improvement plan based on demand survey
Haejin Kang, Seunghwa Jung (KISTI, ROK) |
| 17-5 | Indexing processing method trend and performance analysis survey on Bio big data
Yejin Kwon, Jongsuk R. Lee, Sunil Ahn (KISTI, ROK) |
| 17-6 | Design of GUI-based deep learning neural network service model to support various frameworks
Jae-Gwang Lee, Jongsuk R. Lee, Sunil Ahn (KISTI, ROK) |
| 17-7 | Design of Simulation Job Cache System on a Computational Science Platform
Inho Jeon, Noori On, Nam-Gyu Kim, Jong Suk Ruth Lee (KISTI, ROK) |

Conference Program

| 11:10-12:40, Tue, Dec.15, 2020 |

Session 18: AI and Big Data Technologies for Crime Prevention I (Room 1)

11:10-12:40, Tue, Dec. 15, 2020

Chair: Dr. Kyungyong Chung
(Kyonggi Univ., ROK)

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|------|---|
| 18-1 | Pancreas Segmentation using Deep Learning Model
Sang-Yun Lee, Byoung-Dai Lee, Namgi Kim (Kyounggi Univ., ROK) |
| 18-2 | An investigation on the effect of imputing missing values on time series forecasting model performance
Hyun Ahn, Dinh-Lam Pham, Kyoungsook Kim (Kyonggi Univ., ROK), Haesung Lee (KEPCO Research Institute, ROK), Minjae Park (Dalim Univ. College, ROK), Kwanghoon Kim (Kyonggi Univ., ROK) |
| 18-3 | CNN Internal Operation Analysis Model using Feature Map
Ji-Soo Kang, Ji-Won Baek, Hyun Yoo (Kyonggi Univ., ROK) |
| 18-4 | A Featured Appropriateness Bigdata-Discovery Approach for Human Resources Allocation in Business Processes
Dinh Lam Pham, Hyun Ahn, Kyoung-sook Kim (Kyonggi Univ., ROK), Minjae Park (Dalim Univ. College, ROK), Kwanghoon Pio Kim (Kyonggi Univ., ROK) |
| 18-5 | Traffic-Crime Association Knowledge using Text Mining in Streaming Contents
Ji-Won Baek, Hye-Jeong Kwon, Joo-Chang Kim (Kyonggi Univ., ROK), Hoill Jung (Daelim Univ. College, ROK), Kyungyong Chung (Kyonggi Univ., ROK) |
| 18-6 | Correlation Analysis between Influencing Factors and Traffic Speed in Accident Prone Areas
Min-Jeong Kim, Ji-Soo Kang, Sung-Soo Park, Dong-Hoon Shin (Kyonggi Univ., ROK), Roy C. Park (Sangji Univ., ROK), Kyungyong Chung (Kyonggi Univ., ROK) |
| 18-7 | Factors Affecting Korean Public Opinion of the Police: The Conflict Perspective
Myeonggi Hong, Jeong-Hyeon Chang (Kyonggi Univ., ROK), Jeeseon Hwang (Seoul National Univ., ROK), Nayoung Ko, EuiGab Hwang (Kyonggi Univ., ROK) |

Conference Program

| 11:10-12:40, Tue, Dec.15, 2020 |

Session 19: AI and Big Data Technologies for Crime Prevention II (Room 2)

11:10-12:40, Tue, Dec. 15, 2020

Chair: Dr. Kwanghoon Pio Kim
(Kyonggi Univ., ROK)

19-1	Criminal Face Recognition in CCTV video using VDSR for Crime Prevention
	Nakhoon Choi, Ji-Soo Kang, Sohyun Lim, Hyunbin Kim, Heeyoul Kim (Kyonggi Univ., ROK)
19-2	Can Explanations for Online and Offline Delinquency be Mutually Exclusive? : A Multinomial Logistic Regression of Self-Control and Opportunity Factors
	Nayoung Ko, Myeonggi Hong (Kyonggi Univ., ROK), Jeeseon Hwang (Seoul National Univ., ROK), Jeong-Hyeon Chang, EuiGab Hwang (Kyonggi Univ., ROK)
19-3	An Evaluation of a Deep Learning-based Vehicle Tracking Method Using Live Traffic CCTV Data
	Sunwon Kang, Byoung-Dai Lee (Kyonggi Univ., ROK)
19-4	Media Violence Exposure and Public Confidence in the Police: Examining the Mediating Role of Fear of Crime
	Yongil Lee, Donghan Lee, Dongyeong Maeng, Eunhye Kim, Jihui Shin, EuiGab Hwang (Kyonggi Univ., ROK)
19-5	An Active Contents-Bigdata Engineering Framework for Intelligent-led Crime Prevention and Prediction
	Kyunghee Sun, Jeong-Hyun Chang, Hyun Yoo, Kyoung-Sook Kim, Hyun Ahn, Kwanghoon Pio Kim (Kyonggi Univ., ROK)
19-6	Predicting Next Workflow-Activities Using LSTM-based Deep-Learning Neural Networks
	Youngin Park, Jaeyoung Yun, Kwanghoon Pio Kim (Kyonggi Univ., ROK)

Conference Program

| 13:40-15:10, Tue, Dec.15, 2020 |

Session 20: Interactive Presentation Session V (Room 1)

13:40-15:10, Tue, Dec. 15, 2020

Chair: Dr. Jongho Paik
(Seoul Women's University, ROK)

20-1	Sign language translation performance using Transformer according to hyperparameter
	San Kim, Yoonyoung Jeong, Han-Mu Park, Hyedong Jung (KETI, ROK)
20-2	Graph Transformer for Motion Prediction
	San Kim, Yoonyoung Jeong, Saim Shin, Hyedong Jung (KETI, ROK)
20-3	Multimodal Emotion Recognition on a Korean Multimodal Video Dataset Using K-means Clustering
	Hyeontae Seo, Jin Yea Jang, Saim Shin, Hyedong Jung, Minyoung Jung (KETI, ROK)
20-4	Environmental Multi-Sensor Module for Flexible Combination
	Myeongseop Kim, Tai-Gil kwon, Seho Park, Kyung-Taek Lee (KETI, ROK)
20-5	Tactile image conversion technique of smart media device for visually impaired
	Youngmin Kim, Jisoo Hong, Sunghee Hong, Jinsoo Jeong (KETI, ROK)

Continue next page (session 20)

Conference Program

| 13:40-15:10, Tue, Dec.15, 2020 |

Session 20: Interactive Presentation Session V (Room 1)

13:40-15:10, Tue, Dec. 15, 2020

Chair: Dr. Jongho Paik
(Seoul Women's University, ROK)

20-6	Secure IoT Smart-sensors based on Energy Harvesting in the Power Plant
	Jinhee Park, Yongho Kim (KETI, ROK)
20-7	Detection of wheezing on lung sound using deep learning
	Saet Byeol Yu, Seho Park (KETI, ROK)
20-8	Korean Fingerspelling Recognition from a Video via Attention Mechanism
	Yoonyoung Jeong, Han-Mu Park (KETI, ROK)
20-9	Motion Transfer in Sign Language Using Unsupervised Learning
	Boeun Kim, Yoonyoung Jeong, Hyedong Jung (KETI, ROK)
20-10	Dialogue Strategy Prediction Using Multi-modal Information for Empathic Dialogue Generation
	Jin Yea Jang, Minyoung Jung, Hyedong Jung, Saim Shin (KETI, ROK)

Conference Program

| 13:40-15:10, Tue, Dec.15, 2020 |

Session 21: AVIGCVPR: AI / Visual Intelligence / Big Data / Computer Vision / Pattern Recognition (Room 2)

13:40-15:10, Tue, Dec. 15, 2020

Chair: Dr. In Seop Na
(Chosun Univ., ROK)

21-1	Allergy Alarm System based on Food Content using Object Recognition
	Kwang Ok Lee, Seo Won Chang, Seo In Lim, Keun Chang Kwak, In Seop Na (Chosun Univ., ROK)
21-2	Lip Shape based Deep Learning for Pronunciation Recognition
	Sang Ok Youn, Hee Won Kim, Tae Hee Kim, In Seop Na (Chosun Univ., ROK)
21-3	The Shortest Path Finding using Reinforcement Learning under Labyrinth
	Sung Ki Yang, Mok Gyun Jo, Hwi Hwan Jung, In Seop Na (Chosun Univ., ROK)
21-4	Security and Privacy in Big Data: A review of current issues and preserving techniques
	Van Y Pham, Soon Ja Yeom (Univ. of Tasmania, Australia), In Seop Na (Chosun Univ., ROK)
21-5	A Suggestion of Deep Learning Clothes Classification System Using Cloud and Edge Computing
	Ick Sun Ku (Daehan eni, Inc., ROK), Sun-Kuk Noh (Chosun Univ., ROK)
21-6	O-Ring Defect Inspection Framework based on Deep Learning Algorithms
	Mustafaev Bekhzod (Univ. of Ulsan, ROK), Tursunov Anvarjon (Sejong Univ., ROK), JaRok Koo (Univ. of Ulsan, ROK)
21-7	Prediction of ripeness stages of fruit trees by combining machine learning techniques and deep learning networks
	SangKyoong Kim (Mokpo National Univ., ROK), Wan Hyun Cho, Myung Hwan Na (Chonnam National Univ., ROK), In Seop Na (Chosun Univ., ROK)
21-8	Two Types of Sharing Task View in Remote Collaboration Study
	Seungwon Kim (Univ. of South Australia, Australia), In Seop Na (Chosun Univ., ROK)

Conference Program

| 15:20-17:00, Tue, Dec.15, 2020 |

Session 22: Jeju, COVID-19, and Data Analytics (Room 1)

15:20-17:00, Tue, Dec. 15, 2020

Chair: Dr. Jang Hyun Kim
(Sungkyunkwan Univ., ROK)

22-1

RECP from the perspective of Chinese and Taiwanese Netizens : a comparative Semantic Network analysis

Shaopeng Che, Pim Kamphuis, Jang Hyun Kim (Sungkyunkwan Univ., ROK)

22-2

Effect of Building Characteristics and Temporal Changes on Fire Alarms

Gwanmuk Lim, Seoltae Ko, Keon Chul Park (Seoul Digital Foundation, ROK)

22-3

Before and after COVID-19: A news analysis of Tourism via semantic network analysis

Woomin Nam, Haesun Jung, Jang Hyun Kim (Sungkyunkwan Univ., ROK)

Conference Program

| 15:20-17:00, Tue, Dec.15, 2020 |

Session 23: Interactive Presentation Session VI (Room 2)

15:20-17:00, Tue, Dec. 15, 2020

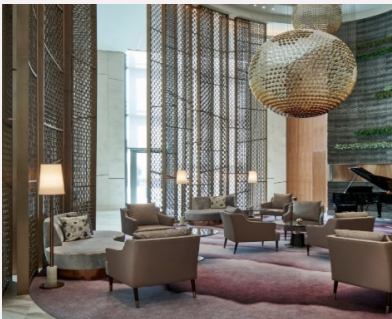
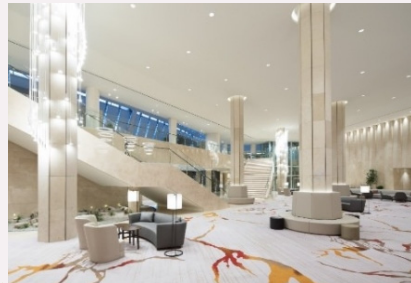
Chair: Dr. Moonseong Kim
(Seoul Theological Univ., ROK)

23-1	Establishing a corpus for an AI-based empathic response system
	Jae Hee Yang, Jin Yea Jang, Minyoung Jung, Saim Shin (KETI, ROK)
23-2	Strategic Dialogue Generation Model Through Multi-Task Learning
	Jin Yea Jang, Minyoung Jung, Saim Shin (KETI, ROK)
23-3	An Efficient Software Design of Ornamental Fish Data Management for Quarantine Purposed Electronic Illustrated Book
	Junsu Kim, Changho Han, Sungyoon Cho, Kiwon Kwon (KETI, ROK)
23-4	Speech Emotion Recognition on a Korean Multimodal Emotion Dataset Using Random Forest Classifier
	Boseon Hong, Jin Yea Jang, Saim Shin, Hyedong Jung, Minyoung Jung (KETI, ROK)
23-5	Identification of Trace TNT Peak Overlapped by Lactic Acid One Using Deconvolution Method in IMS Analysis
	Sung-Seen Choi, Chae Eun Son, Eunji Chae (Sejong Univ., ROK)
23-6	A Study on Periodically Log Broker in Cloud FaaS Applications
	Dongmin Kim, Hyunwoo Kim, Kiman Jeon, Jae Gi Son (KETI, ROK)
23-7	Design pattern supporting API unit service authorization in FaaS environment : FA Pattern
	Dongmin Kim, Kiman Jeon, Jae Gi Son (KETI, ROK)
23-8	A video shortening tool for short-form video creation
	Dalwon Jang, Jaewon Lee, Miji Kim, Jai-Won Chung, JongSeol Lee (KETI, ROK)
23-9	A Priori SNR Estimation with a Weight Adaptation for Speech Enhancement
	Jinsoo Seo (Gangneung-Wonju National Univ., ROK), Jaewon Lee, JongSeol Lee, Dalwon Jang (KETI, ROK)

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| **Landing Convention Center, Jeju Shinhwa World, Korea** |

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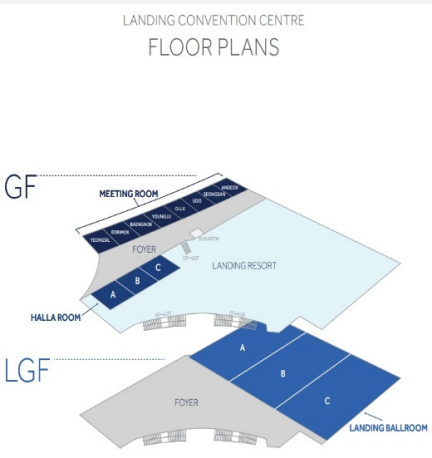
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