KOREAN SOCIETY FOR INTERNET INFORMATION

The 14th International Conference on Internet

(ICONI 2022)

Dec. 11-13, 2022, Landing Convention Center,

Jeju Shinhwa World, Korea

http://www.iconi.org

Conference Program

| Organized by |
Korean Society for Internet Information (KSII)

| Co-Organized by |
Korea Electronics Technology Institute (KETI)
Advanced Institute of Convergence Technology(AICT)

| Sponsored by |
HUAWEI

Contents

Message from Honorary Chair

We express our warm welcome to all of attendants of the 14th International Conference on Internet (ICONI) that will be held from December 11~13, 2022, in the Jeju Shinhwa World, Jeju Island, Korea.

Over the past 14 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 2022 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 Prof. Yung-Hsiang Lu from Purdue University, USA

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. Myung-Mook Han
Gachon University,
Rep. of Korea

Dr. Myung-Mook Han
Honorary Chair of ICONI 2022

Message from Conference Chair

On behalf of the organizing committee of ICONI 2022 as well as on my own behalf, I welcome you to the 14th 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.

Dr. Jong-Moon Chung
Yonsei Univ.,
Rep. of Korea

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 2022, prioritizing safety measures. More than 156 papers have been submitted in 18 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 120 papers will be presented both online and offline. Moving forward, ICONI 2022 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. Jong-Moon Chung

Conference Chair of ICONI 2022

Message from Program Chairs

It is a pleasure to welcome you to the 14th International Conference on Internet, 2022 (ICONI 2022) to be held in the Landing Convention Center, Jeju Shinhwa World, Korea

Over the past 14 years, ICONI has grown to be the major international conference in Internet Technology area. The conference is organized as a set of 18 tracks in the Internet Technology area. ICONI continues the endeavor of high-quality, broad international participation in all areas of Internet Technology.

We are honored to present two distinguished keynote speakers Prof. Yung-Hsiang Lu, Prof. xxxxx. The conference is a result of the work of many individuals. The Program Committee has 21 members, who provided more than 250 separate reviews. All submitted 156 papers went through a fair paper review process and excellent 122 papers will be presented at ICONI 2022 from 6 country. We would like to thank to all the authors and speakers for submitting and presenting their valuable research papers at ICONI 2022. In addition, specialized workshops are held by KETI, KISTI, and AICT. We are believed that the academic value of the society was enhanced.

Also, we would like to thank to all members of organizing committee for their efforts to make this conference happen. We would like to thank the KSII staffs, who worked silently but efficiently and effectively behind the scene to make the conference run smoothly. The successful organization of ICONI has required the talents, dedication and time of many volunteers from USA, China, Pakistan, Australia, Vietnam and Rep. of Korea.

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

Dr. In Seop Na
Chosun Univ.,
Rep. of Korea

Dr. Imran Ghani
Virginia Military Institute, USA

Dr. In Seop Na, Dr. Imran Ghani
Program Chairs of ICONI 2022

Keynote Speakers

Keynote Speaker Prof. Kaibin Huang

IEEE Fellow, Professor and Associate Head,

Dept. of Electrical And Electronic Engineering,

The University of Hong Kong
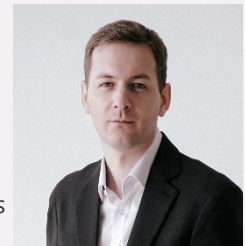
Title: How does edge intelligence shift the paradigm of wireless communications?

Abstract of the talk

Data have replaced oil to become the world's most valuable resource. An enormous amount of data is being generated 24/7 by tens-of-billions of edge devices at the network edge. Their distillation into AI using machine learning algorithms promises to automate practically unlimited IoT applications ranging from autonomous driving to virtual reality. This gives rise to a hot area, known as edge intelligence, which is a distinctive feature of 6G mobile networks. To shed some light on the induced paradigm shift in communications, two questions will be asked: 1) Is reliable communication always needed? 2) Is interference always a foe? To find negative answers to these questions, I will introduce some 6G edge-intelligence technologies that feature the communication-computing fusion. They include channel-noise protected/accelerated edge AI, and over-the-air federated learning.

Keynote Speaker Mawer Christopher Rodney (CTO)

Chief Technology Officer(CTO),

Huawei International in Asia Pacific, Seoul, Rep. of Korea

Title: Applied Research for Intelligent Networks and Data Analytics

Abstract of the talk

Keynote Speakers

Keynote Speaker Prof. Stefan Mozar

IEEE Fellow,

Title:

Abstract of the talk

Keynote Speaker Prof. Yung-Hsiang Lu

Elmore Family School of Electrical and Computer Engineering, Purdue University, USA

Title: Efficient Computer Vision for Embedded Systems

Abstract of the talk

Since deep learning became popular a decade ago, computer vision is adopted by a wide range of applications. Many applications must run on embedded systems with limited resources. This speech will introduce a new architecture called modular neural network that can significantly reduce the sizes of machine models and execution time. A modular neural network is a tree-like structure to progressively analyze different features in images and divide images into different groups based on visual similarities. Modular neural networks can be used for image classification, object counting, and re-identification. This speech will also explain how to use contextual information to reduce computation for convolution. Finally, this presentation will describe a new approach that can reduce energy consumption without any loss of accuracy and without the need of re-training.

Organizing Committee

| Honorary Chair |

Myung-Mook Han, Gachon University, Rep. of Korea

| Conference Chair |

Jong-Moon Chung, Yonsei University, Rep. of Korea

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Jongho Paik, Seoul Women's University, Rep. of Korea

Organizing Committee

Conference Program

Sun. / Dec. 11, 2022	Room 1
16:00-18:00	VIP Reception & Greetings

Mon. / Dec. 12, 2022	Room 1	Room 2	Room 3
08:30-	Registration (GF)		
09:00-10:30	Session 1	Session 2	Session 3
10:40-11:20	Opening Ceremony & Keynote Speech (Landing Ballroom A & B)		
11:30-12:30	Session 4	Session 5	Session 6
12:30-13:50	Lunch (12:00-14:00) (Landing Dining)		
14:00-17:30	XR Flagship (Landing Ballroom C)		
14:00-15:30	Session 7	Session 8	Session 9
15:40-17:10	Session 10	Session 11	Session 12
18:00-19:30	Award Ceremony & Banquet (Landing Ballroom A & B)		

Conference Program

Tue. / Dec. 13, 2022	Room 1	Room 2	Room 3
08:30-	Registration (GF)		
09:00-10:30	Session 13	Session 14	XR Flagship
10:40-12:10	Session 15	Session 16	Session 17
12:20-14:00	Lunch (12:00-14:00) (Landing Ballroom B)		
14:10-15:30	Panel Discussion: Joint Research in the Era of Pandemic		

* Presentation Time

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

Conference Program

Sun, Dec. 11, 2022

16:00-18:00	VIP Reception & Greetings

Mon, Dec. 11, 2022

09:00-10:30	Session 1: KETI Workshop I
	Session 2: Wireless and Sensor Network / Security & Privacy in Internet & Data, AI, Platform Convergence Technologies
	Session 3: KETI Workshop II

10:40-11:20	Opening Ceremony & Keynote Speech

11:30-12:30	Session 4: KETI Workshop III
	Session 5: IoT (Internet of Things) / Machine to Machine &Multimedia/Image Processing/HCI /Intelligent Systems
	Session 6: KETI Workshop IV

12:30-13:50	Lunch (12:00-14:00)

Conference Program

Mon, Dec. 12, 2022

14:00-15:30	Session 7: SNS & Communications / Digital media use & effects
	Session 8: Database / Data Mining / Big Data / Mobile Object Database
	Session 9: Management of Internet Application / E-Business / E-Commerce

15:40-17:10	Session 10: Data, AI, Platform Convergence Technologies (KISTI Workshop)
	Session 11: Multimedia/Image Processing / HCI / Intelligent Systems I
	Session 12: Multimedia/Image Processing / HCI / Intelligent Systems II

| 18:00-19:30 | Keynote Speech & Award Ceremony & Banquet |

Tue, Dec. 13, 2022

09:00-10:30	Session 13: Interactive Presentation Session I
	Session 14: AICT Workshop
	XR Flagship workshop

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Conference Program

Tue, Dec. 13, 2022

10:40-12:10	**Session 15: Interactive Presentation Session II**
	Session 16: Software Engineering & Architecture / Cloud Computing & Smart Learning / e-Learning / Learning Contents Management Sys.
	Session 17: Smart Phone Applications and Service / Mobile Internet Computing & Smart Rehabilitation & Wellness Technology & Database / Data Mining / Big Data / Mobile Object Database

12:20-13:30	**Lunch (12:00-14:00)**

* Presentation Time

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

Conference Program

Session 1: KETI Workshop I (Room 1)		
09:00-10:30, Mon, Dec. 12, 2022		**Chair: Dr. (Univ., ROK)**
1-1	Drone-based Video Streaming and Monitoring System for Forest Area Management	
	Sung-Chan Choi, Sungwook Jung, Jong-Hong Park, Ilyeop Ahn (Korea Electronics Technology Institute, ROK)	
1-2	A study of compensation for drift effect and gas recognition using public gas datasets	
	Il-Sik Chang, Sung-Woo Byun (Seoul National Univ. of Science & Technology, ROK), Tae Beom Lim (Korea Electronics Technology Institute, ROK), Gooman Park (Seoul National Univ. of Science & Technology, ROK)	
1-3	Multi-view 3D Point Cloud Registration Method for Detecting Hand in 3D Space	
	Meejin Kim, Sukwon Lee, Byung-Ha Park (Korea Electronics Technology Institute, ROK)	
1-4	A Guiding Assist System for Experts in a Remote by Sharing the Full-body Motion using Sparse IMUs	
	Sukwon Lee, Meejin Kim, Byung-Ha Park (Korea Electronics Technology Institute, ROK)	
1-5	Intelligent Platform Management Controller Software for rugged Environments	
	Kicheol Park, Jae-Hoon An, Younghwan Kim (Korea Electronics Technology Institute, ROK)	
1-6	Machine learning-based Failure Feedback Intelligent Platform Management	
	Kicheol Park, Jae-Hoon An, Younghwan Kim (Korea Electronics Technology Institute, ROK)	

Conference Program

Session 1: KETI Workshop I (Room 1)		
09:00-10:30, Mon, Dec. 12, 2022		**Chair: Dr. (Univ., ROK)**
1-7	Development of integrated platform technology for forest disaster response and forest monitoring system with mobile telecommunication relay	
	Sungwook Jung, Sungchan Choi, Il-yeup Ahn (Korea Electronics Technology Institute, ROK)	
1-8	Transmission Validation System of High-Precision Image Data Acquired by Unmanned Aerial Vehicle System	
	Jong-Hong Park, Wonseok Jung, Il-Yeop Ahn (Korea Electronics Technology Institute, ROK)	
1-9	Implementation of 3D Reconstruction Technology of Cultural Properties through Multi Accumulated Data Matching Processing	
	Sunghun Chae, Ji-Eun Kim, Young Bo Shim (Korea Electronics Technology Institute, ROK)	
1-10	Implementation of Ethernet to UART Interface System for Simultaneous Control of DMX 512 based Multi-Channel Light Devices	
	Sunghun Chae, Ji-Eun Kim, Young Bo Shim (Korea Electronics Technology Institute, ROK)	
1-11	An Implementation of Low-Latency 2D Streaming based 3D Visualization Systems	
	Jungwook Wee, Minju Cho (Korea Electronics Technology Institute, ROK)	
1-12	Prototype of Direct ToF Sensor using VCSEL array and SiPM to Detect Near-range Object for AR/VR Device	
	Ji-Eun Kim, Sunghun Chae, Young-bo Shim (Korea Electronics Technology Institute, ROK)	

Conference Program

| **09:00-10:30, Mon, Dec. 12, 2022** |

Session 2: Wireless and Sensor Network / Security & Privacy in Internet & Data, AI, Platform Convergence Technologies (Room 2)

09:00-10:30, Mon, Dec. 12, 2022   **Chair: Dr. Dinh-Lam Pham (Vietnam National Univ., Vietnam)**

2-1	A Study on the Improvement of Information Investigation Techniques for Internet Safety and Personal Privacy Protection
	Chohee Bae, Jiwoo Lee, Hangyeol Jang, KyungLyul Lee (Sungkyunkwan Univ., ROK)
2-2	Reinforcing SDN Reliability with Blockchain-based Renewal of Network Participation
	Hyeontae Joo, Taehoon Yoo, Hwangnam Kim (Korea Univ., ROK)
2-3	Web Security Vulnerabilities: Classification according to their way of cause
	Makhmudjonov Adkhamjon, Ga-Hyun Lee, Young Sil Lee (Dongseo Univ., ROK)
2-4	Deep Learning-based Generative Pre-Trained Transformer News Headline Generator
	Muskan Mughal, Isma Farah Siddiqui (Mehran Univ. of Engineering & Technology, Pakistan)
2-5	An Architecture for Deep Learning-based Predictive Process Mining System
	Dinh-Lam Pham (Vietnam National Univ., Vietnam), Thanh-Hai Nguyen, Kyongsook-Kim, Kwanghoon Kim (Kyonggi Univ., ROK)
2-6	An Approach to Exercise Using Motion Capture Through Full Body Tracking Suit
	Imran Ghani, Emily Hattman, David T. Smith (Virginia Military Institute, USA), Seung Ryul Jeong (Kookmin Univ., ROK)

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Conference Program

Session 3: KETI Workshop II (Room 3)	
09:00-10:30, Mon, Dec. 12, 2022	**Chair: Dr. (Univ., ROK)**
3-1	Patch Switching Based Data Augmentation for Image Similarity Measurement
	Ji-eun Oh, Yeon Seung Choo, Yong-Suk Park (Korea Electronics Technology Institute, ROK)
3-2	Neural Rendering-based 3D Human Modeling for the Metaverse
	Taehyeon Kim, Seho Park, Kyung-Taek Lee (Korea Electronics Technology Institute, ROK)
3-3	Euclidean Distance based 3D Reconstruction Data Analysis Method
	Sukwoo Jung, Youn-Sung Lee, Yunju Lee, KyungTaek Lee (Korea Electronics Technology Institute, ROK)
3-4	Camera-Lidar Calibration and Visualization using 3D Modeling
	Jaewon Lee, Dalwon Jang, Hyun-Kab Kim, JongSeol Lee (Korea Electronics Technology Institute, ROK)
3-5	Analysis of Decentralized Finance Governance by Curve Finance Case
	HyoungSung Kim, Yong-Suk Park, Hyun-Sik Kim (Korea Electronics Technology Institute, ROK)
3-6	Transfer of Metaverse Content Ownership via Non-Fungible Token Rental
	HyoungSung Kim, Yong-Suk Park, Hyun-Sik Kim (Korea Electronics Technology Institute, ROK)

Conference Program

Session 3: KETI Workshop II (Room 3)	
09:00-10:30, Mon, Dec. 12, 2022	Chair: Dr. (Univ., ROK)
3-7	Comprehensive Vision System for Automatic De-ID Adaptation to Protect Person-Identification
	Yeon Seung Choo, Hyun-Sik Kim, HyoungSung Kim (Korea Electronics Technology Institute, ROK)
3-8	Augmented-triplet Loss for Distinguishable Feature Extraction
	Yeon Seung Choo, Yong-Suk Park, Hyun-Sik Kim (Korea Electronics Technology Institute, ROK)
3-9	A Study on Fault Diagnosis of Smart Buoy using LSTM Autoencoder
	Sungmin Lim, Jaekyu Lee, Inpyo Cho, Sangyub Lee, Sungyoon Cho, Kiwon Kwon (Korea Electronics Technology Institute, ROK)
3-10	Homogenized VCSEL Beam Illumination Module for Mobile Direct-pulsed ToF Sensor
	Young Bo Shim, Ji-Eun Kim, Sunghun Chae (Korea Electronics Technology Institute, ROK)
3-11	Watermarking for Metaverse Asset Protection
	Yong-Suk Park, Hyun-Sik Kim, Hyoungsung Kim (Korea Electronics Technology Institute, ROK)
3-12	Optical system for Mobile Direct ToF Sensor with Flattened Beam Shape
	Young Bo Shim, Ji-Eun Kim, Sunghun Chae (Korea Electronics Technology Institute, ROK)

Conference Program

| 11:30-12:30, Mon, Dec. 12, 2022 |

Session 4: KETI Workshop III (Room 1)

11:30-12:30, Mon, Dec. 12, 2022   **Chair: Dr.**

4-1	Traffic Sign Recognition based on Angular Margin Loss
	Taehyeon Kim, Junho Kwon, Seho Park (Korea Electronics Technology Institute, ROK)
4-2	Portal Display: screen-based 3D stereoscopic conferencing system for immersive social telepresence
	Seongjun Kang, Gwangbin Kim (Gwangju Institute of Science and Technology, ROK), Kyung-Taek Lee (Korea Electronics Technology Institute, ROK), SeungJun Kim (Gwangju Institute of Science and Technology, ROK)
4-3	CFD Simulation based Analysis for Recirculating Aquaculture System Design
	Juhyoung Sung, Sungyoon Cho, Wongi Jeon, Yangseob Kim, Kiwon Kwon (Korea Electronics & Technology Institute, ROK), Deuk-young Jeong (Seoul National Univ., ROK)
4-4	A Typo Correction Method using Artificial Neural Networks for Text-based Search Engines
	Hyunhak Song, Sungyoon Cho, Yangsub Kim, Byoungchul Song, Kiwon Kwon (Korea Electronics Technology Institute, ROK)
4-5	Extension of communication coverage through amplify-and-forward relay for Maritime Communication Systems
	Kyeongjea Lee, Tae-Woo Kim (Yonsei Univ., ROK), Sungyoon Cho, Kiwon Kwon (Korea Electronics Technology Institute ROK), Dong Ku Kim (Yonsei Univ., ROK)

Conference Program

Session 5: IoT (Internet of Things) / Machine to Machine (Room 2)

11:30-12:30, Mon, Dec. 12, 2022

Chair: Dr. Namgi Kim
(Kyonggi Univ., ROK)

5-1	A probabilistic fish growth model for a smart aquaculture system
	Jongwon Kim, Eunbi Park (Pohang Univ. of Science & Technology, ROK), Sungyoon Cho, Kiwon Kwon (Korea Electronics Technology Institute, ROK), Young Myoung Ko (Pohang Univ. of Science and Technology, ROK)
5-2	Machine-Learning-based Classification of Hip Osteoarthritis Patients through One-Step Gait Pattern
	Sohyun Ahn, Choonsung Shin, Hieyong Jeong (Chonnam National Univ., ROK)
5-3	A Survey on Autonomous cars based on Object Detection and Improved Datasets
	Shumaim Liaquat, Tabish Memon, Isma Farah Siddiqui (Mehran Univ. of Engineering and Technology, Pakistan)
5-4	Analysis of Security Issues and Defense Techniques of IoT Devices
	Khasanboy Kodirov, HoonJae Lee, Young Sil Lee (Dongseo Univ., ROK)

Conference Program

Session 6: KETI Workshop IV (Room 3)

11:30-12:30, Mon, Dec. 12, 2022   **Chair: Dr. (Univ., ROK)**

6-1	Neural Style Transfer Performance Enhancement Using SENet
	SuMin Lee, Yeon Seung Choo, Jungwook Wee (Korea Electronics Technology Institute, ROK)
6-2	Land Cover Classification for Multi-band Synthetic Aperture Radar Image using Convolutional Neural Network
	Dalwon Jang, Jaewon Lee, JongSeol Lee (Korea Electronics Technology Institute, ROK)
6-3	Contour Segmentation for Measuring Halibut Length using Image Processing and Deep Learning Techniques
	Eunji Ryu, Juhyoung Sung, Byoungchul Song, Kyungwon Park, Kiwon Kwon (Korea Electronics Technology Institute, ROK), Jongho Paik (Seoul Women's Univ., ROK), Sungyoon Cho (Korea Electronics Technology Institute, ROK)
6-4	Implementation of Positioning Application for a Ground-based Centimeter-level Maritime Precise PNT Technology Platform
	Junsu Kim, Juhyoung Sung, Wongi Jeon, Kyungwon Park (Korea Electronics Technology Institute, ROK)
6-5	Combined Module File Structure Consisting of Metadata for Efficient Vessel Design
	Juhyoung Sung, Changho Han, Byoungchul Song (Korea Electronics Technology Institute, ROK)
6-6	Test Results of Action Recognition Algorithm with a Small Number of Frames
	Dalwon Jang, Jaewon Lee, JongSeol Lee (Korea Electronics Technology Institute, ROK)

Conference Program

Session 6: KETI Workshop IV (Room 3)		
11:30-12:30, Mon, Dec. 12, 2022		**Chair: Dr.** **(Univ., ROK)**
6-7	Implementation of LCOS Microdisplay Driver Chip	
	Youn-Sung Lee, Jungwook Wee (Korea Electronics Technology Institute, ROK), Chung-Woo Han, Nam-Chol Song (SELCOS CO., LTD, ROK)	
6-8	A Study on the Improvement of Indoor Air Quality Prediction Accuracy Using LSTM	
	Myeongseop Kim, Seho Park, Kyung-Taek Lee (Korea Electronics Technology Institute, ROK)	
6-9	oneDrone Platform: Multi-Protocol Drone Data Link Structure and IoT-based Drone Data Service Technology	
	Wonseok Jung, Jong-Hong Park, Il-Yeop Ahn (Korea Electronics Technology Institute, ROK)	

Conference Program

Session 7: SNS & Communications / Digital media use & effects (Room 1)

14:00-15:30, Mon, Dec. 12, 2022

Chair: Dr. Dr. Hasung Hwang
(Dongguk Univ., ROK)

7-1	Brand Fandom Dynamic Analysis Framework based on Online Community
	Yu Cheng, Sangwoo Park, Inseop Lee, Sanghun Sul (Sungkyunkwan Univ., ROK)
7-2	Digital Gap Reflected in Intelligent Information Technology Reports : Focusing on Comparison between Seoul Metropolitan Area and Local Area
	Jawon Jang, Jian Kang, Jieun Choi, Kyung Han You (Jeonbuk National Univ., ROK)
7-3	A Study on Avatar Self-Expression in VR Environment
	Jian Kang, Yifan Wang, Meng Zhao, Thi Bich Nga Cao (Jeonbuk National Univ., ROK)
7-4	Analysis of TikTok news usage behavior Based on Eye Tracking: Focusing on Audience's Confrontational Media Perception
	Jieun Choi, Jawon Jang, Mengqi Du (Jeonbuk National Univ., ROK)
7-5	Developing a measurement of the concept of digital literacy in the age of artificial intelligence
	Liucun Zhu, Hasung Hwang (Dongguk Univ., ROK)
7-6	COVID-19 Patients' Vlog Videos and the Viewers' Responses: Overcoming isolation and anxiety with solidarity
	Seunghye Sohn (Sejong Univ., ROK), Fu Kang (Xihua Univ., China), Guiohk Lee (Sejong Univ., ROK)

Conference Program

| **14:00-15:30, Mon, Dec. 12, 2022** |

Session 8: Database / Data Mining / Big Data / Mobile Object Database (Room 2)

14:00-15:30, Mon, Dec. 12, 2022   **Chair: Dr. Yong-Suk Park (KETI, ROK)**

8-1	Comparing Scalable Predictive Analysis using Spark XGBoost Platforms
	Savita Yadav, Samyuktha Muralidharan, Jongwook Woo (California State Univ., Los Angeles, USA)
8-2	C2IRS and Dataset Improvements
	Gyudong Park, Hocheol Jeon (Agency for Defense Development, ROK), Jongmo Kim (Sungkyunkwan Univ., ROK)
8-3	A Systematic Study on Diabetes Prediction using Machine Learning
	Afsa Riaz, Saba Saeed, Isma Farah Siddiqui (Mehran Univ. of Engineering & Technology, Pakistan)
8-4	A System for Tracking Illegal Contents and Implementing Right to be Forgotten with AI-based Log Analysis
	Hangyeol Jang, KyungLyul Lee (Sungkyunkwan Univ., ROK)
8-5	Construction and application of mine geological environment assessment model based on remote sensing data mining and Analytic Hierarchy Process -- A case study of a certain province in China
	Panke Tang (Institute of Disaster Prevention, China)

Conference Program

Session 9: Management of Internet Application / E-Business / E-Commerce (Room 3)

14:00-15:30, Mon, Dec. 12, 2022   Chair: . Hieyong Jeong (Chonnam National Univ., ROK)

9-1	Preference Analysis of Users of Internet-based Collaborative Design Platform
	Jialei Ye, Xiaoyou He (Nanjing Univ. of the Arts, China), Ziyang Liu (Kyonggi Univ., ROK)
9-2	A Study on the Effect of Conflicts on Project Performance in IT Project
	Hee Jun Cho, Zhi Pan, Dong Hyuk Jo (Soongsil Univ., ROK)
9-3	A Study on the Factors Influencing Acceptance Intention of Live Streaming Shopping
	Zhi Pan, Hee Jun Cho, Dong Hyuk Jo (Soongsil Univ., ROK)
9-4	Similar Business Group Recommendation System using XGBoost and Derived Variables
	Minjeong Lee, Minsol Park, Inseop Na (Chosun Univ., ROK)
9-5	A Study on the Factors Influencing the Intention to continue to use Subscription-based OTT platform Services: The Moderating Effect of Switching costs
	Zhi Pan, Hee Jun Cho, Dong Hyuk Jo (Soongsil Univ., ROK)

Conference Program

Session 10: Data, AI, Platform Convergence Technologies / KISTI Workshop (Room 1)

Chair: Dr. Jongsuk Ruth Lee
(KIST, ROK)

15:40-17:10, Mon, Dec. 12, 2022

10-1	Data Framework Design of Digital R&D Platform for Multidisciplinary Convergence Research
	Sunggeun Han, Jaegwang Lee, Inho Jeon, Jeongcheol Lee, Hoon Choi (Korea Institute of Science and Technology Information, ROK)
10-2	Data Quality Management Framework via Automated Feature Extraction and Outlier Detection
	Jeongcheol Lee, Sunggeun Han, Inho Jeon, Seung-keun Park (Korea Institute of Science & Technology Information, ROK)
10-3	SIEGB: A scalable, interactive and easily portable genome data browser
	Sunil Ahn, yunseob Kim, Jeongcheol Lee, Jong Suk Lee (Korea Institute of Science and Technology Information, ROK)
10-4	AI framework design of HPC and cloud-based digital R&D convergence platform
	Jaegwang Lee, Sungeun Han, Jeongcheol Lee (Korea Institute of Science & Technology Information, ROK)
10-5	Web-based Simulation Platform for Computer-aided Engineering Researchers
	Seung-Keun Park, Gimyeong Ryu, Seokkeun Yi (Korea Institute of Science & Technology Information, ROK)
10-6	Development of Data-Based 3D Experiment Platform
	Yu Ri Lee, Ji-Young Kim, Yejeong Yoon, Buyoung Ahn (Korea Institute of Science & Technology Information, ROK)

Conference Program

Session 10: Data, AI, Platform Convergence Technologies / KISTI Workshop (Room 1)

Chair: Dr. Jongsuk Ruth Lee (KIST, ROK)

15:40-17:10, Mon, Dec. 12, 2022

10-7	Development of an Online Platform for Automated Simulations: A Case of Atomistic Simulation Service
	Hu Sung Kim (Korea Institute of Science & Technology Information, ROK)
10-8	Multi-Year GPU Hackathons Using Supercomputing System
	Hyejin Park, Yu Ri Lee, Buyoung Ahn, Sohyun Heo (Korea Institute of Science and Technology Information, ROK)
10-9	A Study on the Efficiency of Authority Separation According to MSA-based API Gateway Definition and Authentication Server Utilization Method
	Jukyung Yoo, Seokkeun Yi, Inho Jeon, Seung-Keun Park (Korea Institute of Science and Technology Information, ROK)

Conference Program

Session 11: Multimedia / Image Processing / HCI / Intelligent Systems I (Room 2)

15:40-17:10, Mon, Dec. 12, 2022   Chair: Dr. Moonseong Kim (Seoul Theological Univ., ROK)

11-1	Cybergrooming Prevention Using an AI-based Simulation Program
	Kee Jeong Kim, Lifu Huang, Jin-Hee Cho (Virginia Polytechnic Institute and State Univ., USA)
11-2	A Fashion Multimedia Experience Design Model from Multisensory Perspective
	Chunmao Wu, Yihui Liao (Donghua Univ., China)
11-3	JPEG Wrapper: An improved lossless recompression of the group of JPEG images
	Faiz Ullah, Jinhee Lee, Yaseen, Oh-Jin Kwon (Sejong Univ., ROK)
11-4	Applying Semi-Supervised Deep Learning to Voxelization-Based Approach for 3D Printing
	Oakyoung Han (Sungkyunkwan Univ., ROK)
11-5	A study on optimization using PSO algorithm
	Sang Hyun Yoo (Kyungmin Univ., ROK), Hyun-jung Kim (Konkuk Univ., ROK)

Conference Program

15:40-17:10, Mon, Dec. 12, 2022 |

Session 12: Multimedia / Image Processing / HCI / Intelligent Systems II (Room 3)

Chair: Dr. Keon Chul Park
(AICT, ROK)

15:40-17:10, Mon, Dec. 12, 2022

12-1	Design of Deep Learning Based Steel Surface Defect Detection Systems
	Sangmin Suh (Gangneung-Wonju National Univ., ROK)
12-2	Deep-Learning-based Morphology Classification of Nailfold Capillaries
	Seoyeong Ko, Choonsung Shin, Hieyong Jeong (Chonnam National Univ., ROK)
12-3	Consideration of Software Approach for Fish Tracking
	Nguyen-Ngoc Huynh, Myoungjae Jun, Hang Thi Phuong Nguyen, Choonsung Shin, Hieyong Jeong (Chonnam National Univ., ROK)
12-4	Metaheuristics Combination Approaches for Flexible Jobshop Scheduling Problem
	Vandha Pradwiyasma Widartha, Yeonjee Choi, Chang-Soo Kim (Pukyong National Univ., ROK)
12-5	A Study on Sound and Voice Quality of Flat Panel Display on OTT Environment
	Hyungwoo Park (Dong Seoul College, ROK), Sungtae Lee (LG Display, ROK)
12-6	Natural Language Processing Approaches for Student Evaluation Analysis
	Thi Kim Hue Nguyen, Pulsokunreangsy Khut (Univ. of Tasmania Hobart, Australia), In Seop Na (Chosun Univ., ROK), Soon Ja Yeom (Univ. of Tasmania Hobart, Australia)

Conference Program

Session 13: Interactive Presentation Session Ⅰ (Room 1)

09:00-10:30, Tue, Dec. 13, 2022

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

13-1	Development of Antibiotic Risk Assessment System
	Han Jong Gil, Il Ryong Kweon, Min Ho Son (PODO Inc., ROK)
13-2	Development of Pre-Prediction, Diffusion Prediction and Integrated Control System for Hazardous Material Leakage Accidents
	SeungJe Kim, Min Ho Son, Ilryong Kweon (PODO Inc., ROK)
13-3	Estimation of ship's emission in the port area using Port-MIS and AIS data: A case study of Mokpo port in Korea
	Hai-Dang Bui (Mokpo Maritime Univ., ROK), Sung-Sam Hong (Rabahgroow Co., Ltd., ROK), Hwayoung Kim (Mokpo Maritime Univ., ROK)
13-4	A Study on the Sharing of Patient-Centered Healthcare Data using DID
	Suwan Park, Kyongjin Kim (Sungshin Women's Univ., ROK)
13-5	Study on strategic and tactical cyber operation process for offensive cyber operations
	Jung-Sik Lee, Haeng-Rok Oh (Agency for Defense Development, ROK)
13-6	Multiscale Urban Traffic Simulation using Cell-based Behavior Model
	Hyewon Song, Moonyoung Chung (Electronics & Telecommunications Research Institute, ROK)

Conference Program

Session 13: Interactive Presentation Session Ⅰ (Room 1)

09:00-10:30, Tue, Dec. 13, 2022

Chair: Dr. (Univ., ROK)

13-7	A Study on the Effect of Public Library Service Scape on Customer Loyalty
	Young Hee Kim, Zhi Pan, Hee Jun Cho (Soongsil Univ., ROK)
13-8	Analyzing News Coverage of MZ Generation with Topic Modeling based on Newspapers' Political Orientation
	Jieun Choi, Jian Kang (Jeonbuk National Univ., ROK)
13-9	A Comparative Study of the Effects of Short Form Video and Social TV Video's Viewing Motivation on Flow Experience -Focus on the mediation effects of two social interactions-
	Meng Zhao, Yifan Wang, Mengqi Du, Kyunghan You (Jeonbuk National Univ., ROK)
13-10	Establishment of Comprehensive Information System for Plant Viruses in Korea
	Hui Jin Kim, Il Ryong Kweon, Min Ho Son (PODO Inc., ROK)
13-11	Data Modeling for Water Resource Management with CPS
	Seongyun Kim, SeungMyeong Jeong (Korea Electronics Technology Institute, ROK)

Conference Program

Session 14: AICT Workshop (Room 2)

09:00-10:30, Tue, Dec. 13, 2022 **Chair: Dr. Keon Chul Park**
(AICT, ROK)

14-1	A Study on the Performance Evaluation Framework for AI-Driven Systems in the Public Sector
	Keon Chul Park (Advanced Institute of Convergence Technology, ROK)
14-2	Analysis of Urban Planning Online Platform based on the Citizen Participation Stage
	Daehwan Kim, Kwanchul Kim, Keon Chul Park (Advanced Institute of Convergence Technology, ROK)
14-3	A Study on the Improvement of Patent Evaluation in National R&D Performance Evaluation
	Woomin Nam, Keon Chul Park (Advanced Institute of Convergence Technology, ROK)
14-4	Evaluating Mission-Oriented R&D Programs : focused on Smart City Projects
	Jaehoon Yang (Advanced Institute of Convergence Technology, ROK)

Conference Program

Session 15: Interactive Presentation Session II (Room 1)

10:40-12:10, Tue, Dec. 13, 2022

Chair: Dr. Chang-Soo Kim
(Pukyong National Univ., ROK)

15-1	Web-based WIPS Sensor Implementation considering Usablity
	Jaewon Jang, Jeonghyeon Park, Surin Kim, Sun-Kuk Noh (Chosun Univ., ROK)
15-2	Design and Implementation of Systems for Improved Accessibility to Kiosk Use
	Am-Suk Oh, hyo sang Lee, Dong-Eon Yoon (Tongmyong Univ., ROK)
15-3	Symmetry Preprocessing Architecture for Neural Network Quantum Error Decoder
	Eunyoung Cho, Jin-Ho On, Chei-Yol Kim, Gyu-Il Cha (Electronics & Telecommunications Research Institute, ROK)
15-4	A Study on the Analysis of Infrastructure Utilization Policies and Issues in the Age of Autonomous Driving
	Yongwon Kim (Korea Expressway Corporation Research Institute, ROK)
15-5	Efficient Computing Resource Utilization for Vehicular Applications with Mobile 5G gNBs Supporting Edge Computing
	Wonsuk Yoo, Jae-Dong Kim, Jong-Moon Chung (Yonsei Univ., ROK)
15-6	Digital Twin based Evacuating Route Prediction of Multiple Fire Event using Sequencing based DCNet Analysis
	Minsoo Joo, yang wonsik, Jong-Moon Chung (Yonsei Univ., ROK)

Conference Program

Session 15: Interactive Presentation Session II (Room 1)

10:40-12:10, Tue, Dec. 13, 2022

**Chair: Dr. Chang-Soo Kim
(Pukyong National Univ., ROK)**

15-7	A review of Malicious URL Detection using Machine Learning
	Youngjae Kim (Ji-in System, ROK), Sung-Sam Hong (Jangan Univ., ROK)
15-8	Non-invasive intrusion prevention system against ransomware in healthcare
	Hyeokchan Kwon, Byungho Chung (Electronics & Telecommunications Research Institute, ROK)
15-9	Analysis of passengers' walking environment at the ferry terminal using data from video and wearable sensor
	Yu-mi Son, Jungyeon Choi, Sung-Sam Hong, Hwayoung Kim (Mokpo National Maritime Univ., ROK)
15-10	Multi-rate Sampling Driven Deep Neural Network for End-to-End Speech Enhancement
	Seon Man Kim (Korea Photonics Technology Institute, ROK)
15-11	A Behavior-Similarity Measurement Scheme for Anomaly Detection in IoT Device Networks
	Byungho Chung, Hyeokchan Kwon (Electronics and Telecommunications Research Institute, ROK)

Conference Program

Session 16: Interactive Presentation Session II (Room 2)

10:40-12:10, Tue, Dec. 13, 2022

Chair: Dr. KyungLyul Lee
(Sungkyunkwan Univ., ROK)

16-1	Design of the scheduler of accelerator device driver supporting OpenCL application for heterogeneous accelerator in Supreme-K system
	Youngho Kim, Eunji Lim, Shinyoung Ahn, Yoomi Park (Electronics & Telecommunications Research Institute, ROK)
16-2	IBN-based Orchestration of Overlay Networks for Multiple OpenStack Clouds
	Mir Muhammad Suleman Sarwar, Sajid Alam, Afaq Muhammad, Wang-Cheol Song (Jeju National Univ., ROK)
16-3	A Study on Trans-border Access of Cloud Servers
	Jiwoo Lee, Joonyoung Lee, KyungLyul Lee (Sungkyunkwan Univ., ROK)
16-4	Damage Detection and Damage Quantification of Temporary Works Equipment based on Explainable Artificial Intelligence (XAI)
	Cheolhee Lee, Taehoe Koo, Namwook Park, Nakhoon Lim (Deep Inspection Inc., ROK)
16-5	Applying EduTech's Adaptive Learning in AI Education
	Song Yie Kim, Oakyoung Han (Sungkyunkwan Univ., ROK)

Conference Program

Session 17: Smart Phone Applications and Service / Mobile Internet Computing & Smart Rehabilitation & Wellness Technology & Database / Data Mining / Big Data / Mobile Object Database (Room 3)

Chair: Dr. Jongsuk Ruth Lee (KIST, ROK)

10:40-12:10, Tue, Dec. 13, 2022

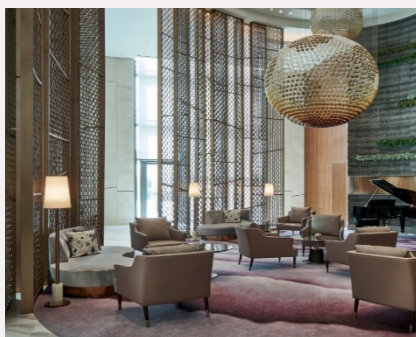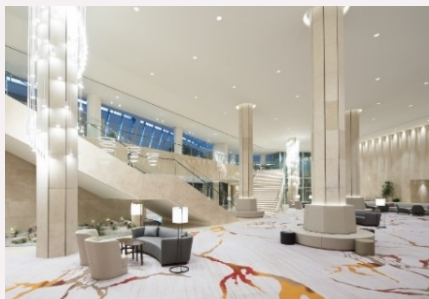|	
17-1	Design and Implementation of a Job Search System based on an Android
	Khusanboy Kodirov, Eun-Jung Do, HoonJae Lee, Young Sil Lee (Dongseo Univ., ROK)
17-2	Multilingual Support in Flutter Apps- Overview to Implementation
	Kamran Khan, Dr. Isma Farah Siddiqui, Salahuddin Saddar, Hina Hussain (Mehran Univ. of Engineering & Technology, Pakistan)
17-3	Use of MITER ATT&CK Framework to Improve the Personal Data Protection in Healthcare
	Geehee Yun, Kyoungjin Kim (Sungshin Women's Univ., ROK)
17-4	An Antenna Performance Prediction Model of Autonomous Driving Radar Manufacturing Process Using AutoML
	So-Hyang Bak, Thanh-Hai Nguyen, Kwanghoon Pio Kim (Kyonggi Univ., ROK)
17-5	Next Activity Prediction Using Predictive Process Monitoring Based-on Transformer
	Young-In Park, Eun-Bi Cho, Kwanghoon Pio Kim (Kyonggi Univ., ROK)

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