



ICONI



KOREAN SOCIETY FOR INTERNET INFORMATION

# The 15<sup>th</sup> International Conference on Internet (ICONI 2023)

Dec. 17-20, 2023, Lotte Hotel Saigon, Hochiminh, Vietnam  
<http://www.iconi.org>

## Conference Program

| Organized by |

Korean Society for Internet Information (KSII)

| Co-Organized by |

Advanced Institute of Convergence Technology(AICT)



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# Message from Honorary Chair

We express our warm welcome to all of attendants of the 15<sup>th</sup> International Conference on Internet (ICONI) that will be held from December 17~20, 2023, in Lotte Hotel Saigon, Hochiminh, Vietnam.

Over the past 15 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 the government to exchange novel ideas, explore enabling technologies, discuss innovative designs, and share field trial experiences and lessons learned.

This year, ICONI 2023 again covers a broad range of topics which are related with Internet technologies and applications such as wireless and sensor networks, security & privacy, multimedia, image processing, intelligent systems, mobile computing, Internet of things, and 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 everyone 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 Speakers Mr. Vo Ngoc Han, Prof. Pham The Bao and Dr. Ton Long Phuoc.

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

We truly welcome you all to this beautiful country and wish you pleasant and joyous stay in Hochiminh, Vietnam!



**Dr. Kwanghoon Pio Kim**  
**Kyonggi Univ.,**  
**Rep. of Korea**

**Dr. Kwanghoon Pio Kim**  
**Honorary Chair of ICONI 2023**

# Message from Conference Chair

On behalf of the organizing committee of the 15<sup>th</sup> International Conference on Internet (ICONI) 2023, I cordially welcome you and sincerely thank you for participating in this international conference to present and discuss valuable state-of-the-art research and development results.

We have been able to successfully plan for ICONI 2023, prioritizing all safety measures. More than 115 papers have been submitted in 17 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. Among these papers, 115 papers will be presented during the conference.

In addition, there are 3 prominent world-famous Keynote Speakers that will be presenting during the ICONI 2023 conference, which include Mr. Vo Ngoc Han, CEO of Vietnam-Korean Trade Investment Consultancy and Prof. Pham The Bao, Dean in Department of Computer Science from Saigon University, and Dr. Ton Long Phuoc, Faculty of Information Technology from Industrial University of Hochiminh.

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 not be possible.

I wish you all a very pleasant time here in Hochiminh, Vietnam and a productive and successful conference.



**Dr. Ihnhan Bae**  
**Daegu Catholic Univ.,**  
**Rep. of Korea**

**Dr. Ihnhan Bae**  
**Conference Chair of ICONI 2023**

# Message from Program Chairs

It is a pleasure to welcome you to the 15th International Conference on the Internet (ICONI 2023). ICONI 2023 will be held in Hochiminh, Vietnam, from Dec 17-20. The hosting organization (KSII) is one of the largest ICT-related academic societies in South Korea.

Over the past 15 years, ICONI has grown to be a major international conference in the Internet Technology area. The conference is organized into 17 tracks in the Internet Technology field. 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, Vietnam, China, Nepal and Republic of Korea. Special gratitude and appreciation go to all organizing committee members as they are primarily responsible for the conference. This ICONI conference serves as a unique and exciting gathering at the forefront of the most innovative and captivating realms of computer science. Your presence here provides a valuable opportunity to share novel ideas, research findings, and, importantly, to learn from each other's experiences, fostering mutual growth. I look forward to engaging in deep discussions, sharing fresh ideas, and fostering connections that will lead to newfound perspectives.

We hope that you will find the conference both enjoyable and valuable and also enjoy the architectural, cultural, and natural beauty of Hochiminh, Vietnam. I express my sincere gratitude to all participants for your tremendous support, and I genuinely hope that ICONI 2023 becomes a meaningful and enriching experience for each one of you. Thank you.



**Dr. Junho Ahn**  
Kyonggi Univ.,  
Rep. of Korea



**Dr. Imran Ghani**  
Virginia Military Institute, USA

**Dr. Junho Ahn, Dr. Imran Ghani**  
**Program Chairs of ICONI 2023**

# Keynote Speakers

## **Keynote Speaker Mr. Vo Ngoc Han**

**Chairman & CEO – VKTIC (Vietnam-Korean Trade Investment Consultancy)**

**Vice chairman – VINK (Vietnam Innovation Network in Korea)**

**Vice chairman – TDX YBA**

**(Technology Digital Exchange – Young Business Associates)**



**Title: The innovative technology creates a better life: Case studies in Vietnam**

### **Abstract of the talk**

Artificial intelligence (AI) and modern technology are making life more convenient and helping businesses thrive as a new revolution that creates more opportunities for people. Despite commencing from a position behind long-established companies, fledgling startups can attain remarkable advantages and contribute significantly to society and citizens. Most current business strategies are built by leveraging advanced data analysis methodologies and intelligent algorithms. At the same time, it also provides warnings, analysis, and measurements to minimize risks that may occur in the future. Besides, business ethics are currently being discussed in many ways around creating policies that establish strict regulations in using artificial intelligence. This presentation discusses these concerns and some case studies in the Vietnamese market.

## **Keynote Speaker Prof. Pham The Bao**

**Dean and Professor in Department of Computer Science,  
Information Science Faculty, Sai Gon University, Vietnam**

**Title: Quantum Computing and its Impact on AI in  
The Near Future**



# Keynote Speakers

## Abstract of the talk

This presentation explores the growing intersection between Quantum Computing and Artificial Intelligence (AI), two of the most dynamic and promising fields in modern technology. Quantum computing, using the principles of quantum mechanics, offers unprecedented computing capabilities that surpass the limits of classical computing. This presentation briefly examines how the features of quantum computing have the potential to revolutionize AI. The focus is on how quantum computing can solve current challenges in AI, such as computational limitations, processing complex data sets, and optimizing machine learning algorithms. Furthermore, the presentation covers the current challenges and limitations in integrating quantum computing with AI. As well as showing potential in the near future, it could open up new frontiers in data processing, problem solving and predictive analytics.

## Keynote Speaker Dr. Ton Long Phuoc

**Faculty of Information Technology, Industrial University  
of Hochiminh, Vietnam**

**Title: IoT Technologies and Advanced Analytics as the  
Enablers for Digital transformation in Oil and Gas Industry.**



## Abstract of the talk

IoT plays a pivotal role across various industries, including manufacturing and services. The ongoing trend of digital transformation is witnessing rapid growth and widespread application in diverse fields, fostering the continual development of IoT technologies. Among the sectors embracing this digital evolution is the oil and gas industry, where numerous technological advancements, including IoT and AI, are being applied to streamline operations. This presentation will delve into the challenges encountered when implementing these cutting-edge technologies in the oil and gas exploration sector. Simultaneously, it will propose strategic directions for leveraging IoT devices to facilitate intelligent solutions. Additionally, the presentation will explore the integration of data analysis with AI to enhance decision-making processes within enterprise production activities.



# Organizing Committee

## | Honorary Chair |

**Kwanghoon Pio Kim**, Kyonggi University, ROK

## | Conference Chair |

**Ihnhan Bae**, Daegu Catholic University, ROK

## | Program Chairs |

**Junho Ahn**, Kyonggi University, ROK

**Imran Ghani**, Virginia Military Institute, USA

## | Publication Chairs |

**Jong-Moon Chung**, Yonsei University, ROK

**Minho Jo**, Korea University, ROK

**Moonseong Kim**, Seoul Theological University, ROK

## | Financial Chairs |

**Yoosin Kim**, Airdeep Ltd., ROK

**Namgi Kim**, Kyonggi University, ROK

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

## | Workshop Chairs |

**Kiwon Kwon**, Korea Electronics Technology Institute, ROK

**Woochun Jun**, Seoul National University of Education, ROK

**Tai-Woo Chang**, Kyonggi University, ROK

## | Steering Chairs |

**DongKyoo Shin**, Sejong University, ROK

**Dinh-Lam Pham**, Dong Nai Technology University, Vietnam

**Keon Chul Park**, Advanced Institute of Convergence Technology, ROK

**Ziyang Liu**, Kyonggi University, ROK

# Organizing Committee

## | Program Committee |

**Jang-Hyun Kim**, Sungkyunkwan University, ROK  
**Ji-Hwan Kim**, Sogang University, ROK  
**Woochan Lee**, Incheon National University, ROK  
**WEIJIA LI**, Jiaxing University, China  
**JeongHyeon Chang**, Kyonggi University, ROK  
**Jeongwook Seo**, Hanshin University, ROK  
**Lanh Thanh Le**, Dong Nai Technology University, Vietnam  
**Dohoon Kim**, Kyonggi University, ROK  
**Ilkyeun Ra**, University of Colorado, Denver, USA  
**Rui Liang**, Beijing Union University, China  
**Kyungyong Chung**, Kyonggi University, ROK  
**Mingsheng Wang**, Anshan Normal University, China  
**Namje Park**, Jeju National University, ROK  
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**Uzma Jafar**, Universiti Kebangsaan Malaysia, Malaysia  
**Kyung Han You**, Jeonbuk National University, ROK  
**Hoang-Hai Tran**, Hanoi Univ. of Science and Technology, Vietnam  
**Sangmin Lee**, CHA University, ROK  
**Eui-Nam Huh**, Kyung Hee University, ROK  
**Deden Witarsyah**, Telkom University, Indonesia  
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**Yongjoon Lee**, Far East University, ROK  
**Ogan Gurel**, L'Institut des Sciences et Arts, Canada  
**Sudan Prasad Uprety**, AICC Solution Lab, Nepal  
**Sungyoong Cho**, Korea Electronics Technology Institute, ROK

# Conference Program

Sun. / Dec. 17, 2023	Room
18:00-19:30	VIP Reception & Greetings

Mon. / Dec. 18, 2023	Room 1 (Sapphire)	Room 2 (Topaz)	Room 3 (Emerald I)	Room 4 (Emerald III)
08:30-	Registration (2F)			
09:00-10:30	Session 1	Session 2	Session 3	Session 4
10:40-11:10	Opening Ceremony & Keynote Speech (Sapphire Ballroom)			
11:20-12:20		Session 5	Session 6	Session 7
12:20-14:00	Lunch (11:30-14:30) / The Canvas GF			
14:10-15:40	Session 8	Session 9	Session 10	Session 11
15:50-17:20		Session 12	Session 13	Session 14
18:00-19:30	Award Ceremony & Banquet (Sapphire Ballroom)			

# Conference Program

Tue. / Dec. 19, 2023	Room 1 (Topaz)	Room 2 (Emerald I)	Room 3 (Emerald III)
08:30-	Registration (2F)		
09:00-10:30	Session 15	participant's waiting room	Session 16
10:40-12:10	Session 17		
12:10-14:00	Lunch (11:30-14:30) / The Canvas GF		
14:10-15:30	Panel Discussion : Collaborative Research		

<b>Wen. / Dec. 20, 2023</b>	<b>Room</b>
<b>10:00-12:00</b>	<b>Visit to Industrial University of Hochiminh</b>

# Conference Program

## Sun, Dec. 17, 2023

18:00-19:30

VIP Reception & Greetings

## Mon, Dec. 18, 2023

09:00-10:30

Session 1: Interactive Presentation Session I

Session 2: Industrial AI Special Workshop

Session 3: Artificial Intelligence/Time Series Machine Learning

Session 4: Scientific public security/ crime prevention/intelligent CCTV application

10:40-11:10

Opening Ceremony & Keynote Speech

Dr. Jim Jansen / Prof. Pham The Bao

11:20-12:20

Session 5: Graphics/image processing/video deep learning/video control

Session 6: Security system/information security

Session 7: Defense information technology/high performance computing & Cyber Education/Social Media/Metaverse/UX/SNS

# Conference Program

**Mon, Dec. 18, 2023**

12:20-14:00

Lunch (11:30-14:30) / The Canvas (GF)

14:10-15:40

Session 8: KETI Workshop I

Session 9: KETI Workshop II

Session 10: Technology management/  
e-commerce/information system/ERP/BPM/DX

Session 11: WIET Education Workshop I

15:50-17:20

Session 12: KETI Workshop III

Session 13: Network/Internet of Things/Mobile  
Computing & Cloud Computing/Digital Twin/Smart  
Factory & Technology management/e-commerce/  
information system/ERP/BPM/DX

Session 14: WIET Education Workshop II

18:00-19:30

Keynote Speech & Award Ceremony & Banquet

Dr. Ton Long Phuoc

# Conference Program

## Tue, Dec. 19, 2023

09:00-10:30	Session 15: Interactive Presentation Session II
	Session 16: Big data platform/analysis/application
10:40-12:10	Session 17: Interactive Presentation Session III
12:10-14:00	Lunch (11:30-14:30) / The Canvas (GF)
14:10-15:30	Panel Discussion : Collaborative Research

## Wen, Dec. 20, 2023

10:00-12:00	Visit to Industrial University of Hochiminh
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### \* Presentation Time

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

# Conference Program

| 09:00-10:30, Mon, Dec. 18, 2023 |

## Session 1: Interactive Presentation Session I (Room 1)

Chair: Dr. Jongwook Woo

09:00-10:30, Mon, Dec. 18, 2023

(California State Univ., LA ,USA)

1-1	Improving Cybersecurity Education in line with the Defense Innovation 4.0 in Military Departments of Universities
	Jungho Eom, Kyungil Kim, Sangpil Cheon (Daejeon Univ., ROK)
1-2	Focus on Green Consumption Exploring Key Influencing Factors in the Intent-Behavior Gap
	Weijia Li (Jiaxing Univ., China), Ziyang Liu (Kyonggi Univ., ROK)
1-3	Visualization analysis of performing arts production by SNA method
	Chang Ryong Kim, Ohung Kwon, Joonho Hyeong, Jooyoung Kim, Donghyeon Seo, Jongryun Roh (Korea Institute of Industrial Technology, ROK)
1-4	A Fuzzy Ontology based Context-aware Traffic Control Method
	Eunju Lee, Ihnhan Bae (Daegu Catholic Univ., ROK)
1-5	Egress Initialization for Graph Convolution Network in Recommendation Systems
	Sang-min Lee, Heechan Kim, Janggun Jeon, Namgi Kim (Kyonggi Univ., ROK)
1-6	Establishment and Operation of an Online Integration Test Environment for Verifying Heterogeneous Parallel Processor Software
	Seungwoo Rho, Gibeom Gu (Korea Institute of Science and Technology Information, ROK)

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# Conference Program

| 09:00-10:30, Mon, Dec. 18, 2023 |

## Session 1: Interactive Presentation Session I (Room 1)

Chair: Dr. Jongwook Woo

09:00-10:30, Mon, Dec. 18, 2023

(California State Univ., LA ,USA)

1-7

Integrated Dataset for 10 Facial Emotion Recognition

Hoyoung Yoo, Hyeonjin Kim (Electronics & Telecommunications Research Institute, ROK)

1-8

Research on Customer Satisfaction in Cruise Ship Tourism Based on Big Data Analytics - An Empirical Analysis from OTA Website

Rui Liang (Beijing Union Univ., China), Yu Feng (Kyonggi Univ., ROK)

1-9

Verification of Terror Factors Based on GTD data: Application of the RTM Model

Eun-bi Cho, Sang-Eun Ahn, Jeong-Hyeon Chang (Kyonggi Univ., ROK)

1-10

Exploratory testing methodology based on MITRE ATT&CK and D3FEND Framework

Gaeul Kim, Dohoon Kim (Kyonggi Univ., ROK)

1-11

Optimal Operation Plan for Unmanned Systems in Future Intelligent Battlefield

Jungho Eom, Kyungil Kim (Daejeon Univ., ROK)

# Conference Program

| 09:00-10:30, Mon, Dec. 18, 2023 |

## Session 2: Industrial AI Special Workshop (Room 2)

Chair: Dr. Tai-Woo Chang  
(Kyonggi Univ., ROK)

09:00-10:30, Mon, Dec. 18, 2023

2-1	Experimental Results on Deep Learning-Based Defect Classification in Lithium-ion Battery Component Manufacturing
	Thi-Thu-Huyen Vu, Haejoong Kim, Taiwoo Chang (Kyonggi Univ., ROK)
2-2	Developing Human-Following Robot to Collaborate with Railroad Workers
	YeonSoo Kim, Tai-Woo Chang, Jong-Un Won, Baek-Hyun Kim (Kyonggi Univ., ROK)
2-3	Assessing Digital Transformation Levels of Partners for Supply Chain Collaboration
	Yong-Jun Im, Tai-Woo Chang (Kyonggi Univ., ROK)
2-4	Establishing a digital twin system using logistics simulation and BI tools - Case study in an automotive industry
	Gyusun Hwang, Jihyeon Park (Univ. of Ulsan, ROK), Haejoong Kim (Kyonggi Univ., ROK)
2-5	Classification of fire risk small electric home appliances using deep learning
	Jun-Seong Kim, Yong Jun Im, Hyun-Soo Kim (Kyonggi Univ., ROK)
2-6	Real-time heuristics for balancing mixed-model assembly lines
	Minseok Kim (Korea National Univ. of Transportation, ROK), Hyeongjun Son, Byeong-uk Ha (Kyonggi Univ., ROK), Soyun Kim, Byeonghyun Cha (Korea National Univ. of Transportation, ROK), Haejoong Kim (Kyonggi Univ., ROK)

# Conference Program

| 09:00-10:30, Mon, Dec. 18, 2023 |

## Session 3: Artificial Intelligence/Time Series Machine Learning (Room 3)

Chair: Dr. Kyungyong Chung

09:00-10:30, Mon, Dec. 18, 2023

(Kyonggi Univ., ROK)

3-1	Analyzing Similar Redundancy Among AI Core Courses using Hugging Face Transformer and Hierarchical Analysis
	Tai Hoon Kim, In Seop Na (Chonnam National Univ., ROK)
3-2	Pedestrian Collision Risk Assessment Based on Pedestrian's Motion Prediction for Autonomous Vehicles
	Sunghwan Kim, Jaeseung Kim, Yeongwon Yu (Korea Univ., ROK), Ir. Made Sudarma (Udayana Univ., Indonesia), Deden Witarsyah Jacob (Telkom Univ., Indonesia), Minho Jo (Korea Univ., ROK)
3-3	A Facial Wrinkle Segmentation Method Based on Unet++ Model
	Junsuk Lee, Hyeonwoo Kim, Jonghwa Shim, Eunbeen Kim, Eenjun Hwang (Korea Univ., ROK)
3-4	Comparison of Multi-Person Action Recognition Methods with YOLOv7-Pose
	Jae hyun Rho, Youngwoo Lee, Hyunbeom Choi, Jeongwook Seo (Hanshin Univ., ROK)
3-5	Vision-Based Artificial Intelligence System for Detecting Abnormal Customer Behaviors at Unmanned Cafes
	Yoonseo Kim, Sehun Lee, Sunghyun Kang, Junho Ahn (Kyonggi Univ., ROK)

# Conference Program

| 09:00-10:30, Mon, Dec. 18, 2023 |

## Session 4: Scientific public security/crime prevention/intelligent CCTV application (Room 4)

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

09:00-10:30, Mon, Dec. 18, 2023

4-1	A Study of Automated Bitcoin Transaction Flow Analysis Method
	SangYong Kang, Hongbi Kim, Daeil Jang, SeungGu Ji (Korea Internet & Security Agency, ROK)
4-2	Text Mining Analysis of Crime Prevention Through Environmental Design (CPTED) Project in Seoul: Focusing on LDA topic modeling
	Junho Park, Sooyun Lee, Euigab Hwang (Kyonggi Univ., ROK)
4-3	A Yolo based CPTED environmental factor detection model
	Tsagaantsooj Batzaya, Eunbi Cho, DoHyeon Lee, Jeong-Hyeon Chang, Kwanghoon Pio Kim (Kyonggi Univ., ROK)
4-4	BLIP-Based Model for Detecting Risky Situations in Video
	Eunbi Cho, Tsagaantsooj Batzaya, DoHyeon Lee, Jeong-Hyeon Chang, Kwanghoon Pio Kim (Kyonggi Univ., ROK)
4-5	Vision-Based User Abnormality Detection System for Unmanned Laundry Safety
	Jiyoung Na, Sunghyun Kang, Junho Ahn (Kyonggi Univ., ROK)
4-6	A Study on Person Re-identification with Feature Matching Methods
	Lanh Thanh Le (Dong Nai Technology Univ., Vietnam), Dinh-Lam Pham, Joo-Chang Kim, Sang-eun Ahn, Kyunghee Sun, Kyong-Sook Kim, Kwanghoon Pio Kim (Kyonggi Univ., ROK)
4-7	Reproduction of CCTV-Videos Using Contextualization Data Generated by Deep Learning Technology
	Kyunghee Sun, Sangeun Ahn, Kwanghoon Pio. Kim (Kyonggi Univ., ROK)

# Conference Program

| 11:20-12:20, Mon, Dec. 18, 2023 |

## Session 5: Graphics/image processing/video deep learning/video control (Room 2)

Chair: Dr. Eenjun Hwang  
(Korea Univ., ROK)

11:20-12:20, Mon, Dec. 18, 2023

5-1	Deep Learning-Based Indoor Object Detection and Area Inpainting from RGB-D Camera
	Wonseop Shin (Chung-Ang Univ.,ROK), Jaeseok Yoo (SweetK, ROK), SangHyun Byun, Sanghyun Seo (Chung-Ang Univ.,ROK)
5-2	When Pyramid Pooling Transformers Assists Lightweight Decoder for Salient Object Detection in Edge Intelligence
	Thien-Thu Ngo, Md. Delowar Hossain, Teh-Jen Sun, Yuri Seo (Kyunghee Univ., ROK), Hoang-Hai Tran (Hanoi Univ. of Science & Technology, Vietnam), Eui- Nam Huh (Kyunghee Univ., ROK)
5-3	A Study on Problems of the Analysis of AI Medical Images
	Sun-Kuk Noh (Chosun Univ., ROK)
5-4	Image encryption based on the maximum-periodic chaotic sequence generator
	Sung-Won Kang, Kyung-Hyune Rhee (Pukyong National Univ., ROK)

# Conference Program

| 11:20-12:20, Mon, Dec. 18, 2023 |

## Session 6: Security system/information security (Room 3)

11:20-12:20, Mon, Dec. 18, 2023

Chair: Dr. Minho Jo  
(Korea Univ., ROK)

6-1	Privacy-preserving credential smart contracts using Zokrates
	Geunyoung Kim, Hongseok Seo, Jaecheol Ryou (Chungnam National Univ., ROK)
6-2	Digital Vulnerabilities in QR-Based Photo Access: An Analysis and Countermeasures for Self-Photo Studio Systems
	Hong Seok Seo, Jina Hong, Jaecheol Ryu (Chungnam National Univ., ROK)
6-3	Comparative Analysis of Blockchain-Based Voting Systems Using Machine Learning Techniques
	Uzma Jafar, Mohd Juzaidin Ab Aziz, Zarina Shukur, Hafiz Adnan Hussain, Zulkefli Mansor (Universiti Kebangsaan Malaysia, Malaysia)
6-4	Artifact Analysis of Android Device connected to Hardware Wallet
	Jina Hong, Hongseok Seo, Jaecheol Ryu (Chungnam National Univ., ROK)

# Conference Program

| 11:20-12:20, Mon, Dec. 18, 2023 |

Session 7: Defense information technology/high performance computing & Cyber Education/Social Media/Metaverse/UX/SNS (Room 4)

Chair: Dr. Keon Chul Park

11:20-12:20, Mon, Dec. 18, 2023

(AICT, ROK)

7-1	HPC Cluster-based Customized Container Image Manager and Builder
	Gukhwa Lee (Korea Institute of Science & Technology Information, ROK)
7-2	Data-Driven Service Design Education Framework for New Product Development
	Seohee Kim, Hyemin Park, Yu Cheng, Inseop Lee, Sanghun Sul (Sungkyunkwan Univ., ROK)
7-3	Derivation of Home Appliances Features with Stretchable Displays based on UX
	Seung Eun Chung, Youjin Seo, Han Young Ryoo (Ewha Womans Univ., ROK)
7-4	Analyzing the effects of alcohol-related image types on drinking efficacy and intentions on Instagram: An Eye-Tracking Approach
	Min hee Lee, Kyung Han You, Du Mengqi, Yifan Wang (Jeonbuk National Univ., ROK), Jeong Kyu Lee (Univ. of Oklahoma, USA)

# Conference Program

| 14:10-15:40, Mon, Dec. 18, 2023 |

## Session 8: KETI Workshop I (Room 1)

Chair: Dr. Sungyoon Cho

14:10-15:40, Mon, Dec. 18, 2023

(KETI, ROK)

8-1	Lightweight Deep Learning-based Product Object Classification Scheme
	Dongchil Kim, Kyeongeun Seo, Chang Mo Yang (Korea Electronics Technology Institute, ROK)
8-2	Smart Video Surveillance System using 5G Mobile Communication and Edge Server
	Chang Mo Yang, Dongchil Kim, Kyeongeun Seo (Korea Electronics Technology Institute, ROK)
8-3	Autonomous driving service effectiveness verification technology in perspective of laws and regulations
	Kyungwon Kim, Jongbin Park (Korea Electronics Technology Institute, ROK)
8-4	A Study for 3D Cross-Modal Retrieval using Self-supervised Learning
	Yeon-Seung Choo, Hyun-Sik Kim, Yong-Suk Park (Korea Electronics Technology Institute, ROK)
8-5	Design and Implementation of 3D Visualization Service Architecture for 2D CAD Data
	Seulki Song, Minju Cho, Jungwook Wee (Korea Electronics Technology Institute, ROK)
8-6	Deep Learning-Based Video Editing for Privacy Protection
	Yong-Suk Park, Yeon-Seung Choo, Hyun-Sik Kim (Korea Electronics Technology Institute, ROK)

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# Conference Program

| 14:10-15:40, Mon, Dec. 18, 2023 |

## Session 8: KETI Workshop I (Room 1)

Chair: Dr. Sungyoon Cho

14:10-15:40, Mon, Dec. 18, 2023

(KETI, ROK)

8-7	Interaction Recognition in Video for Edge Devices
	Yong-Suk Park, HyoungSung Kim, Hyun-Sik Kim (Korea Electronics Technology Institute, ROK)
8-8	Metaverse Asset Creation Tool for Copyright Protection
	Yong-Suk Park, Yeon-Seung Choo, HyoungSung Kim (Korea Electronics Technology Institute, ROK)
8-9	Emotion Recognition Enhancement with Gesture Interpretation
	Yong-Suk Park, HyoungSung Kim, Yeon-Seung Choo (Korea Electronics Technology Institute, ROK)
8-10	Design and Implementation of a Communication Repeater Operating on UAV Frequencies for Unmanned Vehicles
	Sung-Chan Choi, Sungwook Jung, Jong-Hong Park, Ilyeop Ahn (Korea Electronics Technology Institute, ROK)
8-11	Designing a Pipeline to Leverage NFTs for Access Control in Web3.0
	HyoungSung Kim, Yong-Suk Park, Hyun-Sik Kim (Korea Electronics Technology Institute, ROK)
8-12	Efficient Hierarchical Platform Structure Designs for Smart Aids-to-Navigation in Marine Environments
	Jaeho Lee, Sungyoon Cho, Wongi Jeon, Byoungchul Song, Yangsub Kim, Donghyun Kim, Junsu Kim, Kiwon Kwon (Korea Electronics Technology Institute, ROK)
8-13	Designing a Blender Add-On for Managing Creative Commons Zero Licensed 3D Assets
	HyoungSung Kim, Hyun-Sik Kim, Yong-Suk Park (Korea Electronics Technology Institute, ROK)

# Conference Program

| 14:10-15:40, Mon, Dec. 18, 2023 |

## Session 9: KETI Workshop II (Room 2)

Chair: Dr. Jongho Paik

14:10-15:40, Mon, Dec. 18, 2023

(Seoul Women's Univ., ROK)

9-1	A Novel Design of Shipment Decision Framework in a Land-based Fish-farm Management with Big-data Based Aquaculture Productivity, Price, and Costs Modeling
	Jaeho Lee, Juhyoung Sung (Korea Electronics Technology Institute, ROK), Jong Ho Paik (Seoul Women's Univ., ROK), Kiwon Kwon, Yangsub Kim, Kyungwon Park, Sungyoon Cho (Korea Electronics Technology Institute, ROK)
9-2	High Speed Template Matching System for Wafer Alignment based on FPGA
	Jae Hyuk So, Dong Hyun Lee, Tae min Hwang, Min joon Kim, Hye Won Kang (Korea Electronics Technology Institute, ROK)
9-3	AI model deployment management capabilities for oneM2M based AIoT system
	SeungMyeong Jeong, Chungjae Choe (Korea Electronics Technology Institute, ROK)
9-4	Sinusoidal Embedding for WiFi CSI-based Human Action Recognition
	Taehyeon Kim, Seho Park (Korea Electronics Technology Institute, ROK)
9-5	Melody Extraction for Non-Vocal Music based on Tone-Octave Network
	Dalwon Jang, Daeun Chae, Jaewon Lee, JongSeol Lee (Korea Electronics Technology Institute, ROK)
9-6	Study on Video Surveillance System Data Interface for Interoperability with Heterogeneous Physical Security System
	Sungjoo Park, Dongchil Kim (Korea Electronics Technology Institute, ROK)
9-7	A Study on Reactive Power Characteristics and Compensation According to Voltage Regulation in Low Voltage Premises System
	Seunghyeon Park, Kiwoong Kwon, Sanghun Kim, Yongho Kim (Korea Electronics Technology Institute, ROK)

# Conference Program

| 14:10-15:40, Mon, Dec. 18, 2023 |

## Session 10: Technology management/e-commerce/information system/ERP/BPM/DX (Room 3)

14:10-15:40, Mon, Dec. 18, 2023

Chair: Dr. Ji-Hwan Kim  
(Sogang Univ., ROK)

10-1	Enhancing Blockchain Platform Security through the Analytics of User-Centric Psychometric Paradigm
	Jihye Park, Juno Lee, Hangbae Chang (Chung-Ang Univ., ROK)
10-2	Experimental Verification of Temporal Activity Sequencing Anomaly Detection Algorithm in Business Process
	Do-Hyeon Lee , Jin-Hyeong Lee, Eunbi Cho, Tsagaantsooj Batzaya, Thanh-hai Nguyen, Kwanghoon Kim (Kyonggi Univ., ROK)
10-3	A Study on the Utilization of Blockchain for Ensuring Corporate Sustainability Based on the Protection of Personal Information
	Dabin Lee, Yeji Choi, Jaewook Byun, Hangbae Chang (Chung-Ang Univ., ROK)
10-4	The effects of users' perceived platform indispensability on their actual usage: A comparative study of Korea and Finland
	Moonkyoung Jang (Gachon Univ., ROK), Seongcheol Kim (Korea Univ., ROK)
10-5	A Structural Anomaly Detection Approach in Process Mining
	Min Jae Park (Daelim College, ROK), Kwanghoon Pio Kim (Kyonggi Univ., ROK)

# Conference Program

| 14:10-15:40, Mon, Dec. 18, 2023 |

## Session 11: WIET Education Workshop I (Room 4)

14:10-15:40, Mon, Dec. 18, 2023

Chair: Dr. Eunsun Choi  
(Jeju National Univ., ROK)

11-1	A Case Study on Security Courses for Information Security Personnel
	Eunsun Choi, Jooyeon Han, Namje Park (Jeju National Univ., ROK)
11-2	Analysis of Hallyu research trends using text mining
	Miyoung Kim (Suwan Middle School, ROK), SunJu Park (Gwangju National Univ. of Education, ROK)
11-3	Comparative Analysis of Chinese Personal Information Protection Textbooks
	Eunsun Choi, Pureum Kim, Mijin Kim, Yujin Jung, Jinsu Kim, Namje Park (Jeju National Univ., ROK)
11-4	Perception Study on Digital Literacy Teachers Should Possess Through Text Mining Analysis
	Eunsun Choi, Hyunjeong Lim, Keunbae Choi, Heuipi Kim, Ji-Yun Kim, Hosoo Lee, Yeon-Soo Joo, Namje Park (Jeju National Univ., ROK)
11-5	Analysis of the Effectiveness of SW·AI Education Camp for Elementary School Students
	Jaekwoun Shim, Wooyeol Kim, Youngkwon Bae (Daegu National Univ. of Education, ROK)

# Conference Program

| 15:50-17:20, Mon, Dec. 18, 2023 |

## Session 12: KETI Workshop III (Room 2)

Chair: Dr. Kiwon Kwon

15:50-17:20, Mon, Dec. 18, 2023

(KETI, ROK)

12-1	Position Estimation using Stereo Camera on AR Glass and 3D Reconstructed Map
	Sukwoo Jung, Youn-Sung Lee, Yunju Lee, KyungTaek Lee (Korea Electronics Technology Institute, ROK)
12-2	An Autonomous Control System Implementation for Maintaining Dissolved Oxygen Level in Aquaculture
	Juhyoung Sung, Sungyoon Cho, Wongi Jeon, Yangseob Kim, Kiwon Kwon (Korea Electronics Technology Institute, ROK)
12-3	Homography-based Object Position Tracking Method using Fixed Camera
	Youn-Sung Lee, Sukwoo Jung, Kyung-Taek Lee (Korea Electronics Technology Institute, ROK)
12-4	An Analysis of the Imported Ornamental Fish Quarantine Environment for CNN based Recognition of Ornamental Fish Species in Korea
	Hyun-Hak Song, Sungyoon Cho, Yangsub Kim, Wongi Jeon, Kyungwon Park, Byoungchul Song (Korea Electronics Technology Institute, ROK), Jongho Paik (Seoul Women's Univ., ROK), Kiwon Kwon (Korea Electronics Technology Institute, ROK)
12-5	Automatic Calibration of Multiple LIDAR using Plane in Vehicle Intersection Environment
	Hyunhak Song, Byoungchul Song, Kyungwon Park (Korea Electronics Technology Institute, ROK)
12-6	A Reconstruction of Korean Traditional Performance in Virtual Reality through 3D Pose Estimation across Multi-views
	Taemin Hwang, Myoungjin Kim, Jaehyuk So, Minjoon Kim (Korea Electronics Technology Institute, ROK)

Continue next page (session 12)

# Conference Program

| 15:50-17:20, Mon, Dec. 18, 2023 |

## Session 12: KETI Workshop III (Room 2)

Chair: Dr. Kiwon Kwon

15:50-17:20, Mon, Dec. 18, 2023

(KETI, ROK)

12-7	Spatial Information Scanning Based on a Mems Mirror for Mobile 3D Scan Device
	Young Bo Shim, Sung Hun Chae (Korea Electronics Technology Institute, ROK)
12-8	Range Measurement Technique Based on VCSEL Source and SiPM Receiver
	Young Bo Shim, Sung Hun Chae (Korea Electronics Technology Institute, ROK)
12-9	Implementation of a Standard Extension Interface Module for Real-Time Control of Generative Art Content
	Sunghun Chae, Young Bo Shim (Korea Electronics Technology Institute, ROK)
12-10	Emotion and Theme Recognition by combining multiple classifiers
	Dalwon Jang, Hanyi Shin, Jaewon Lee, JongSeol Lee (Korea Electronics Technology Institute, ROK)
12-11	Comparison of object recognition performance using Embedded AI SoC
	Seho Park, SaetByul Yu (Korea Electronics Technology Institute, ROK)
12-12	Metric Learning for Gait Recognition with WiFi Sensing
	Seho Park, Myeongseop Kim, Taehyeon Kim (Korea Electronics Technology Institute, ROK)
12-13	Method of Operation and Control of Detection Equipment for Patrol Drone-Cop System
	Sungwook Jung, Jonh-Hong Park, Sungchan Choi, Wonseok Jung, Il-yeup Ahn (Korea Electronics Technology Institute, ROK)

# Conference Program

| 15:50-17:20, Mon, Dec. 18, 2023 |

Session 13: Network/Internet of Things/Mobile Computing & Cloud Computing / Digital Twin/Smart Factory & Technology management/e-commerce/information system/ERP/BPM/DX (Room 3)

Chair: Dr. Sangmin Lee

(CHA Univ., ROK)

15:50-17:20, Mon, Dec. 18, 2023

13-1	Task Offloading Strategy Based on Different Network Planning Approaches in Edge Computing Networks
	Md. Delowar Hossain, Tangina Sultana, Sharmen Akhter, Md. Imtiaz Hossain, Md Nosin Ibna Mahbub, Ngo Thien Thu, Ga-Won Lee, Eui-Nam Huh (Kyung Hee Univ., ROK)
13-2	A Research on the Visualization Services in BIM-Based Virtual Reality Environments
	Kijung Ryu, Joonyoung Ahn, Dongho Kim (Soongsil Univ., ROK)
13-3	Dynamic Access Control Policy Based on Blockchain and Machine Learning to Enhance Security in IoT Smart Homes
	Hafiz Adnan Hussain, Zulkefli Mansor, Zarina Shukur, Uzma Jafar (Universiti Kebangsaan Malaysia, Malaysia)
13-4	A Study On Adaptation Tasks Between Suitable DBMS For Cloud Migration
	Joonyoung Ahn, Changik Oh, Sugil Hwang, Dongho Kim (Soongsil Univ., ROK)
13-5	AI Companion for Children: A Service Architecture to aid Social-Emotional Development
	Seunghee Han, Soo Jung Chang, Keon Chul Park (Advanced Institute of Convergence Technology, ROK)
13-6	A study on college students' telemedicine acceptance
	Semi Han, Sangmin Lee (CHA Univ., ROK)
13-7	A Study On The Access Devices For The Activation Of Web 3.0
	Joonyoung Ahn, Dongho Kim (Soongsil Univ., ROK)

# Conference Program

| 15:50-17:20, Mon, Dec. 18, 2023 |

## Session 14: WIET Education Workshop II (Room 4)

15:50-17:20, Mon, Dec. 18, 2023

Chair: Dr. Woochun Jun  
(Seoul National Univ., ROK)

- |      |  |
|------|--|
| 14-1 | Development of Elementary Information Education Program based on SDGs                            |
|      | Jaekwoun Shim, Youngkwon Bae, Wooyeol Kim (Daegu National Univ. of Education, ROK)               |
| 14-2 | The U.S. Pre-service Teachers' Perspectives and Analysis of NCTM Illuminations: Interactives     |
|      | Yong Joon Park (Indiana State Univ., USA)  |
| 14-3 | Development of Automated English Speech Evaluation System Using Machine Learning                 |
|      | Woochun Jun (Seoul National Univ. of Education, ROK)   |
| 14-4 | A survey on the perception of prospective teachers after learning EPL using the tinkering method |
|      | Byoung Rae Han (Chinju National Univ. of Education, ROK )  |



# Conference Program

| 09:00-10:30, Tue, Dec. 19, 2023 |

## Session 15: Interactive Presentation Session II (Room 1)

Chair: Dr. Dinh-Lam Pham

09:00-10:30, Tue, Dec. 19, 2023

(Dong Nai Technology Univ., Vietnam)

15-1	Q-Learning-based Access Priority Control in Internet of Medical Things
	Jung-Hyok Kwon, Jaehoon Park, Eui-Jik Kim (Hallym Univ., ROK)
15-2	The Spillover Effects of US Economic Policy Uncertainty on China's Economy: Monetary Policy Uncertainty vs. Fiscal Policy Uncertainty
	Chi Gong (Beijing Normal Univ., China), Shang Wu (Sichuan Univ., China), Hong Jin (China Univ. of Political Science and Law, China), Xiaoye Lu (Beijing Normal Univ., China)
15-3	A Study on the Improvement of Pet Registration System Using Zero-Knowledge Proof
	Joonyoung Ahn, Kijung Ryu, Yunhoo Na, Dongho Kim (Soongsil Univ., ROK)
15-4	Thin Graph Convolution Network in Recommendation Systems
	Sang-min Lee, Heechan Kim, Janggun Jeon, Namgi Kim (Kyonggi Univ., ROK)
15-5	A Study On Conversion Vector Between Suitable DBMS Operated As A Cloud Service
	Joonyoung Ahn, Changik Oh, Sugil Hwang, Dongho Kim (Soongsil Univ., ROK)
15-6	Egocentric Human Pose Estimation for VR Interactions Using RGB-D Data
	Seongmin Baek (Electronics and Telecommunications Research Institute, ROK), Yejin Kim (Hongik Univ., ROK)

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# Conference Program

| 09:00-10:30, Tue, Dec. 19, 2023 |

## Session 15: Interactive Presentation Session II (Room 1)

Chair: Dr. Dinh-Lam Pham

09:00-10:30, Tue, Dec. 19, 2023

(Dong Nai Technology Univ., Vietnam)

15-7

Over-smoothing in Light GCN doesn't happen much

Sangmin Lee, Heechan Kim, Janggun Jeon, Namgi Kim (Kyonggi Univ., ROK)

15-8

Analyzing the Financial Effects of Smart Factory Support Program using Propensity Score Matching

Sangun Park, Tai-Woo Chang (Kyonggi Univ., ROK)

# Conference Program

| 09:00-10:30, Tue, Dec. 19, 2023 |

## Session 16: Big data platform/analysis/application (Room 3)

09:00-10:30, Tue, Dec. 19, 2023

Chair: Dr. Ihnhan Bae  
(Daegu Catholic Univ., ROK)

16-1	Comparing Scalable Multiclass Classification Models to Rate Amazon Books
	Hsiu-Ping Lin (California State Univ., Los Angeles, USA), Min-Goo Kang (Hanshin Univ., ROK), Jongwook Woo (California State Univ., Los Angeles, USA)
16-2	ViT-based Classification with Digital Signal Processing and Image Transformation of Time Series Data
	Gyu-II Kim, Seo-El Lee, Ji-Won Baek, Hyun Yoo, Kyungyong Chung (Kyonggi Univ., ROK)
16-3	NLP Models Classifying Helpful Ratings in OpenTable Dataset
	Sunnyoung Lee (Dongguk Univ., ROK), Hsiu-Ping Lin (California State Univ., LA, USA), Jihyun Park, Eugene Lim (Dongguk Univ., ROK), Jongwook Woo (California State Univ., LA, USA)

# Conference Program

| 10:40-12:10, Tue, Dec. 19, 2023 |

## Session 17: Interactive Presentation Session III (Room 1)

Chair: Dr. Yoosin Kim

10:40-12:10, Tue, Dec. 19, 2023

(Airdeep Ltd., ROK)

17-1	Study on Classification of mobile application based on mobile log data
	Kyung Han You, Byung Hoon So, Minhee Lee (Jeonbuk National Univ., ROK), Jaehee Cho (Sogang Univ., ROK)
17-2	An Operator Task Model for Constructing Human-in-the-loop Simulation in Manufacturing Systems
	Byeonkuk Kim, Gibaek Kim, Hyeonsu Lee, Dongmin Shin (Hanyang Univ., ROK)
17-3	A Study of Stochastic Simulation Algorithm for Bond Pricing Model
	Kisoeb Park, Moonseong Kim (Seoul Theological Univ., ROK)
17-4	Digital Transformation and its Implications for Technological Innovation in China's Cultural Industry: A Panel Data Analysis
	Qilong Shi (Anshan Normal Univ., China)
17-5	Does the Brain's Pre-existing Information Guide Our Explore Gaze?
	Ji-Chan Yun, Yeong-Woo Lim, Junsik Lee, Kyunghee Kim, Jae min Kim, Sanghoon Lee, Do-Hyung Park (Kookmin Univ., ROK)
17-6	Effect of Fan Systems for Lowering Leaf Temperature of Korean Ginseng
	Byungsoon KIM (Andong National Univ., ROK), Myung Hwan Jang (Punggi Ginseng Research Institute, ROK), Ilkyeun Ra (Univ. of Colorado, Denver, USA)

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# Conference Program

| 10:40-12:10, Tue, Dec. 19, 2023 |

## Session 17: Interactive Presentation Session III (Room 1)

10:40-12:10, Tue, Dec. 19, 2023

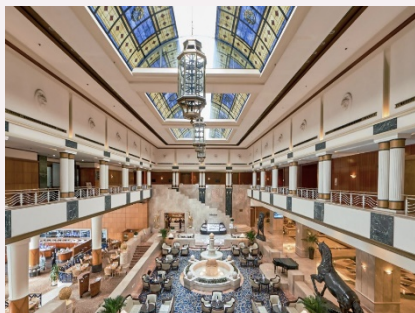
Chair: Dr. Yoosin Kim  
(Airdeep Ltd., ROK)

17-7	A Compound Gateway-Activity Discovery Approach in Process Mining
	Thanh-Hai Nguyen, Jin-Hyung Lee, Batt Chaya, Eun-Bee Cho, Sang-Eun Ahn, Kyung-Hee Sun, Kyoung-Sook Kim, Dinh-Lam Pham, Kwanghoon Pio Kim (Kyonggi Univ., ROK)
17-8	Chat-GPT application for AICC of the Bank
	Sudan Prasad Uprety (AICC Solution Lab, Nepal), Yoosin Kim (Airdeep Ltd., ROK)
17-9	Application of Block-Chain Technology in Digital Music Copyright Management: A Case Study of VNT Chain Platform
	Mingsheng Wang (Anshan Normal Univ., China)

## Venue Information

| Lotte Hotel Saigon, Hochiminh, Vietnam |

<https://www.lottehotel.com/Saigon-hotel>



| **Conference contact** |

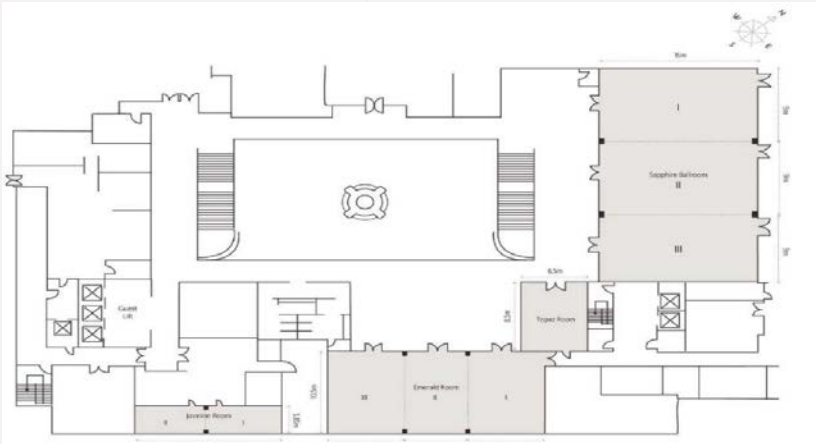
Address: 2A-4A Ton Duc Thang Street District 1, Hochiminh, Vietnam

**Tel:** +84 28 3823 3333

**E-mail:** [reservation.saigon@lhte.net](mailto:reservation.saigon@lhte.net)

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| Lotte Hotel Saigon, Hochiminh, Vietnam |  
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# Venue Information

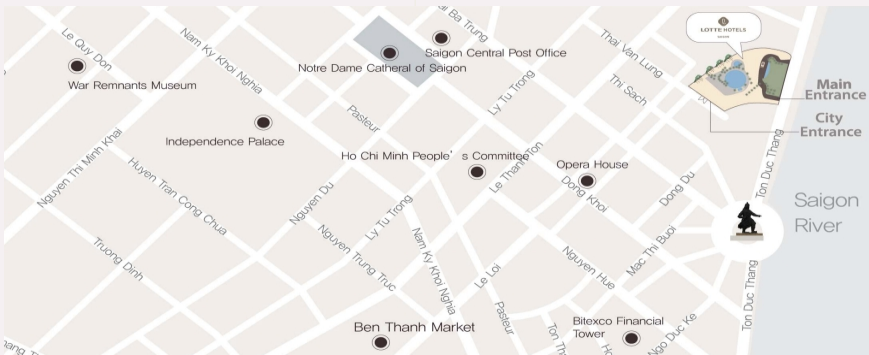
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### LOTTE HOTEL SAIGON

- Fronting the scenic Saigon River.
- Fronting Thu Thiem 2 bridge, linking District 1 with Thu Thiem Peninsula.
- 5 minutes walking to downtown (Nguyen Hue pedestrian, shopping centers, famous tourist attractions)
- 15 minutes driving to Saigon Exhibition & Convention Center (SECC).
- 20 minutes driving to Tan Son Nhat International Airport.



#### -By car

Tan Son Nhat International Airport : 7km, 20~ 30 minutes

HCMC International Exhibition Center : 6km, 20~ 30minutes

#### -Hotel shuttle bus

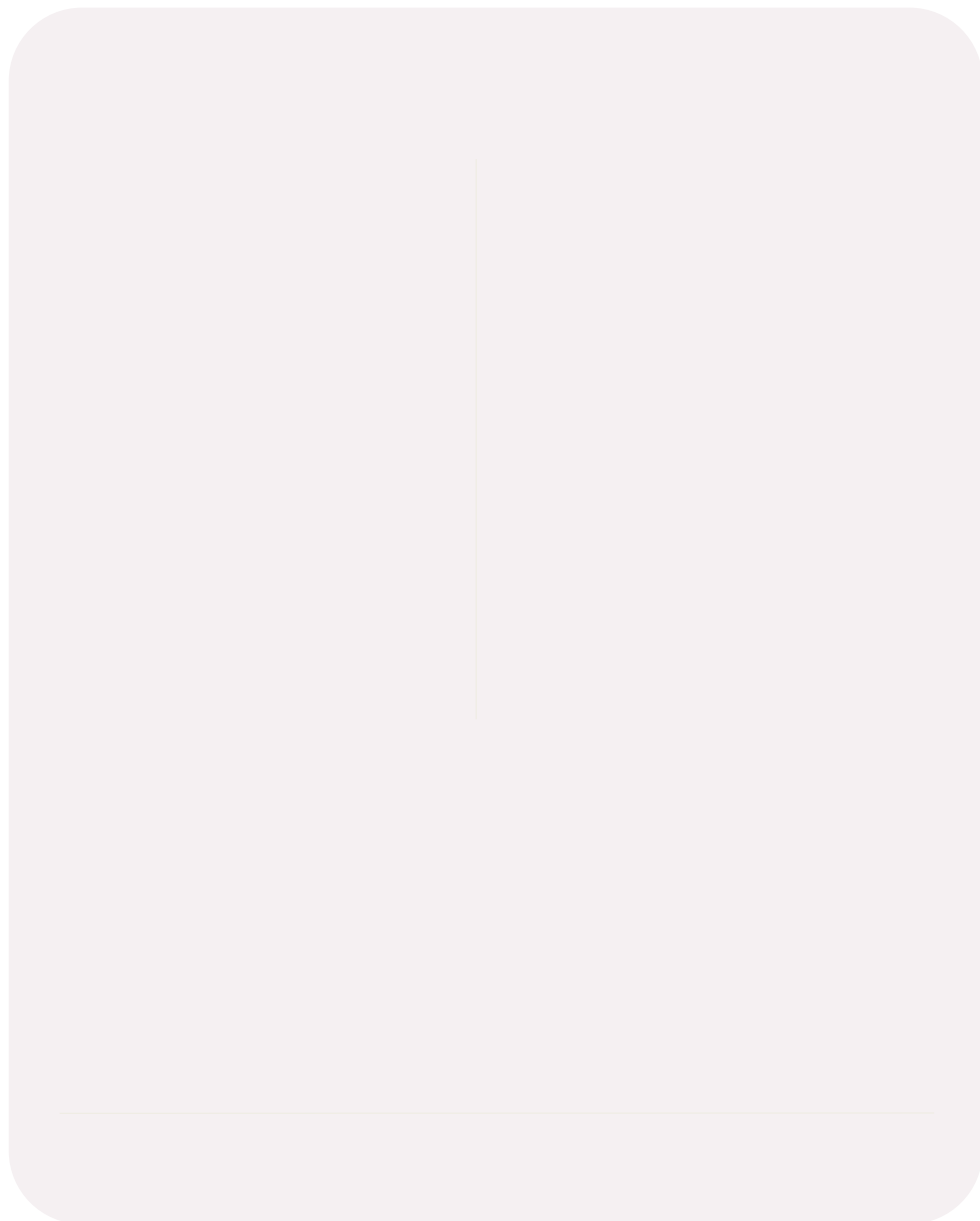
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