The 7th International Conference on Artificial Intelligence in Information and Communication

IEEE ICAIIC 2025

IEEE ComSoc IEEE Communications Society

February 18 (Tue.) ~ 21 (Fri.), 2025

Fukuoka University, Fukuoka, Japan & Virtual Conference

http://icaiic.org

Final Program

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Message from General Chairs

Welcome to ICAIIC 2025, the Seventh International Conference on Artificial Intelligence in Information and Communication, organized by the Korean Institute of Communications and Information Sciences (KICS) and Fukuoka University, and technically co-sponsored by IEEE ComSoC, IEICE-CS, and the IEICE NOLTA Society. It is a great honor and privilege to serve as the General Chairs of this prestigious event. ICAIIC aims to be a premier international forum, offering a valuable platform for exchanging cutting-edge research in artificial intelligence, information and communication technologies, and future ICT convergence technologies. The conference also fosters collaboration and strengthens the research community in these fields.

Fukuoka is Kyushu's largest city and one of Japan's ten most populous cities. Due to its close proximity to mainland Asia-closer to Seoul than to Tokyo-Fukuoka has been a key harbor city for centuries. The modern city was established in 1889 through the merger of Hakata, a thriving port city, and Fukuoka, a historic castle town. Here are some must-visit tourist destinations in Fukuoka City this February: Dazaifu Tenmangu Shrine, Ohori Park, Fukuoka Castle Ruins & Maizuru Park, Canal City Hakata, Nanzoin Temple & Reclining Buddha, Fukuoka Tower, Rakusuien Garden, Nokonoshima Island, Yatai food stalls in Nakasu, Fukuoka City Museum, and Shikanoshima.

We have prepared an exciting hybrid (online and offline) program for ICAIIC 2025. We extend our sincere gratitude to the committee members and reviewers for their invaluable contributions. On behalf of the ICAIIC Steering Committee and all attendees, we thank Professor Dong Seog Han, President of the KICS AI Society, for leading the development of an outstanding program. Special thanks go to the Technical Program Committee Chairs, Professors Haewoon Nam, Youn-Hee Han, Mikio Hasegawa, Benaoumeur Senouci, and all TPC members. Their dedication has ensured an exceptional mix of technical sessions, tutorials, and keynote speeches. We encourage you to take full advantage of this unique opportunity—attend the sessions, engage with authors, and foster collaborations with fellow researchers. The Organizing Committee has worked tirelessly to make this conference both academically enriching and enjoyable. Finally, we extend our deepest appreciation to all authors and attendees. We look forward to welcoming you in Fukuoka and online and hope for your continued participation in future ICAIIC events.

Yeong Min Jang
Kookmin Univ., Korea

Takeo FUJII
The Univ. of Electro-Comms, Japan

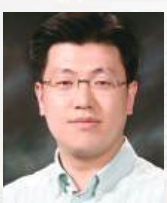
Message from TPC Chairs

It is our great pleasure to welcome all of you to Fukuoka, Japan, for the 7th International Conference on Artificial Intelligence in Information and Communication (ICAIIC). ICAIIC has addressed all aspects of artificial intelligence (AI), computing, networking, communications, and their convergence. This ICAIIC 2025 will also be a successful conference covering a wide range of topics on various AI technologies and many forms of information and communication systems with AI.

This year, we have received 531 paper submissions electronically from 36 countries in the world, where the number of submitted papers has been increased by 56% compared to the previous ICAIIC 2024. Many of the papers were submitted from the Asia/Pacific region, and also an increasing number of submissions were made from Europe and North America. After a rigorous review process and discussions, we selected 188 and 36 papers for oral and poster presentations, respectively. The conference program is organized into 4 parallel technical tracks with 34 oral sessions and 2 poster sessions. The program is designed to provide a broad range of Wireless Communication, Information and Communications Technology, Security, Language, Brain, Image Processing and Multimedia, Medical Diagnosis and eHealth, AI Foundation, Decision and Control, and Applications for Information Systems. The conference will also be highlighted by keynote speeches and tutorials from world-renowned researchers from around the world.

Along with the contributions of prominent authors from around the world, we believe that this year's valuable and interesting program is possible by the commitment of the technical program members. We are indebted to all of the 270 TPC members for their active participation and precious time. We would also like to thank our sponsors, IEEE Communications Society, IEICE Communications Society, and IEICE NOLTA Society for their kind support of this successful event. We express our deepest gratitude to the Organizing Committee Chairs, Prof. Yeong Min Jang and Prof. Takeo Fujii for their continued support and guidance. We hope that all of you will enjoy the splendid program of ICAIIC 2025 as well as the beautiful scenery and charm of Fukuoka.

Haewoon Nam
Hanyang University,
Republic of Korea



Youn-Hee Han
KOREATECH,
Republic of Korea

Mikio Hasegawa
Tokyo University of Science,
Japan

M. Benaoumeur Senouci
Southern Denmark University,
Denmark

Peng Hu
University of Manitoba,
Canada

Program Matrix for ICAIIC 2025

Feb. 16 (Sunday)						
Start	End	Duration	Room A	Room B	Room C	Room D
16:00	18:00	2:00	IAC/SC/OC Strategic Meeting for ICAIIC2026			

Feb. 17 (Monday)						
Start	End	Duration	Room A	Room B	Room C	Room D
14:00	17:00	3:00	OC Local Meeting for ICAIIC2025			

Feb. 18 (Tuesday)						
Start	End	Duration	Room A	Room B	Room C	Room D
12:30	13:00	0:30	Registration			
13:00	15:00	2:00	Oral Session – 1A	Oral Session – 1B	Oral Session – 1C	Oral Session – 1D
			5G/6G Communication I Chair: Prof. Sungrae Cho (Chung-Ang University)	Detection, Decision, and Control I Chair: Dr. Love Allen Chijioke Ahakonye (Kumoh National Institute of Technology)	Application for Information Systems I Chair: Prof. Hichan Moon (Hanyang University)	Wireless Communication I Chair: Prof. Muhammad Toaha Raza Khan (Middle East Technical University)
15:00	15:20	0:20	Coffee Break			
15:20	16:10	0:50	Chair: Prof. Youn-Hee Han (KOREATECH) Tutorial I : Dr. Takeshi Matsumura (NICT, Japan)			
16:10	16:20	0:10	Break (for room arrangement)			
16:20	17:40	1:20	Oral Session – 2A	Oral Session – 2B	Oral Session – 2C	Oral Session – 2D
			5G/6G Communication II Chair: Prof. Sungrae Cho (Chung-Ang University)	Localization/Sensing Chair: Dr. Jeongwan Kang (Hanyang University)	AI, Haptics, and Communication Chair: Prof. Youn-Hee Han (KOREATECH)	FSO and OCC Chair: Prof. Yeong Min Jang (Kookmin University)

Program Matrix for ICAIIC 2025

Feb. 19 (Wednesday)						
Start	End	Duration	Room A	Room B	Room C	Room D
9:00	9:10	0:10	Registration			
9:10	10:30	1:20	Oral Session – 3A Information and Communications Technology I Chair: Prof. Dong Seog Han (Kyungpook National University)	Oral Session – 3B Wireless Communication II Chair: Prof. Seung-Taek Kang (Incheon National University)	Oral Session – 3C AI Foundation I Chair: Dr. Malik Muhammad Saad (Kyungpook National University)	Oral Session – 3D LLM and Language + AI I Chair: Dr. Thi-Thu-Huong Le (Pusan National University)
10:30	11:00	0:30	Coffee Break			
11:00	11:20	0:20	Chair: Prof. Haewoon Nam (Hanyang University, Korea) Opening Address: Yeong Min Jang (General Chair) Welcome Address: Jun Heo (President of KICS), Akihiro Nakao (President of IEICE-CS), Kiyohisa Natsume (President of IEICE NOLTA Society)			
11:20	11:50	0:30	Keynote Speech I : Gunes Karabulut Kurt (Polytechnique Montreal, Canada)			
11:50	12:20	0:30	Keynote Speech II: Akihiro Nakao (President of IEICE-CS, The University of Tokyo)			
12:20	14:00	1:40	Lunch Break			
14:00	15:20	1:20	Oral Session – 4A Security Chair: Dr. Love Allen Chijioke Ahakonye (Kumoh National Institute of Technology)	Oral Session – 4B Brain + AI Chair: Prof. Seokjoo Shin (Chosun University)	Oral Session – 4C Detection, Decision and Control II Chair: Prof. Min Young Kim (Kyungpook National University)	Poster Session – P1 LLM and Language + AI Chair: Prof. Pyung Soo Kim (Tech Univ. of Korea)
15:20	15:40	0:20	Coffe Break			
15:40	17:20	1:40	Oral Session – 5A Information and Communications Technology II Chair: Dr. Junaid Akram (University of Sydney)	Oral Session – 5B Blockchain and application Chair: Prof. Yongwoo Lee (Inha University)	Oral Session – 5C Detection, Decision and Control III Chair: Dr. Faisal Saeed (Shenzhen University, China)	Poster Session – P2 Wireless Communicaiton Chair: Dr Jehad Ali (Ajou University)
18:30	20:30	2:00	Chair: Prof. Sang-Chul Kim (Kookmin University) Banquet (KKR Hotel Hakata)			

Program Matrix for ICAIIC 2025

Feb. 20 (Thursday)						
Start	End	Duration	Room A	Room B	Room C	Room D
9:00	9:10	0:10	Registration			
9:10	10:30	1:20	Oral Session – 6A	Oral Session – 6B	Oral Session – 6C	Oral Session – 6D
			Medical Diagnosis and eHealth I Chair: Prof. Anal Paul (National Sun Yat-sen University, Taiwan)	Information and Communications Technology III Chair: Prof. Thin Tharaphe Thein (Kobe University)	Wireless Communication III Chair: Dr. Muhammad Ali Jamshed (University of Glasgow)	Application for Information Systems II Chair: Prof. Ilai Bistritz (Tel Aviv University)
10:30	10:40	0:10	Coffee Break			
10:40	11:30	0:50	Chair: Prof. Takeo Fujii (University of Electro-Communications) Tutorial II : Prof. Haewoon Nam (Hanyang University, Korea)			
11:30	13:30	2:00	Lunch Break			
13:30	15:30	2:00	Oral Session – 7A	Oral Session – 7B	Oral Session – 7C	Oral Session – 7D
			Medical Diagnosis and eHealth II Chair: Prof. Sang-Chul Kim (Kookmin University)	AI Foundation II Chair: Dr. Zakria Qadir (University of New South Wales)	Application for Information Systems III Chair: Prof. Hui Shan Lee (Universiti Tunku Abdul Rahman)	Information and Communications Technology IV Chair: Dr. Adeel Iqbal (Yeungnam University)
15:30	15:40	0:10	Coffee Break			
15:40	17:40	2:00	Oral Session – 8A	Oral Session – 8B	Oral Session – 8C	Oral Session – 8D
			Medical Diagnosis and eHealth III Chair: Prof. Azfar Yaqub (Free University of Bozen-Bolzano)	Image Processing and Multimedia I Chair: Prof. Ida Wahidah (Telkom University)	Application for Information Systems IV Chair: Dr. Santo Fernandi Wijaya (Universitas Multimedia Nusantara)	Robotics Chair: Prof. Haewoon Nam (Hanyang University)

Program Matrix for ICAIIC 2025

Feb. 21 (Friday)						
Start	End	Duration	Room A	Room B	Room C	Room D
9:00	9:20	0:20	Registration			
9:20	11:00	1:40	Oral Session – 9A Transportation and Logistics Chair: Prof. Rutvij H. Jhaveri (Pandit Deendayal Petroleum University)	Oral Session – 9B Image Processing and Multimedia II Chair: Prof. Hsu-Feng Hsiao (National Yang Ming Chiao Tung University)	Oral Session – 9C LLM and Language + AI II Chair: Prof. Dong Seog Han (Kyungpook National University)	Oral Session – 9D Application for Information Systems V Chair: Dr. Attaullah Buriro (Free University of Bozen-Bolzano)

Keynote Speech

[Keynote I] 11:20 ~ 11:50, February 20, 2025 (Wednesday)
Speaker: Prof. Gunes Karabulut Kurt (Polytechnique Montréal, Canada)

Topic: Communications and Networking in Mega-Constellations

Abstract

The wide footprint of satellites holds the promise of providing ubiquitous connectivity. However, challenges persist in overcoming bottlenecks to ensure sufficiently high data rates for under-connected communities while maintaining uninterrupted communication. This talk identifies these challenges regarding communications and networking perspectives, summarizes recent research efforts addressing them, and highlights key open issues for future investigation.

Biography

Gunes Karabulut-Kurt is a Canada Research Chair (Tier 1) in New Frontiers in Space Communications and a Professor at Polytechnique Montréal, Montréal, QC, Canada. She is the Director of the Poly-Grames Research Center, and is co-founder and Director of Education and Training of ASTROLITH, Transdisciplinary Research Unit of Space Resource and Infrastructure Engineering at Polytechnique Montréal. She is also an adjunct research professor at Carleton University, Canada. Gunes received the B.S. degree with high honors in electronics and electrical engineering from Bogazici University, Istanbul, Turkiye, in 2000 and the M.A.Sc. and the Ph.D. degrees in electrical engineering from the University of Ottawa, ON, Canada, in 2002 and 2006, respectively. She worked in different technology companies in Canada and Turkiye between 2005 and 2010. From 2010 to 2021, she was a professor at Istanbul Technical University. Gunes is a Marie Curie Fellow and has received the Turkish Academy of Sciences Outstanding Young Scientist (TÜBA-GEBIP) Award in 2019.

Keynote Speech

[Keynote II] 11:50 ~ 12:20, February 20, 2025 (Wednesday)
Speaker: Prof. Akihiro Nakao (The University of Tokyo, Japan)

Topic: Beyond 5G: Challenges and Strategies for Realization

Abstract

Beyond 5G (B5G) is a next-generation communication technology designed to address critical societal challenges, including faster communication speeds, reduced latency, massive connectivity, extensive coverage, improved energy efficiency, sustainability, security, bridging the digital divide, and enhancing industrial competitiveness. Positioned as a vital "lifeline" for society and industries, B5G forms the backbone of real-time cyber-physical systems (CPS) that integrate the physical and digital worlds, enabling predictive analytics and advanced decision-making. B5G enhances socio-economic efficiency by delivering seamless, location-independent access to advanced services such as ones leveraging generative AI. The coordination of multiple AI systems within B5G unlocks sophisticated, inclusive, and collaborative services across sectors, fostering innovation and growth in the digital era. Realizing B5G requires interdisciplinary research, robust infrastructure, and talent cultivation, with collaboration across telecommunications, AI, semiconductors, and IoT. Building testbeds for validation and strengthening global partnerships are essential for translating innovations into societal applications and international standards. This keynote will explore the challenges and strategies for realizing B5G, emphasizing its role as a cornerstone for a sustainable and inclusive future. By driving technological innovation through collaboration among industry, academia, and government, B5G has the potential to position itself as a global enabler of transformative change.

Biography

Akihiro Nakao received his B.S. in Physics in 1991 and M.E. in Information Engineering in 1994, both from the University of Tokyo. From 1994 to 2005, he worked at IBM, including positions at the Yamato Laboratory, Tokyo Research Laboratory, and the Austin Laboratory in Texas. He earned an M.S. in 2001 and a Ph.D. in Computer Science in 2005, both from Princeton University. From 2005 to 2021, Dr. Nakao held academic positions at the University of Tokyo, serving as an Associate Professor (2005–2014) and Professor (2014–2021) in Applied Computer Science at the Interfaculty Initiative in Information Studies, Graduate School of Interdisciplinary Information Studies. He served as Vice Dean of the Interfaculty Initiative in Information Studies (2019–2021). In April 2021, Dr. Nakao transitioned to the School of Engineering at the University of Tokyo, where he currently serves as Head of the Department of System Innovations (since April 2023). He was an adviser to the President of the University of Tokyo from 2019 to 2020 and has been a Special Adviser to the President since 2020. Additionally, he is Director of the Collaborative Research Institute for Next-Generation Cyber Infrastructure (NGCI) at the University of Tokyo (2021–present). In September 2023, he was appointed the first Guest Professor at the University of Oulu, Faculty of Information Technology and Electrical Engineering (ITEE) (2023-present).

Keynote Speech

Contributions to Social Services and Research Societies

Dr. Nakao has held key roles in government and research societies in Japan. He was Chairperson of the Network Architecture Committee of the 5G Mobile Network Promotion Forum (5GMF) (2014–2024) and Chairperson of the International Committee of the Beyond 5G Promotion Consortium (B5GPC) (2020–2024). Following the merger of 5GMF and B5GPC, he became Co-Chairperson of the XG Mobile Promotion Forum (XGMF) in 2024 (2024-present). Since 2020, Dr. Nakao has chaired the 5G/Beyond 5G Committee within the Space ICT Promotion Initiative Forum's International Committee (2020-present). He was recently appointed President of the Communication Society of IEICE (2024–present). Additionally, he has chaired several IEICE technical committees, including the Network Systems (NS) Committee, the Cross-Field Research Association on Super-Intelligent Networking (RISING), and the Cross-Field Research Association on Human-Centered Lifeline (HCL). Dr. Nakao's extensive contributions to academia, industry, and social services make him a leading figure in the field of next-generation networking and systems innovations.

Tutorial

[Tutorial I] 15:30 ~ 16:20, February 18, 2025 (Tuesday)
Speaker: Dr. Takeshi Matsumura (NICT, Japan)

Topic: Advancing Wireless Communications to Connect Societies and Enhance People's Lives

Abstract

This presentation focuses on the research and development of wireless communication technologies that connect societies and enhance people's lifestyles. First, technologies for connecting remote communities are introduced, including multi-layer networks utilizing non-terrestrial networks and the autonomous flight of multiple drones to enable next-generation advanced air mobility. In particular, efforts toward social implementation are highlighted, featuring demonstration experiments conducted under diverse use cases and environments to advance autonomous swarm flight and collision avoidance technologies using wireless communication. Next, the presentation addresses the research and development aimed at realizing a "cybernetic avatar (CA) life" under Japan's Moonshot Goal 1 project. The concept of a CA extends beyond substitute robots and 3D CGs to encompass ICT and robotics technologies that enhance human physical, cognitive, and perceptual abilities. It aims to free individuals from the constraints of space, time, and physical limitations, enabling anyone to actively participate in social activities. For such diverse CAs to contribute to society effectively, highly reliable communication technologies are indispensable. This presentation will also introduce efforts to ensure the reliability of teleoperation through advanced communication technologies.

Biography

Takeshi Matsumura received his M.S. degree in Electronic Engineering in 1998 and his Ph.D. degree in Nano-mechanics Engineering in 2010, both from Tohoku University, Japan. From 1998 to 2007, he worked in the research and development of wireless communication devices at various companies. In April 2007, he joined the National Institute of Information and Communications Technology (NICT), Tokyo, Japan, as a researcher in the Smart Wireless Laboratory, where he contributed to the development of white-space communication systems and 5th generation mobile communication systems (5G). From April 2016 to March 2019, he served as an Associate Professor in the Graduate School of Informatics at Kyoto University, Japan. Currently, he holds the positions of Research Executive Director at the Network Research Institute and Director of the Wireless Systems Laboratory at NICT, while also being a researcher affiliated with the Graduate School of Informatics at Kyoto University. His research interests encompass whitespace communication systems, wide-area wireless network systems, 5G-based local networks, beyond 5G, wireless emulation technologies, and reliability-ensuring platform for cybernetic avatars.

Tutorial

[Tutorial II] 10:40 ~ 11:30, February 20, 2025 (Thursday)
Speaker: Prof. Haewoon Nam (Hanyang University, Republic of Korea)

Topic: Particle Swarm Optimization: Fundamentals and Practice

Abstract

This tutorial will deliver the basics of particle swarm optimization (PSO) technique with special focus on the fundamentals of the algorithm and its practical applications using Python programs. PSO is a widely-used optimization algorithm that is inspired by the behavior of social animals such as birds or fish. We aim to provide an overview of the key concepts and principles of PSO as well as the impact of the hyper-parameters on the algorithm. In addition, as an example application, an implementation of PSO algorithm using python/MATLAB for path planning will also be demonstrated to help audiences understand the step-by-step procedure on how to use the PSO algorithm to other optimization tasks.

Biography

Prof. Haewoon Nam received the B.S. degree from Hanyang University, Seoul, South Korea, the M.S. degree from Seoul National University, and the Ph.D. degree in electrical and computer engineering from The University of Texas at Austin, Austin, TX, USA. From 1999 to 2002, he was with Samsung Electronics, Suwon, South Korea, where he was engaged in the design and development of code division multiple access and global systems for mobile communications/general packet radio service baseband modem processors. In 2003, he was with the IBM Thomas J. Watson Research Center, Yorktown Heights, NY, USA, where he performed extensive radio channel measurements and analysis at 60 GHz. In 2005, he was with the Wireless Mobile System Group, Freescale Semiconductor, Austin, where he was engaged in the design and test of the worldwide interoperability for microwave access medium access control layer. His industry experience also includes working with the Samsung Advanced Institute of Technology, Giheung, South Korea, where he participated in the simulation of multi-input-multi-output systems for the third-generation partnership project (3GPP) long-term evolution (LTE) standard. In October 2006, he joined the Mobile Devices Technology Office, Motorola Inc., Austin, where he was involved in algorithm design and development for the 3GPP LTE mobile systems, including modeling of 3GPP LTE modem processors. In 2010, he was with Apple Inc., Cupertino, CA, USA, where he worked on the research and development of next-generation smart mobile systems. Since March 2011, he has been with the Division of Electrical Engineering, Hanyang University, Ansan, South Korea, where he is currently a Professor. He received the Korean Government Overseas Scholarship for the Ph.D. degree in electrical engineering.

Oral Sessions

Oral Session - 1A: 5G/6G Communications I

Chair: Prof. Sungrae Cho (Chung-Ang University) **Feb/18 (Tue), 13:00 - 15:00**

1A-1 A Survey on Energy-Efficient in Semantic Communication: Techniques, Challenges, and Future Directions
Thwe Thwe Win, Wondmagegn Ayalneh Bitew, Thi My Tuyen Nguyen, Junsuk Oh, Gahyun Kim and Sungrae Cho (Chung-Ang University, Korea (South))

1A-2 A Review on Task Offloading and Resource Allocation in Aerial and Satellite-Assisted MEC Systems
Wondmagegn Ayalneh Bitew, Thwe Thwe Win, Jaemin Kim, Dongwook Won and Sungrae Cho (Chung-Ang University, Korea (South))

1A-3 Adapting Federated Learning to Dynamic and Non-Stationary Data: An Online Learning Approach
Jaemin Kim, Donghyeon Hur, Dongwook Won and Sungrae Cho (Chung-Ang University, Korea (South))

1A-4 Joint Resource Allocation and Power Effeciency Optimization for O-RAN based ISAC
Chunghyun Lee, Junsuk Oh and Sungrae Cho (Chung-Ang University, Korea (South))

1A-5 A DRL Framework to Optimize Energy Efficiency for Quadrature Rate-Splitting Multiple Access
Anh-Tien Tran, Thanh Phung Truong, Dang Huy Mac, Dongwook Won and Jaemin Kim (Chung-Ang University, Korea (South)); Nhu-Ngoc Dao (Sejong University, Korea (South)); Sungrae Cho (Chung-Ang University, Korea (South))

1A-6 A Survey on Satellite Networks with Federated Learning to Analyze Data or Manage Resource
Junsuk Oh, Donghyun Lee, Thanh Phung Truong, Donghyeon Hur, Seonghun Hong and Sungrae Cho (Chung-Ang University, Korea (South))

1A-7 A Survey on Integrated Sensing and Communication: Integrated System of RIS, UAV, Multiple Access
Donghyun Lee, Yunseong Lee, Chihyun Song, Junsuk Oh, The Vi Nguyen and Sungrae Cho (Chung-Ang University, Korea (South))

1A-8 Security and Privacy Challenges in Semantic Communication Networks
Quang Tuan Do, Dongwook Won, Tung Son Do, Thanh Phung Truong and Sungrae Cho (Chung-Ang University, Korea (South))

Oral Sessions

Oral Session - 1B: Detection, Decision, and Control I

Chair: Dr. Love Allen Chijioke Ahakonye (Kumoh National Institute of Technology) **Feb/18 (Tue), 13:00 - 15:00**

1B-1 Mitigation Approach for Certain Biases in Survey Scale Input within AI Control and Decision Systems
Steve Chan (Harvard University, USA)

1B-2 Performance-weighted Ensemble Learning for Speech Classification
Bagus Tris Atmaja (National Institute of Advanced Industrial Science and Technology, Japan & Institut Teknologi Sepuluh Nopember, Indonesia); Akira Sasou (National Institute of Advanced Industrial Science and Technology, AIST, Japan); Felix Burkhardt (AUDEERING GmbH, Germany)

1B-3 Malicious Domain Detection Using Statistical Features of Domain Strings, Public Information, and DNS Logs
Reo Kusumi (Kindai University, Japan); Makoto Takita and Thin Tharaphe Thein (Kobe University, Japan); Masami Mohri (Kindai University, Japan); Yoshiaki Shiraishi (Kobe University, Japan)

1B-4 Evaluation of Real-Time Train Overhead Line Component Detection on Edge Device
Yuto Yokomine (Tokyo City University Graduate School, Japan); Nico Surantha (Tokyo City University, Japan)

1B-5 2D Sinc Interpolation-Based Fractional Delay and Doppler Estimation Using Time and Frequency Shifted Gaussian Pulses
Yutaka Jitsumatsu and Sun Liangchen (Kyushu University, Japan)

1B-6 DefectDiffusion: A Generative Diffusion Model for Robust Data Augmentation in Industrial Defect Detection
Md Tayeb Adnan (Kumoh National Institute of Technology, Korea (South)); Hope Leticia Nakayiza (Kumoh National Institute of Technology, Gumi, Korea (South)); Heejae Shin, Seungmin Lee, Dong Seong Kim and Jae Min Lee (Kumoh National Institute of Technology, Korea (South))

1B-7 Implementing Explainable AI to Enhance Business Decision Making & Bridging the Trust Gap
Zakir Hossain (California State University, USA); Asif Ahamed (Westcliff University, USA)

Oral Sessions

Oral Session - 1C: Application for Information Systems I

Chair: Prof. Hichan Moon (Hanyang University) **Feb/18 (Tue), 13:00 - 15:00**

1C-1 Attention-Enhanced Reservoir Computing for Modeling Diverse Dynamical Systems
Felix Koester, Kanno Kazutaka and Atsushi Uchida (Saitama University, Japan)

1C-2 Classification of Tomato Growth Degree Adopting Machine-Learning to Photomorphogenesis Information in the Visible Light Region
Yoshitsugu Nakagawa (Tokyo Metropolitan Industrial Technology Research Institute & Tama-Techno Plaza, Japan)

1C-3 Explainable Predictive Analysis of the Economic and Financial Performance of Italian Publicly Owned Companies
Idio Guarino (University of Verona, Italy); Antonio Montieri (University of Napoli Federico II, Italy); Domenico Ciuonzo (University of Naples Federico II, Italy); Antonio Pescapé (University of Napoli Federico II, Italy)

1C-4 Development and application of eTheremin: hand tracking and AI technology facilitate educational and entertaining musical training
Tsen-Fang Lin and Wen-Hsin Li (Southern Taiwan University of Science and Technology, Taiwan)

1C-5 GSW-Yolo: Improved Light-Weight Person Detection Method Based on YOLOv8
Januar Adi Putra, Nanik Suciati and Chastine Fatichah (Institut Teknologi Sepuluh Nopember, Indonesia)

1C-6 Efficient Occupancy Prediction with Instance-level Attention
Sungjin Park, Jaeha Song and Soonmin Hwang (Hanyang University, Korea (South))

1C-7 Leveraging Camera-Based Methods for Enhanced Feature-to-World Mapping
Jaeha Song, Sungjin Park and Soonmin Hwang (Hanyang University, Korea (South))

Oral Sessions

Oral Session - 1D: Wireless Communications I

Chair: Prof. Muhammad Toaha Raza Khan (Middle East Technical University) **Feb/18 (Tue), 13:00 - 15:00**

1D-1 Beamforming Optimization for MIMO System Based on Graph Neural Networks
Zhao Jianxun and Ji Yang (Beijing University of Posts and Telecommunications, China)

1D-2 Neural Network-aided Cell Selection and Handover in Cellular Networks with Carrier Aggregation
Haerim Ga, Gwanwoo Na, Gahye Kim and Jungmin So (Sogang University, Korea (South))

1D-3 Pilot Allocation Optimization by Hybrid Quantum-Classical Neural Network in CF-mMIMO
Nguyen Doan Hieu, Tung Nguyen and Won-Joo Hwang (Pusan National University, Korea (South))

1D-4 Quantum Graph Neural Network for Resource Management in Wireless Communication
Tung Giang Le, Xuan Tung Nguyen and Won-Joo Hwang (Pusan National University, Korea (South))

1D-5 Secure Dynamic Spectrum Access in Internet-of-Things Based on Machine Unlearning
Feng Li (Nanyang Technological University, Singapore); Shui Shen (School of Information and Electronic Engineering, Zhejiang Gongshang University, Hangzhou, Hong Kong); Kwok-Yan Lam and Bowen Shen (Nanyang Technological University, Singapore); Li Wang (Dalian Maritime University, China)

1D-6 An Effect of Temperature on Packet-Level Index Modulation for IoT
Hitoshi Yamasaki and Mai Ohta (Fukuoka University, Japan); Hiroki Matsuura (NATANE eICT Lab., Japan); Makoto Taromaru (Fukuoka University, Japan)

1D-7 Machine Learning Based Blockage Prediction in Mm-wave V2I Communications
Yuya Sugimoto and Gia Khanh Tran (Institute of Science Tokyo, Japan)

Oral Sessions

Oral Session - 2A: 5G/6G Communications II

Chair: Prof. Sungrae Cho (Chung-Ang University) **Feb/18 (Tue), 16:20 - 17:40**

2A-1 Deep Reinforcement Learning-assisted Resource Allocation for Fluid Antenna System: Overview, Research Challenges and Future Trends
Cuong Ho and Sungrae Cho (Chung-Ang University, Korea (South))

2A-2 Researches on Resource Allocation with Reinforcement Learning in Cell-Free Networks
Yunseong Lee, Donghyun Lee, Junsuk Oh and Chihyun Song (Chung-Ang University, Korea (South)); Wonjong Noh (Hallym University, Korea (South)); Sungrae Cho (Chung-Ang University, Korea (South))

2A-3 Super-Resolution Semantic Communication System for Satellite Image
Tung Son Do, Thanh Phung Truong, Quang Tuan Do, Dongwook Won, Wondmagegn Ayalneh Bitew and Sungrae Cho (Chung-Ang University, Korea (South))

2A-4 Optimizing Data Transmission for Deep Space: A Comprehensive Overview and Research Trends of Licklider Transmission Protocol
Gahyun Kim, Seonghun Hong, Thwe Thwe Win, Junsuk Oh and Sungrae Cho (Chung-Ang University, Korea (South))

2A-5 AI-Enabled Swarm Clustering for UAVs-Aided IoT Data Acquisition
Thanh Phung Truong, Tung Son Do, Junsuk Oh, Dongwook Won, The Vi Nguyen, Chunghyun Lee and Sungrae Cho (Chung-Ang University, Korea (South))

Oral Session - 2B: Localization/Sensing

Chair: Dr. Jeongwan Kang (Hanyang University) **Feb/18 (Tue), 16:20 - 17:40**

2B-1 Joint DoA Estimation and AMC for Overlapped Signal via Multi-Task Deep Learning
Yunseol Cho, Hanvit Kim, Hyunwoo Park and Sunwoo Kim (Hanyang University, Korea (South))

2B-2 Towards Grid-Free Positioning for Near-Field Communications
Hyunwoo Park (Hanyang University, Korea (South)); Andrea Conti (DE and CNIT, University of Ferrara, Italy); Moe Z. Win (Massachusetts Institute of Technology, USA); Sunwoo Kim (Hanyang University, Korea (South))

2B-3 From Radio Signals to Spatial Maps: End-to-end Learning for Virtual Anchor Mapping
Kyeong-Ju Cha, Hyunwoo Park and Sunwoo Kim (Hanyang University, Korea (South))

2B-4 5G Localization with Blockage Detection based on Beam RSRP Patterns in Urban Environment
Seongyeop Kim, Hongseok Jung, Duhui Yang and Sunwoo Kim (Hanyang University, Korea (South))

Oral Sessions

Oral Session - 2D: FSO and OCC

Chair: Prof. Yeong Min Jang (Kookmin University) **Feb/18 (Tue), 16:20 - 17:40**

2D-1 Multi-unit Based IRS Supported Non-Line-of-Sight Communication for Signal Quality Performance Improvement
Hira Khatun (Khulna University of Engineering & Technology (KUET), Bangladesh); Mostafa Zaman Chowdhury (Khulna University of Enginnering & Technology, Bangladesh); Yeong Min Jang (Kookmin University, Korea (South))

2D-2 Evaluating SAM-Based Labeling Approaches for Autonomous Driving in Korean Traffic Scenarios
Youngwoong Jun and Sang-Chul Kim (Kookmin University, Korea (South))

2D-3 Quantum Neural Networks for Enhanced Motion Prediction in Autonomous Vehicles
Md. Shahriar Nazim, Ida Bagus Krishna Yoga Utama and Yeong Min Jang (Kookmin University, Korea (South))

2D-4 UAV Energy Consumption Prediction: A Comparative Study from Four Different Deep Learning Models
Zalza Karima, Md. Shahriar Nazim and Yeong Min Jang (Kookmin University, Korea (South)); Chairul Hudaya (Universitas Indonesia, Indonesia)

2D-5 FPGA Implementation of Channel Codec for Optical Intersatellite Link Communication System
Irzal Zaini (Kookmin University, South Korea, Korea (South)); Ida Bagus Krishna Yoga Utama and Yeong Min Jang (Kookmin University, Korea (South))

Oral Session - 3A: Information and Communication Technology I

Chair: Prof. Dong Seog Han (Kyungpook National University) **Feb/19 (Wed), 09:10 - 10:30**

3A-1 Flow-level Bandwidth Allocation on P4 Tofino Switch with In-Network DRL Inference
Muhammad Irfan (CCNY, USA & Wentworth Institute of Technology, USA); Hang Hu (City College of New York, USA); Myung Lee (CUNY, City College, USA); Arslan Qadeer (City College of New York, CUNY, USA); Yang G. Kim (New York City College of Technology, USA); Kazi Ahmed (New York Institute of Technology, USA); Daiki Nobayashi (Kyushu Institute of Technology, Japan)

3A-2 Performance Analysis of Signing Algorithms and Integrity Enhancement Techniques for MAVLink in PX4
Kyeongmin Lee, Yeonjeong Hwang, Thi-Thu-Huong Le and Jun Young Son (Pusan National University, Korea (South))

3A-3 Information-intensive control method using estimated observation values based on correlation of observation values from multiple sensors
Yudai Koike and Osamu Takyu (Shinshu University, Japan)

Oral Sessions

3A-4 Bridging the Gap Between Biological and Sustainable Practices: Meta-Analysis of Biomimetic Strategies & Applications to Architecture
Vasileios Alevizos (Karolinska institutet, Sweden); Sabrina Edralin (University of Illinois Urbana-Champaign, USA); Clark Xu (Mayo Clinic, USA)

3A-5 LearnRAG: Imeplementing Retrieval-Augmented Generation for Adaptive Learning Systems
Richard Shan (NCSSM, USA)

Oral Session - 3B: Wireless Communication II

Chair: Prof. Seung-Taek Kang (Incheon National University) **Feb/19 (Wed), 09:10 - 10:30**

3B-1 Real-Time Performance Analysis of Multi-Armed Bandit Solution for OBSS and Dynamic Channel Bonding in WLAN
Govindarajan J (Amrita Vishwavidyapeetham University, India); Remya P R (Amrita Vishwa Vidyapeetham, India)

3B-2 Quantum AI-Enhanced Deep Reinforcement Learning for Real-Time Adaptive Beamforming in Next-Generation Terahertz Communication Systems
Raj Kashikar (Virginia Polytechnic Institute and State University, USA)

3B-3 Application of Nonlinerar Oscillator Desynchronization Phenomena to Collision Avoidance in LoRa and its Experimental Evaluation
Dai Kojima (Tokyo University of Science, Japan); Hiroyuki Yasuda (The University of Tokyo, Japan); Takuma Osada (Tokyo University of Science, Japan); Aohan Li (The University of Electro-Communications, Japan); Maki Arai and Mikio Hasegawa (Tokyo University of Science, Japan)

3B-4 Concatenated Channel Coding with Ring Structure in Screen-Camera Links
Tzu-Hao Chang (National Chiao Tung University, Taiwan); Hsu-Feng Hsiao (National Yang Ming Chiao Tung University, Taiwan)

3B-5 Slice Resource Management with MADDPG-Based Traffic Classification in 5G/B5G Networks
Chia-Yu Yan, Chih-Jou Tai and Li-Der Chou (National Central University, Taiwan)

Oral Sessions

Oral Session - 3C: AI Foundation I

Chair: Dr. Malik Muhammad Saad (Kyungpook National University) **Feb/19 (Wed), 09:10 - 10:30**

3C-1 Development of a Classification Model for Banana Leaf Disease Using Google Teachable Machine
Joshua B Ancheta (Lyceum of the Philippines University - Cavite, Philippines & Asia Pacific College, Philippines); Leah Q Santos and Arnel M Avelino (Lyceum of the Philippines University - Cavite, Philippines); Ma. Editha A Grande (Ateneo de Manila University, Philippines); Luigi Carlo M De Jesus (Asia Pacific College, Philippines & De La Salle University - Manila, Philippines); Jaime David (Asia Pacific College, Philippines)

3C-2 Comparison of Deep Learning Models for Singlsyn Defect Detection and Classification
Manida Bhonsawanwong, Akarima Pengubon and Noboru Sonehara (Chulalongkorn University, Thailand); Akihisa Kodate (Tsuda University, Japan); Masamichi Nakamura (Tamagawa Seiki Co., Ltd, Japan); Kazuto Kojima (Iida City Government, Japan); Nagul Cooharojananone (Chulalongkorn University, Thailand)

3C-3 Defending Against High-Intensity Adversarial Perturbations in Deep Neural Networks: A Robust Swin Transformer Approach
Quang Nguyen Tri Le (University of Ottawa, Canada); Francois Chan (Royal Military College, Canada); Jianbing Ni, Scott Yam and Ning Lu (Queen's University, Canada)

3C-4 Kolmogorov-Arnold Networks with Trainable Activation Functions for Data Regression and Classification
Kuan-Lin Chen and Jian-Jiun Ding (National Taiwan University, Taiwan)

3C-5 A Hybrid mRMR-RFE and AI Framework for Advancing Alzheimer's Biomarkers Discovery
Md Maniruzzaman (School of Engineering, San Francisco Bay University, USA); Shahadat Jaman (Bangladesh University of Business and Technology, Bangladesh); Md Amzad Sadik Abid (Lamar University, USA); Zakaria Mahmud (GlaxoSmithKline (GSK), USA); Muhammad Enayetur Rahman (Old Dominion University, USA); Md Nurul Absar Siddiky (University of North Carolina at Charlotte, USA)

Oral Session - 3D: LLM and Language + AI I

Chair: Dr. Thi-Thu-Huong Le (Pusan National University) **Feb/19 (Wed), 09:10 - 10:30**

3D-1 Construction and Application of a Multi-modal Knowledge Graph Integrated with Large Language Models in the Field of Manufacturing Processes
Xiaogui Tian, Jianxin Xu, Shuqin Wang and Yongsheng Zhou (Northwestern Polytechnical University, China)

3D-2 Evaluation of ChatGPT as a classification model to detect prostitution sentences in SNS
Keisuke Yoneda (Sojo University, Japan)

Oral Sessions

3D-3 Authorship Attribution by Attention Pattern of BERT with Topological Data Analysis and UMAP
Wataru Sakurai, Masato Asano, Daisuke Imoto, Masakatsu Honma and Kenji Kurosawa (National Research Institute of Police Science, Japan)

3D-4 Text-to-Image Conditional GAN-Based Floor Plan Generator
Michael Lystbæk (Aarhus University, Denmark)

3D-5 Reliability and Suitability of Evaluation of Speech by LLM with Voice Mode
Yugo Tagami (Kogakuin University, Japan); Takako Kojima (Tokyo Medical University, Japan); Saneyasu Yamaguchi (Kogakuin University, Japan)

Oral Session - 4A: Security

Chair: Dr. Love Allen Chijioke Ahakonye (Kumoh National Institute of Technology) **Feb/19 (Wed), 14:00 - 15:20**

4A-1 Homomorphic Encryption for Privacy Preserving Misbehavior Detection in the Internet of Vehicles
Hope Leticia Nakayiza (Kumoh National Institute of Technology, Gumi, Korea (South)); Love Allen Chijioke Ahakonye, Dong Seong Kim and Jae Min Lee (Kumoh National Institute of Technology, Korea (South))

4A-2 Cyber Threat Detection on Internet of Things
Mebiratu B Bekele (Dalian University of Technology, China); Ephrem Getachew Demesa (Tallinn University of Technology, Estonia); Yesuneh Getachew Taye (Bahir Dar Institute of Technology, Ethiopia)

4A-3 Human-in-the-loop for Machine Learning in Offensive Cybersecurity
Satida Ruengsurat (Japan Advanced Institute of Science and Technology, Japan); Jaimai Eawsivigoon (Mahidol University International College, Thailand); Vidchaphol Sookplang (Japan Advanced Institute of Science and Technology, Japan); Karin Sumongkayothin (Mahidol University, Thailand); Prarinya Siritanawan (Shinshu University, Japan); Razvan Beuran (Japan Advanced Institute of Science and Technology, Japan); Kazunori Kotani (JAIST, Japan)

4A-4 Eco-Secure SCADA: Towards Machine Learning Reliability for Green Cybersecurity
Love Allen Chijioke Ahakonye (Kumoh National Institute of Technology, Korea (South)); Jonathan Mukisa Kalibbala (Kumoh National Institute of Technology, Gumi, Korea (South)); Cosmas Ifeanyi Nwakanma (West Virginia University, USA); Dong Seong Kim (Kumoh National Institute of Technology, Korea (South))

4A-5 The Role of Network Segmentation and Micro-segmentation in Operational Technology Security
Ziad ALmulla and M M Hafizur Rahman (King Faisal University, Saudi Arabia)

Oral Sessions

Oral Session - 4B: Brain + AI

Chair: Prof. Seokjoo Shin (Chosun University) **Feb/19 (Wed), 14:00 - 15:20**

4B-1 The Impact of MRI Data Harmonization on Brain Age Prediction
Junhyeok Lee, Ju Hyuk Han, Minjae Kim, Yeonwoo Kim, Tae-Seong Kim and Won Hee Lee (Kyung Hee University, Korea (South))

4B-2 A Combination of Functional Principal Component Analysis and Long Short-Term Memory Networks for Alzheimer's Disease Prediction
Yong-Shiuan Lee (Feng Chia University, Taiwan); Huimei Liu (National Chengchi University, Taiwan)

4B-3 Utilization of DenseNet201, EfficientNetB3, Resnet50, and VGG19 as Pre-Trained Convolutional Neural Network Models for Brain Tumour Classification
Adel Sulaiman, Asadullah Shaikh and Hani Alshahrani (Najran University, Saudi Arabia); Kanwarpartap Singh Gill and Rupesh Gupta (Chitkara University, India); Rahul Chauhan (Graphic Era Hill University, India); Srinivas Aluvala (SR University, India); Mana Saleh Al Reshan (Najran University, Saudi Arabia)

4B-4 Enhancing Reasoning Capacity of SLM using Cognitive Enhancement
Jonathan Pan (Nanyang Technological University, Singapore)

4B-5 Corresponding an Audio-Processing Transformer to EEG Brain Activity Induced by Naturalistic Audio-Visual Video Stimuli
Hiroki Kurashige and Jun Kaneko (Tokai University, Japan)

Oral Session - 4C: Detection, Decision, and Control II

Chair: Prof. Min Young Kim (Kyungpook National University) **Feb/19 (Wed), 14:00 - 15:20**

4C-1 Improved Sampling Methods for Evaluation of Classificstion Performance
Yue-Shi Lee, Show-Jane Yen and Yi-Jie Tang (Ming Chuan University, Taiwan)

4C-2 Distributed Denial-of-Service (DDoS) Detection Using Multitask Learning based on Deep Learning
Parman Sukarno, Muhammad Fauzan Abyandani and Aulia Arif Wardana (Telkom University, Indonesia)

4C-3 Early Detection of Lung Cancer Using Pyramid Vision Transformer (PVT v2): A Comparative Analysis of Deep Learning Models
Md. Khurshid Jahan, Ahmed Faizul Haque Dhrubo (North South University, Bangladesh); Maher Ali Rusho (University of Colorado, Boulder, USA); Ashfaqur Rahman Chowdhury, Farhana Sharmin, and Mohammad Abdul Qayum (North South University, Bangladesh)

Oral Sessions

4C-4 Trajectory Optimization and Control of Autonomous Surface Ships in Dynamic Environments Using a Hybrid Extended Kalman Filter and Fuzzy Logic System
Umar Zaman (Chungnam National University, South Korea, Korea (South)); Junaid Khan (Autonomous Ship Research Center Samsung Heavy Industries); Jaebin Ku and Sanha Kim (Chungnam National University, Korea (South)); Eunkyu Lee (Samsung Heavy Industries, Daejeon, Korea, Korea (South)); Kyungsup Kim (Chungnam National University, Korea (South))

4C-5 Accuracy based Rewarding for Sensors in Noisy Collaborative Point Cloud Acquisition Environments
Sumiko Miyata (Institute of Science Tokyo, Japan); Takamichi Miyata (Chiba Institute of Technology, Japan)

Oral Session - 5A: Information and Communication Technology II

Chair: Dr. Junaid Akram (University of Sydney) **Feb/19 (Wed), 15:40 - 17:20**

5A-1 AI-Driven Conversational Voice Communication for Maritime Autonomous Surface Ships
Sanha Kim and Jaebin Ku (Chungnam National University, Korea (South)); Eunkyu Lee (Samsung Heavy Industries, Daejeon, Korea, Korea (South)); Umar Zaman (Chungnam National University, South Korea, Korea (South)); Kyungsup Kim (Chungnam National University, Korea (South))

5A-2 Metric-Driven Similarity Indices: Redefining Spectral Distance Comparisons in Hyperspectral Data
Jungkwon Kim, Jihoon Jung, Jungi Lee, Kwangsun Yoo and Seok-Joo Byun (Elroilab, Korea (South))

5A-3 Enhancing Autonomous Ship Communication: A Cost-Effective and High-Accuracy LLM Framework Using Decision Trees and RAG
Jaebin Ku and Sanha Kim (Chungnam National University, Korea (South)); Eunkyu Lee (Samsung Heavy Industries, Daejeon, Korea, Korea (South)); Umar Zaman (Chungnam National University, South Korea, Korea (South)); Kyungsup Kim (Chungnam National University, Korea (South))

5A-4 Quantifying the Effectiveness of Cloud and Edge Offloading: An Optimization Study on Energy Efficiency of Mobile Real-Time Systems
Gahyeon Kwon and Hyokyung Bahn (Ewha University, Korea (South))

5A-5 Continuous Adversarial Text Representation Learning for Affective Recognition
Seungah Son (Korea Advanced Institude of Science & Technology, Korea (South)); Andres Saurez and Dongsoo Har (KAIST, Korea (South))

5A-6 The Finding of the Defects of an 6G Array Antenna Using Deep Learning Programs
Bae Jinwoo, Sanghyun Yun, Woogon Kim, Jaewon Koh, Hongsik Park and Sungtek Kahng (Incheon National University, Korea (South))

Oral Sessions

Oral Session - 5B: Blockchain and application

Chair: Prof. Yongwoo Lee (Inha University) **Feb/19 (Wed), 15:40 - 17:20**

5B-1 Blockchain and AI-Enabled Trust Management Model for Internet of Vehicles
Mahalinoro Razafimanjato, Haishan Yang, Seri Park, Sunghyun Kim and Dongkyun Kim (Kyungpook National University, Korea (South))

5B-2 Trustworthy Battery Management: A Digital Twin Approach Leveraging XAI and Blockchain
Judith Nkechinyere Njoku (Networked Systems Laboratory, Korea (South)); Cosmas Ifeanyi Nwakanma (West Virginia University, USA); Jae Min Lee and Dong Seong Kim (Kumoh National Institute of Technology, Korea (South))

5B-3 Revolutionizing Healthcare Supply Chains with a Blockchain Framework for NFT-Based Product Certification and Inventory Management
Chigozie Athanasius Nnadiekwe, Ikechi Saviour Igboanusi, Jae Min Lee and Dong Seong Kim (Kumoh National Institute of Technology, Korea (South))

5B-4 Enhancing IIoT Security Using Hybrid CNN-BiLSTM Models with Blockchain Integration
Jonathan Mukisa Kalibbala (Kumoh National Institute of Technology, Gumi, Korea (South)); Love Allen Chijioke Ahakonye, Dong Seong Kim and Jae Min Lee (Kumoh National Institute of Technology, Korea (South))

5B-5 Goal-conditioned Reinforcement Learning Approach for Autonomous Parking in Complex Environments
Taeyoung Kim and Taemin Kang (Korea Advanced Institute of Science and Technology, Korea (South)); Seungah Son (Korea Advanced Institude of Science & Technology, Korea (South)); Kuk Won Ko (Halla University, Korea (South)); Dongsoo Har (KAIST, Korea (South))

Oral Session - 5C: Detection, Decision, and Control III

Chair: Dr. Faisal Saeed (Shenzhen University, China) **Feb/19 (Wed), 15:40 - 17:20**

5C-1 Efficient Video Super-Resolution via Two-Step 2D SR and Image-to-Image Conditional Generation
Yuya Masuda, Shunta Shimizu and Hiroshi Ishikawa (Waseda University, Japan)

5C-2 Explainable Network Anomaly Detection with GraphSAGE and SHAP
Jihoon Lee, Seungmin Oh, Jaeho Song and Juhyeon Noh (Chonnam National University, Korea (South)); Minsoo Hanh (Astana IT University, Kazakhstan); Jinsul Kim (Chonnam National University, Korea (South))

Oral Sessions

5C-3 Research on Enhancing Classification and Coreset Selection with KNN based Framework
Junyeong Lee (Kyungpook National University, Korea (South) & IT University, Korea (South)); Dong Seog Han and Sin Jae Kang (Kyungpook National University, Korea (South))

5C-4 Improving Intelligent Fault Diagnosis with Semantic Segmentation for Industrial Applications
Byeong Jun Park and Dong Seog Han (Kyungpook National University, Korea (South))

5C-5 AIoT Platform of Accident Prevention in Alley Environments
Sung Hyun Oh and Jeong Gon Kim (Tech University of Korea, Korea (South))

5C-6 Artificial Intelligence Network Construction Analysis in Rural Areas for FTTX Equal Distribution Model of Internet Access
Himawan Nurcahyanto (Telkom University & PT. Telkom Indonesia (Tbk), Indonesia); I Dyah Irawati (Telkom University & Institut Teknologi Bandung, Indonesia); Gunadi Dwi Hantoro (Indonesia University, Indonesia)

Oral Session - 6A: Medical Diagnosis and eHealth I

Chair: Prof. Anal Paul (National Sun Yat-sen University, Taiwan) **Feb/20 (Thu), 09:10 - 10:30**

6A-1 STMFNet: Spatial Texture Multi-Scale Feature Fusion Attention Network for Diabetic Retinopathy Classification
Md ilias Bappi, Md Monir Ahammod Bin Atique and Kyungbaek Kim (Chonnam National University, Korea (South))

6A-2 Rendering 3D CT Scans through 3D Gaussian Splatting Initialized with Points Sampled by Cube-based Neural Radiance Fields
Sanghyuk R Choi, Chanhoe Gu, Sun Jae Baek and Minhyeok Lee (Chung-Ang University, Korea (South))

6A-3 COVID-19 Policies and Payment Delays: Panel Data Insights from Korea's Food Industry
Minkyoung Kim, Gun Il Kim, Yo Han Lee and Beakcheol Jang (Yonsei University, Korea (South))

6A-4 Study on digital twin computing for predicting general road traffic volume
Mikiko Sode Tanaka (National Institute of Technology, Niihama College, Japan)

6A-5 Biological Validation of Attribute Classification of Cell Nuclei in Three-dimensional Myocardial Tissue Images of Mice
Takamitsu Araki (Kumamoto University, Japan); Y. Arima (Second Affiliated Hospital of Xinxiang Medical University, Muye District, Xinxiang City, No 388, Jianshe Road, 453002, China); Masahiro Migita and Masashi Toda (Kumamoto University, Japan)

Oral Sessions

Oral Session -6B: Information and Communication Technology III

Chair: Prof. Thin Tharaphe Thein (Kobe University) **Feb/20 (Thu), 09:10 - 10:30**

6B-1 Transfer Learning Based Intrusion Detection System using Gramian Angular Field for Connected Vehicles
Muhammad Anwar Shahid, Arunita Jaekel and Ning Zhang (University of Windsor, Canada); Tim Allsopp (Telus Communications Inc., Canada)

6B-2 Image Features Reordering and Adjustment to Mitigate the Transferability Effect of Adversarial Attacks for Autonomous Driving Cars
Ahmad Fakhr Aldeen Sattout and Ali Chehab (American University of Beirut, Lebanon)

6B-3 Severity Prediction Based on Connectivity of Vulnerability Information via Related Product Information
Wataru Hiraiwa, Hiroki Kuzuno, Makoto Takita, Thin Tharaphe Thein and Yoshiaki Shiraishi (Kobe University, Japan)

6B-4 IO patterns-aware and dynamic scheduling based data placement in hybrid storage system
Lei Yan (Jinan Inspur Data Technology Co. Ltd., China); Wenguo Liu, Xuesheng Li, Nan Su and Haijun Zhang (Inspur, China); Zaigui Zhang (Inspur Electronic Information Industry Co Ltd, China); Dong Zhang (Inspur Electronic Information Industry Co., Ltd, China)

6B-5 Exploratory Data Analysis for AI-based Channel Selection for Stable Coastal Maritime Wireless Communications in Emergency Situations
Shrutika Sinha (Kookmin University, Seoul, South Korea, Korea (South)); Sun-Ho Yum and Soo-Hyun Park (Kookmin University, Korea (South))

Oral Session -6C: Wireless Communication III

Chair: Dr. Muhammad Ali Jamshed (University of Glasgow) **Feb/20 (Thu), 09:10 - 10:30**

6C-1 Receive Polarization-Combined Space Shift Keying with Att-LSTM Detector for RIS-Aided Communications
Yuyan Liu, Chaorong Zhang, Benjamin Ng and Chan-Tong Lam (Macao Polytechnic University, Macao)

6C-2 Performance of Joint Channel Estimation and Spreading Sequence Detection for DSSS Systems
Seungjun Oh (University of Hanyang, Korea (South)); Hichan Moon (Hanyang University, Korea (South))

6C-3 Estimation of Normalized DSM from Single Satellite Imagery Using Deep Learning
Dongyeob Han (Chonnam National University, Korea (South))

Oral Sessions

6C-4 Environment-aware AoD and AoA Prediction for Wireless Networks Utilizing Machine Learning
Mo Mo and Yiyang Pei (Singapore Institute of Technology, Singapore); Sumei Sun (Institute for Infocomm Research, Singapore); A. Premkumar (University of Malaya, Malaysia); Neelakantam Venkatarayalu and Sudhakara Rao Yepuri (Singapore Institute of Technology, Singapore)

6C-5 Slotted Aloha Protocol Delay in Maritime Systems
Andrej Stefanov (IBU Skopje, Macedonia, the former Yugoslav Republic of)

Oral Session -6D: Application for Information Systems II

Chair: Prof. Ilai Bistritz (Tel Aviv University) **Feb/20 (Thu), 09:10 - 10:30**

6D-1 Detecting Mango Leaf Diseases Using Google Teachable Machine for Sustainable Agriculture
Melodia D. Pahati (Technological University of the Philippines - Manila); Luigi Carlo M De Jesus (Asia Pacific College, Philippines & De La Salle University - Manila, Philippines); Ryan Reyes (Technological University of the Philippines, Philippines); Juan Miguel Villarroel (National University, Philippines); Maila Angeles (National University (NU), Philippines)

6D-2 Predicting Port Congestion at Busan Port Using Machine Learning Algorithms and Temporal Variables
SangHyun Ha (Dong-Eui University, Korea (South)); Ki-Hwan Kim (Dongeui University, Korea (South)); Young-Jin Kang, Kim Ji Yeon and Seok Chan Jeong (Dong-Eui University, Korea (South))

6D-3 Differentially Private Synthetic Adversarial Network Traffic Generation Based on Tabular Diffusion Processes
Minjae Kang, Gunhee Cho, Sungju Yun and Yeonjoon Lee (Hanyang University, Korea (South))

6D-4 Decomposed Degradation Pattern Alignment for Domain Adaptation in Machine Remaining Useful Life Prediction
Byoung-mo Koo (Korea University, Korea (South)); Yunseon Byun (Korea University, Republic of Korea, Korea (South)); Jun-Geol Baek (Korea University, Korea (South))

6D-5 Federated Learning with Social Data Sharing
Mahran Jazi and Ilai Bistritz (Tel Aviv University, Israel); Nicholas Bambos (Stanford University, USA); Irad Ben-Gal (Tel-Aviv University, Israel)

Oral Sessions

Oral Session -7A: Medical Diagnosis and eHealth II

Chair: Prof. Sang-Chul Kim (Kookmin University) **Feb/20 (Thu), 13:30 - 15:30**

7A-1 Advancing Skin Cancer Detection: Integrating Attention-Driven Transfer Learning and Autoencoder-Decoder Fusion
Su Myat Thwin and Hyun-Seok Park (Ewha Womans University, Korea (South))

7A-2 Enhanced Diffusion Model with Multi-level Embeddings for Medical Image Data Augmentation in Skin Disease
MuJung Kim, Jisang Yoo and Soon Chul Kwon (Kwangwoon University, Korea (South)); Byung Jun Kim (Seoul National. University Hospital, Korea (South)); Changsik John Pak (Asan Medical Center, Korea (South)); Chong Hyun Won (Asan Medica Center, Korea (South)); Suk Ho Moon (Seoul St Marys Hospital, Korea (South)); Woo Jin Song and Han Gyu Cha (Soonchunhyang University Hospital, Korea (South)); Kyung Hee Park (The University of Suwon, Korea (South))

7A-3 Skeleton-based Muscle Activity Prediction during Manual Material Handling
Jaekyeong Moon (Yonsei University, Korea (South) & Korea Institute of Industrial Technology, Korea (South)); Jong Hyun Kim and Chang Gi Lee (Korea Institute of Industrial Technology, Korea (South)); Hyunchul Tae (KITECH, Korea (South))

7A-4 Enhancing Multiclass Teeth Segmentation with Advanced Attention Mechanisms
Muhammad Afnan GHafoor and Bumshik Lee (Chosun University, Korea (South))

7A-5 ISVAM: Inter-Slice Variation Attention Module for 2.5D Multi-Organ Segmentation in CT
Hyunji Lee, Jaeseok Jang and Yu Rim Lee (Kyungpook National University, Korea (South)); Sooyoung Park (Kyungpook National University School of Medicine, Korea (South)); Won Young Tak and Soon Ki Jung (Kyungpook National University, Korea (South))

7A-6 Handling Imbalanced Medical Dataset with Continuous Class Features using Improved Contrastive Learning
Jungwoo Bae and Jitae Shin (Sungkyunkwan University, Korea (South))

7A-7 Comparison of Machine Learning Models and NIHSS for Prognosis Prediction in Stroke Patients
Yeonwoo Noh, Yun-Young Chang and Sewon Jeon (Gachon University, Korea (South)); Minwoo Lee and Wonjong Noh (Hallym University, Korea (South))

Oral Sessions

Oral Session - 7B: AI Foundation II

Chair: Dr. Zakria Qadir (University of New South Wales) **Feb/20 (Thu), 13:30 - 15:30**

7B-1 Improving Multi-Class Classification with Machine Learning and Meta-Heuristic Algorithms
Gawalee Phatai and Tidarat Luangrungruang (Sakon Nakhon Rajabhat University, Thailand)

7B-2 Low-Power High-Speed CNN Accelerator with Matrix Reodering Techniques for Small Footprint Memory Access
Hoseong Kim (Kyungpook National University, Korea (South)); Daejin Park (Kyungpook National University (KNU), Korea (South))

7B-3 Deep Supervised with Fine-grained Feature Fusion Network for Cross-modal Retrieval
Jiwei Zhang (Wakayama University, Japan & System, Japan); Hirotaka Hachiya (Wakayama University, Japan)

7B-4 Enhanced Super-Resolution Using Cross Attention: Refining HMA for Local Image Restoration
Yuya Masuda (Waseda University, Japan)

7B-5 Stock Price Prediction Using Transformer and Time2Vec
Jae Yoo Lee and Seong Joon Yoo (Sejong University, Korea (South))

7B-6 LSEBMCL: A Latent Space Energy-Based Model for Continual Learning
Xiaodi Li (The University of Texas at Dallas, USA); Dingcheng Li (Coupang, USA); Rujun Gao (Texas A&M University, USA); Mahmoud Zamani (The University of Texas at Dallas, USA); Latifur Khan (University of Texas, USA)

Oral Session - 7C: Application for Information Systems III

Chair: Prof. Hui Shan Lee (Universiti Tunku Abdul Rahman) **Feb/20 (Thu), 13:30 - 15:30**

7C-1 Is Client Unlearning Really Necessary in Federating Learning?
Alessio Mora and Paolo Bellavista (University of Bologna, Italy)

7C-2 A Distributed Content Subscription Mechanism with Revision Discovery to Decouple Content Sharing Platform and Creator ID
Zhihai Zhu (The University of Tokyo, Japan); Ye Tao and Manabu Tsukada (the University of Tokyo, Japan); Hiroshi Esaki (The University of Tokyo, Japan)

Oral Sessions

7C-3 Insights from a Spatiotemporal Analysis of Top-Performing Bangkok Taxis
Sooksan Panichpapiboon (King Mongkut's Institute of Technology Ladkrabang, Thailand); Kaiden Semapakdi-Chang (United Lisbon International School, Portugal)

7C-4 Exploring Image-Based Approaches for Effective Synthetic Time-Series Data Generation
Sangwon Oh, Seungmin Oh and Doyeon Kim (Chonnam National University, Korea (South)); Minsoo Hanh (Astana IT University, Kazakhstan); Junghoon Lee and Jinsul Kim (Chonnam National University, Korea (South))

7C-5 Reference-based anime line art colorization by region correspondence using region features
Daisuke Nanya and Kouki Yonezawa (Meijo University, Japan)

7C-6 Harnessing Machine Learning for Predictive Insights in Mobile Banking: A Malaysian Perspective
Hui Shan Lee, Kee Seng Kuang, Sia Bik Kai and Kok Chin Khor (Universiti Tunku Abdul Rahman, Malaysia)

7C-7 SpatioTemporal Approach of Transformer-Based Satellite Orbit Determination Model
Jae Yoo Lee and Seong Joon Yoo (Sejong University, Korea (South))

Oral Session - 7D: Information and Communication Technology IV

Chair: Dr. Adeel Iqbal (Yeungnam University) **Feb/20 (Thu), 13:30 - 15:30**

7D-1 Pedestrian Avoidance Simulation by Deep Reinforcement Learning Using Webots
Chalumpol Trararak (The University of Electro - Communications, Japan & UEC Port Dorm. Tomodachi, Japan)

7D-2 An Optimal 5G MEC System Deployment Approach for Smart Construction Sites
Shi-Yu Zhang, Zhen-Yin Annie Chen and Chun-Cheng Lin (National Yang Ming Chiao Tung University, Taiwan)

7D-3 Deep Reinforcement Learning Approach for EV Charger Control under Load Variation
Youngwoo Lee (Hanyang University ERICA, Korea (South)); Keunhoon Park and Seojun Kim (Hanyang University, Korea (South))

7D-4 Advanced Virtual Network Embedding: Combining Graph Attention Network and DRL for Optimal Resource Utilization
Ihsan Ullah and Qaisar Ali (Yuan Ze University, Taiwan); Muhammad Ashraf (University of Information Technology Engineering and Management Sciences, Pakistan); Youn-Hee Han (Korea University of Technology and Education, Korea (South))

Oral Sessions

7D-5 Federated-Learning-Based Wireless Traffic Prediction
Feng Li (Nanyang Technological University, Singapore); Xiaona Chen (Zhejiang Gongshang University, China); Kwok-Yan Lam and Bowen Shen (Nanyang Technological University, Singapore); Li Wang (Dalian Maritime University, China)

7D-6 IoT Station for Health Monitoring in Underground Mining Using Compressive Sensing Architecture
Ida Wahidah (Telkom University, Indonesia); Hasbi Ash Shiddieqy (Telkom University & Center of Excellence Sustainable Energy and Climate Change, Indonesia); Alwan Wafi and Asoka Ramli (Telkom University, Indonesia)

7D-7 CarKoto: An AI-Powered Platform for Transparent and Precise Used Car Price Prediction in Bangladesh
Raiyan Rafsan (North South University, Bangladesh); Maher Ali Rusho (University of Colorado, Boulder, USA); Jarif Ahsan, Rahimul Haque Afrad, Ahmed Faizul Haque Dhrubo, Md. Khurshid Jahan, and Mohammad Abdul Qayum (North South University, Bangladesh)

Oral Session - 8A: Medical Diagnosis and eHealth III

Chair: Prof. Azfar Yaqub (Free University of Bozen-Bolzano) **Feb/20 (Thu), 15:40 - 17:40**

8A-1 Healthcare Chatbot for slowing the Progression in Chronic Kidney Disease Stage 3 patients
Pattanapong Chantamit-O-Pas (School of Information Technology, Thailand & King Mongkut's Institute of Technology Ladkrabang, Thailand); Chutima Chantamit-O-Pas and Panicha Ponpinij (Burapha University, Thailand); Noppawit Sutthiwichienchot and Nattapong Klansuwan (King Mongkut's Institute of Technology Ladkrabang, Thailand); Suphitsara Kulsuwan (Burapha University, Thailand)

8A-2 Enhanced Retinal-Choroidal Disorders Classification Model via Temporal Sequence Analysis of OCT Images across Multiple Lines of Fovea
Kwankhao Tangprasert, Pitchaya Wiratchotisatian, Panita Khakhai, Wipada Laovirojjanakul and Sarun Paisarnsrisomsuk (Khon Kaen University, Thailand)

8A-3 Artificial Intelligence in Cancer Detection: A Neural Network Approach to Differentiating Malignant and Benign Cells
Nick Sota (Mountain Lakes, USA)

8A-4 Enhancing Diabetes Diagnosis and Complications Prediction with Automated Machine Learning in a Clinical Decision Support System
Fu-Der Mai (Taipei Medical University, Taiwan)

Oral Sessions

8A-5 Exploring Breast Cancer Risk Factor through Machine Learning Algorithm: Random Forest Classification
Demara H Dewi (Sepuluh Nopember Institute of Technology, Indonesia); Achmad Choiruddin (Institut Teknologi Sepuluh Nopember Surabaya, Indonesia); Desak Gede Agung Suprabawati (Universitas Airlangga, Indonesia)

8A-6 Deep Learning-Based Diagnostic Framework for Colorectal Cancer Using Histopathological Images
Ashif Al Nayem Zeesan, Sadri Islam, Abrar Fahim, Md. Ahasanul Adib and Md Touhidul Islam (Islamic University of Technology, Bangladesh); Fardin Sabahat Khan (University of Delaware, USA)

8A-7 A Custom Monkey Algorithm hybridized with GIS for location-allocation of COVID Centers
Manar Abu Talib and Sohail Abbas (University of Sharjah, United Arab Emirates); Qassim MH Nasir (University Of Sharjah, United Arab Emirates); Essa Basaeed (Dubai Police, United Arab Emirates); Mohammed Al-Haidary (Universiyt of Sharjah, United Arab Emirates)

Oral Session - 8B: Image Processing and Multimedia I

Chair: Prof. Ida Wahidah (Telkom University) **Feb/20 (Thu), 15:40 - 17:40**

8B-1 Zero-Shot Image Inpainting using Pretrained Latent Diffusion Models
Yusuke Kakinuma (Chiba Institute of Tecnolozy, Japan); Takamichi Miyata (Chiba Institute of Technology, Japan); Kaito Hosono and Hirotsugu Kinoshita (Kanagawa University, Japan)

8B-2 DHR-CLIP: Dynamic High-Resolution Object-agnostic Prompt Learning for Zero-shot Anomaly Segmentation
Jiyul Ham and Jun-Geol Baek (Korea University, Korea (South))

8B-3 Local-level Feature Aggregation with Attribute Anchors for Text-Guided Image Retrieval
Chan Hur (Korea, Kyungpook National University, Korea (South) & Kyungpook National University, Korea (South)); Hyeyoung Park (Kyungpook National University, Korea (South))

8B-4 HiClassGen: High-Resolution Image Augmentation with Class and Shape Controllable Diffusion Models
Md Tayeb Adnan, Jae Min Lee and Dong Seong Kim (Kumoh National Institute of Technology, Korea (South))

8B-5 State Space Model Based VideoMAE Enhancement for Efficient Video Action Classification
Junbeom Moon and Sehwan Heo (Kyungpook National University, Korea (South)); Jiye Won (Kyungpook National University, Korea (South), Korea (South)); Jaeseok Jang and Soon Ki Jung (Kyungpook National University, Korea (South))

Oral Sessions

8B-6 Accurate 3D Tooth Segmentation via Skeleton and Centroid Guidance in CBCT Imaging
Muhammad Asif Jamal and Bumshik Lee (Chosun University, Korea (South))

8B-7 Minutiae-Informed Contrastive Learning for Fingermark Recognition
Lara Anžur (University of Ljubljana, Slovenia); Peter Peer (University of Ljubljana, Faculty of Computer and Information Science, Slovenia); Tim Oblak (University of Ljubljana, Slovenia)

Oral Session - 8C: Application for Information Systems V

Chair: Dr. Santo Fernandi Wijaya (Universitas Multimedia Nusantara) **Feb/20 (Thu), 15:40 - 17:40**

8C-1 BemaGANv2: A Vocoder with Superior Periodicity Capture for Long-Term Audio Generation
Taesoo Park, Mungwi Jeong, Mingyu Park, Narae Kim, Junyoung Kim, Dohyun Park, Soon Chul Kwon and Jisang Yoo (Kwangwoon University, Korea (South)); Hoyun Lee (Ewha Womans University, Korea (South)); Sanghoon Kim (KyungHee University, Korea (South))

8C-2 Real-time Traffic Analysis Using Vehicle Trajectory Similarity in Edge Computing
Jae-Geun Jang, JInuk Jung, Seonhyeong Kim, Ayoung Choi and Young-Woo Kwon (Kyungpook National University, Korea (South))

8C-3 Enhanced Communication Efficiency in Nanosatellite FSO Systems Using Pointing Error Optimization
HYE MIN Park, Young-Jin Hyun and Sang-Kook Han (Yonsei University, Korea (South))

8C-4 Evaluation of Deep Learning Approaches for Pitch Scoring in Piano Practice and Performance
Juthakan Mekkoktanphira and Priyakorn Pangwapee (King Mongkut's Institute of Technology Ladkrabang, Thailand); Nat Dilokthanakul (King Mongkuts Institute of Technology Ladkrabang, Thailand); Sirasit Lochanachit, Praphan Pavarangkoon and Nont Kanungsukkasem (King Mongkut's Institute of Technology Ladkrabang, Thailand)

8C-5 Cyclic Pattern-based Anomaly Detection in Smart Manufacturing Systems using Contrastive Learning
Wonhwa Choi and Jun-Geol Baek (Korea University, Korea (South))

8C-6 Optimizing ERP Deployment with Intelligent Tutoring
Santo Fernandi Wijaya, Jansen Wiratama and Ririn Desanti (Universitas Multimedia Nusantara, Indonesia)

Oral Sessions

Oral Session - 8D: Robotics

Chair: Prof. Haewoon Nam (Hanyang University) **Feb/20 (Thu), 15:40 - 17:40**

8D-1 Development of a Multi-Class Dress Code Detection System Utilizing RoboFlow Object Detection Model v3
Juan Miguel Villarroel (National University, Philippines); Luigi Carlo M De Jesus (Asia Pacific College, Philippines & De La Salle University - Manila, Philippines); Melodia D. Pahati (Technological University of the Philippines - Manila)

8D-2 Multi-agent AMIX-DAPG of Dual-arm Robot for Long-Horizon Lifecare Tasks
Hwanseok Jung, Jiheon Oh, Ismael Espinoza Jaramillo, Danbi Jung, Won Hee Lee and Tae-Seong Kim (Kyung Hee University, Korea (South))

8D-3 Simulating Mobile Robot Vision: An Analysis of RGB-D versus RGB-Based Distance Accuracy and CPU Optimization
Minseok Kong (Sogang University, Korea (South)); Jiho Park (Dongguk University, Korea (South)); aye Lee (Seoul National University, Korea (South)); Nikolaos Kourtzanidis (Cyberworks Robotics, Canada); Jungmin So (Sogang University, Korea (South))

8D-4 A Low-Cost Robotic Docking System with Monocular Camera and ArUco Markers
Jun Seok Oh and Min Young Kim (Kyungpook National University, Korea (South))

8D-5 Command Feedback System based on Context Awareness for Minimizing Control Error in Human-Robot Interaction
Yong Taein, Kim Pyong joo, Juyeon Weon, Yonghyun Kwon and Jaeho Kim (Sejong University, Korea (South))

8D-6 Study on Platooning, Traffic Light Recognition, and PID-Based Path Control for Autonomous Robots
Hyun Seo Jeong, Eun Ju Jeong, Seo Yeon Kim and Eunkyung Kim (Hanbat National University, Korea (South))

8D-7 Multimodal Feature Fusion for Deep Reinforcement Learning-based Mobile Robot Navigation
Zhiyuan Nan and Haewoon Nam (Hanyang University, Korea (South))

Oral Sessions

Oral Session - 9A: Transportation and Logistics

Chair: Prof. Rutvij H. Jhaveri (Pandit Deendayal Petroleum University) **Feb/21 (Fri), 09:20 - 11:00**

9A-1 PMV-Based Thermal Comfort Assessment Methodology Using Driving Data from xEV Vehicles
Chanhee Lee (Soonchunhyang University & Machine Intelligence Lab, Korea (South)); Seongkeun Park (Soonchunhyang, Korea (South))

9A-2 Platform based DL Applications design: Autonomous Vehicles case study
Benaoumeur Senouci (North Dakota State University, USA); Aly Ahmed Allam (University of Southern Denmark, Denmark)

9A-3 BiLSTM-based VAE-GAN for Predicting Future Road States in Autonomous Driving
Donghyun Kim (Hanyang University, Korea (South)); Jaerock Kwon (University of Michigan - Dearborn, USA); Haewoon Nam (Hanyang University, Korea (South))

9A-4 Enhancing Level 5 Autonomous Driving: With Multi-Model integration and Real Time Prioritization
Hurair Mohammad and Junghee Han (Korea Aerospace University, Korea (South))

Oral Session - 9B: Image Processing and Multimedia II

Chair: Prof. Hsu-Feng Hsiao (National Yang Ming Chiao Tung University) **Feb/21 (Fri), 09:20 - 11:00**

9B-1 A Generative Adversarial Network with Attention Modules for Underwater Image Enhancement
Herng-Hua Chang and Kuan-Yin Chen (National Taiwan University, Taiwan)

9B-2 Enhancing Real-Time Multi-Object Tracking with Pillar-Based Models: Integration of Class Information and BiFPN Neck
Haneul Moon (Soonchunhyang University, Korea (South)); Seongkeun Park (Soonchunhyang, Korea (South))

9B-3 Investigating Domain Adaptation Feasibility for Drone Detection: A CPU-based YOLO Approach using RGB-Infrared Images
Warakorn Luangluewut (Defense Institute Technology, Thailand); Kittakorn Viriyasatr and Piyarose Maleecharoen (Defence Technology Institute, Thailand); Phunsak Thiennviboon and Teerasit Kasetkasem (Kasetsart University, Thailand)

9B-4 Machine Learning-Enhanced Standard Deviation to Detect and Handle of Outlier in the 3D Point-Cloud Data
Mohammad Rasoul Tanhatalab (Trento University, Italy); Manuel Forrer (ferrisol Co, Austria); Michael Nelz (Nelo Intelligence, Germany)"

Oral Sessions

9B-5 Adaptive ROI Encoding and Caching for Video Surveillance Streaming
Yung-Shun Chuang and Hsu-Feng Hsiao (National Yang Ming Chiao Tung University, Taiwan)

Oral Session - 9C: LLM and Language + AI II

Chair: Prof. Dong Seog Han (Kyungpook National University) **Feb/21 (Fri), 09:20 - 11:00**

9C-1 DrAgent: An Agentic Approach to Fault Analysis in Power Grids Using Large Language Models
Barun Kumar Saha and Aarthi V (Hitachi Energy, India); Od Naidu (Grid Automation R&D, Hitachi Energy, India)

9C-2 Fine-Tuning Transformer LLMs for Detecting SQL Injection and XSS Vulnerabilities
Thi-Thu-Huong Le, Andro Aprila Adiputra, Yeonjeong Hwang, Jun Young Son and Ho Won Kim (Pusan National University, Korea (South))

9C-3 LLM-RAG for Financial Question Answering: A Case Study from SET50
Naphattha Chinaksorn and Dittaya Wanvarie (Chulalongkorn University, Thailand)

9C-4 Optimizing LLM prompts for Automation of Network Management: A User's Perspective
Vishnu Komanduri, Sebastian Estropia, Scott Alessio, Gokhan Yerdelen, Tyler Ferreira and Geovanny Palomino Roldan (New Jersey Institute of Technology, USA); Ziqian Dong (New York Institute of Technology, USA); Roberto Rojas-Cessa (New Jersey Institute of Technology, USA)

9C-5 Optimizing Communication and Performance in Federated Learning for Large Language Models
InSeo Song and KangYoon Lee (Gachon University, Korea (South))

9C-6 Federated Learning and RAG Integration: A Scalable Approach for Medical Large Language Models
Jincheol Jung, Jeong Hongju and Eui-Nam Huh (Kyung Hee University, Korea (South))

Oral Session - 9D: Application for Information Systems V

Chair: Dr. Attaullah Buriro (Free University of Bozen-Bolzano) **Feb/21 (Fri), 09:20 - 11:00**

9D-1 CRESO: CLIP-Based Referring Expression Segmentation for Object using Text Prompt
Subin Park, Zhegao Piao and Yeong Hyeon Gu (Sejong University, Korea (South))

9D-2 A Deep Dive into Vision Models: Comparing CNN and Transformer-Based Approaches for Pneumonia Detection
Md Saiful Islam Sajol (Louisiana State University, USA); Raisa Islam (New Mexico Tech, USA); A S M Jahid Hasan (North South University, Bangladesh); Mainul Kabir (New Mexico Institute of Mining and Technology, USA)

Oral Sessions

9D-3 Exploring One-Shot GANs for Efficient Synthetic Flower Image Creation
Vandana S and Sugavanam Senthil (National Institute of Technology Karnataka, India); Narasimhadhan AV (NITK, India)

9D-4 Generation of Scene Graph and Semantic Image: A Review and Challenge Ahead
Huey-Ing Liu (Fu-Jen Catholic University, Taiwan); Shao-Kai Heish (Fu Jen University, Taiwan)

Poster Session

Poster Session - P1: AI Application

Chair: Prof. Pyung Soo Kim (Tech Univ. of Korea) **Feb/19 (Wed), 14:00 - 15:20,**

P1-1 Vision transformers for Mpox detection
Gelan Ayana, So-Yun Park and Se-woon Choe (Kumoh National Institute of Technology, Korea (South))

P1-2 Squamous Cell Carcinoma Margin Classification Using Vision Transformers from Digital Histopathology Images
So-Yun Park, Gelan Ayana and Se-woon Choe (Kumoh National Institute of Technology, Korea (South))

P1-3 Assessing the Impact of State-Space Complexity on an Image based DQN via the Game of Snake
David J. Richter and Kyungbaek Kim (Chonnam National University, Korea (South))

P1-4 Segmentation Aided Multiclass Tumor Classification in Ultrasound Images using Graph Neural Network
Iftekharul Islam Shovon (Chosun University, Korea (South)); Ijaz Ahmad (Korea University, Korea (South)); Seokjoo Shin (Chosun University, Korea (South))

P1-5 Deep Learning-based Energy Efficiency Maximization in Multi-STAR-RIS-Assisted Massive MIMO-NOMA Networks
Ridho Hendra Yoga Perdana (Hongik University, Korea (South)); Toan-Van Nguyen (San Diego State University, USA); Yushintia Pramitarini (Hongik University, Korea (South)); Duy H. N. Nguyen (San Diego State University, USA); Beongku An (Hongik University, Korea (South))

P1-6 GATreg - Graph Attention Networks with Regularization
Mariam Ishtiaq (University of Science and Technology (UST), Korea (South) & Korea Railroad Research Institute (KRRI), Korea (South)); Jong-Un Won (Korea Railroad Research Institute, Korea (South)); Sangchan Park (The State University of New York Korea, Korea (South))

P1-7 Evaluating Backbone Modifications on Capsule Networks for Low-Resolution Image Classification
Hasindu Dewasurendra and Taejoon Kim (Chungbuk National University, Korea (South))

P1-8 Accuracy Performance Analysis of Quantized DNN Models using Approximate 4-2 Compressor Based Multipliers
Seokhyeon Lee, Jeonggeun Kim and Yongtae Kim (Kyungpook National University, Korea (South))

P1-9 Analysis of the Impact of Radio Frequency Interference from Satellite on Terrestrial Network in Adjacent Channel
Seung-Woo Jo and Won Cheol Lee (Soongsil University, Korea (South))

Poster Session

P1-10 Reinforcement Learning-Based Backhaul Routing for APs in Cell-Free Massive MIMO Networks
Junho Seo, Malik Saad, Mahnoor Ajmal, Ayesha Siddiqa, Bomi Jeong, Su Kim and Dongkyun Kim (Kyungpook National University, Korea (South))

P1-11 A Hybrid Attention-Driven Deep Learning Model for Osteoporosis Detection in Knees
Ishaq Muhammad (Chosun University, Korea (South) & None, Korea (South)); Bumshik Lee (Chosun University, Korea (South))

P1-12 Combining Reinforcement Learning and Heuristic Optimization: A Model Based on a Deep Q-Network and Graph Neural Networks for Graph Coloring
SeokJin Kwon and Yong-Hyuk Kim (University of Kwangwoon, Korea (South))

P1-13 Efficient Learning in Predictive Coding Networks Using Global Error Signals
Soha Lee and Hyeyoung Park (Kyungpook National University, Korea (South))

P1-14 Accelerating Convergence in Distributed Reinforcement Learning via Asynchronous PPO
Asel Nurlanbek kyzy, Chang-Hun Ji, Yohan Choi and Yeong-Jun Seok (Korea University of Technology and Education, Korea (South)); Ihsan Ullah (Yuan Ze University, Taiwan); Youn-Hee Han (Korea University of Technology and Education, Korea (South))

P1-15 Study on a Data Collection Platform for Greenhouse Gas Emission Factors in Smart Farms for Low-Carbon Agriculture
Kwangho Yang (Sunchon National University, Korea (South)); Hyun Yeo (Suncheon, Korea (South)); Meong Hun Lee (SunChon National University, Korea (South)); JangDuk Ahn (Sunchon National University, Korea (South))

P1-16 A study on comparative analysis of machine learning models for melon growth prediction
Sangmin Lim (Sunchon National University, Korea (South)); Meong Hun Lee (SunChon National University, Korea (South)); Hyun Yeo (Suncheon, Korea (South))

P1-17 A Study on the Prediction of Horticultural Paprika Crop Growth in Artificial Intelligence Infrastructure
Gwang Hoon Jung (Sunchon National University, Korea (South)); Meong Hun Lee (SunChon National University, Korea (South)); Hyun Yoe (Sunchon National University, Korea (South))

P1-18 Denoising Method for Wireless Communication Signals Based on Convolutional AutoEncoder
Woonggyu Min (Chungbuk National Universtiy, Korea (South) & University of Electrical & Computer Engineering, Korea (South)); Jongseok Kim and Ohyun Jo (Chungbuk National University, Korea (South))

Poster Session

Poster Session - P2 AI Application II

Chair: Dr. Jehad Ali (Ajou University) Feb/19 (Wed), 15:40 - 17:20

P2-1 Graph Theoretical Analysis of EEG-Based Functional Connectivity During Visuo-Haptic Interactions in Virtual Environments
Hayeon Yoon, Tae Seong Kim, Juyeon Jung, Junggeun Ahn, Tack Woo and Won Hee Lee (Kyung Hee University, Korea (South))

P2-2 Real-Time Optimization and Lightweight Architecture of Face Detection Models for Embedded Systems
Min Ki Son (Soonchunhyang University, Korea (South)); Seongkeun Park (Soonchunhyang, Korea (South))

P2-3 A Dynamic Linking Framework for Efficient QEMU Peripheral Development and Maintenance
Gihyeon Jeon (Kyungpook National University, Korea (South)); Daejin Park (Kyungpook National University (KNU), Korea (South))

P2-4 Solar-powered speed display system using image-based speed detection on an edge AI camera
Jang Woon Baek (ETRI, Korea (South))

P2-5 Pitch Encoder-Based Zero-Shot Voice Conversion for Improving Speech Quality
Hwa-young Park (Gwangju Institute of Science and Technology, Korea (South)); Chae-Woon Bang (Gwangju Institute of Science and Technology (GIST), Korea (South)); Chanjun Chun (Chosun University, Korea (South)); Hong Kook Kim (Gwangju Institute of Science and Technology (GIST), Korea (South))

P2-6 Enhancing Contextual Understanding with Multimodal Siamese Networks Using Contrastive Loss and Text Embeddings
Andro Aprila Adiputra, Ahmada Yusril Kadiptya, Thi-Thu-Huong Le, Jun Young Son and Ho Won Kim (Pusan National University, Korea (South))

P2-7 PPO Framework for Efficient Freight Dispatch in Dynamic Logistics Environments
Ji-Hyeon Kim, Soon-Young Kwon and Hyoung-Nam Kim (Pusan National University, Korea (South))

P2-8 A Study on the drip irrigation system based on CWIS for open-field fruit trees
Kyeong Il Ko (SunChon National University, Korea (South)); Hyun Yoe (Sunchon national University, Korea (South)); Meong Hun Lee (SunChon National University, Korea (South))

P2-9 A Study on the Design of a Cooling System for Windowless Pig Houses Utilizing Rainwater
Hyun Jun Kim (Sunchun National University, Korea (South)); Meong Hun Lee (SunChon National University, Korea (South)); Hyun Yoe and Lee Ji Eun (Sunchon National University, Korea (South))

Poster Session

P2-10 Research on renewable energy conversion system utilizing harmful gases in poultry farms
Seung Jae Kim (Sunchon National University, Korea (South)); Hyun Yoe (Sunchon national University, Korea (South)); Meong Hun Lee (SunChon National University, Korea (South)); Kyeong Min Jang (Sunchon National University, Korea (South))

P2-11 Navigating h-space for Multi-Attribute Editing in Diffusion Models
Jinhyeong Park, Muhammad Shaheryar, Seangmin Lee and Soon Ki Jung (Kyungpook National University, Korea (South))

P2-12 Enhancing Induction Motor Reliability Through Advanced Feature Selection and Diagnostic Models in Low-Load Conditions
Chibuzo Nwabufo Okwuosa and Jang-Wook Hur (Kumoh National Institute of Technology, Korea (South))

P2-13 A Multimodal Framework for MODT Using Enhanced Correlation-Based Affinity Metrics in Autonomous Driving
Muhammad Adeel Altaf (Kyungpook National University, Daegu, South Korea, Korea (South)); Min Young Kim (Kyungpook National University, Korea (South))

P2-14 Kalman Filtering for Feedback Sensor Noise Causing Problem with PID Control's Derivative Action
Pyung Soo Kim (Tech University of Korea, Korea (South))

P2-15 Rice Seed Varieties Classification at Various GPS Locations
Sungkeun Lee and Ohnmar Khin (Sunchon National University, Korea (South))

P2-16 LSTM_Based_Network_Intrusion_Detection_System_and_Solving_Data_Imbalance_Problem_through_GAN
Hae-Won Jeong, Yoon-Ho Choi and Hyeong-Geon Kim (Pusan National University, Korea (South))

P2-17 Automated tomato harvesting system using AI
Park Daehan (Sunchon National University, Korea (South)); Hyun Yeo (Suncheon, Korea (South)); Hwa Yeong Shin (Sunchon National University, Korea (South)); Meong Hun Lee (SunChon National University, Korea (South))

P2-18 Development and Analysis of Multi-WPAN Protocol-Based IoT Network Implementation
Seonghyeon Park and Suk Chan Kim (Pusan National University, Korea (South))

Venue

Conference Venue

7th Floor, A-Building
Fukuoka University
Address: 8 Chome-19-1 Nanakuma, Jonan Ward, Fukuoka, 814-0180 Japan

◈ Directions to the Venue

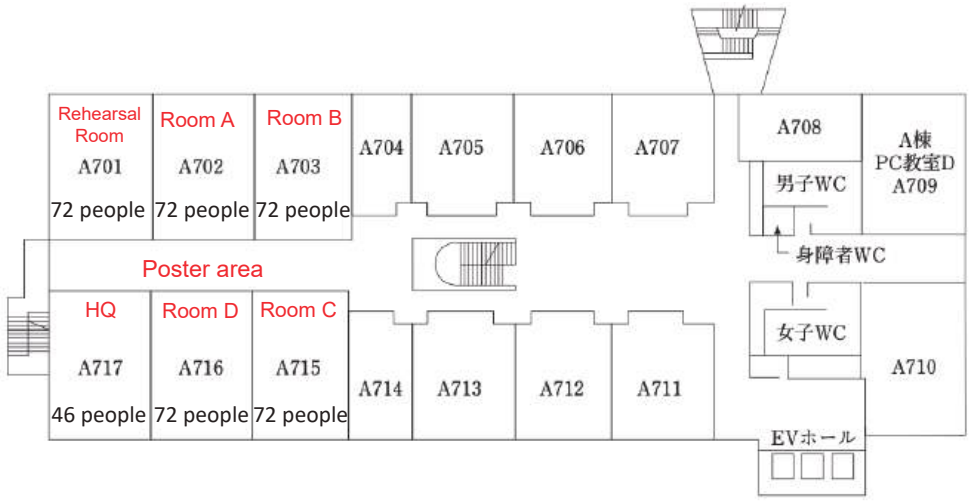
1. Exit Fukudaimae Subway Station (Nanakuma Line) at Exit 1.
2. Walk to A-Building (5 minutes).
3. Proceed to the 7th floor for registration.

Banquet Hotel

KKR Hotel Hakata
Address: 4 Chome-21-1 Yakuin, Chuo Ward, Fukuoka, 810-0022 Japan

Venue

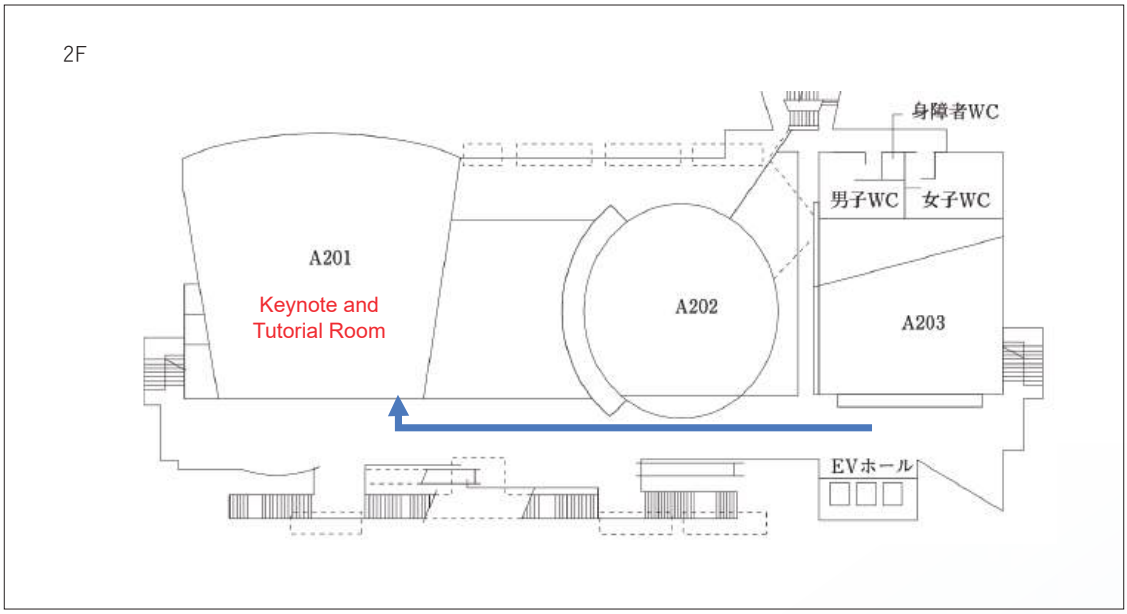
<Map and directions to the 7th floor of A-Building at Fukuoka University>



- Toilets on the 7th floor don't work so we must use toilets on the 6th floor.

<Map on the 7th floor for the Oral Session and Poster Session>

Venue



<Room A201 on the 2nd floor for keynote and tutorial>

Travel Information

Fukuoka (福岡) is Kyushu's largest and one of Japan's ten most populated cities. Because of its closeness to the Asian mainland (closer to Seoul than to Tokyo), Fukuoka has been an important harbor city for many centuries and was chosen by the Mongol invasion forces as their landing point in the 13th century.
Today's Fukuoka is the product of the fusion of two cities in the year 1889, when the port city of Hakata and the former castle town of Fukuoka were united into one city called Fukuoka. Hakata remains the name of one of Fukuoka's central districts and of the main railway station.

- Fukuoka City Official Tourist Guide: https://gofukuoka.jp/
- Visit Fukuoka -Fukuoka Prefecture Official Travel Guide: https://www.crossroadfukuoka.jp/en
- An Amazing Fukuoka Travel Guide: https://japanstartshere.com/fukuoka-travel-guide/

Yatai Food Stalls

One of Fukuoka's most famous attractions are the city's Hakata yatai stalls. Over two hundred stalls are spread out through the Tenjin, Nakasu and Nagahama areas, and their cozy, lantern-lit spaces come to life in the evening, full of steam and amazing aromas. These places are where you can sample Hakata specialties like ramen, gyoza and motsu nabe, along with yakitori skewers, oden and others. Make yourself at home and enjoy talking with the customer next to you.

The Tenjin Area

While Tenjin offers Kyushu's best shopping, there are many other great points of interest in the area, such as the Mizu-kagami Temmangu shrine and the Fukuoka Red Brick Culture Center, with its impressive exterior of red brick and granite. Another standout is the Sho-fuen Garden, which has tea houses and Japanese gardens that were cultivated after the war. Drop in when you need a break from shopping.

Canal City Hakata

Canal City Hakata was built around a concept of a metropolitan theater. Its rounded spaces are filled with colorful buildings that contain shopping malls, movie theaters, playhouses, amusement facilities, two hotels, showrooms, offices and more. There is a dynamic fountain show at the canal that flows through the center of the complex, and there are events at the waterfront Sun Plaza Stage every day. From November, you'll be able to see a special show that incorporates the fountain, light, music and a 3D light display, so look forward to it!
Address: Fukuoka, Hakata, Sumiyoshi 1-2
Website: Canal City Hakata

Travel Information

Ohori Park

Ohori Park got its name from the outer moat of Fukuoka Castle, which was built by filling up a part of Hakata Bay. One of the nation's prominent water vistas, the park scenery features a wild bird forest, a Noh theater, Japanese-style gardens, islands linked by four bridges and a hall that looks like it's floating on water. Refresh your spirit at this haven in the big city.
For more information, check out our article on Ohori Park.
Address: Fukuoka, Fukuoka, Chuo, Ohori Park
Website: Ohori Park

Shikanoshima

The island of Shikanoshima, floating in Hakata Bay, is easily accessible by car or bus, and occupies an important space in Japanese history. Visitors can see historical shrines and stone monuments, which exist on Shikanoshima because the island had ties to the continent in ancient times. The island is now a resort area offering beach swimming, yachting, windsurfing and other ocean activities, as well as diving spots off the east coast. From the island's Shiomi Observation Platform, you can get a sweeping view the islands floating in the waters of Genkai-nada and the Fukuoka cityscape.
Address: Fukuoka, Fukuoka, Higashi, Shikanoshima
Website: Shikanoshima

Nokonoshima Island Park

The island of Nokonoshima is 10 minutes away from Meinohama in Fukukuoka by ferry, and Nokonoshima Island Park is 13 minutes away from the ferry terminal by bus. You can revel in the sight of seasonal flowers at the park, including rape blossoms in spring, sunflowers in summer, cosmos in fall and narcissus in winter. Other park attractions include the mini-zoo, athletics facilities, places to try tempering and decorating ceramics, and there are 10 cottages for visitors to stay.
For more information, check out our Seasonal Flowers in Full Bloom! Nokonoshima Island Park, Fukuoka article.
Address: Fukuoka, Fukuoka, Nishi, Nokoshima
Website: Nokonoshima Island Park

Travel Information

Fukuoka Tower

At a height of 234 meters and covered in 8,000 half-mirrors, Fukuoka Tower is fondly known as the Mirror Sail. Visitors can get an amazing view of Fukuoka from the fifth-floor observatory, located 123 meters above the ground. The tower is also lit up at night with displays timed to go together with seasonal events like Christmas. The first floor has a souvenir corner where you can pick up Hakata specialty items like traditional sweets and mentaiko, so drop by on your way out.

This tower is a great place to visit both during the day and during the night, and has a romantic atmosphere that couples will love. For more information, check out our Enjoy A View Of Fukuoka's Gorgeous Scenery From Fukuoka Tower! article.

Address: Fukuoka, Fukuoka, Sawara, Momochihama 2-3-26

Website: Fukuoka Tower

Seaside Momochi Beach Park

This man made beach park spreads out to the north of Fukuoka Tower, and the Marizon facility is located at its heart, with a variety of restaurants and marine sports shops. The park is split into two areas: Momochihama, with courts for beach volleyball and beach soccer, and Jikyohama, which hosts music concerts and other events.

Address: Fukuoka, Fukuoka, Sawara, Momochihama 2-3-26

Website: https://www.fukuokatower.co.jp/

Hakata Riverain

With a relaxing atmosphere tailor-made for the mature traveler, the Hakata Riverain commercial facility is home to cultural hubs, with a theater and an art museum, as well as gourmet restaurants, shopping outlets and hotels. At Hakata-za, you can enjoy more than just kabuki performances and musicals; they also have a store which handles Hakata-za original products and Hakata souvenirs. In addition, it's directly connected to the Nakasu-Kawabata subway station, so it's very convenient to visit.

Address: Fukuoka, Hakata, Shimokawabata-machi 3-1

Website: Hakata Riverain

Travel Information

Rakusuien Garden

Originally the mansion of a Hakata trader 100 years ago and later a Japanese inn, Rakusuien is a stunning public garden that is conveniently located near Hakata Station and the Canal City Hakata shopping center. To learn more about this garden and historical home, take a look at Enjoy Japanese Culture in Fukuoka – Rakusuien Garden By Hakata Station.

Address: Fukuoka, Fukuoka, Hakata, Sumiyoshi 2-10-7

Website: Rakusuien

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