80th ANNIVERSARY
대한전자공학회
The Institute of Electronics and Information Engineers

IEEE IEIE

ICCE-Asia 2026

The 11th International Conference on Consumer Electronics (ICCE) Asia

October 28(WED) - 30(FRI), 2026

SAINT JOHN'S Hotel, Gangwon-do, South Korea

IEEE

IEEE CTSoc CONSUMER TECHNOLOGY SOCIETY

IEIE

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ICCE-Asia 2026

The 11th International Conference on Consumer Electronics (ICCE) Asia

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Welcome to ICCE-Asia 2026!

On behalf of the Institute of Electronics and Information Engineers (IEIE) and the IEEE Consumer Technology Society (IEEE CTSoc), it is my great honor and pleasure to welcome you to the 11th IEEE/IEIE International Conference on Consumer Electronics Asia (ICCE-Asia 2026), held at Saint John's Hotel in Gangneung, Gangwon-do, South Korea, from October 28 to 30, 2026.

Building upon a decade of remarkable achievements, this year's conference marks our 11th edition, opening an exciting new chapter for ICCE-Asia. Over the past eleven years, ICCE-Asia has established itself as a premier global forum for scholars, engineers, and industry leaders, making significant contributions to the advancement of consumer electronics, semiconductors, artificial intelligence, and next-generation smart technologies. The continuous growth and vibrant energy of ICCE-Asia reflect the steadfast commitment and passion of our global community in driving forward-looking innovations.

We are delighted to present an exceptionally inspiring academic program this year. Distinguished plenary talks will be delivered by Prof. Yiran Chen from Duke University on "From Tokens to Topology: System-Level LLM Optimization for Latency, Throughput, and Cost in Production Workflows", and by Dr. Youngjae Kim, Vice President of LG Electronics, on "Will the Age of Humanoids Come? The Age of Robots Will." These visionary presentations will offer profound insights into the future of artificial intelligence systems and robotics.

Our technical program is further enriched by two insightful keynote speeches and four specialized tutorial sessions. Dr. Kyou-Sik Min, Founder and CEO of TODOC Co., Ltd., will deliver a keynote speech on "A 32-Channel Cochlear Implant Platform: Speech Coding and Early Clinical Experience", and Dr. Jeongkyu Shin, CEO of Lablup Inc., will present on "Challenges of AI Infrastructure: How the AI Is Reshaping the Physical and Operational Foundations of IT". Additionally, four tutorials will offer comprehensive perspectives on cutting-edge technological frontiers: Prof. Jongyoon Choi (Ewha Womans University) on "Beyond Digital Scaling: Analog, In-Memory, and Unconventional Computing Circuits", Prof. Suwan Kim (Kyung Hee University) on "AI-Driven Analog Circuit Design and Optimization", Prof. Se Jin Park (Kyung Hee University) on "Modeling Human–AI Conversations: Speech, Vision, and Interaction Dynamics", and Prof. Se Young Chun (Seoul National University) on "Generative Diffusion Models: From Score Matching to Foundation Models for Imaging and Robotics". Together, these sessions address both fundamental

technological breakthroughs and transformative real-world applications in consumer electronics.

We are also proud to highlight that ICCE-Asia 2026 has attracted around 293 accepted papers from 12 countries and regions, including Korea, Japan, China, Taiwan, Brazil, India, Philippines, Singapore, Vietnam, Indonesia, Saudi Arabia, and the USA. This widespread participation underscores the truly international nature of ICCE-Asia and demonstrates the enduring strength of our global collaborative network.

I would like to extend my sincere gratitude to the Organizing Committee and the Technical Program Committee for their tireless efforts in preparing this memorable event, as well as to all the authors, presenters, and attendees for their vital contributions. We also gratefully acknowledge our esteemed sponsors—Korean Federation of Science and Technology Societies, Gangwon Tourism Organization, Samsung Electronics Co., Ltd., LG Electronics, SK Hynix, ETRI, Seoul National University POLARIS, Yonsei University, Amazon AWS Korea, KIST, Synopsys, and TODOC—whose generous support has been instrumental in making this conference a resounding success.

Finally, I warmly welcome you to Gangneung, Gangwon-do, a breathtaking coastal city renowned for its rich cultural heritage, beautiful ocean scenery, and vibrant local atmosphere. I hope that ICCE-Asia 2026 will provide you with fruitful academic exchanges, invaluable networking opportunities, and unforgettable memories at Saint John's Hotel.

Sincerely,

General Chair

Prof. Sunghyun Cho

Vice President of the IEIE
Hanyang University, South Korea

General Co-Chair

Prof. Fabrice Labeau

President of the IEEE CTSoc
McGill University, Canada

Organizing Committee Chair

Prof. Ik Joon Chang

Kyung Hee University, South Korea

Technical Program Overview

On behalf of the Technical Program Committee, it is my pleasure to welcome you to ICCE-Asia 2026. This program exists thanks to the generous time and expertise of our program committee members, reviewers, and organizing committee members. I am deeply grateful for their commitment to a careful and constructive review process.

The 2026 technical program comprises 288 papers from 12 countries and regions, which reflects the broad and growing international community around consumer electronics in Asia and beyond. Over three days, October 28 and 30, the papers will be presented in 15 oral sessions, 5 poster sessions, and 5 special sessions hosted by leading universities and research institutes. The poster program also includes an Undergraduate Poster Session Track, which gives the next generation of engineers a place to share their first research results.

The program reflects where consumer electronics is heading. Oral sessions cover in-vehicle networks and software-defined vehicles, edge AI and AI hardware acceleration, large language models and AI agents, generative AI, semiconductor devices and circuits, security and privacy, wireless communications, IoT and smart cities, healthcare, and robotics. Special sessions add focused discussions on data security, on-device AI and NPU design, and AX graduate education.

We are honored to host plenary talks by Prof. Yiran Chen (Duke University) and Dr. Youngjae Kim (Senior Research Fellow (VP) of LG Electronics Inc.), as well as two tutorials by Dr. Kyou-Sik Min (Founder and CEO, TODOC Co., Ltd.) and Dr. Jeongkyu Shin (CEO, Lablup Inc.) that connect theoretical foundations with practical know-how.

I hope ICCE-Asia 2026 will be more than a series of presentations. I hope it also leads to new ideas, collaborations, and friendships across borders and disciplines. Please take full advantage of the discussions in the session rooms and the poster hall.

Thank you for joining us. I wish you a stimulating and rewarding conference.

Technical Program Committee Chair

Prof. Joon-Sung Yang

Yonsei University, South Korea

Technical Program Committee Co-Chair

Prof. Jeong Hoan Park

Kyung Hee University, South Korea

Committee

Organizing Committee

General Chair

Sunghyun Cho (Hanyang University)

General Co-Chair

Fabrice Labeau (President of IEEE CTSoc.) (McGill University, Canada)

Organizing Committee Chair

Ik-Joon Chang (Kyung Hee University)

Organizing Committee Co-Chair

Hyun Jong Yang (Seoul National University)

TPC Chair

Joon-Sung Yang (Yonsei University)

TPC Co-Chair

Jeong Hoan Park (Kyung Hee University)

Tutorial Chairs

Chanho Eom (Chung-Ang University)
Sungju Ryu (Sogang University)
Se Jin Park (Kyung Hee University)

Special Session Organizing Chairs

Jae-Jin Lee (ETRI)
Sung-Joon Jang (KETI)

Publicity Chairs

Sung In Cho (Sogang University)
Jaeyong Chung (Yonsei University)
Taewook Kang (Sungkyunkwan University)

Registration Chair

Suwan Kim (Kyung Hee University)

Financial Chair

Younghyun Lim (Kyung Hee University)

Publication Chair

Jaewook Kim (KIST)

Local Arrangement Chairs

Moon-Sik Kang (Kangwon National University)
Yoontae Jung (Kyung Hee University)

Technical Program Committee

TPC Chair

Joon-Sung Yang (Yonsei University)

TPC Members

Muhammad Imran (American University of Sharjah)
Gun Hwan Kim (Yonsei University)
Kyung-Sik Choi (Yonsei University)

Paper Submission

Topic & Information

TOPICS

- Artificial Intelligence and Machine Learning for CE Applications (AIM)
- Robotics, Drones, Automation Technologies and Interfaces (RDA)
- Security and Privacy of CE Hardware and Software Systems (SPC)
- Energy Management of CE Hardware and Software Systems (EMC)
- Application-Specific CE for Smart Cities (SMC)
- RF, Wireless, and Network Technologies (WNT)
- Internet of Things and Internet of Everywhere (IoT)
- Entertainment, Gaming, and Virtual and Augmented Reality (EGV)
- AV Systems, Image and Video, and Cameras and Acquisition (AVS)
- Automotive CE Applications (CEA)
- CE Sensors and MEMS (CSM)
- Consumer Healthcare Systems (CHS)
- Enabling and HCI Technologies (HCI)
- Smartphone and Mobile Device Technologies (MDT)
- Semiconductor Devices for Consumer Electronics (SCE)
- Other Technologies Related with CE (MIS)

BEST PAPER AWARDS

- The authors of the best papers will be presented Gold, Silver, and Bronze awards.

Time Table

October 28, 2026 (Wednesday)

Time	Antigua 1	Antigua 2
14:30~16:00	**Registration**	
15:00~16:00 (60')	**Tutorial 1** Beyond Digital Scaling: Analog, In-Memory, and Unconventional Computing Circuits Prof. Jongyoon Choi (Ewha Womans University)	**Tutorial 2** AI-Driven Analog Circuit Design and Optimization Prof. Suwan Kim (Kyung Hee University)
16:00~16:10 (10')	Break Time	
16:10~17:10 (60')	**Tutorial 3** Modeling Human-AI Conversations: Speech, Vision, and Interaction Dynamics Prof. Se Jin Park (Kyung Hee University)	**Tutorial 4** Generative Diffusion Models: From Score Matching to Foundation Models for Imaging and Robotics Prof. Se Young Chun (Seoul National University)
17:30~	**Welcome Reception [EFL Lounge, 16F, Ocean Tower]**	

October 29, 2026 (Thursday)

Time	Antigua 1	Antigua 2	Barbuda 1	Barbuda 2	Barbuda 3	Barbuda 4	Antigua Lobby
08:30~16:00	**Registration**						
09:00~10:15 (75')			[OS01] In-Vehicle Networks and Software-Defined Vehicles	[OS02] Automotive Perception, ADAS and Vehicle Electronics	[OS03] Semiconductor Devices and Circuits for CE	[OS04] Computer Vision and Image Recognition	PS01
10:15~10:35 (20')	Break Time						
10:35~10:50 (15')	Opening Ceremony (Antigua 1 Hall)						
10:50~11:25 (35')	Antigua 1 Hall	**Plenary Talk 1 :** From Tokens to Topology: System-Level LLM Optimization for Latency, Throughput, and Cost in Production Workflows / Prof. Yiran Chen (Duke University)					
11:25~12:00 (35')	Antigua 1 Hall	**Plenary Talk 2 :** Will the Age of Humanoids Come? The Age of Robots Will. Dr. Youngjae Kim (Senior Research Fellow (VP), LG Electronics Inc.)					
12:00~13:30 (90')	**Lunch [THREE MEALS Restaurant, 3F, Ocean Tower]**						

October 29, 2026 (Thursday)

Time	Antigua 1	Antigua 2	Barbuda 1	Barbuda 2	Barbuda 3	Barbuda 4	Antigua Lobby
	Keynote Speech 1	Keynote Speech 2	[SS01]	[OS05]	[OS06]	[OS07]	
13:30~14:50 (80')	A 32-Channel Cochlear Implant Platform: Speech Coding and Early Clinical Experience [Dr. Kyou-Sik Min (Founder and CEO, TODOC Co., Ltd.)]	Challenges of AI Infrastructure: How the AI Is Reshaping the Physical and Operational Foundations of IT [Dr. Jeongkyu Shin (CEO, Lablup Inc.)]	Convergence and Open Sharing System (COSS) for Data Security & Utilization by Hanyang University ERICA Invited	Visual Inspection and Industrial AI	Edge AI and AI Hardware Acceleration	Large Language Models, RAG and AI Agents	PS02
14:50~15:10 (20')	Break Time						
15:10~16:25 (75')			[SS02] NPU Design & AI Model Optimization for On-Device AI by KETI Invited	[OS08] Generative AI and Diffusion Models	[OS09] AI for Consumer Healthcare and Medical Systems	[OS10] Multimedia, Speech and Human-Centered Interfaces	PS03
17:00~	Banquet & Best Paper Awards [Antigua Hall, 4F, Ocean Tower]						

October 30, 2026 (Friday)

Time	Antigua 1	Antigua 2	Barbuda 1	Barbuda 2	Barbuda 3	Barbuda 4	Antigua Lobby
08:30~10:30	Registration						
09:00~10:15 (75')			[SS03] Artificial Intelligence Innovation Graduate School by Sogang University Invited	[SS04] Artificial Intelligence Innovation Graduate School by Yonsei University Invited	[OS11] IoT, Smart Cities and Connected Services	[OS12] Security, Privacy and Authentication for CE	PS04
10:15~10:25 (10')	Break Time						
10:25~11:40 (75')			[SS05] Kyung Hee University Invited	[OS13] Wireless Communications, Networks and Positioning	[OS14] Robotics, Drones and Automation Technologies	[OS15] Emerging AI Applications for Consumer Electronics	PS05
11:40~	Organizing Committee Meeting (Closed Session)						

Floor Map

4F

4F Floor plan
OCEAN VIEW
Storage
Entrance
Antigua Hall 2
Antigua Hall 1
Exhibition Booth Zone
Entrance
Photo Hall
Registration Desk
Barbuda Hall 1
Barbuda Hall 2
Entrance
Barbuda Hall 4
Barbuda Hall 3
Toilet(W)
Toilet(M)
Office

Conference Information

Registration

Registration Notice

- Pre-registration Deadline: October 9, 2026

- After this date, on-site registration rates will apply.

- Registration Requirement for Authors with Accepted Papers:
  To present your paper at ICCE-ASIA 2026:

- **At least one Regular Registration is required per paper, regardless of the author's title or affiliation (professor, student, etc.).**

- If the same author has multiple accepted papers, only the first paper requires a Regular Registration. From the second paper onward, Student Registration may be used only if the presenting or corresponding author is the same person.

- **Undergraduate students may register with Undergraduate Registration.**

Number of Accepted Papers (same author)	Required Registration
1 Paper	1×Regular Registration
2 Papers	1×Regular Registration + 1×Student Registration
3 Papers	1×Regular Registration + 2×Student Registrations

Receipts & Participation Certificates

- Receipts and Participation Certificates:

- Issued only to authors who have completed payment of registration fees.

- Available for download after payment is confirmed.

- All documents will be issued under the registrant's name and cannot be changed after issuance.

Download Instructions (★)

LOGIN ▶ Go to [MY PAGE] (top right) ▶ Click Registration Number
▶ Download the receipts and certificates

Pre-Registration Fee

- Due date for pre-registration is by October 9, 2026

Category	* The pre-registration price is applicable only during the pre-registration period. (until)			
	IEEE/IEIE Member	Non-member of IEEE, IEIE	IEEE CT Society Member	IEEE Life Member
Regular Registration	USD 610	USD 760	USD 570	USD 190
Student Registration	USD 380	USD 540	USD 350	-
Undergraduate Registration	USD 190	USD 270	USD 175	-
Additional Banquet	USD 100			

On-site registration Fee

- After the pre-registration period ends, this price will apply.

Category	IEEE/IEIE Member	Non-member of IEEE, IEIE	IEEE CT Society Member	IEEE Life Member
Regular Registration	USD 760	USD 950	USD 720	USD 190
Student Registration	USD 480	USD 670	USD 430	-
Undergraduate Registration	USD 250	USD 330	USD 230	-
Additional Banquet	USD 100			

Registration Fee Includes

- Regular Registration

  Admission to All Sessions, Proceedings, Coffee Breaks, Banquet, Lunch, Gift

- Student Registration

  Admission to All Sessions, Proceedings, Coffee Breaks, Lunch, Gift

  * A Banquet ticket is not included

- Undergraduate Registration

  Admission to All Sessions, Proceedings, Coffee Breaks, Lunch, Gift

  * A Banquet ticket is not included

Payment Guide

Participants may choose one of the following payment methods. All payments are processed securely through Toss Payments.

• Credit Card

Credit card transactions will be processed through 'Toss Payments'. Card transactions will be processed in real time.

⚠ For payment-related issues, please contact Toss Payments customer support.
(https://www.tosspayments.com)

• Bank Transfer

Please use the bank details below to transfer your registration fee:

- **Bank Name**: SUHYUP BANK (NATIONAL FEDERATION OF FISHERIES CO-OPERATIVES)
- **Account Number**: 1010-2185-8847
- **Account Holder**: The Institute of Electronics and Information Engineers
- **Swift Code (for overseas transfer)**: NFFCKRSEXXX

* After making the transfer, please email a copy of the receipt with your name clearly indicated to: inter@theieie.org

⚠ All bank remittance charges must be paid by the registrant.

Cancellation & Refund Policy

- To cancel your registration, please send a cancellation request to the Secretariat via email: inter@theieie.org
- A refund will be issued **minus a processing fee of USD 100 or KRW 140,000** if the cancellation is requested **on before October 9, 2026 (KST).**
- **No refunds or cancellations** will be processed **after deadline of registration.**
- Refunds are not available for **No-Shows** at the conference.

All dates and times are based on Korean Standard Time (KST).*

Social Program of ICCE-Asia 2026

Welcome Reception

Date: October 28th, Wednesday
Time: 17:30~
Location: EFL Lounge, 16F, Ocean Tower

Opening Ceremony

Date: October 29th, Thursday
Time: 10:35~10:50
Location: Antigua 1 Hall, 4F, Ocean Tower
*All registered participants are cordially invited to join us and celebrate the official opening.

Plenary Talk 1

Date: October 29th, Thursday
Time: 10:50~11:25
Location: Antigua 1 Hall, 4F, Ocean Tower

Plenary Talk 2

Date: October 29th, Thursday
Time: 11:25~12:00
Location: Antigua 1 Hall, 4F, Ocean Tower

Banquet & Best Paper Awards

Date: October 29th, Thursday
Time: 17:00~
Location: Antigua Hall, 4F, Ocean Tower

Lunch

***Full Registration** and **Student Registration** include one lunch on the following dates:
Date: October 29th, Thursday
Time: 12:00~13:30
Location: THREE MEALS Restaurant, 3F, Ocean Tower

Presentation Guidelines

Oral Presentations

- Please go into the session room at least 10 minutes before the session starts and identify yourself to the session chair.
- Please submit the presentation slide. You need to bring your ppt file on USB memory, and load it on the computer in your session room. You also need to confirm whether it is working properly. This is very important to pay attention to this time frame. The visual equipment provided is a beam projector.
- Time assignment including discussion is as follow
  - **Oral Presentation (SS + Oral) : 12 minutes presentation per presenter (2 minutes of Q&A included)**

Poster Presentations

- You need to prepare your poster within this size and attach it on the poster board in your session room at least 10 minutes before the session starts, and then remove your poster immediately after the session finishes

- Authors (or presenters) are expected to adhere to the following formal guidelines:
  1. Set up your posters in advance of the session.
  2. Be in attendance with your poster throughout the poster session.
  3. Present and elucidate your papers to the assembled audience

Poster Presentation Guidelines
Example 1) A0 size * 1 sheet

Poster Presentation Guidelines
Example 2) A4 size * 12 sheets

Plenary Talks

Plenary Talk 1

10:50~11:25 October 29, 2026 (Thursday)

Antigua 1 Hall

Prof. Yiran Chen
Duke University

From Tokens to Topology: System-Level LLM Optimization for Latency, Throughput, and Cost in Production Workflows

Abstract

As large language models (LLMs) are increasingly deployed in real-world applications, their practical performance depends not only on model capability but also on the efficiency of the supporting systems. This talk presents a system-level view of LLM optimization, focusing on training-free, plug-and-play strategies to address challenges such as long-context processing, KV-cache traffic, redundant computation in multi-agent pipelines, and workflow-level latency. Through examples spanning long-context inference, multi-agent collaboration, and non-autoregressive generation, it will show how coordinating computation, memory, and execution can improve time-to-first-token, latency, throughput, and GPU utilization without sacrificing quality, offering practical insights into scaling LLM systems for production workloads.

Biography

Yiran Chen is the John Cocke Distinguished Professor of Electrical and Computer Engineering at Duke University. He serves as Principal Investigator and Director of the NSF AI Institute for Edge Computing Leveraging Next Generation Networks (Athena), Director of the Institute for AI Engineering (IAIE), and Co-Director of the Duke Center for Computational Evolutionary Intelligence (DCEI). His research spans emerging memory and storage technologies, machine learning systems, neuromorphic computing, and edge AI. He has authored more than 700 publications and holds 96 U.S. patents. His research has been recognized

with three Test-of-Time Awards and 15 Best Paper and Best Poster Awards. He is a recipient of the IEEE Circuits and Systems Society Charles A. Desoer Technical Achievement Award, the IEEE Computer Society Edward J. McCluskey Technical Achievement Award, and the IEEE Council on Electronic Design Automation A. Richard Newton Technical Impact Award. Chen is the founding Editor-in-Chief of the IEEE Transactions on Circuits and Systems for Artificial Intelligence (TCASAI) and the founding Chair of the IEEE Circuits and Systems Society's Machine Learning Circuits and Systems (MLCAS) Technical Committee. He is a Fellow of the AAAS, ACM, IEEE, and NAI, and a member of the European Academy of Sciences and Arts.

Plenary Talk 2

11:25~12:00 October 29, 2026 (Thursday)

Antigua 1 Hall

Dr. Youngjae Kim
Senior Research Fellow (VP), LG Electronics Inc.

Will the Age of Humanoids Come? The Age of Robots Will.

Abstract

There is growing excitement—and skepticism—about the future of humanoid robots. Will humanoids really become part of our everyday lives and transform industries, or are we expecting too much from a technology that still faces enormous challenges in capability, reliability, safety, and economics?

Having spent years developing robots, I have to admit that I don't have a clear answer. But there is one thing I am increasingly convinced of: the age of robots is inevitable.

Demographic change, labor shortages, automation, and the rapid advancement of AI are creating a world in which robots will become less of an option and more of a necessity. At the same time, AI is fundamentally changing what robots can do—enabling them to perceive, understand, reason, and act in ways that were previously difficult to imagine.

So perhaps the more important question is not whether humanoids will succeed, but what form the robot revolution will ultimately take.

In this keynote, I will share perspectives from the real-world experience of developing robots — from the gap between technology and expectations to the challenges of turning research into reliable products. I will explore why we should remain skeptical about the humanoid hype while remaining confident about the coming age of robotics.

Biography

Dr. Kim received his B.S. from Seoul National University in 1999 and his M.S. and Ph.D. from Stanford University in 2003 and 2007, all in Electrical Engineering.

He is currently working for LG Electronics Inc. as a senior research fellow (VP). Previously, he worked as a Communication Systems Engineer in Qualcomm Inc and Apple Inc. and as a Vision and Robotics Engineer in Velodyne LiDAR Inc. His research interest focuses on signal processing and robot SW but he is generally interested in all sorts of engineering problems that may be solved in a systematic fashion.

In 2025, he authored a book “AI+Robot”, which has been selected as Sejong Book by the Korean government.

Keynote Speechs

Keynote Speech 1

13:30~14:50 October 29, 2026 (Thursday)

Antigua 1

Chair: Jeong Hoan Park (Kyung Hee University)

Dr. Kyou-Sik Min
Founder and CEO, TODOC Co., Ltd.

A 32-Channel Cochlear Implant Platform: Speech Coding and Early Clinical Experience

Abstract

Cochlear implants restore access to sound by converting acoustic signals into electrical stimulation of the auditory nerve. Their performance depends on speech coding, the electrode–neuron interface, and the information that recipients can extract from multichannel stimulation. Continuous interleaved sampling and n-of-m channel selection illustrate different ways of distributing electrical pulses across an electrode array. Evidence for benefits beyond eight channels motivates evaluation of denser interfaces, while physical contact count remains distinct from effective spectral resolution. A 32-channel cochlear implant platform developed by TODOC combines a manufacturable platinum–iridium electrode array, wireless power and data transfer, and implantable stimulation electronics. Early clinical experience at Samsung Medical Center includes ten participants receiving thirteen devices. Full insertion was achieved in all implants, and all 32 stimulation channels were activated using continuous interleaved sampling. Sentence recognition improved on average during follow-up, with substantial variation across recipients. The noncomparative cohort supports early feasibility assessment but does not isolate the effect of channel count. Priorities for further evaluation include comparisons of channel configurations and stimulation strategies, neural-response recording, speech and music perception, and implant magnetic resonance compatibility.

Biography

Kyou-Sik Min is the founder and CEO of TODOC Co., Ltd., a Korean company developing cochlear implants and neural interface technologies. He received his bachelor's degree in physics in 2006 and his Ph.D. in electrical engineering and computer science in 2014 from Seoul National University. His doctoral research focused on manufacturable cochlear electrode arrays. Before founding TODOC in 2015, he worked as a senior researcher at Samsung Electronics. His work focuses on scalable electrode manufacturing and implantable electronic systems.

Keynote Speech 2

13:30~14:50 October 29, 2026 (Thursday)

Antigua 2

Chair: Kyung-Sik Choi (Yonsei University)

Dr. Jeongkyu Shin
CEO, Lablup Inc.

Challenges of AI Infrastructure: How the AI Is Reshaping the Physical and Operational Foundations of IT

Abstract

As the fields of AI development and applications grow explosively, AI infrastructure, the physical foundation for AI training and services, is also undergoing tremendous transformation. This talk defines AI infrastructure and discusses the loads and evolutionary pressures that the rapid changes over the past three years have imposed on AI infrastructure and its surrounding domains.

Biography

The founder of Lablup, he envisions a world where anyone, anywhere can use AI. With over 20 years of open source contributions, including serving as lead developer of the Textcube project, he founded Lablup in 2015 and leads development of Backend.AI (https://www.backend.ai), a hyperscale open source AI R&D and service infrastructure platform. Since 2017, he has served as a Google Developers Expert in AI and Cloud, and as a technology mentor at Google for Startups. He currently serves as a member of the Infrastructure Subcommittee of Presidential Council on National AI Strategy. He holds a PhD in Physics from POSTECH and received Korea's Presidential Commendation (2018) and Industrial Medal (2024).

- (2015–Present) CEO, Lablup Inc.
- (2025–Present) Subcommittee Member, Presidential Council on National AI Strategy (Infrastructure & Innovation)
- (2017–Present) Google Developers Expert (AI / Cloud)
- (2023) Director of the Korean Institute of Communications and Information Sciences (Intelligent SW/Convergence field)

- (2019–2021) Northeast Asia Open Source Software Promotion Forum (Republic of Korea Representative)
- (2016–2019) Adjunct Professor, Computer Science Dept., Hanyang University ERICA
- (2014–2019) Global Open Frontier, KossLab (1st and 3rd cohorts)
- (2004–Present) Maintainer of the Textcube Project
- (2007–2013) Ph.D. in Science, Pohang University of Science and Technology (Complex Systems / Computational Neuroscience)
- (2005–2007) M.S. in Science, Pohang University of Science and Technology (Complex Systems / Statistical Physics)
- (2000–2005) B.S. in Science / B.S. in Engineering, Pohang University of Science and Technology (Physics / Computer Science and Engineering)

Tutorials

Tutorial 1

15:00~16:00 October 28, 2026 (Wednesday)

Antigua 1

Chair: Se Jin Park (Kyung Hee University)

Prof. Jongyoon Choi
Ewha Womans University

Beyond Digital Scaling: Analog, In-Memory, and Unconventional Computing Circuits

Abstract

As conventional digital scaling faces increasing challenges in energy efficiency and data movement, new computing paradigms are being explored beyond traditional digital architectures. This tutorial provides an overview of emerging approaches including analog computing, in-memory computing, and unconventional computing circuits, with emphasis on their fundamental concepts, design opportunities, and key challenges.

Representative research and industrial examples will be introduced to illustrate how these approaches can reshape computation across circuits, architectures, and learning systems. The tutorial will also discuss broader trends toward heterogeneous and physics-inspired computing, offering perspectives on future directions for efficient intelligent systems.

Biography

Edward Jongyoon Choi received the B.S. degree in electrical and computer engineering from the University of Illinois at Urbana–Champaign (UIUC), Champaign, IL, USA, in 2019, and the M.S. and Ph.D. degrees in electrical engineering from Korea Advanced Institute of Science and Technology (KAIST), Daejeon, South Korea, in 2021 and 2025, respectively.

From 2025 to 2026, he worked as a Circuit Design and Analysis Engineer at Annapurna Labs, Amazon Web Services (AWS), Cupertino, CA, USA, working on cloud-scale ML accelerators. In 2026, he joined Ewha Womans University, Seoul, South Korea, and is currently an Assistant Professor at the Division of Electronic and Semiconductor Engineering.

Tutorial 2

15:00~16:00 October 28, 2026 (Wednesday)

Antigua 2

Chair: Joon-Sung Yang (Yonsei University)

Prof. Suwan Kim
Kyung Hee University

AI-Driven Analog Circuit Design and Optimization

Abstract

Analog circuit design requires designers to navigate a large and highly nonlinear design space while satisfying multiple, often conflicting, performance specifications. Because circuit evaluation relies on computationally expensive simulations, automated analog design often requires a substantial number of circuit evaluations, making efficient design-space exploration a challenging problem.

This tutorial introduces recent advances in AI-driven analog circuit design and optimization. We begin with fundamental approaches that formulate analog sizing as a sequential decision-making problem and discuss how reinforcement learning can automate transistor-level parameter optimization. We then examine the major challenges of these approaches, including simulation cost, sample efficiency, and limited generalization across specifications and circuit topologies.

Building on these foundations, we discuss more recent AI techniques for improving the efficiency, scalability, and generalizability of analog design automation. Representative topics include surrogate-assisted and model-based optimization, learning across multiple circuit designs and specifications, and data-driven methods for understanding complex design spaces. Through these examples, the tutorial provides an overview of how AI techniques are evolving toward more efficient and broadly applicable analog circuit design methodologies.

Biography

Suwan Kim is an Assistant Professor in the Department of Semiconductor Engineering at Kyung Hee University, Korea. He received his Ph.D. degree in Electrical and Computer Engineering from Seoul National University in 2024. Prior to joining Kyung Hee University, he

was a Staff Engineer at the AI Center of Samsung Electronics, where he worked on AI-aided design automation.

His research interests lie in electronic design automation, with a particular focus on AI-aided circuit and physical design, analog circuit optimization, and design-technology co-optimization. His recent research includes reinforcement learning and representation learning for analog circuit design, including M3 for multi-circuit optimization and HyperAnalog for analog circuit representation learning. His work has been published in major EDA venues including DAC, ICCAD, DATE, and IEEE TCAD.

Tutorial 3

16:10~17:10 October 28, 2026 (Wednesday)

Antigua 1

Chair: Suwan Kim (Kyung Hee University)

Prof. Se Jin Park
Kyung Hee University

Modeling Human–AI Conversations: Speech, Vision, and Interaction Dynamics

Abstract

Natural human communication combines language with vocal expression, facial movements, and other nonverbal cues. Building AI systems that understand and generate these signals is essential for more natural and engaging human–AI interaction. This tutorial introduces the foundations and recent advances in spoken language models and multimodal conversational AI. It begins with spoken language modeling, highlighting efficient long-form speech generation using hybrid state-space architectures. It then examines audio-visual interaction through direct multilingual audio-visual speech translation and face-to-face dialogue systems, covering unified representations, data challenges, and the generation of speech and facial motion. The discussion extends to empathetic multimodal dialogue and full-duplex interaction, in which systems listen and speak simultaneously. Finally, the tutorial explores open challenges and future directions, including expressive prosody, gesture and gaze, long-context modeling, computational efficiency, and low-latency streaming. It also considers world models for multimodal interaction as an emerging direction for anticipating how verbal and nonverbal responses shape subsequent exchanges. Participants will gain an understanding of the key modeling approaches and research challenges involved in building more expressive, responsive, and context-aware conversational AI systems.

Biography

Assistant Professor, School of Electronics and Information, Kyung Hee University
Ph.D. in Electrical Engineering, KAIST
Former Student Researcher at Google DeepMind (2024)
Former Research Scientist Intern at Meta AI (2025)

Honors & Selected Publications:

- Recipient of the ACL 2024 Outstanding Paper Award
- Published papers featured as Spotlight and Oral presentations at ICML 2025

Tutorial 4

16:10~17:10 October 28, 2026 (Wednesday)

Antigua 2

Chair: Joon-Sung Yang (Yonsei University)

Prof. Se Young Chun
Seoul National University

Generative Diffusion Models: From Score Matching to Foundation Models for Imaging and Robotics

Abstract

Diffusion models have become the dominant paradigm for generative modeling, powering state-of-the-art systems in image and video synthesis, scientific imaging, and, increasingly, robot learning. This tutorial provides a self-contained introduction to diffusion models and then surveys where the field is heading. We begin with the foundations: denoising score matching, the forward noising process and its reverse-time formulation, the equivalence between DDPM, score-based SDE, and flow-matching views, and the Tweedie identity that underlies denoising as posterior mean estimation. We then cover practical accelerations and controls, including deterministic samplers, distillation and consistency models, classifier-free guidance, and conditioning mechanisms for text, images, and physical measurements. The second half turns to recent trends: diffusion as a prior for inverse problems and computational imaging, latent and rectified-flow architectures behind modern text-to-image and video models, multimodal foundation models built on diffusion backbones, and diffusion policies and vision-language-action models for robotics. Throughout, we highlight open questions in efficiency, controllability, and uncertainty. The tutorial assumes basic familiarity with probability and deep learning and is intended for graduate students and researchers who want a clear conceptual map of diffusion models and an informed view of current directions.

Biography

Se Young Chun received his B.S.E. degree in electrical engineering (EE) from Seoul National University in 1999 and his Ph.D. degree in EE: systems from the University of Michigan - Ann Arbor in 2009. He was a research fellow at Harvard Medical School and also a research fellow at the University of Michigan - Ann Arbor. He has been with UNIST from 2013 to 2021 as an

Assistant / Associate Professor in EE / AI. Since 2021, he has joined the Department of Electrical and Computer Engineering, Seoul National University, Seoul, South Korea, as an Associate Professor and he is currently a Full Professor with tenure. He is a senior area editor of IEEE Transactions on Computational Imaging, a member of IEEE Bio Imaging and Signal Processing Technical Committee and an IEEE Biometrics Council Representative of IEEE Vehicular Technology Society. He was the recipient of the 2015 Bruce Hasegawa Young Investigator Medical Imaging Science Award from the IEEE Nuclear and Plasma Sciences Society. His research interests include computational imaging algorithms, generative diffusion models, multimodal foundation models for the applications in imaging, and computer vision for robotics.

Technical Program

Special Sessions

SS01 Convergence and Open Sharing System (COSS) for Data Security & Utilization by Hanyang University ERICA Invited

13:30~14:50 October 29, 2026 (Thursday)

Barbuda 1

Chair: Sunghyun Cho (Hanyang University)

01 **Mixed-Type Latent Adversarial Training for Cross-Attack Robustness in Tabular Data**
Yongseok Kwon[1], Sunwon Kwon[1], Yushin Kim[1], and Sunghyun Cho[2]
([1]Hanyang University, Korea, [2]Hanyang University ERICA, Korea)

02 **PEM-LoRA: Plastic Experts and Selective Weight Merging for Rehearsal-Free Class-Incremental Learning**
Yushin Kim, Yongseok Kwon, Sunwon Kwon, and Sunghyun Cho
(Hanyang University ERICA, Korea)

03 **A System-Level Synthesis of Embodied AI Safety: Risks, Defenses, and Open Challenges**
Seung Jun Lee and Seo Yeon Park
(Hanyang University ERICA, Korea)

04 **Reliability Verification and Security Management for Generative AI Systems in Enterprise Environments**
Bogyung Park, Seokjae Gwon, and Seyoung Lee
(Kangwon National University, Korea)

05 **Reachability-Aware Mission Impact Assessment for Sequential Counterfactual Alert Prioritization**
Byeong-Ha Park, Si-On Yun, Chan-Young Na, and Young-Chan Park
(Ajou University, Korea)

06 **LLM-Based Alert Cancellation in Enterprise and IoT Benchmarks**
Jang Seonwoo
(Hanyang University ERICA, Korea)

07 The Effect of Rejection Friction on Repeated Cookie Consent Decisions
Dongho Kim, Gyujeong Jin, and Seyoung Lee
(Kangwon National University, Korea)

08 Cross-Interface Authentication Asymmetry for Privacy Assets in Consumer Drones: A DJI Neo Case Study
Junhwan Kim and Jiyun Kim
(Yeungnam University College, Korea)

SS02 NPU Design & AI Model Optimization for On-Device AI by KETI
Invited

15:10~16:25 October 29, 2026 (Thursday)

Barbuda 1

Chair: Sung-Joon Jang (KETI)

01 Profiling On-Device Vision-Language Models on Jetson Edge Platforms
Sunghyeon Bae[1], Hyeon-Cheol Moon[1], Yumi Kim[1], Jinwoo Jeong[2], Sang-Seol Lee[1], and Sung-Joon Jang[1]
([1]KETI, Korea, [2]Kangwon National University, Korea)

02 Lightweight Temporal Attention for Audio-Based Emergency Detection on the Edge TPU
Jaehun Baek, Seonghyun Jang, Minkyu Lee, Yumi Kim, and Sung-Joon Jang
(KETI, Korea)

03 Module-Dependent Sensitivity to Activation Formats Under Round-to-Nearest Quantization in Compact Vision-Language-Action Models
Chanyung Kim, Sang-Seol Lee, Aeri Kim, Dongyeob Shin, and Sung-Joon Jang
(KETI, Korea)

04 A Compact Ultrasound Receive Front-End with Integrated Continuous-Time Gain Compensation
Hyeongju Lee[1], Yoontae Jung[2], and Minkyu Je[1]
([1]KAIST, Korea, [2]Kyung Hee University, Korea)

05 Activation-Optimized Posit Data Format for Efficient Sparse 3D Convolution
Joon Boum Song, Sang-Seol Lee, Eunchong Lee, Minkyu Lee, and Kyungho Kim
(KETI, Korea)

SS03 Artificial Intelligence Innovation Graduate School by Sogang University Invited

09:00~10:15 October 30, 2026 (Friday)

Barbuda 1

Chair: Sung In Cho (Sogang University)

01 **Review of AI Hardware Accelerators: Software-Hardware Co-Design**
Sungju Ryu
(Sogang University, Korea)

02 **Temporal-Grounded Video Reasoning: A Comparative Survey of Agentic and Span-Grounded Approaches**
Yerim Song, JaeYun Lee, and Sung In Cho
(Sogang University, Korea)

03 **Two-Stage 6D Pose Estimation with Top-Flange-Based Translation Refinement for Industrial Cassette Handling**
Soohun Kim[1], Sunwon Jang[1], Hyunbin Kim[1], Junho Lee[1], Dongseok Kang[1], Seunghyuk Baek[2], Changgeun Gwak[2], and Suk-Ju Kang[1]
([1]Sogang University, Korea, [2]Samsung Electronics, Korea)

04 **A Discrete-Time Series-Parallel Floating-Inverter Amplifier for Low-Noise, Low-Power EEG Acquisition**
Joowon Kim[1], Joohyung Kim[1], Yoontae Jung[2], and Minkyu Je[1]
([1]KAIST, Korea, [2]Kyung Hee University, Korea)

05 **Evidence-Aware Multi-Agent Coordination for Early-Stage Architectural Design**
Donghyeon Kim and Sanghun Park
(Sogang University, Korea)

06 **Visual Context for Valence Inference from Smartglasses: Evaluation with Jointly Held-Out Users and Tasks**
Geena Lee and Sanghun Park
(Sogang University, Korea)

SS04 Artificial Intelligence Innovation Graduate School by Yonsei University Invited

09:00~10:15 October 30, 2026 (Friday)

Barbuda 2

Chair: Jaeyong Chung (Yonsei University)

01 **Multi-Solution Autoregressive Inverse Design of Pixelated Patch Antennas**
Young-Mok Yun, Jaeyong Chung, Jung-Hyun Nam, Jong-Hyeok Yoon, Sang-Won Lee, Min-Seok Jeon, Ji-Min Kim, Kyo-Dong Kim, Nam-Young Koo, and Kyung-Sik Choi
(Yonsei University, Korea)

02 **MemTier: Retrieval-Aware DRAM–HBF Tiering for Long-Term LLM Agents**
Minjae Park and Jaeyong Chung
(Yonsei University, Korea)

03 **CTLE Sizing Optimization with In-Loop Layout Generation and Post-Layout Evaluation**
Seungwon Shin, Hanjin Park, and Jaeyong Chung
(Yonsei University, Korea)

04 **A 16-to-32-Gb/s 0.943-pJ/b Referenceless Baud-Rate CDR Using Consecutive-Hit Accumulator for Fast Frequency Acquisition**
Soomin Jin, Yoojin Jung, and Kwanseo Park
(Yonsei University, Korea)

SS05 Kyung Hee University Invited

10:25~11:40 October 30, 2026 (Friday)

Barbuda 1

Chair: Ik-Joon Chang (Kyung Hee University)

01 **Knowledge-Reuse Retargeting of LDOs for Consumer-Electronics Power Rails: Measuring the Simulation Cost of an LLM-Orchestrated Flow**
Seongwoo Han, Sunhaeng Heo, and Younghyun Lim
(Kyung Hee University, Korea)

02 **Bit-Error Multiplicity of Shared-Clock Single-Event Transients in DICE Multi-Bit Flip-Flops: Bounds, Phase Structure, and the Cost of Local Mitigation**
Sunwoo In and Jeong Hoan Park
(Kyung Hee University, Korea)

03 Charge-Split and Arrival-Skew Mapping of Double-Node Upsets in ASAP7 Latches
Ji Won Kim, Soochan Lee, Yujin Lee, Donghun Cha, and Jeong Hoan Park
(Kyung Hee University, Korea)

04 Operation-Phase-Aware Injected-Charge Robustness of RHBD SRAM Cells in ASAP7 FinFET Technology
Sewoong Jeong, Donghun Cha, Ji Won Kim, Soochan Lee, and Jeong Hoan Park
(Kyung Hee University, Korea)

05 Evaluation of Selective Hardening Against Captured Single-Event Transients in an ASAP7 8-Bit Accumulator Datapath
Soochan Lee, Sewoong Jeong, Yujin Lee, and Jeong Hoan Park
(Kyung Hee University, Korea)

06 Datatype-Dependent Energy Balance of PE-Array and SRAM Sizing in Hardware Accelerators
Yujin Lee, Ji Won Kim, Sewoong Jeong, and Jeong Hoan Park
(Kyung Hee University, Korea)

07 An FVF-Based Dual-Loop LDO With a Dynamic Transient Feedback Loop and Adaptive Biasing for Fast Transient Response and High Power Efficiency
Sunhaneg Heo, Seongwoo Han, Seungwan Kim, and Younghyun Lim
(Kyung Hee University, Korea)

08 A TID-Tolerant Gate-Pole-Dominant Low-Dropout Regulator with a Radiation-Effect Canceller for Loop-Gain Stabilization
Deok Won Koh, Changin Yoon, Sunhaeng Heo, Seongwoo Han, and Younghyun Lim
(Kyung Hee University, Korea)

09 Total Ionizing Dose Radiation Effects on 65-nm CMOS Transistors With Various Channel Geometries
Changin Yoon, Deok Won Koh, Sunhaeng Heo, Seongwoo Han, and Younghyun Lim
(Kyung Hee University, Korea)

Oral Sessions

OS01 In-Vehicle Networks and Software-Defined Vehicles

09:00~10:15 October 29, 2026 (Thursday)

Barbuda 1

Chair: Suwan Kim (Kyung Hee University)

01 **Feasibility and performance evaluation of YANG/NETCONF-based in-vehicle Software-Defined Networking control for Software-Defined Vehicle**
Tetsuta Sakai and Yoshihiro Ito
(Nagoya Institute of Technology, Japan)

02 **Evaluation of the Applicability of DetNet to In-Vehicle Networks**
Daito Nakahara, Yoshihiro Ito
(Nagoya Institute of Technology, Japan)

03 **Python-Based Asymmetric-Dithered PWM Generation for EMI Analysis of Brushless DC Inverters**
Shashi Ranjan Mishra and Vishumendra Thakur
(HL Mando Softtech India Pvt. Ltd., India)

04 **Frequency-Dependent Common-Mode Current Redistribution Due to Chassis-GND Impedance and Capacitor Placement in Automotive ECU PCB's**
Vishumendra Thakur and Shashi Ranjan Mishra
(HL Mando Softtech India Pvt. Ltd., India)

05 **World-Model-Based Candidate Steering Selection for End-to-End Autonomous Driving**
Hyo Jin Park, Hye Hyeon Park, Hye Jun Hong, Seung Yun Noh, Sun Hong Jung, and Jae Wook Jeon
(Sungkyunkwan University, Korea)

06 **OpenSinD: An OpenSCENARIO Dataset for Intersection Driving Based on Drone Trajectories**
Sungmo Ku and Jinho Lee
(Tech University of Korea, Korea)

OS02 Automotive Perception, ADAS and Vehicle Electronics

09:00~10:15 October 29, 2026 (Thursday)

Barbuda 2

Chair: Jeong Hoan Park (Kyung Hee University)

01 From Feet and Vehicle Underbodies to Pedestrian Collision-Exposure Fields with a Near-Ground Monocular Camera
Hyunjun Jang and Jae-Chern Yoo
(Sungkyunkwan University, Korea)

02 OTA Updates over TSN in Zonal SDVs: A Frame-Fit Model and Segment-Sizing Rule
Jeong Ho Ahn, Young Soo Do, Sung Bhin Oh, Young Min Kim, Seung Uk Son, Beom Gi Suh, Min Young Chung, and Jae Wook Jeon
(Sungkyunkwan University, Korea)

03 Effectiveness of a Hands-On Short-Term Automotive Ethernet/TSN Training Program
Young Soo Do, Young Min Kim, Chan Gyu Park, Jae Hun Kang, Sang Hun Shin, and Jae Wook Jeon
(Sungkyunkwan University, Korea)

04 On-the-Fly Augmentation of Trajectory Features from Audio Diffusion Models
Hoyoung Ahn, Muho Cheon, and Byeungwoo Jeon
(Sungkyunkwan University, Korea)

05 Analysis of Event Loss in Converting Event Stream to Frame
Yongseong Kim, Jinwoo Chung, and Byeungwoo Jeon
(Sungkyunkwan University, Korea)

OS03 Semiconductor Devices and Circuits for CE

09:00~10:15 October 29, 2026 (Thursday)

Barbuda 3

Chair: Se Jin Park (Kyung Hee University)

01 DiBLO: Fully Digital Bulk Bitwise Operations in RRAM
Tony Tae-Hyoung Kim[1], Jaemin Cha[2], and IK Joon Chang[2]
([1]Nanyang Technological University, Singapore, [2]Kyung Hee University, Korea)

02 SymCIM: A Distribution-Aware Computin-in-Memory for Event-Driven Processing
Chufeng Yang[1], Junying Li[1], Yuncheng Lu[1], Jiwook An[2], Ik-Joon Chang[2], and Tony Tae-Hyoung Kim[1]
([1]Nanyang Technological University, Singapore, [2]Kyung Hee University, Korea)

03 A 28-nm 9T1C Analog SRAM Compute-in-Memory Macro with 6-bit Pulse-Height Inputs Generated by a Reused SAR-ADC CDAC
Yonghee Kim[1], Ilho Myeong[2], and Ickhyun Song[1]
([1]Hanyang University, Korea, [2]Myongji University, Korea)

04 Industrial Research Activities on DRAM Architectures and Design Automation for Consumer Electronics
Daeyong Han and Taewhan Kim
(Seoul National University, Korea)

05 Bit-Flip Polar Decoding for On-Chip Memory under Adjacent Mutiple-Bit Upsets
Soyeon Choi
(Hanbat National University, Korea)

06 A 8.1-Gb/s eDP CDR with PVT-Tolerant Digitally Calibrated Charge Pump for High-Resolution Consumer Displays
Guo-Chao Lu and Chung-Hsun Huang
(National Cheng Kung University, Taiwan)

OS04 Computer Vision and Image Recognition

09:00~10:15 October 29, 2026 (Thursday)

Barbuda 4

Chair: Kyung-Sik Choi (Yonsei University)

01 Plastic Material Classification Based on Multispec-tral Sensing and Support Vector Machines
Zong-Da Lu, Chun-Ting Liu, and Hsiao-Wei Hu
(Chung Yuan Christian University, Taiwan)

02 Genki Baby: A Proof-of-Concept Dual-Channel Fatigue-Detection System with Individualized Baselines
Yu-Sheng Kung, Yue Zeng, Hung-Hsin Chang, and I Elizabeth Cha
(Chung Yuan Christian University, Taiwan)

03 Expanding Spatial Adaptability in PredNet with Variable Receptive Fields and Deformable Convolutions
Airi IWATATE, Shunichi SEKIGUCHI, and Wataru KAMEYAMA
(Waseda University, Japan)

04 Quantization-Aware Test-Time Training for Feed-Forward 3D Gaussian Splatting Codecs
Chanung Park and Jong Hwan Ko
(Sungkyunkwan University, Korea)

05 Memory-Hierarchy-Aware Atlas Streaming for Low-Latency 4K Light-Field Video
Ui Hyun Kim and Chae Eun Rhee
(Hanyang University, Korea)

06 ARCOD: Assisted Residual Correction in Object Detection
Geonhyeok Lee and Jitae Shin
(Sungkyunkwan University, Korea)

OS05 Visual Inspection and Industrial AI

13:30~14:50 October 29, 2026 (Thursday)

Barbuda 2

Chair: Suwan Kim (Kyung Hee University)

01 An Augmented Machine Learning System for Grocery Demand Forecasting and Inventory Control
Peter Julius M. Estacio[1], Niño Aloysius V. De Mesa[1], Jan Kevin A. Galicia[1], I Elizabeth Cha[2], and Yong-Xiang Chen[2]
([1]Ateneo de Manila University, Philippines, [2]Chung Yuan Christian University, Taiwan)

02 An Online Object Handover System for Multi-Camera Video Surveillance Based on Appearance-Geometry Fusion
Jaewon Lee, Hyein Jeong, JongSeol Lee, and Dalwon Jang
(KETI, Korea)

03 Optimizing Feature Weights for Robust Sensorimotor Object Recognition in Monty
Kyou Jung Son and Byung-Soo Kim
(KETI, Korea)

04 Feature-Decomposition-Based Attention for SAR-Guided Cloud Removal in Satellite Images
Dong Myeong Kim, Chuong Hoang Vo, and Chul Lee
(Dongguk University, Korea)

05 Generation-Aware Speech Separation for Jointly Generated Multi-Speaker Audio
Muho Cheon, Hoyoung Ahn, and Byeungwoo Jeon
(Sungkyunkwan University, Korea

OS06 Edge AI and AI Hardware Acceleration

13:30~14:50 October 29, 2026 (Thursday)

Barbuda 3

Chair: Younghyun Lim (Kyung Hee University)

01 An Efficient Lightweight Object Detector for Edge Vision
Chi-Nguyen Vu[1], Shao-Kang Huang[2], Chen-Chien Hsu[1], and Phan Thi Thanh Ngoc[1]
([1]National Taiwan Normal University, Taiwan, [2]Tamkang University, Taiwan)

02 A Hardware-Efficient 8-Bit Numerical Format for Reliable Post-Training Quantization
Tony Tae hyoung Kim[1], Seokjin Kim[2], and Ik-Joon Chang[2]
([1]Nanyang Technological University, Singapore, [2]Kyung Hee University, Korea)

03 Confidence-based Teacher Selection for Multi-Teacher Knowledge Distillation Under Class-Imbalanced Local Data
Donghyun Lee and Sangwook Park
(Kangwon National University, Korea)

04 Hierarchical IR Transformation for Bridging AI Models to NPU-Specific Representations via Standard MLIR
Minsu Kim, Seongseop Kim, Seungwoo Lee, and Youngmin Kwon
(KETI, Korea)

05 Lightweight CNN–ViT Ensemble for Micro-Gesture Recognition via Model Compression
Jonghee Park, Jonghoon Kwak, and Min-Soo Ko
(KETI, Korea)

OS07 Large Language Models, RAG and AI Agents

13:30~14:50 October 29, 2026 (Thursday)

Barbuda 4

Chair: Yoontae Jung (Kyung Hee University)

01 **An Affect-Aware User Interpretation Methodology for LLM-Based Recommendation**
Olga S. L. Alves[1], Sergillam Barroso Oliveira[1,2], Petrina Kimura[1], Juliana C. Silva[1], Tiago Souza[1], Eddie de Lima Filho[1,2], Rômulo Fabrício[1], and Lucas C. Cordeiro[2,3]
([1]TPV Technology, Brazil, [2]Federal University of Amazonas, Brazil, [3]The University of Manchester, UK)

02 **Technical Specification Field Extraction from Consumer Electronics Documents via Catalog-Driven RAG**
Elton Alencar[1], Pablo H. U. de Pinho[1], Jair de Almeida[1], Luziane Arouca[1], Patrick Konasugawa[1], Daniel Lins da Silva[1], Marcel Silva[2], and Agemilson Pimentel[2]
([1]Venturus - Innovation and Technology Center, Brazil, [2]ENVISION/TPV Group Technology Limited, Brazil)

03 **Retrieval-Feedback-Based Adaptive Agent Routing for Multi-Agent RAG Systems**
Jihoon Lim, Chanbin Bae, Eunsok Lee, Daesik Kim, and Sangheon Pack
(Korea University, Korea)

04 **Vision-Grounded LLM Change Reports: Learned Instance Pairing and Claim-Level Evaluation**
Song Jae Lee, Do Hyun Lee, Jia Kim, Sung Yong Kim, and Jung Hun Jin
(LIG Defense & Aerospace, Korea)

05 **Buy or Build? Comparing Accuracy, Cost, and Decision Outcomes for Aspect-Based Sentiment Analysis Deployment**
Suho Ahn, Geon Ko, and SungHyun Park
(MODULABS, Korea)

OS08 Generative AI and Diffusion Models

15:10~16:25 October 29, 2026 (Thursday)

Barbuda 2

Chair: Gun Hwan Kim (Yonsei University)

01 Warm-Start Diffusion for Few-Step On-Board Satellite Imagery Anonymization
Seong-Hyun Baek, Jin-ju Han, A-ran Yun, Jong-hyeon Park, and Yeong Jun Koh
(Chungnam National University, Korea)

02 When Alignment Persists but Repair Fails: Object-Omission Recovery in Few-Step Diffusion
Hyunseok Lee, Haesol Shin, Jinwoo Kim, and SangMook Kim
(Chungnam National University, Korea)

03 Aggregation Sensitivity in Diffusion Inpainting Along a Mean–Median Axis
MuGyum Kim, GiWon Kim, ChanJong Park, and SungHo Lee
(Chungnam National University, Korea)

04 Probing Concept Suppression and Absence in Text-to-Image Diffusion Models: Evidence from Korean Cultural Concepts
Yunki Lee, Jinyoung Seo, Gahyeon Han, and Jong-Ryul Lee
(Chungnam National University, Korea)

05 Exact-Oracle Analysis of Tile-Adaptive Synthesis Paths in JPEG AI Decoding on UHD Images
Sanghoon Yoon, Chaehag Yi, and Xuan Truong Nguyen
(Seoul National University, Korea)

OS09 AI for Consumer Healthcare and Medical Systems

15:10~16:25 October 29, 2026 (Thursday)

Barbuda 3

Chair: Se Jin Park (Kyung Hee University)

01 MacBERT-Guided RAG for Taiwanese Medical Question Answering
Yi-Shan Chen, I Elizabeth Cha, and Taoyuan, Taiwan
(Chung Yuan Christian University, Taiwan)

02 From Motion Sensing to Material Feedback: A Digital-Physical Ferrofluid System for Hand Rehabilitation Training
Yu-En Hsieh, Shiu-Chiau Wang, and Yong-Xiang Chen
(Chung Yuan Christian University, Taiwan)

03 Uncertainty-Aware Expert Deferral for Trustworthy Breast Ultrasound Segmentation
Hoa. Doan Nguyen Thanh[1], Sang. Pham Huu[2], and Minh. Le Quang[1]
([1]Ho Chi Minh City Open University, Viet Nam, [2]FPT University, Viet Nam)

04 Lesion-Preserving Fine-Tuning of IGUANe for Multi-Site Brain MRI Harmonization
Jeongwon Choi, Jina Lee, and Yongdo Her
(Konyang University, Korea)

05 A Switched-Capacitor Neural Stimulator with Phase-Onset Current Regulation and Calibration-Free Charge Balancing for High-Impedance Electrodes
Loc Tran, Hoai Lam Vu, Yeeun Kim, Sunghoon Kang, Beomseung Kwak, and Doojin Jang
(Cheongju University, Korea)

06 WSPolypNet: Weakly Supervised Polyp Localization in Colonoscopy Videos
Giseong Hwang[1], Minjae Jo[2], Yeonghyeon Park[3], Kyeonghun Kim[4], Seoyeon Han[2], Donghoon Han[2], Haneul Kim[5], Yului Jeong[2], Insung Hwang[2], Pa Hong[6], Ken Ying-Kai Liao[7], and Nam-Joon Kim[2]
([1]Soonchunhyang University, Korea, [2]Seoul National University, Korea, [3]Kyungpook National University, Korea, [4]OUTTA, Korea, [5]Chung-Ang University, Korea, [6]Samsung Changwon Hospital, Korea, [7]NVIDIA AI Technology Center, Taiwan)

OS10 Multimedia, Speech and Human-Centered Interfaces

15:10~16:25 October 29, 2026 (Thursday)

Barbuda 4

Chair: Yoontae Jung (Kyung Hee University)

01 End-to-End Prediction of Text Legibility in Optical See-Through Augmented Reality
Shota Horiuchi and Toru Abe
(Tohoku University, Japan)

02 See-Through Window Display System with Virtual-Real Integration: A Case Study of an Interactive Virtual Creature Exhibit
Xin-Xin, Xie, Chi-Hao, Lung, and Feng-Shuo,Chang
(National Taipei University of Technology, Taiwan)

03 A Comparative Analysis of Multistage Low-Rank Adaptation (LoRA) for Taglish Automatic Speech Recognition on Edge Hardware

Karl Francois Dwayne N. Agudong[1], Christian James S. Madariaga[1], Jan Kevin A. Galicia[1], Romnick U. Cartusiano[2], I Elizabeth Cha[3], and Yong-Xiang Chen[3]
([1]Ateneo de Manila University, Philippines, [2]Mapua University, Philippines, [3]Chung Yuan Christian University, Taiwan)

04 Efficient Pseudo-Streaming ASR by Reusing Locally Stable Predictions

Changhyeon Jeong, Seunghee Ma, Heeyong Park, Yoonseo Chung, Unggi Lee, and Junghwan Kim
(LOTTE INNOVATE, Korea)

OS11 IoT, Smart Cities and Connected Services

09:00~10:15 October 30, 2026 (Friday)

Barbuda 3

Chair: Younghyun Lim (Kyung Hee University)

01 Performance Evaluation of SAS-L2-Based One-Time Authentication Protocol for MQTT with RTT-Based Time Estimation

Hiroki Nishiwaki[1], Senling Wang[1], Shinji Norimatsu[1], Hiroshi Kai[1], Hiroshi Takahashi[1], and Akihiro Shimizu[2]
([1]Ehime University, Japan, [2]Kochi University of Technology, Japan)

02 Smart Thermometer for Sake Brewing

Yuto Kamei and Satoshi Ohtake
(Oita University, Japan)

03 QUBO-Based Sensor Placement Framework for Water Quality Monitoring in Laguna de Bay

Johann Audric Ferolino[1], Carl Washington Siy[1], Dylan Josh Domingo Lopez[2], Jan Kevin A. Galicia[1], I Elizabeth Cha[2], and Yong-Xiang Chen[2]
([1]Ateneo De Manila University, Philippines, [2]Chung Yuan Christian University, Taiwan)

04 Evaluation of the Cost-Saving Effects of Managing On-Board Units Implementing FOTA in Garbage Collection Status Visualization System

Hirotake Tomita, Shota Homma, and Hidekazu Suzuki
(Meijo University, Japan)

OS12 Security, Privacy and Authentication for CE

09:00~10:15 October 30, 2026 (Friday)

Barbuda 4

Chair: Joon-Sung Yang (Yonsei University)

01 CABA: Context-Aware Behavioral Biometrics for Continuous Authentication in Internet Banking
Festus Edward Ndalama, Patrick Mutabazi, Yuzo Taenaka, and Youki Kadobayashi
(Nara Institute of Science and Technology, Japan)

02 Workload-Aware Evaluation of Authenticated Encryption on a Raspberry Pi Fog Node
Su Su Yee, Samsul Huda, and Yasuyuki Nogami
(Okayama University, Japan)

03 Context-Governed Multi-Factor Authentication: A Contextual Judgment Framework for Authentication Systems
Tercio Naoki Sato, William Rieken Dee, Samsul Huda, and Yasuyuki Nogami
(Okayama University, Japan)

04 Optimizing Decryption Failure Rate with Normalized Spectral Difference Reliability Threshold of Concatenated RS-RM Code in HQC
Mst. Sharmin Banu, Yuken Ikenaga, Soshi Matsumoto, Yuta Kodera, and Yasuyuki Nogami
(Okayama University, Japan)

05 Adversarial Robustness and Zero-day Detection for Web Application Firewalls using Deep Learning Models
CHENG YI LIU and YOKE HOU TAN
(Chung Yuan Christian University, Taiwan)

06 Security Impact of Low-Rate Targeted Label Poisoning on Industrial Robot Anomaly Detection
Seulgirom Lee
(Hyundai Autoever, Korea)

OS13 Wireless Communications, Networks and Positioning

10:25~11:40 October 30, 2026 (Friday)

Barbuda 2

Chair: Joon-Sung Yang (Yonsei University)

01 **SBS: A Simple Binary Serialization for Key Exchange in Delay Tolerant Network**
Mega Pranata, Samsul Huda, Yuta Kodera, and Yasuyuki Nogami
(Okayama University, Japan)

02 **Correlation Analysis between Terrain Features and eLoran Spatial ASF according to DEM Spatial Resolution**
Jaewon Yu[1] and Pyo-Woong Son[2]
([1]Yonsei University, Korea, [2]Chungbuk National University, Korea)

03 **Adaptive Pseudorange Weighting Using a Gaussian Mixture Model and Expectation-Maximization for Robust Urban GNSS Single Point Positioning**
Seungjae Lee and Sanghyun Kim
(Yonsei University, Korea)

04 **A V-band Low Noise Variable Gain Amplifier using Impedance-invariant in 65-nm CMOS**
In Cheol Yoo, Dong Ouk Cho, and Chul Woo Byeon
(Dankook University, Korea)

05 **Autoencoder-Based Two-Hop Relay Systems with Model-Free Alternating Training**
Juin Shin[1], Meixiang Zhang[2], and Xianglan Jin[1]
([1]Jeonbuk National University, Korea, [2]Yangzhou University, China)

06 **From PHY to MAC in CF-mMIMO: PRB Scheduling while Preserving Coherent Gain**
Jiseung Youn, Donghyun Kim, and Sunghyun Cho
(Hanyang University, Korea)

OS14 Robotics, Drones and Automation Technologies

10:25~11:40 October 30, 2026 (Friday)

Barbuda 3

Chair: Kyung-Sik Choi (Yonsei University)

01 **Hierarchical Reinforcement Learning for Cost-effective Dynamic Weapon-Target Assignment**
Jaeyoung Kim and Daejin Park
(Kyungpook National University, Korea)

02 **Hierarchical Decentralized Game-Theoretic Control for 3D Formation Reconfiguration of Fixed-Wing UAVs**
Heonjong Yoo and Wan-Young Chung
(Pukyong National University, Korea)

03 **N6Sense: A Compact Four-Layer Non-HDI STM32N6 Sensor-AI System-on-Module**
Kyuho Son, Van-An Nguyen, and Dongsoo Han
(KAIST, Korea)

04 **Complementary Vision and Depth Cues for Language-Directed Robotic Grasping**
Hye Jun Hong, Kyung Hoon Kim, and Jae Wook Jeon
(Sungkyunkwan University, Korea)

OS15 Emerging AI Applications for Consumer Electronics

10:25~11:40 October 30, 2026 (Friday)

Barbuda 4

Chair: Jaeyong Chung (Yonsei University)

01 **Choosing an Edge Compute Platform for Blind and Low-Vision Navigation Aids: NPU-Class versus GPU-Class Hardware on the Taiwan Blind-Navigation Dataset**
Quan-Quan Yang, Yu-Fu Huang, and Yoke-Hou Tan
(Chung Yuan Christian University, Taiwan)

02 **A Cross-Platform Architecture for Reusable Service Modules in Heterogeneous TV Platforms**
Sergillam B. Oliveira[1,2], Cláudio Pinheiro[1], Ivo Machado[2], Petrina Kimura[1], Daniel Xavier[1], Orlewilson Maia[1], Fabricio Izumi[1], Eddie B. de Lima Filho[1,2], and Lucas C. Cordeiro[2,3]
([1]TPV Technology, Brazil, [2]Federal University of Amazonas, Brazil, [3]University of Manchester, UK)

03 **Real-Time Tactile Vibrations and Personalized Audio Processing for Deaf and Hard-of-Hearing Users in Mobile Multimedia Applications**

Claudio F. M. Pinheiro[1], Juliana C. Silva[1], Arlley Dias[1], Eddie B. de Lima Filho[1], Rômulo Fabrício[1], Eliezer S. Menezes[2], and Tyller Jorel[3]
([1]TPV Technology, Brazil, [2]Independent Researcher, Ex-TPV Technology, Brazil)

04 **Audio Guide System for a Historic Building Using Image Recognition**

Mingxiu Bian[1], Hiromu Goto[2], Yunhao Tu[2], Mana Fukuyasu[3], Mayu Urata[1], and Mamoru Endo[1]
([1]Nagoya University, Japan, [2]Chubu University, Japan, [3]Sugiyama Jogakuen University, Japan)

05 **Patient-Specific Adaptive Sampling for Efficient T1ce MRI Synthesis Using Wavelet Flow Matching**

Nabin Yun, Jina Lee, and YongDo Her
(Konyang University, Korea)

06 **Real-Time 360 Audio with Head Tracking for TWS-Connected TV Platforms**

Kibeom Kim, Inwoo Hwang, and Sunmin Kim
(Samsung Electronics, Korea)

Poster Sessions

PS01

09:00~10:15 October 29, 2026 (Thursday)

Antigua Lobby

Chair: Joon-Sung Yang (Yonsei University)

01 **Minimizing Human Review Cost in Korean Statistical Fact-Checking via a Cheap Heterogeneous LLM Ensemble**
Ha Ji-lyang[1], Shin Dae-woong[1], Kim Tae-kyung[1], Seo Heemang[1], and Lee Ha-yan[2]
([1]AIFFEL, Korea, [2]ClaBi, Korea)

02 **Conceptualizing Media Persona Generation for Cross-Domain Knowledge Transfer**
Jonghee Park, Min-Soo Ko, and Jonghoon Kwak
(KETI, Korea)

03 **Design and Preliminary Evaluation of a Short Course on AI Coding Agents for Embedded Systems Development**
Sang Hun Shin, Young Min Kim, Young Soo Do, Sung Bhin Oh, and Jae Wook Jeon
(Sungkyunkwan University, Korea)

04 **A Biomimetic Stochastic Spiking Neural Network Accelerator Exploiting Retinal ON/OFF Channels and Refractory Dynamics**
Minkyung Kim and Youngmin Kim
(Hongik University, Korea)

05 **EdgeCLIP: Static Depth Pruning for Efficient Vision-Language Models on Edge Devices**
Daeheon Lee, Joonseok Kim, Dowon Kwon, and Seokhyeong Kang
(Pohang University of Science and Technology, Korea)

06 **Bridging the Gap in Dysarthric Speech Recognition with Flow-Matching Speech Enhancement**
Haebin Na[1], Sojeong Kim[2], and Sunjae Yoon[2]
([1]KAIST, Korea, [2]Chung-Ang University, Korea)

07 **A Self-Contained Edge MLOps Platform for Disconnected AI Model Lifecycle Management**
Jaewon Lee, Dongryul Baek, Yunseul Lee, Soohyun Jang, Pusik Park, and Junhyek Jang
(KETI, Korea)

08 Category Profile Augmentation for Cold-User CTR Prediction in Advertising
Jonghoon Kwak, Min-Soo Ko, and Jonghee Park
(KETI, Korea)

09 Edge AI for Hydrogen Blending Ratio Estimation Using Ultrasonic Envelope Features
Seongseop Kim, Minsu Kim, Youngmin Kwon, and Seungwoo Lee
(KETI, Korea)

10 Regional Concept Guidance for Controlling Object Leakage of Attribute (COLA) in Compositional Text-to-Image Diffusion Models
Subeen Lee, Dahwa Lee, Jinsu Kim, and Sangmook Kim
(Chungnam National University, Korea)

11 TileRefine: Slack-Constrained Residual Weight Refinement for Fixed-Stride FPGA CNN Inference
Seung Wook Oh, Min Kwon Choi, HyeonJin Sim, and Jae Wook Jeon
(Sungkyunkwan University, Korea)

12 VideoSeek: Dual-Memory Visual Retrieval for Long-Horizon Streaming Video Understanding
Yunseo Lee, Min-Soo Ko, and Jonghee Park
(KETI, Korea)

13 Effect of Tie-Breaking Direction on Sharpness in MultiDiffusion Latent Fusion
Jaeyeon Park, Taeho Lee, Jeonghun Jeong, and Yeong Jun Koh
(Chungnam National University, Korea)

14 LLM-Guided Semantic Topic Decomposition for Complementary Reranking in Knowledge-Graph Recommendation
Min-Soo Ko, Jonghoon Kwak, and Jonghee Park
(KETI, Korea)

15 OBJECH045: Airborne Ultrasonic Echo Dataset and Cross-SNR Benchmark for Discrimination
Manith Chenda and Sangwook Park
(Kangwon National University, Korea)

16 A Study on Physics-Informed Diffusion for Acoustic Data Augmentation
Dongjun Kim[1], Sung-Hoon Byun[2], and Sangwook Park[1]
([1]Kangwon National University, Korea, [2]Korea Research Institute of Ships & Ocean Engineering, Korea)

17 Hierarchical Object–Angle Classification of In-Air Ultrasonic Echoes Using Prototypical Networks
Yesol Jeon and Sangwook Park
(Kangwon National University, Korea)

18 A Distributed Rule-Based Multi-Agent Scheduling Scheme for QoS-Aware Traffic Management in AI-Native Networks
Hoon Kim[1] and Moon-Sik Kang[2]
([1]Incheon National University, Korea, [2]Kangwon National University, Korea)

19 PAGODA: Reinforcement Learning for Sequential Multi-Scale Navigation in Whole Slide Image Diagnosis
Hae-Won Hwang and Byung-Cheol Song
(Inha University, Korea)

20 Towards Robust Vision Transformers: Path Dependency Analysis and a Simple Two-Stage Adversarial Training
Seongmin Kim, Jung Woo Hong, and Byung Cheol Song
(Inha University, Korea)

21 Performance Characterization of FANNS-Based IVF-PQ Vector Search Toward FPGA Acceleration
Jung Hyun Oh, Min Kyu Lee, Yu Mi Kim, Dong Yeob Shin, and Seong Hyun Jang
(KETI, Korea)

22 A FeFET-based Approximate DCIM Integrating Multiplication and OR Addition In-Bitcell
Jangseok Yu and Jongsun Park
(Korea University, Korea)

23 Analog Shifting-Based Hybrid-Domain FP-CIM
June-yeop Kim and Jongsun Park
(Korea University, Korea)

24 A 12T SRAM Compute-in-Memory for BNN
Jaehwan Lim and Jongsun Park
(Korea University, Korea)

25 Missingness-Driven Interactive Resume Generation: An Agentic Application with a Synthetic Korean Benchmark
Ha Ji-lyang[1], Yoo Dong-hyun[2]
([1]Aiffel, Korea (South), [2]KB Insurance Co., Ltd., Korea (South))

26 Scheduler-Based Graph Execution and On-Chip Feature Reuse for Fast-SCNN Inference on FPGA
Min Kwon Choi, HyeonJin Sim, Seung Wook Oh, and Jae Wook Jeon
(Sungkyunkwan University, Korea)

27 Context-Guided Laggy Token Unmasking for Efficient Diffusion Language Model Inference
Jaeha Park and Sungju Ryu
(Sogang University, Korea)

28 Adaptive Weight Truncation for Calibration-Free Low-Bit LLM Inference on Edge Devices
Taejee Kim and Sungju Ryu
(Sogang University, Korea)

29 Vivid Color Optical Filters for Silicon Solar Cells Designed by Active Learning
SeokJin Kim and Eungkyu Lee
(Kyung Hee University, Korea)

30 SYMBA: A 65nm Symbolic Interval Computing Accelerator for Robust Edge AI
Byeongseon Choi, Sanghyun Kim, and Minkyu Je
(KAIST, Korea)

31 Range-Constrained I-EXP Hardware for Efficient Integer-Only Softmax in Edge Vision Transformers
Dogyun Bae[1], Yeri Kim[1], Edward Jongyoon Choi[2], and Minkyu Je[1]
([1]KAIST, Korea, [2]Ewha Womans University, Korea)

32 Recurrent Refinement for Lightweight SUNet-Based X-Ray Image Restoration in Battery Inspection
Jeongsang Yu and Eungtae Kim
(Tech University of Korea, Korea)

33 Class-Conditional Patch-Memory Fusion for Open-Set Chip-Surface Defect Recognition
Jongho Lee, Junhwa Jeong, and Ickhyun Song
(Hanyang University, Korea)

34 Alpha-Sweep Ensemble of Intermediate Models for Self-Enhancing Gesture Recognition
Jong-Sung Kim
(ETRI, Korea)

35 Performance Changes on Existing Categories as Training Coverage Expands: A Study of INPFormer and Dinomaly
Gihyeon Min, Jeongeun Kim, Hongyeon Yu, Jiwon Park, Yun Ji Ban, and Seihyoung Lee
(ETRI, Korea)

36 **Research on User Interface Design of Women's Safety Apps - Taking Yusan as an Example**
Lingjing Zheng, Shiyi Huang, Yiting Zhang, Jiayi Zhou, and Haibiao Huang
(Chengyi College, Jimei University, China)

PS02

13:30~14:50 October 29, 2026 (Thursday)

Antigua Lobby

Chair: Gun Hwan Kim (Yonsei University)

01 **Segmentation Prior and Spatial Evidence Fusion for Image Manipulation Localization**
Seohyun Park, Hyein Park, and Junhwa Kim
(Konyang University, Korea)

02 **Reliability-Preserving Sparsity-Aware GEMV for Analog MRAM-PIM**
Hyunah Park, Gaeun Lee, and Minkyu Je
(KAIST, Korea)

03 **How Far Do Router Weights Alone Predict Routing Fragility in Mixture-of-Experts Quantization?**
Aeri Kim, Seonghyun Jang, Chanyung Kim, Sang-Seol Lee, and Sung-Joon Jang
(KETI, Korea)

04 **Explainable Multi-Expert Anomaly Detection with Soft Warnings for CNC Quality Inspection**
Seunghun You, Taerim Kim, and Chanho Eom
(Chung-Ang University, Korea)

05 **Edge-Based Plant Disease Monitoring with Local Large Language Model Assistance**
Taerim Kim, Seunghun You, and Chanho Eom
(Chung-Ang University, Korea)

06 **Analysis of Overcorrection in Class-Frequency-Adjusted RGB-NIR-Depth Material Segmentation**
Min-Jae Jeon[1], Young-Seo Kim[2], Seung-Yeop Baek[2], and Jong-Ok Kim[2]
([1]Chung-Ang University, Korea, [2]Korea University, Korea)

07 **DiffBMP: Differentiable Rendering with Bitmap Primitives**
Seongmin Hong, Junghun James Kim, Daehyeop Kim, Insoo Chung, and Se Young Chun
(Seoul National University, Korea)

08 Unlearning the Unpromptable: Prompt-free Instance Unlearning in Diffusion Models
Kyungryeol Lee, Kyeonghyun Lee, Seongmin Hong, Byung Hyun Lee, and Se Young Chun
(Seoul National University, Korea)

09 Performance Analysis of Deep Residual Networks in Fringe Field Effect Artifact Suppression under Changing Conditions
Seung-Hyuk Kim, Young-Seo Kim, and Jong-Ok Kim
(Korea University, Korea)

10 Scalability Analysis and Thermal-Bandwidth Integrated Optimization of Hardware-Constrained Attention Architectures and Dataflows
Sunghoon Kim, Hyunsik Eum, Eunyoung Kim, Seunghyeon Lee, and Taewook Kang
(Sungkyunkwan University, Korea)

11 Optimizing Scatter-Gather Direct Memory Access Controllers for Neural Network Accelerators in Consumer Devices
Shinyoung Kim, Junsu Heo, Jaesuk Lee, and Chester Sungchung Park
(Konkuk University, Korea)

12 Performance Characterization of Heterogeneous NPU/GPU LLM Serving in Micro Data Centers
Gyu-Woong Han, Taehyun Jeong, Aeri Kim, Dongyeob Shin, and Sang-Seol Lee
(KETI, Korea)

13 Face-to-Gesture Fusion for Nonverbal Visual Understanding
Jonghoon Kwak, Hye Rim Kim, and Jonghee Park
(KETI, Korea)

14 TSAT: A Temporal Similarity-Aware Tri-Path Accelerator for Diffusion Transformer Inference
Taekyung Kim and Joonsung Yang
(Yonsei University, Korea)

15 LoCA: Logic-Cone-Based RTL Augmentation for High-Quality Verilog Training Data
Sangmin Jo and Joon-sung Yang
(Yonsei University, Korea)

16 A Reconfigurable Systolic Array for Energy-Efficient LLM Decoding without Prefill Performance Loss
Jimin Shin and Joon-Sung Yang
(Yonsei University, Korea)

17 An Empirical Comparison of LLM Inference Performance on Bare-Metal and Virtualized NPU Deployments
Taehyun Jeong, Eunchong Lee, Minkyu Lee, Sung-Joon Jang, and Yumi Kim
(KETI, Korea)

18 A Lightweight YOLOv11 Detector for Steel Surface Defects
Tae-Kyung Oh, Chae-yeong Song, Sang-Seol Lee, Sung-Joon Jang, and Yumi Kim
(KETI, Korea)

19 An FP16 SIMD Special-Function Processor for Non-GEMM Operations in Forward-Forward On-Device Training
Seungju Lee and Byungsoo Kim
(KETI, Korea)

20 Resolution-Dependent Deployment and Performance Analysis of YOLOv8n-Pose on Edge TPU
Sujin Han, Sang-seol Lee, Eunchong Lee, Dong Yeob Shin, and Min Kyu Lee
(KETI, Korea)

21 Vertex Matching based on Motion-Adaptive Cost Function in V-DMC
Hyun-Ho Kim and Yong-Hwan Kim
(KETI, Korea)

22 Division-Free Mahalanobis Gating for DeepSORT Hardware Acceleration
Sun Yeop Kim and Chae Eun Rhee
(Hanyang University, Korea)

23 WiSh-DMSR: Wide–Shallow Capacity Allocation for Efficient Joint Bayer Demosaicing and Super-Resolution
Byeungseok Yoo and Dongsuk Jeon
(Seoul National University, Korea)

24 Source-Bound Image-to-Surface Overlay on a Single-Camera RGB Point-Cloud Carrier
Daeyoung Kim[1,2], Jongseok Lee[1], Byeongju Lim[1], Jitae Shin[2], and YoungJun Yoo[1]
([1]Korea Institute of Industrial Technology, Korea, [2]Sungkyunkwan University, Korea)

25 Narrowing the Selection Gap in Anchor-Based End-to-End Driving
Hye Hyeon Park and Jae Wook Jeon
(Sungkyunkwan University, Korea)

26 Estimation Plant Natural Frequency for Water Stress Detection
Hyun-ji Lee, Young-Jik Son, Sooeon Lee, Sunghyun Oh, Jongyun Kim, and Jong-Ok Kim
(Korea University, Korea)

27 DDS-Aware Per-Writer Receive-Path Protection via XDP and AF XDP for Zonal Architectures
Sang Joon Shin, Young Soo Do, Sung Bhin Oh, Minsoo Gu, and Jae Wook Jeon
(Sungkyunkwan University, Korea)

28 Comparing SOME/IP and DDS in an Automotive Middleware Laboratory: Design and Preliminary Evaluation
Chan Gyu Park, Beom Gi Suh, Seung Uk Son, Sung Bhin Oh, Young Soo Do, Young Min Kim, Chae Eun Lee, and Jae Wook Jeon
(Sungkyunkwan University, Korea)

29 From GPIO to FreeRTOS: A Cumulative VCU Project for Automotive Embedded Systems Education
Seung Uk Son, Young Soo Do, Sung Bhin Oh, and Jae Wook Jeon
(Sungkyunkwan University, Korea)

30 Guarded Marker-Assisted Reconfiguration of Time-Aware Shaping
Chaeeun Lee, Young Soo Do, Sung Bhin Oh, Young Min Kim, Beom Gi Suh, and Jae Wook Jeon
(Sungkyunkwan University, Korea)

31 A Methodology for Constructing a Korean–English Creative Art Structures Text-to-CadQuery Dataset
Jong Gook Ko and Su Woong Lee
(ETRI, Korea)

32 Decomposing Backbone and Adaptation Regret in Sensor Time-Series Model Selection
Jeongeun Kim, Hong Yeon Yu, Gihyeon Min, Aram Lee, Dong Hoon Son, and Seung Hun Oh
(ETRI, Korea)

33 SmolVLA for Language-Conditioned Driving: Matched-Input and Closed-Loop Evaluation
Sun Hong Jung, Young Hoon Suh, Hyo Jin Park, and Jae Wook Jeon
(Sungkyunkwan University, Korea)

34 An Online Geo-Localization System for Heterogeneous Surveillance Cameras Based on Geometric-Depth Ray Fusion
Hyein Jeong, Jaewon Lee, JongSeol Lee, and Dalwon Jang
(KETI, Korea)

35 Agentic AI-Based Closed-Loop Adaptive Music Recommendation via Context-Aware Human Activity and Implicit Feedback
Min-Seo Kim, Seung-Wan Ko, and Hyoung-Gook Kim
(Kwangwoon University, Korea)

36 Padding-Free Transposed Convolution with Parity-Selected Weight Access for CNN Accelerators
Eunchong Lee, Chanyung Kim, Yumi Kim, Sung-Joon Jang, and Sang-Seol Lee
(KETI, Korea)

PS03

15:10~16:25 October 29, 2026 (Thursday)

Antigua Lobby

Chair: Younghyun Lim (Kyung Hee University)

01 Teaching AUTOSAR Classic Through a Progressive EB tresos Laboratory: Curriculum Design and Pre/Post Evaluation
Sang Joon Shin, Beom Gi Suh, Sung Bhin Oh, Young Soo Do, and Jae Wook Jeon
(Sungkyunkwan University, Korea)

02 Preemption-Aware Release Windows for CAN-over-TSN Gateways
Dong min Seok, Young Soo Do, Sung Bhin Oh, and Jae Wook Jeon
(Sungkyunkwan University, Korea)

03 A Blended Learning Framework for Automotive CAN Education
Dong min Seok, Young Min Kim, Sang Joon Shin, Seung Uk Son, and Jae Wook Jeon
(Sungkyunkwan University, Korea)

04 Startup Latency of the Zenoh Middleware on an Automotive Ethernet Testbed
Beom Gi Suh, Sung Bhin Oh, Seung Uk Son, and Jae Wook Jeon
(Sungkyunkwan University, Korea)

05 Camera-Only Semantic Geometry and Finite-State Control for Autonomous Parking
Min Soo Kim, Seung Yun Noh, Hye Hyeon Park, Hyo Jin Park, Min Young Chung, and Jae Wook Jeon
(Sungkyunkwan University, Korea)

06 A Single-Session Practicum in Automotive Perception, In-Vehicle Networking, and Actuation: Design and Matched Pre-Post Evaluation
Do Hyeong Kwon, Jae Hun Kang, Hye Jun Hong, Min Young Chung, and Jae Wook Jeon
(Sungkyunkwan University, Korea)

07 A Resource-Shared INT8 FPGA Datapath for Dual-Task Driving-Scene Segmentation
HyeonJin Sim, Min Kwon Choi, Seung Wook Oh, Hyo Jin Park, Seung Yun Noh, and Jae Wook Jeon
(Sungkyunkwan University, Korea)

08 Teaching Vehicle Diagnostics and OTA Updates: A Blended Short Course for Undergraduates and Industry Engineers
Sung Bhin Oh, Young Soo Do, Beom Gi Suh, Young Min Kim, and Jae Wook Jeon
(Sungkyunkwan University, Korea)

09 Ownership and Access Policy Determine Shared-Object Placement Cost on a Non-Coherent Automotive Gateway MCU
Seung Min Ma, Beom Gi Suh, Young Soo Do, Sung Bhin Oh, Min Young Chung, and Jae Wook Jeon
(Sungkyunkwan University, Korea)

10 Priority-Aware HP-AP-LET with Selective Early Transmission for In-Vehicle Middleware
YoungSoo Do, Sung Bhin Oh, Beom Gi Suh, Young Min Kim, and Jae Wook Jeon
(Sungkyunkwan University, Korea)

11 PHY-Quality-Aware Advance Redundancy Preparation for IEEE 802.1CB FRER
Young Min Kim, Young Soo Do, Sung Bhin Oh, Beom Gi Suh, Chae Eun Lee, Seung Uk Son, Chan Gyu Park, and Jae Wook Jeon
(Sungkyunkwan University, Korea)

12 A Stochastic Dyadic Green's Function Model for Internally Excited Aperture-Coupled Cavities
Doyeon Won, Kyungrok Lee, Sangbin Lee, Sonapreetha Mohan Radha, and Sanghoek Kim
(Kyung Hee University, Korea)

13 Accelerated MR T1 Mapping via Model-Based SMS-Hankel Subspace Learning
Jae-Ho Han
(Korea University, Korea)

14 A Direct-Conversion Continuous-Time NS-SAR ADC for Bio-Signal Acquisition via a Passive Second-Order Post-Shaper
Raiyan Hasan, Seungjun Park, and Minkyu Je
(KAIST, Korea)

15 A CMOS Hybrid System for Non-Invasive Hemoglobin and Oxygen Saturation Monitoring
Hyunjin Park, Hoyoung Gong, and Minkyu Je
(KAIST, Korea)

16 A Two-electrode Bio-impedance Readout IC with Current Mismatch Cancellation and 60-Hz CMI Rejection Loop
Hoyoung Gong and Minkyu Je
(KAIST, Korea)

17 A 351 mW Ultrasonic Power Management IC With Integrated Battery Monitoring for Implantable Devices
Chang-seok Lee, Jae-jun Lee, and Minkyu Je
(KAIST, Korea)

18 Low-Noise Low-Power Capacitively-Coupled Instrumentation Amplifier with Current-Reuse Topology
Yoonjung Choi, Seungjun Park, and Minkyu Je
(KAIST, Korea)

19 An FPGA-Based AI Accelerator for Contactless Radar HRV Monitoring
Jaeyong Ahn, Sang-Seol Lee, Eunchong Lee, Dongyeob Shin, and Seonghyun Jang
(KETI, Korea)

20 A Duty-Cycled Electrical Impedance Tomography System for Wearable Gesture Recognition
Jaegeun Lee, Haidam Choi, and Minkyu Je
(KAIST, Korea)

21 A 1.2-V, 93.6-dB SNDR Sigma-Delta Modulator with Offset-Insensitive Quantization and SC Feedback for Sensor Applications
Ghayur Hussain, Nguyen Van Quang, and Kang-Yoon Lee
(Sungkyunkwan University, Korea)

22 A 1.1-V MOS-Only PTAT Generator With a 610-mV Output Swing, Two-Point Trimming, and Mid-Temperature Compensation
Dong-Woon Jeon, Jeabin Kim, and Kang-Yoon Lee
(Sungkyunkwan University, Korea)

23 Design and Unit-Cell Verification of an Integrated Temperature-Compensation Architecture for Digital Silicon Photomultipliers in Harsh Environments
Jin-Seok Oh[1], Seo-Ryong Koo[2], and Inyong Kwon[3]
([1]Korea University of Science and Technology, Korea, [2]Korea Atomic Energy Research Institute, Korea, [3]Yonsei University, Korea)

24 An Overview of ADC Architectures and Techniques for Biomedical and Sensor
Hyeon-Bin Park[1], Edward Jong-yoon Choi[2], and Min-kyu Je[1]
([1]KAIST, Korea, [2]Ewha Womans University, Korea)

25 Research on Comparative Analysis of Rule-Driven Narrative-Driven and AI-Enhanced NPC Interaction Design in RPGs
Junxiong Jiang and Jun He
(Fuzhou University, China)

26 A Real-Time Volumetric Media Streaming System for Immersive XR with Dynamic Point-Cloud Objects
SangBum Lee[1], JunHwan Jang[2], and WooChool Park[2]
([1]iMBC, Korea, [2]KETI, Korea)

27 Minimum Necessary Assistance: An Adaptive Assistance-Dose Regulation Framework for AI Game Assistants
Zhuofan Zhang and Jun He
(Fuzhou University, China)

28 A Mobile AR Tangible Card Game Framework for Preschool Mathematics Learning Based on Consumer Devices
Shengfen Zhang and Jun He
(Fuzhou University, China)

29 Research on the Design of Behavior Perception and Intervention Model for Intelligent AI Assistants in Competitive Mobile MOBA Games
Yiwei Shu and Jun He
(Fuzhou University, China)

30 From "Game Feel" to "Game Healing": Designing Haptic Feedback Patterns for Emotional Regulation in Therapeutic Gaming
Jie Zheng[1] and Jun He[2]
([1]Xiamen Institute of Technology, China, [2]Fuzhou University, China)

31 Large Language Model Assisted Construction of a Competency Knowledge Graph for Generative Artificial Intelligence Driven Film and Tourism Digital Content Jobs
Nan Zhang[1] and Jun He[2]
([1]Xiamen Institute of Technology, China, [2]Fuzhou University, China)

32 AIGC-Empowered AR Education for Lacquer Thread Sculpture: A Development Path Study
Haibiao Huang[1], Lingjing Zheng[1], and Jun He[2]
([1]Chengyi College, Jimei University, China, [2]Fuzhou University, China)

33 A study on the learning promotion effect of auditory feedback in educational games
Meiqi Yi[1] and Jun He[2]
([1]Xiamen Institute of Technology, China, [2]Fuzhou University, China)

34 **Efficient Point-Cloud Range Filtering on a VLIW DSP**
Hee Sik Kwon, Kyungho Kim, Yumi Kim, Aeri Kim, and Sang-Seol Lee
(KETI, Korea)

35 **Adaptive Rule-Based Captioning for Senior-Specialized Text-to-Image Generation: A Case Study on the KS-KEIT Dataset**
Ah Reum Oh, Wooseok Song, Choi JoongYong, and Hyunjoo Kim
(ETRI, Korea)

36 **Research on Collaborative Adaptation of Delayed Feedback Mechanism and Flow System in Game Design**
Shuai Zheng[1] and Jun He[2]
([1]University of Xiamen Huaxia & Xiamen Huaxia University, China, [2]Fuzhou University, China)

37 **A Zener-Based High-Voltage Bias Generation Circuit for Reliable Gate Biasing of LDMOS Transistors**
Sujin Baek, Siyeon Choi, and Jungsik Kim
(Hanbat National University, Korea)

PS04 (incl. Undergraduate Poster Session Track 10)

09:00~10:15 October 30, 2026 (Friday)

Antigua Lobby

Chair: Jeong Hoan Park (Kyung Hee University)

01 **A Cross-Sequence Audit of Output-Based Routing Between HSMR and D-PoSE on 3DPW**
Geonwoo Lim, Wonseo Choi, and Jinho Lee
(Tech University of Korea, Korea)

02 **Association between LED Lighting Placement, Gaze Behavior, and Whole-Body Movement during Car Ingress**
Hayuma Yoshitani[1], Eisuke Okane[2], Tomokazu Furuya[1], Ryotaro Waki[2], Sota Hirosaki[2], and Takahiro Higuchi[2]
([1]Tokyo Metropolitan College of Industrial Technology, Japan, [2]Tokyo Metropolitan University, Japan)

03 **Quantitative Analysis of Nasal Comedones Using Smartphone UV Imaging with Focus Stacking for Acne Care**
Haruto Yuzawa, Sota Watanabe, and Makoto Hasegawa
(Tokyo Denki University, Japan)

04 Generating Target Skin Images Using Inpainting and Deep Learning to Boost Skincare Motivation
Reina Kato[1], Kensuke Yotsumoto[2], Mizuho Kokubo[2], and Makoto Hasegawa[1]
([1]Tokyo Denki University, Japan, [2]ALBION Co., Ltd., Japan)

05 Tongue Edema Measurement via Inpainting and Deep Learning Analysis of Tooth Marks
Risa Ishiko, Haruaki Fukui, and Makoto Hasegawa
(Tokyo Denki University, Japan)

06 A Smart Wearable Visual Pacemaker with Active Gimbal Stabilization for Personalized Running Training
Kyungbin Park, Seokwon Jeong, Wonjong Kim, and Yewon Son
(Korea University of Technology and Education, Korea (South))

07 Research on the Application of Chinese Shadow Puppetry in Game Character Design and Dynamic Expression
Yijing Wang and Jun He
(Fuzhou University, China)

08 A 1.8-V-Input 0.45-to-1.6-V-Output 95.3% Efficiency 3.18W/mm^3 Dual-Mode Triple-Path Hybrid Buck Converter with Inductor and Flying-Capacitor Current Bounding and Seamless DVS
Chanwoo Jeong and Yoonmyung Lee
(Sungkyunkwan University, Korea)

09 An Ultra-Low-Power Static Contention-Free Dual-Edge-Triggered Flip-Flop with Four Clock Loads in 28-nm LP CMOS
Junhae Lee and Yoonmyung Lee
(Sungkyunkwan University, Korea)

10 A Reconfigurable Offset-Cancelled Sense Amplifier for Robust High-Speed Read and In Situ Write Termination in STT-MRAM
Jaeha Ryoo[1], Donguk Seo[2], and Yoonmyung Lee[1]
([1]Sungkyunkwan University, Korea, [2]University of Michigan, USA)

11 A Capacitor-Less PMOS LDO with Pass-Stage Feedthrough Suppression Beyond the Main-Loop Bandwidth
Byungjae Kwag and Kunhee Cho
(Sungkyunkwan University, Korea)

12 Non-Destructive, Evidence-Graded Metadata Registration for Consumer Media Libraries
Chan-Woo Park, Seohyun Baek, Hee-Kwon Kim, and Jae-Ho Lee
(ETRI, Korea)

13 Advanced Integration Laboratories for Teaching Zonal Automotive E/E Architecture
Chaeeun Lee, Minsoo Gu, Beom Gi Suh, Young Soo Do, Sung Bhin Oh, and Jae Wook Jeon
(Sungkyunkwan University, Korea)

14 A Unified Flash-Image Deployment Method for Reproducing FPGA-Based Embedded Systems
Mijeong Park, Kyuseung Han, Jae-Jin Lee, and Hyeonguk Jang
(ETRI, Korea)

15 Design and Outcomes of a Short-Course Curriculum for Autonomous Driving Software Education
Hye Jun Hong, Hyo Jin Park, Hye Hyeon Park, and Jae Wook Jeon
(Sungkyunkwan University, Korea)

16 Hardware-Aware Analysis of Union-Find Decoders for Real-Time Quantum Error Correction
Youngchul Kim and Gyuil Cha
(ETRI, Korea)

17 Implementation and Practical-Biasing Analysis of a 56-Gb/s CTLE-DFE Receiver in 28-nm CMOS
Jeongeun Kim, Hoyoung Gong, and Minkyu Je
(KAIST, Korea)

18 Emulating Rydberg Array Dynamics with SpaceQat
Enhyeok Jang[1], Chen Huang[2], Xiangyu Ren[3], Zhemin Zhang[4], Boxi Li[5], Zhiding Liang[2], and Won Woo Ro[1]
([1]Yonsei University, Korea, [2]The Chinese University of Hong Kong, China, [3]The University of Edinburgh, UK, [4]Open Quantum Intelligence, China, [5]RIKEN, Japan)

19 Finite Rydberg Reservoirs: Coherent Finishing and Source Recharge
Seungjik Kim and Won Woo Ro
(Yonsei University, Korea)

20 A 32-Channel Cochlear Implant Platform Speech Coding and Early Clinical Experience
Kyou-Sik Min
(TODOC Co., Ltd., Korea)

21 Online Local Ground-Plane Estimation for LiDAR-Based Waypoint Navigation
Seung Yun Noh, Hyo Jin Park, and Jae Wook Jeon
(Sungkyunkwan University, Korea)

22 A Standardized Test Method and Metric Benchmark for Imitation-Learning-Based Robotic Assembly
Mingi Jung, Seongsu Kim, Seungwon Lee, and Jongbum Park
(KETI, Korea)

23 ROS2-Based Mobility System Integration: Curriculum Design and Empirical Evaluation
Hye Hyeon Park, Seung Yun Noh, Sun Hong Jung, and Jae Wook Jeon
(Seoul National University, Korea)

24 Physics-Aware LLM Orchestration for Heterogeneous Multi-Robot Teams
Sanghoon Lee and Seong-Woo Kim
(Seoul National University, Korea)

25 Tactile-Guided Residual Reinforcement Learning for Precise Connector Insertion
Seongsu Kim, Jusung Kim, Mingi Jung, Seungwon Lee, and Jongbum Park
(KETI, Korea)

26 WEDrive: Weather-Embedding Guided End-to-End Driving under Adverse Weather
Do Yeon Koo[1], Ki Ryum Moon[1], Jin Bok Park[2], and Il Yong Chun[1]
([1]Seoul National University, Korea, [2]SL Corporation, Korea)

27 A 12-bit 12.5-MS/s SAR ADC With Lightweight ANN-Based Digital Calibration
Nguyen Van Quang, Ghayur Hussain, and Kang Yoon Lee
(Sungkyunkwan University, Korea)

28 Neutron-Irradiation Robustness of a 20 MHz Coarse-Fine Tunable CMOS Ring Oscillator
Ilhyung Cho and Inyong Kwon
(Yonsei University, Korea)

29 LEO Doppler Matching from Power Spectrum Data with Continuity-Based Segmentation and Multi-Position Clock Offset Estimation
Gaeun Kim[1], Seunghyeon Park[1], and Jongmin Park[2]
([1]Yonsei University, Korea, [2]Danam Systems Inc., Korea)

30 Lunar Surface Receiver Clock Synchronization Using GNSS and Satellite Nadir Angle
Minju Han[1], Seunghyeon Park[1], and Joon Hyo Rhee[2]
([1]Yonsei University, Korea, [2]Korea Research Institute of Standards and Science, Korea)

31 SIMD Acceleration of Point Cloud Preprocessing Using Arm NEON
Hee Sik Kwon, Kyungho Kim, Sang-Seol Lee, Chanyung Kim, and Dongyeob Shin
(KETI, Korea)

32 **Self-Adaptive Izhikevich Neuron with Input-Driven Continuous Parameter Modulation**
Mijeong Park, Jae-Jin Lee, and Kyuseung Han
(ETRI, Korea)

33 **A Distributed-Gain Analog Front-End for Interference-Resilient Sub-mV Detection**
Sung-Eun Kim[1,2], Kwang-Il Oh[1], Taewook Kang[1], Hyung-Il Park[1], Byeong-Gyu Nam[2], and Jae-Jin Lee[1]
([1]ETRI, Korea, [2]Chungnam National University, Korea)

34 **Paired Evaluation of Reader- and Question-Level Response Information for Eye-Tracking-Based Reading-Comprehension Prediction**
Hyunsu Go[1], Sumin Lee[1], Kyeonghun Kim[2], Subeen Lee[1], Eunseob Choi[3], Ken Ying-Kai Liao[4], and Nam-Joon Kim[1]
([1]Seoul National University, Korea, [2]OUTTA, Korea, [3]GIST, Korea, [4]NVIDIA, USA)

35 **SpecLite: Resource-Efficient Hyperspectral Classification with Fourfold Spectral Band Reduction**
Yului Jeong[1], Kyeonghun Kim[2], Youngung Han[1], Ken Ying-Kai Liao[3], and Nam-Joon Kim[1]
([1]Seoul National University, Korea, [2]OUTTA, Korea, [3]NVIDIA, USA)

36 **SpecRule: Automated Discovery of Interpretable Spectral Rules for Hyperspectral Classification**
Yului Jeong[1], Kyeonghun Kim[2], Youngseo Kim[1], Yunjin Seo[1], Youngung Han[1], Haram Park[1], Junhan Kim[3], Minjun Yoo[1], Giseong Hwang[4], Jinyong Jun[1], Ken Ying-Kai Liao[5], and Nam-Joon Kim[1]
([1]Seoul National University, Korea, [2]OUTTA, Korea, [3]Kyungpook National University, Korea, [4]Soonchunhyang University, Korea, [5]NVIDIA, USA)

PS05

10:25~11:40 October 30, 2026 (Friday)

Antigua Lobby

Chair: Se Jin Park (Kyung Hee University)

01 **On-Chip Pixelized Histogramming Using Application-Specific SRAM for Multi-Channel Radiation Detectors**
Seungwon Park and Inyong Kwon
(Yonsei University, Korea)

02 Experimental Evaluation of Detector Capacitance Compensation for SiPM Readout
Habin Kim and Inyong Kwon
(Yonsei University, Korea)

03 Linearity Enhancement of a Switched-Capacitor Amplifier for Neuromorphic Synaptic Accumulation
Kyu-Dong Hwang, Kwang-Il Oh, and Jae-Jin Lee
(ETRI, Korea)

04 Fully Foundry Fab-compatible materials based Memristors and 1T1R Arrays in an 8-Inch 180-nm CMOS Foundry Process
WooSeok Kim, Heesoo Yang, Woo-Suk Sul, and Kanghyeok Jeon
(National Nanofab Center, Korea)

05 Metastability-Based Early-Termination Technique for an Asynchronous SAR ADC
Dohee Kim[1], Heewon Choee[1], Edward Jongyoon Choi[2], and Minkyu Je[1]
([1]KAIST, Korea, [2]Ewha Womans University, Korea)

06 7T 1C SRAM-Based Charge-Domain CIM with Gain/Offset Error Auto-Compensated SAR ADC
Hyunho Kim, Jaeyeong Park, and Yong Shim
(Chung-Ang University, Korea)

07 Self-Gradient-Updating SRAM-Based Processing-In-Memory Engine for Continual On-Device Learning in Edge AI
Jongho Kim[1], Jaegeon Lee[1], Yoontae Jung[2], and Minkyu Je[1]
([1]KAIST, Korea, [2]Kyung Hee University, Korea)

08 An Energy-Efficient Stochastic-Bit-Based CMOS Ising Machine for Graph Coloring
Hakrae Yu, Hyeonjun Nam, and Yong Shim
(Chung-Ang University, Korea)

09 An Area-Efficient Source Driver IC with Gamma Voltage Driving for Mobile AMOLEDs
Jaewoong Ahn, Jun-Yeol An, Seo-Young Lee, and Hyung-Min Lee
(Korea University, Korea)

10 Trends and Design Considerations of Noise-Shaping SAR ADCs for Biopotential Signal Acquisition
Jaejun Lee and Minkyu Je
(KAIST, Korea)

11 **Boundary Conditions for Leafcell-Level Decomposed Timing Characterization of an SRAM Macro**
Sejun Park, Gwanwoo Park, Mingeun Song, Donghyeon Ko, and Hanwool Jeong
(Yonsei University, Korea)

12 **Machine Learning-Driven Selection of SRAM Assist Circuits and Automated SRAM Optimization**
Jihwan Song, Jaehyeon Woo, Younghoon Choi, Seungwon Son, and Hanwool Jeong
(Yonsei University, Korea)

13 **A Touch Sensor IC with Current-Mode Readout Front-End**
Jun-Yeol An, Jaewoong Ahn, Seo-Young Lee, and Hyung-Min Lee
(Korea University, Korea)

14 **A Two-Step All-Digital Delay-Locked Loop with Half-Period Coarse Acquisition and Minimum-Delay Fine Initialization**
EuiJin Jang[1], Hokeun Kim[2], and Ickhyun Song[1]
([1]Hanyang University, Korea, [2]Arizona State University, USA)

15 **Broadband CMOS Active Pixel Sensor Enabled by Sub-Boltzmann Switching**
Anupom Devnath, Yongjun Kim, Hwiwoo Lim, Seungwoo Moon, Junseong Bae, and Seunghyun Lee
(Kyung Hee University, Korea)

16 **TA-Quatro: Soft Error-Resilient ADC-Less SRAM for Binary-Weight and Ternary-Activation IMC**
Tony Tae-Hyoung Kim[1], IK Joon Chang[2], and Sangdong Lee[2]
([1]Nanyang Technological University, Singapore, [2]Kyung Hee University, Korea)

17 **Channel-All-Around Ferroelectric Charge-Trap Flash Devices with Gate Injection**
Min Sung Kim[1], Gihong Park[1], Jongyoon Kim[1], Minsuk Koo[1,2], and Yoon Kim[1,2]
([1]University of Seoul, Korea, [2]IM Electronics Co., Korea)

18 **Double Gate Control of MoS_2 Charge Trap Flash Synapse Array For Neuromorphic Learning**
Byeongho Yun[1], Bumsik Sim[1], Gidan Shim[1], Gyeongdeok Seo[1], Minsuk Koo[1,2], Taewan Kim[1], and Yoon Kim[1,2]
([1]University of Seoul, Korea, [2]IM Electronics Co., Korea)

19 **Unifying Reservoir and Readout Layers in a Single 1M1T Synaptic Cell Through Gate-Node RC Delay**
Eunjoo Yoo, Yun-Seo Shin, Ki-Hoon Son, Hyun-Sik Kim, Dae-Hee Han, Jeong Hyeon Son, Seung Hwan Lee, and Hong-Sub Lee
(Kyung Hee University, Korea)

20 Electro-Thermal Co-Optimization of HBM Hybrid Bonding Pads for Mitigating Current Crowding via Chamfered Shapes
Seojin Lee, Dongsun Lee, Seungwon Park, and Taewook Kang
(Sungkyunkwan University, Korea)

21 Compact Modeling of Word-Line Position and Channel-Hole Taper Effects in 3D-NAND Strings
Jiwon Kang, Gihong Park, Jung Nam Kim, Minsuk Koo, and Yoon Kim
(University of Seoul, Korea)

22 Frequency–Dependent Negative Capacitance in a Fully Si–Compatible Resistive–Switching Random Access Memory (RRAM)
Euni Ko and Seongjae Cho
(Ewha Womans University, Korea)

23 A Comprehensive One-Dimensional Energy-Band Simulator for Multilayer Semiconductor Structures
Erica Soomin Kim and Seongjae Cho
(Ewha Womans University, Korea)

24 A Measurement Test Platform for Cell-Granular Program-and-Verify of RRAM Arrays
Tu Tien Ngo[1], Dai Yun[1], Seungman Hong[1], Hyeonwook Kim[1], Hyejin Jo[1], Hyeonchang Choi[1], Namjoo Jung[1], Youngik Kim[1], Jaesung Lee[1], Kitae Park[2], Sola Moon[2], Tae-Sik Yoon[2], and Kyeong-Sik Min[1]
([1]Kookmin University, Korea, [2]UNIST, Korea)

25 Beyond Truncation: Filter–Generator Token Mismatch in Korean Text-to-Image Safety Pipelines
Myeongsub Jeong, Jimin Woo, Taewook Kim, Hyeonwoo Lee, Hyunjun Lee, and Jong-Ryul Lee
(Chungnam National University, Korea)

26 A 2.4-GHz Passive Quadrature Front-End for BLE Auth Path Receivers
Hui-Rak Choi, Ji-Sung Jang, and Kang-Yoon Lee
(Sungkyunkwan University, Korea)

27 Design and Implementation of a 24 GHz 2T2R MIMO Radar Module with Off-Chip PLL Synthesizer
Yejin Choi, Youngjin Cho, Jinho Kim, Ki-jin Kim, and Soo-chang Chae
(KETI, Korea)

28 A 6-Bit 500-MHz Flash ADC With Pipelined Encoders
Seungjun Park and Minkyu Je
(KAIST, Korea)

29 An Analysis of Inter-Domain Coordination in SFC-Based Network Slicing for LEO Satellite Networks
Donghyun Kim[1], Dabeen Yun[1], and Sunghyun Cho[2]
([1]Hanyang University, Korea, [2]Hanyang University ERICA, Korea)

30 A Dual-Path Phase Interpolator with Enhanced Linearity for Clock and Data Recovery
Hyeonho Lee, Sujin Jo, and Jong-Hyeok Yoon
(DGIST, Korea)

31 Quantum State Preparation for Statistical Electromagnetic Analysis
Yoonhee Son, Kyungrok Lee, and Sanghoek Kim
(Kyung Hee University, Korea)

32 Precision-First Dual-Model Arbitration for On-Premises Korean Meeting Transcription
Hee-Kwon Kim, Seohyun Baek, Chan-Woo Park, and Jae-Ho Lee
(ETRI, Korea)

33 Power consumption control for plant factories
Hayoung Boo[1], Seong-min Kim[2], and Junghoon Lee[1]
([1]Jeju National University, Korea, [2]A1mobilsoft, LTD, Korea)

Gangneung Travel Guide

01_ Gyeongpo Beach

Korea's Premier Summer Beach Destination

Gyeongpo Beach is one of Korea's most iconic beaches, drawing around 500,000 visitors every summer and ranking among Gangneung's leading attractions.

The beach is well equipped with parking, restrooms, and a nursing room, and the pine forest, campgrounds, and camping sites nearby make it easy to pair sea bathing with a walk through the woods. Each summer the beach also comes alive with local festivals and events, including a summer festival, an air show, and a fireworks display.

Designated a provincial park in June 1982, Gyeongpo Beach lies close to several other notable sights, including Gyeongpodae Pavilion, Lake Gyeongpo, Ojukheon House, the Chamsori Gramophone & Edison Science Museum, and Anmok Coffee Street.

02_ Ojukheon House

Birthplace of Sinsaimdang and the Confucian Scholar Yulgok Yi I

Located in Jukheon-dong, Gangneung, Ojukheon House is the historic home where Sinsaimdang — revered in Korea as an accomplished artist and exemplary mother — and her son, the celebrated Confucian scholar Yulgok (栗谷) Yi I (李珥), were born. A rare surviving wooden dwelling from the Joseon dynasty, it is designated Korean Treasure No. 165.

The house was originally built by the Joseon official Choi Chi-un (崔致雲, 1390–1440). It later

took the name by which it is known today after Kwon Cheo-gyun (權處均), struck by the black bamboo growing as dark and dense as crows around the property, adopted "Ojukheon" ("House of the Black Bamboo") as his pen name. The grounds include Eojegak Hall, home to Yulgok's inkstone and his writings Gyeokmongyogyeol; Munseongsa Shrine and Mongnyongsil, where his portrait is enshrined; and a 600-year-old plum tree said to have been tended by Sinsaimdang and Yulgok themselves, designated Natural Monument No. 484.
The site also houses the Yulgok Memorial Hall, a folk museum, the Gangneung City Museum, and a character-education center dedicated to Yulgok's teachings.

03_ Anmok Coffee Street

Where the Aroma of Coffee Runs as Deep as the East Sea

Located along Changhae-ro in Gyeonso-dong, Anmok Coffee Street traces its origins to a humble vending-machine coffee stand near a public restroom, which word of mouth soon turned into a destination in its own right.
In the early 2000s, Korea's first generation of professional baristas settled in Gangneung, helping the city grow into the country's coffee capital. The row of oceanfront cafés lining Anmok Port gained even wider recognition after being featured on the KBS variety show 1 Night 2 Days.
Gangneung was the first local government in Korea to host an annual coffee festival, held every October, and Anmok Coffee Street continues to host concerts, coffee-making experiences, and other cultural events large and small throughout the year. Visitors can enjoy a cup of coffee while taking in the charm of Anmok Beach, and the area connects to Anmok Port (Gangneung Port) and Section 5 of the Baugil Trail, making it a year-round destination for families and couples alike. Nearby attractions include Gyeongpodae Pavilion, Gyeongpo Beach, the Bohemian Coffee Factory, and Terarosa.

04_ Coffee Cupper Museum, Wangsan Branch

The Coffee Cupper Museum is Korea's largest coffee museum, housing a rare and wide-ranging collection of coffee artifacts from around the world that trace the history and culture of coffee. It is also a working space where visitors can grow coffee plants and learn about roasting firsthand.
Founded in 2000, the museum signed a memorandum of understanding with the government of Mangshi, China in 2011, laying the groundwork for its expansion into mainland China, and went on to open an international coffee museum in Mangshi in 2016.
The museum is organized into five halls: Hall 1 traces the history of coffee; Hall 2 displays early roasters and grinders; Hall 3, Coffee Makers, showcases brewing equipment prized for both performance and design; Hall 4 is a greenhouse home to Korea's oldest coffee trees; and Hall 5 offers a hands-on coffee experience, where visitors who present their admission ticket can enjoy a complimentary cup. Coffee cherries harvested from the museum's own farm are celebrated each year at a coffee tree festival, and the on-site café invites visitors to unwind over a cup of coffee to the sound of the Wangsan valley stream.

05_ Jeongdong Simgok Badabuchae-gil (Sea-Fan Path)

A Coastal Trail Through Jeongdongjin's Untouched Marine Terraces

The name "Jeongdong Simgok Badabuchae-gil" combines "Jeongdong," meaning due east of Hanyang (the historic capital, now Seoul), and "Simgok," meaning a village nestled in a deep valley. The trail takes its final name, roughly "sea-fan path," from the shape of its "fan-edge" terrain, which unfolds toward the sea like an open fan.

Designated Natural Monument No. 437, this is Korea's only coastal marine terrace where visitors can observe traces of tectonic movement dating back 23 million years, holding within it the secret of how the East Sea was born. The roughly 2.86-kilometer trail, running from the parking lot at Jeongdongjin Sun Cruise to Simgok Port, offers sweeping views of the deep blue waters of the East Sea and the dramatic rock formations along the coast. Long used solely as a military patrol route for coastal defense, the path remained closed to the public for decades, leaving its pristine scenery remarkably untouched.

From the observation deck in front of Buchaebawi (Fan Rock), visitors can take in the full sweep of the trail in both directions, while the Simgokbada observation point near the entrance to Simgok Port frames Simgok Port and Heonhwa-ro Road to the right, the trail and its striking rock formations to the left, and the open expanse of the East Sea straight ahead — a view that never fails to draw gasps of admiration from visitors.

06_ Aranabi Zipline

Soar Like a Butterfly Over Namhangjin Beach

Located on Gonghang-gil in Namhangjin, Gangneung, Aranabi takes its name from a blend of the pure Korean words for "sea" (ara) and "butterfly" (nabi) — a zipline experience built around the idea of flying over the sea like a butterfly.

Korea's first zipline built over open water, Aranabi has been certified for safety by the Korea Transportation Safety Authority and welcomes riders of all ages, in every season. It is also unique among ziplines of its kind in offering a tandem-ride option. Riders take in the beauty of Namhangjin Beach as they soar, adding an extra thrill to the experience. Nearby attractions include Anmok Coffee Street, Gyeongpodae Pavilion, Lake Gyeongpo, Gyeongpo Beach, and Ojukheon House.

07_ Daegwallyeong National Healing Forest

A Natural Wellness Retreat in the Daegwallyeong Highlands

Daegwallyeong National Healing Forest was created to draw on the many natural elements of the forest to promote well-being and strengthen the body's immune function. Its healing qualities come from a combination of scenery, phytoncides, negative ions, oxygen, natural sound, and sunlight found throughout the woods.

Forest healing is known to ease depressive symptoms and lower blood pressure, support faster recovery after surgery, and bring positive relief to conditions such as atopic dermatitis and asthma. Programs are led by certified Level 1 and Level 2 forest healing instructors, and facilities are in place to measure and evaluate their effects. A barrier-free healing deck within the forest allows access for visitors with disabilities and older adults, and tailored forest healing programs designed to support physical and mental recovery are also planned.

Designated by the Korea Forest Service as the nation's fourth official healing forest, the site includes a healing center with health-assessment facilities, program rooms, and a lecture hall, along with a meditation hut, a 5.2-kilometer healing trail, and a 0.6-kilometer healing deck. The forest also runs a prenatal forest program for expectant mothers, a forest school for young people, and other healing programs; participants have their blood pressure, pulse, and stress levels measured before joining the program best suited to them.

08_ Anbandegi

The Village Above the Clouds, Where the Sky Begins

Sitting at an elevation of 1,100 meters, Anbandegi takes its name from the local Gangneung dialect for "anbandeok," describing land as broad and shallow-bowled as an anban — the wooden block once used with a mallet to pound rice into rice cakes.

The reclamation of this state-owned land was approved in 1965, and the area, first used to grow potatoes and medicinal herbs, has since grown into the largest highland vegetable-farming region in the country, now home to some 30 farming households. The steep terrain rules out mechanized farming, so cattle are still used to work the fields, and the highland cabbage grown here through the sweat and labor of local farmers has earned recognition as some of the finest in the country. Set against the rugged Baekdudaegan mountain range, where spring arrives slowly and winter comes early, Anbandegi's sweeping grasslands take on a strikingly different character with each season. Other sights in the area include the Slash-and-Burn Farmers' Museum, which portrays the daily life and hardships of slash-and-burn farmers in the 1970s and 1980s; Unyuchon Village, a cluster of restored log cabins now home to guesthouses with traditional heated-floor rooms and restaurants; and Myeonge Observatory, which offers sweeping views over downtown Gangneung and the East Sea.
Designated by the Ministry of the Interior and Safety as one of Korea's 'green roads worth visiting,' Anbandegi is known for its exotic, tranquil scenery, drawing photographers from across the country and earning a reputation as a prime spot for sunrise and seas of cloud.

09_ Gangneung Unification Park

A Monument to Peace and Reunification in a Divided Nation

Anin-jin and Jeongdongjin, both in Gangneung on Gangwon Province's coast, carry the weight of Korea's national division. It was here that North Korean forces first landed in their invasion of the South on June 25, 1950, and here again that a North Korean submarine infiltrated the coast on September 18, 1996, an event that sent shockwaves through the nation.
In a place marked by the pain of the Korean War and the 1996 submarine infiltration, Gangneung Unification Park was built to honor the hope for peaceful reunification and to underscore the importance of national security. Made up of a naval vessel exhibition hall and a security exhibition hall, the park brings together military equipment from Korea's army, navy, and air force alongside a captured North Korean submarine, all in one place.
Set where mountains meet the sea in striking harmony, Gangneung Unification Park offers visitors both the sorrow of a divided peninsula and some of Korea's most beautiful natural scenery in a single, moving educational and touristic experience. Inside the retired Republic of Korea Navy vessel ROKS Jeonbuk, visitors can see the actual military equipment and facilities once used aboard the ship, while the outdoor exhibition grounds display retired aircraft, an army tank, a self-propelled howitzer, an air force transport plane, a memorial tower, and an air force monument.

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