



FC 2026
The 16th International Conference
on Frontier Computing
Theory, Technologies and Applications

FINAL PROGRAM

July 6 – 10, 2026
Seoul, Korea



The 16th International Conference on Frontier Computing

– Theory, Technologies and Applications –

Co-Located Event

**2026 International Conference on Machine Learning on FinTech,
Security and Privacy (MLFSP 2026)**

Frontier Innovation Award Competition 2026 (Fi – Award 2026)

FC 2026

Asian Forum Final Program

Seoul, Korea

July 6 - 10, 2026

Organized by

Frontier Computing Conference Group

Sponsors



IET Taipei Local Network

國際工程與科技學會中華民國分會

Message from Organizing Committees

The inception of the International Conference on Frontier Computing – Theory, Technologies, and Applications (FC) dates back to an IET executive meeting in early 2010. This esteemed conference series serves as a platform for an expansive exchange of ideas, aiming to achieve a comprehensive understanding of the latest advancements and emerging trends in information technology, science, and engineering. The thematic focus encompasses areas such as communication technology and applications, computer science, business intelligence and knowledge management, artificial intelligence, and other relevant domains that actively advance information technology.

Marking its 16th iteration, FC2026 represents the continued evolution of a distinguished tradition. Noteworthy contributions and findings from past conferences—including FC 2010 (Taichung, Taiwan), FC 2012 (Xining, China), FC 2013 (Gwangju, Korea), FC 2015 (Bangkok, Thailand), FC 2016 (Tokyo, Japan), FC 2017 (Osaka, Japan), FC 2018 (Kuala Lumpur, Malaysia), FC ABH 2019 (Taichung, Taiwan), FC 2019 (Kitakyushu, Japan), FC 2020 (Singapore, Online), FC 2021 (Online), FC 2022 (Tokyo, Japan), FC 2023 (Tokyo, Japan, Hybrid), FC 2024 (Singapore), and FC 2025 (Osaka, Japan)—have been meticulously preserved in digital libraries and conference proceedings.

Bringing together researchers from around the world, this scholarly gathering continues to nurture a vibrant and intellectually stimulating environment. It encourages dynamic academic discussions that expand the boundaries of knowledge and inspire future interdisciplinary collaborations. This year, FC2026 will take place from July 6 to 10, 2026, across two parallel forums: the Asian Forum in Seoul, Korea, and the European Forum in Prague, the Czech Republic. Through this dual-forum arrangement, FC2026 aims to further promote global academic exchange and strengthen collaboration between Asia and Europe.

The conference proceedings will comprise a carefully curated selection of accepted papers that showcase the current frontiers of computing. In addition to the main sessions, FC2026 will include specialized workshops, panel discussions, and focused symposia, providing a comprehensive perspective on the latest developments in frontier computing.

We extend our deepest gratitude to all authors, reviewers, and participants whose dedication and contributions have made this conference possible. Their involvement has been crucial in maintaining the high standards of the FC conference series.

Lastly, we recognize the invaluable support of our international program and organizing committee members, whose expertise and commitment continue to shape FC's success. We look forward to the ongoing growth of this global community and to welcoming you to future FC events.

Organizing Committees
FC Conference Group
July 2026

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Schedule

Day 1 - July 6, 2026 (Monday)		
	Room A	Room B
12: 30 ~	Registration	
13: 00 ~ 13:20	Opening Ceremony	
13: 30 ~ 15: 00	Session 1 – 1	Session 1 – 3
15: 00 ~ 15: 20	-- Coffee Break --	
15: 20 ~ 16: 50	Session 1 – 2	Session 1 – 4 Fi-Award 2026

Day 2 - July 7, 2026 (Tuesday)		
	Room A	Room B
10: 00 ~ 11: 30	Session 2 – 1	Session 2 – 4 MLFSP
11: 30 ~ 13: 00	-- Break --	
13: 00 ~ 14: 30	Session 2 – 2	Session 2 – 5 MLFSP
14: 30 ~ 14: 40	-- Coffee Break --	
14: 40 ~ 16: 10	Session 2 – 3	Session 2 – 6 MLFSP
16: 10 ~ 16: 20	-- Coffee Break --	
16: 20 ~ 17: 00	Keynote Speech (Hybrid): Prof. Donghyun Kang	
18:00 ~	Banquet	

Day 3 - July 8, 2026 (Wednesday)	
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9: 00 ~ 17: 00	Technical Visit*
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Day 4 - July 9, 2026 (Thursday)	
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9: 00 ~ 12: 00	Technical Visit*¹
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13: 00 ~ 17: 00	Executive Committee Meeting: Post-Conference Review Meeting*²
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Day 5 - July 10, 2026 (Friday)	
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13: 00 ~ 17: 00	Executive Committee Meeting: Post-Conference Review Meeting*²
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*¹ The Technical Visit is open to invited participants only.

*² This session is convened by the Executive Committee for a comprehensive post-event review. Discussions will cover a full evaluation of conference procedures and operational workflows, the consolidation of feedback from contributors, and an editorial alignment review of documents from the main event and all sub-events, ensuring that overall procedures and documentation comply with official FC regulations and publication standards.

Keynote Speaker



Prof. Donghyun Kang

Department of Computer Science and Artificial Intelligence at Dongguk University in Seoul, South Korea

Prof. Donghyun Kang is an Associate Professor in the Department of Computer Science and Artificial Intelligence at Dongguk University in Seoul, South Korea. His research lies at the intersection of system software, emerging storage technologies, and advanced computing infrastructures. Prof. Donghyun Kang's pioneering work focuses on operating systems (OS), file and storage systems, NAND flash memory, Non-Volatile RAM (NVRAM), and system-level optimizations for Large Language Models (LLMs). Throughout his academic career, he has made significant contributions to the development of next-generation storage systems, including Zoned Namespaces (ZNS) and innovative programming schemes designed to mitigate I/O interference. His research group actively pursues hardware-software co-design methodologies to build high-performance, low-latency, and energy-efficient systems for modern, data-intensive workloads.

Prof. Donghyun Kang received his Ph.D. from Sungkyunkwan University and collaborates closely with global semiconductor and cloud storage leaders to bridge the gap between academic theory and industry implementation.

Keynote: Insights Gained from Next-generation Storage Solutions in AI Computing

The explosive growth of Artificial Intelligence (AI) and Large Language Models (LLMs) demands a fundamental shift in data architecture. To fully realize the potential of high-performance AI computing, modern infrastructure requires more than just raw computational power. This keynote addresses the critical storage bottlenecks faced in AI computing environments and shares key insights gained from overcoming these challenges. We will explore the architecture of ultra-fast data pipelines designed to eliminate I/O waiting times, strategies for building cost-effective yet scalable data lakes, and methods for ensuring predictable scalability. Finally, the session will provide a forward-looking roadmap on how hardware and software must converge to power the next generation of AI enterprises.

-Day 1- July 6, 2026

Session 1 – 1

Sustainable Finance, ESG, and Environmental Impact Analytics

1. **A Frontier Computing Framework for Aviation Emission Forecasting with Ethical Interactive Systems and Behavior Based Impact Evaluation (ID: 1)**
Presenter: Kevser Şimşek
2. **The Impact of AI Finance and Green Finance on Bank Sustainability and Carbon Emissions: Empirical Evidence From Taiwan Banks (Paper ID: 28)**
Presenter: Sheng-Chun Chiu
3. **Female Board Representation and the Cost of Debt: The Role of ESG and Industry Characteristics (Paper ID: 29)**
Presenter: ChunChi Chang
4. **Green Technology Innovation, ESG Ratings, and Financial Performance: An Empirical Study of Listed Semiconductor Companies in Taiwan (Paper ID: 30)**
Presenter: Chung-Hsuan Wei

Session 1 – 2

Medical AI, Multimodal Diagnosis, and Imaging Systems

1. **Implementation of an Intelligent Medical System for Heart Sound Recognition with Multimodal Deep Learning Techniques (Paper ID: 6)**
Presenter: Chun Hong Huang, Yu-Wei Chan
2. **Automatic Pre-registration Alignment for Pelvic CT-MR Images in Cervical Cancer Radiotherapy (Paper ID: 7)**
Presenter: Yin Gu
3. **The Comparative Evaluation of Multi-Task Learning Models for a Calcaneus Fracture Diagnostic System Using X-ray Images (Paper ID: 9)**
Presenter: Yi-He Lin, Yu-Wei Chan
4. **AI-Driven Multi-Market Financial Asset Allocation Optimization and Decision Support Model (Paper ID: 3)**
Presenter: Yu-Chen Cai, Chih-Chuan Yeh

Session 1 – 3

Cloud, Cybersecurity, and Enterprise AI Infrastructure

- 1. Automated Log Anomaly Detection Using Hybrid Labeling Strategy and Stacking Ensemble (Paper ID: 8)**
Presenter: Jun-Zhe Liu, Lin Hui
- 2. Security Threats to Non-Human Identities (NHI) in Serverless Computing: A Case Study on AWS Lambda (Paper ID: 13)**
Presenter: Teng-Hsian Chang
- 3. An Offline COBOL Maintenance System Based on Syntax-Aware Chunking and Lineage-Augmented Retrieval (Paper ID: 14)**
Presenter: Ming-Feng Lee
- 4. A Scalable GraphRAG-Based Platform for Automated Enterprise Knowledge Services and Multimodal Generative Applications (Paper ID: 10)**
Presenter: Shih-Nung Chen

Session 1 – 4

Frontier Innovation Award Competition 2026 (Fi-Award 2026)

- 1. A QUBO-Ready Multi-Scenario Portfolio Optimization Framework for Semiconductor Thematic ETF Construction**
Team Members: Kai-Hong Chen, Zhang-Jia Zhen, Yu-Ting Huang, Yu-Yang Chen, Wei-Chen Wu
- 2. Risk-Adaptive PQC Signature Selection for DeFi: SER-Optimized Threshold via Real Uniswap v3 Data**
Team Members: Wei-Chen Wu, Chia-Hao Chen, Shao-Yu Hung, Ren-Qi Huang, Hao Yu Weng
- 3. Tamsui Smart Tourism Cloud: An AI-Driven Smart Tourism Platform with Personalized Recommendation and Immersive Crowd Visualization**
Team Members: Yung-Hui Chen, Yeh En Po, Jun-Zhe Liu, Shuo-Yun Liang, Jun-Yao Ke, Yi-Qi Huang, Lin Hui
- 4. My Number World: A Gamified Mathematics Adventure with Interactive Combat and Learning Mechanisms**
Team Members: Yung-Hui Chen, Jun-Yao Ke, Jun-Zhe Liu, Jun-Ru Chen, Yi-Qi Huang, Yuan-Jun Tsai, Lin Hui

-Day 2- July 7, 2026

Session 2 – 1

Smart Manufacturing, IoT Systems, and Intelligent Mobility

- 1. Smart Manufacturing Technologies and Applications: An Empirical Analysis of a Smart Soapmaking Learning Factory (Paper ID: 16)**
Presenter: Te-Hua Wang
- 2. Performance Evaluation: QUIC in Resource-Constrained IoT Environment (19)**
Presenter: Marnel Peradilla, Gregory Cu
- 3. Advanced Rider Assistance with Visual Intelligent Safety on Road (V.I.S.O.R.) System (Paper ID: 20)**
Presenter: Hsuan-Che Yang; Simon C.-Y. Wong
- 4. A Proactive Blockchain Smart Contract Framework for Warehouse Management (Paper ID: 11)**
Presenter: Chuan-Feng Chiu

Session 2 – 2

Education, Learning Analytics, and Immersive Training

- 1. Bridging the Gap: Exploring the Impact of UCAN Generic Competencies on Classroom Attendance among Information Technology Students in a Taiwanese Technical University (Paper ID: 12)**
Presenter: Shan-Shan Cheng
- 2. Integrated Analysis of Next-Generation Art Teaching Effectiveness and Learning Behaviors Based on Complex Theoretical Models (Paper ID: 15)**
Presenter: Hung Sun
- 3. Applying Virtual Reality to Visual Smoke Assessment Training: An Evaluation of Usability and Perceived Learning Effectiveness (Paper ID: 18)**
Presenter: Tung-Hua Yang
- 4. An Audiovisual Prototyping Framework for Site-Specific, Generative, and Immersive Installations in Bamboo Structures (Paper ID: 2)**
Presenter: Ping-Yeh Li

Session 2 – 3

LLM Safety, Cultural MR, and Human-Centered Generative Systems

- 1. A Mechanism-Oriented Analysis of Red-Team Attacks on Large Language Models (Paper ID: 21)**
Presenter: Hao-Shang Ma
- 2. A Conceptual Framework for Adaptive Guardrails in LLM Applications: Integrating DLP and HITL Feedback (Paper ID: 22)**
Presenter: Jia-Wei Chang
- 3. Research on Large Language Model-Guided Methods for Expanding Vulnerability Exploitation Arsenals (Paper ID: 23)**
Presenter: Xin Liu
- 4. A Cultural Translation-Game Design-MR Model for USR-Oriented Cultural Preservation: The Shengkeng Case (Paper ID: 25)**
Presenter: Yi-Chun Liao

Session 2 – 4 MLFSP 2026

- 1. AI Tools in Education 5.0: Applications for Sustainable Development, Governance, and Basic Education**
Presenter: Che-Ming Hsu
- 2. Machine Learning-Based Analysis of Urban Heat Island Factors Using Google Earth Engine: A Case Study of New Taipei City**
Presenter: Yong-Jun Lin
- 3. Forest Type Classification Using Machine Learning: Yilan Case Study**
Presenter: Shou-Chi Chen
- 4. Intelligent Prediction Model for Total Nitrogen and Amino Acid Content in Food Waste Liquid Fermentation**
Presenter: Ta-Chun Liao

Session 2 – 5 MLFSP 2026

- 1. Artificial Intelligence Approaches for Evaluating Liquefaction Risk in Taiwan's Offshore Wind Farm Regions**
Presenter: Ting-Yuan Wu
- 2. Machine Learning and GIS-Based Assessment of Flood Risk under Extreme Typhoon Events**
Presenter: Wei-Da Chen
- 3. Closed-Loop Reliability Model for Public Infrastructure: AI-Driven Digital Twin and Risk Integration**
Presenter: Chu Wei
- 4. Smart Hazard-Network Computing for Offshore Firefighting Safety: An Algorithmic SOP Redesign Framework with IoT and AI Integration – A Case Study of Lienchiang County, Taiwan**
Presenter: Hsueh-Chuan Lu

Session 2 – 6 MLFSP 2026

- 1. Quantitative Evaluation of Competency Gap-Oriented Training Effectiveness for Senior Project Managers in the ICT Industry Amidst AI Integration: A Pre-test and Post-test Analysis**
Presenter: Yen-Chang Chen
- 2. Impact of Intelligent Operational Management Systems on the Managerial Performance of Early Childhood Education Institutions: A Quantitative Analysis Based on Pre- and Post-Implementation Paired Data**
Presenter: Yen-Chang Chen
- 3. Analysis of the Impact of the Digital Economy on the Consumption Levels of Residents in Fujian Province and Guangdong Province**
Presenter: Yun-Qiao Zhuo
- 4. Empirical Study on the Risk Spillover and Diversification Effect of Cross-Border AI Themed ETFs – Taking Global X as an Example**
Presenter: Chih-Chun Hou
- 5. Enhancing Bass Clef Recognition in the Grand Staff for Violin Majors: A Mobile Learning Strategy Integrating Scaffolding and Perceptual Learning**
Presenter: Chi Nung Chu

**-Day 3-
July 8, 2026**

**AM: Technical Visit
PM: Technical Visit**

**-Day 4-
July 9, 2026**

**AM: Technical Visit
PM: Executive Committee Meeting**

**-Day 5-
July 10, 2026**

PM: Executive Committee Meeting

Information For Paper Presenters

The 16th International Conference on Frontier Computing (FC 2026) will be held in Seoul, Korea, from July 6 to 10, 2026.

Oral Presentation

- Papers will be presented during about 90 minutes of parallel sessions of the conference, each with about 4–5 papers. Each paper will be allocated 15-20 minutes for the presentation and 5 minutes for Q&A.
- Your punctual arrival and active involvement in each session will be highly appreciated.
- Do not forget to prepare and back up your presentation slides or PDF files.

Video Presentation

For authors who are unable to attend the conference in Seoul, Korea, a 15-minute video presentation must be submitted.

The video will be made publicly available on YouTube after the session.

Note

- **Take Care of Your Personal Belongings.** The conference organizers do not assume any responsibility for lost personal belongings.
- **Wear Your Badge:** Always wear your participation badge throughout the conference. Access will be denied to individuals without a badge. Do not discard your badge.
- Please take your badge and meal coupons to the banquet restaurant.

Conference Venue

FC2026 Asia forum venue will be held at the New Engineering Building, Dongguk University.



Location:

- 4th Floor, New Engineering Building, Dongguk University
- Dongguk University, 30, Pildong-ro 1-gil, Jung-gu, Seoul, 04620, Republic of Korea

Access

By Train

Take the Airport Railroad Express to Seoul Station, then transfer to Subway Line #4 and get off at Chungmuro Station.

By Bus

Take Airport Limousine Bus #6001 and get off at PJ Hotel (Chungmuro stn).

By Taxi

The fare is approximately KRW 55,000 from Incheon International Airport to the venue.

Banquet

The FC2026 banquet will be held at **The Ambassador Seoul – A Pullman Hotel**.



Address

- 287 Dongho-ro, Jung-gu, Seoul, Republic of Korea

Access

- Banquet Room: Namsan Room
- Location: 19th floor of The Ambassador Seoul – A Pullman Hotel.

Participants are advised to refer to the conference venue access information and proceed to the banquet room in the hotel. The banquet will be served as a Western-style course meal.

