

# Joongheon Kim

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Director, Net-Zero CAFE (Connectivity and Autonomy for Future Ecosystem) Research Center (ITRC)  
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## Educational Backgrounds

- **University of Southern California (USC) – Viterbi School of Engineering** *Los Angeles, California, USA*
  - Ph.D. (08/2009–08/2014) in Computer Science (Advisor: Prof. Andreas F. Molisch, Department of Electrical Engineering Communications, Information, Learning & Quantum (CLIQ) Group)
  - M.S. (05/2014) in Computer Science with specialization in High Performance Computing and Simulations
  - M.S. (05/2012) in Electrical Engineering
- **Korea University – College of Informatics** *Seoul, Republic of Korea*
  - M.S. (03/2004–02/2006) in Computer Science and Engineering (Advisor: Prof. Wonjun Lee)
  - B.S. (03/1999–02/2004) in Computer Science and Engineering

## Professional Affiliations

- **Korea University**, Seoul, Republic of Korea
  - Associate Professor (09/2019–), School of Electrical Engineering
  - Adjunct Professor (03/2023–02/2028), Department of Communications Engineering (Samsung Electronics)
  - Adjunct Professor (11/2022–02/2028), Department of Future Science and Technology Business (Graduate School)
  - Adjunct Professor (03/2021–02/2026), Department of Semiconductor Engineering (SK Hynix)
- **Chung-Ang University**, Seoul, Republic of Korea
  - Assistant Professor (03/2016–08/2019), School of Computer Science and Engineering
- **Intel Corporation**, Santa Clara (Silicon Valley), California, USA
  - Systems Engineer (09/2013–02/2016), Platform Engineering Group
- **University of Southern California – Viterbi School of Engineering**, Los Angeles, California, USA
  - Ph.D. Student in Computer Science (08/2009–08/2014), Thomas Lord Department of Computer Science
  - Annenberg Graduate Fellow (2009), 4-Year Full Scholarship for the Ph.D. Program in Computer Science
  - Research Assistant (01/2011–08/2014), Communications, Information, Learning & Quantum (CLIQ) Group
  - Teaching Assistant (01/2012–05/2013), Computer Science and Electrical Engineering Major Courses
- **InterDigital**, San Diego, California, USA
  - Intern (05/2012–08/2012), Wireless Systems Evolution Department
- **LG Electronics – CTO Division**, Seoul, Republic of Korea
  - Research Engineer (01/2006–08/2009), Multimedia Research Lab, Seocho R&D Campus

## Professional Affiliations – Visiting for Quantum Machine Learning Research Collaboration

- **Seoul National University Hospital**, Seoul, Republic of Korea
  - Visiting Professor (10/2025–09/2026), Healthcare AI Research Institute (Host: Prof. Hyung-Chul Lee)

## University and Government R&D/Administrative Positions

- **Korea University**, Seoul, Republic of Korea
  - Director (07/2024–12/2031), Net-Zero CAFE (Connectivity and Autonomy for Future Ecosystem) Research Center
  - Vice Department Chair (01/2025–08/2025), Academic Affairs, School of Electrical Engineering
  - Deputy Vice President (02/2022–08/2024), Office of Academic Affairs
  - Dean (06/2021–08/2023), Center for Teaching and Learning (CTL)
- **National Research Foundation of Korea**, Daejeon, Republic of Korea
  - Review Board (11/2024–10/2026), Area: Communications (Communication-based Convergence)

## Awards and Honors

### Research and Academic Excellence (International)

• Certificate of Appreciation – IEEE Future Networks, AI/ML Working Group	08/2025
• Certificate of Appreciation – IEEE/IFIP WiOpt (2024)	10/2024
• Best Editor Award – ICT Express (Elsevier)	07/2023
• Finalist (Top 25), AAAI Student Abstract and Poster Session – Oral Presentation Contest	02/2023
• IEEE ICTC Best Paper Award – IEEE Communications Society	10/2022
• Spotlight, Oral Presentation – ICML Workshop on Dynamic Neural Networks (2022)	07/2022
• IEEE MMTC Best Journal Paper Award – IEEE Communications Society	2021
• IEEE ICOIN Best Paper Award – IEEE Computer Society	01/2021

- IEEE MMTC Outstanding Young Researcher Award – IEEE Communications Society 2020
- IEEE Systems Journal Best Paper Award – IEEE Systems Council 2020
- Next Generation and Standards (NGS) Division Recognition Award – Intel Corporation Q1/2015
- Annenberg Graduate Fellowship Award – University of Southern California 2009–2013  
Awarded with Ph.D. Admission: 4 Year Full Scholarship (Tuition Waiver and \$120,000 Stipend (\$30,000/year for 4 years))
- IEEE Seoul Section Student Paper Contest 2024 (Bronze), 2024 (Bronze), 2023 (Bronze), 2020 (Bronze), 2019 (Gold)
- IEEE VTS Seoul Chapter Award – IEEE Vehicular Technology Society 2022, 2023, 2022, 2021, 2021, 2019

### Research and Academic Excellence (Korea Regional)

- Best Paper Award, The Journal of KICS – KICS 11/2024
- HFR Paper Award (Area: Quantum Technologies and Quantum Communications) – KICS 11/2023
- Korea Electronics Technology Institute (KETI) President Award – KICS 06/2023
- Haedong Paper Award – KICS 02/2023, 06/2021
- Haedong Young Scholar Award – KICS and Haedong Foundation 12/2018  
For recognizing a researcher under the age of 40 who has made outstanding contributions to IT R&D
- Outstanding Paper Award – LG Electronics CTO Office, Multimedia Research Laboratory 01/2008
- RFID Expert Group President Award – The 3rd RFID/USN Research Paper Contest 10/2007
- ETRI President Award – The 2nd RFID/USN Research Paper Contest 11/2006
- Korea Association of RFID/USN (KARUS) President Award – The 1st RFID/USN Research Paper Contest 10/2005
- Scholarships for Academic Excellence – Korea University (Computer Science and Engineering) Fall 2000, Fall 1999

### Korea University

- Granite Tower Best Research Award (Top 3%) – Korea University 06/2025  
For recognizing top 3% research achievement among Korea University faculty members in 2024
- Best Research Achievement Award – Korea University, School of Electrical Engineering 03/2025
- Insung Research Grant Award (Top 5%) – Korea University 01/2023  
For recognizing professors in top 5% research excellence during the first 3 years at Korea University
- Granite Tower Best Teaching Award (Top 5%) Spring 2024, Spring 2022, Fall 2021, Spring 2021, Fall 2019
- Best Teaching Award (Top 20%) Spring 2024, Spring 2024, Spring 2022, Fall 2021, Spring 2021, Fall 2020

### Academic and University Services

- Outstanding Contribution Award – KICS 2024, 2021, 2019
- Outstanding Contribution Award – KIISE Information Network Society 2023, 2022
- 2022 Best Chapter Award, IEEE Vehicular Technology Society Chapter, Awarded as a Treasure 2022
- Outstanding Contribution Award – Open Standards and ICT Association (OSIA) 2021
- Appreciation Recognition – Daegu Gyeongbuk Institute of Science and Technology (DGIST) 2021
- Fellow Employee Recognition [#3081146] – Intel Corporation 2014
- Certificate of Appreciation – Department of Computer Science, University of Southern California 2010

## R&D Projects

### University-Wide/Center Projects

- Net-Zero CAFE Research Center (07/2024–12/2031) ITRC (Korea Univ)  
(Center Director), Grant: \$7,500,000
- Intelligent 6G Wireless Access System Research Center (04/2021–12/2025) 6G AI Research Center (Korea Univ)
- K-Starlink: Dynamic Reconfigurable and Intelligent Space-Terrestrial Networks (06/2021–05/2024) Basic Research Lab (Ajou)
- Nano UAV Intelligence Systems Research Lab (10/2020–08/2023) ADD Military Special Research Center (Kwangwoon)
- 5G/Unmanned Vehicle Research Center (5G/UV-RC) (06/2020–12/2022) ITRC (Hanyang)
- Human Resource Development for the Biomedical Unstructured Big Data Analysis (08/2018–12/2021) ITRC (SNU-Hospital)
- Novel Data Science Driven Framework for Efficient Network Design (06/2017–05/2020) Basic Research Lab (Chung-Ang)
- Intelligent Internet of Energy (IoE) Data Research Center (02/2020–05/2020) ITRC (Kookmin)

### Industry-Funded Projects

- Advancement Technology Development for Torpedo Deception Strategies in Submarines (11/2022–11/2026) LIG Nex1
- Advancement Tech Dev for Submarine Target Identification and Engagement Support Intelligence (11/2022–11/2026) LIG Nex1
- Mapping between Real World and VR for End-Edged Cloud Real-Time VR Servers (09/2020–11/2025) Samsung Electronics
- Research on Learning-based Swarm Mission Planning Algorithms (03/2024–02/2025) LIG Nex1
- Quantum Machine Learning-based Objection Detection for Point Cloud and its Acceleration (12/2022–04/2024) Hyundai Motors
- Routing Algorithms for LEO Satellite Networks (12/2022–08/2023) Solvit System
- Optimal Positioning Algorithms for Wide-Area Relaying Networks (12/2022–08/2023) Solvit System
- Distributed Learning Algorithms to Build AI Models with Multi-Center Clinical Data (11/2022–02/2023) Cipherome
- Cellular/Wi-Fi Handover Technology Development (02/2022–12/2022) LG Electronics CTO Division (Smart Mobility Lab)
- Research Trends in Digital Twin Applications to Autonomous Driving (03/2022–04/2022) Hyundai NGV
- Distributed Learning System Design and Implementation for Clinical Applications (02/2022–03/2022) Cipherome
- Super-Resolution Performance Optimization in Mobile Platforms (05/2020–08/2020) Samsung SDS

• Deep Learning Algorithms for mVOC Concentration Analysis (03/2020–06/2020)	Samsung Electronics (C-Lab)
• Visual Recognition Software Implementation using Deep Learning Tools (05/2019–11/2019)	Hyundai Motors
• A Priori Techniques Research for Efficient Multi-Edge Computing (06/2017–12/2017)	Samsung Electronics (Software Center)

## Government-Funded Projects

• Quantum AI Empowered Second-Life Platform Technology (07/2024–12/2031) <b>(Software Star-Lab)</b> , Grant: \$2,200,000	IITP
• Quantum-Empowered Spatio-Temporal Multi-Scale Digital Twin System (03/2025–02/2028)	NRF
• 6GARROW: 6G AI-Native Integrated RAN-Core Networks (09/2024–08/2027)	IITP
• AI Bots Collaborative Platform and Self-Organizing Artificial Intelligence Technology Development (04/2022–12/2026)	IITP
• Development of Integrated Development Framework that supports Automatic Neural Network Generation and Deployment optimized for Runtime Environment (04/2021–12/2025)	IITP
• Quantum Hyper-Driving: Quantum-Inspired Hyper-Connected and Hyper-Sensing Autonomous Mobility (03/2022–02/2025)	NRF
• Korea-Japan Joint Seminar Project for Generative and Multi-Modal AI Technologies (10/2023–09/2024)	NRF
• Integrated Perception Technology Developments for Public Safety Platforms (06/2019–05/2023)	NRF
• Development of Quantum Deep Reinforcement Learning Algorithm using QAOA (10/2019–04/2022)	NRF
• mmWave Radar and Deep Reinforcement Learning based Optimal Policy Autonomous Driving (06/2019–02/2022)	NRF
• Development of Privacy-Reinforcing Distributed Transfer-Iterative Learning Algorithm (07/2019–12/2021)	MHW
• Virtual Presence in Moving Objects through 5G (PriMO-5G) (06/2018–06/2021)	IITP
• Distributed Secure Platform for Scalable Clinical OMOP CDM Models (04/2019–12/2020)	MHW
• mmWave High-Speed Networking Platform Design for Next-Generation Convergence Services (06/2016–05/2019)	NRF
• Feasibility Study of 60 GHz IEEE 802.11ad for Virtual Reality (VR) Platforms (04/2017–12/2017)	IITP

## Government-Funded Research Institute Projects

• Discovering Quantum-Advantage Cases for Industry Adoption (09/2025–11/2025)	KTL
• LEO Satellite Routing Research using Large Language Model and Reinforcement Learning (05/2025–11/2025)	ETRI
• Research on Generative Quantum Machine Learning Models (04/2025–10/2025)	ETRI Affiliated Research Institute
• Quantum Reinforcement Learning for Satellite Backhaul Routing in Disaster Networks (05/2024–11/2024)	ETRI
• NOMA-based Resource Allocation Research in Space-Air-Ground Integrated Networks (09/2023–11/2023)	ETRI
• Autonomous Intelligent COA Search Methods for Cyber-Attacks (12/2021–11/2022)	ADD
• Research on Intelligent Agent-based CPS Security and Reliability (04/2021–11/2021)	TTA
• Multi-GPU based Automotive HPC Platform Development (04/2020–10/2020)	ETRI
• Cooperative Deep Reinforcement Learning for Online Game Multi-Agents (04/2020–08/2020)	ETRI
• Verification Testbed Implementation for Privacy-Preserving Trust Data Generation (10/2019–11/2019)	ETRI
• Measurement and Analysis of Multi-Task GPU Scheduling Delays (05/2019–10/2019)	ETRI
• Probabilistic Decision Making and Econometric Methods for Micro-Grid (05/2017–04/2019)	KEPCO Research Institute
• GPU Scheduling Performance Analysis under Queueing Delay Considerations (05/2018–10/2018)	ETRI
• Improving Massive Deep Learning Training via Computation and Communication Acceleration (04/2018–10/2018)	ETRI
• Parsing Techniques for Artificial Neural Network (ANN) Data Processing (09/2017–11/2017)	ETRI

## University of Southern California, Selected Projects

• Video Aware Wireless Networks (VAWN) Research Program	Intel Labs, Verizon Wireless, Cisco Systems
• 60 GHz Real-Time Wireless Video Broadcasting	Disney Research Zürich
• Annenberg Graduate Fellowship Award	University of Southern California

## Korea University (KU), Selected Projects

• Towards Agentic AI-Enabled Edge IoT Systems for Proactive Physical World Sensing and Control (08/2025–07/2026)	PKU-KU Joint Research Grant (Collaboration with Prof. Kaigui Bian at Peking University)
• AI Teaching Assistant Research for LLM-based Large-Scale Education (10/2024–02/2025)	KU University College
• Autonomous Mobility Control using Quantum Deep Learning (03/2023–02/2024)	KU Insung Research Grant
• Mobile Access Algorithm Design using Economic Theory and AI (03/2020–02/2021)	KU Future Research Grant

## Selected Publications

- 10503+ Citations (H-index: 51+, i10-index: 227+), obtained from Google Scholar Profile (as of October 13, 2025)

### Books

- Fundamentals of 6G Communications and Networking, Springer (2023) (Editors: X. Lin, J. Zhang, Y. Liu, J. Kim)

### Selected Papers

#### ■ Top-Tier Conferences: *Quantum Machine Learning*

- [ICASSP'26] How Can Quantum Deep Learning Improve Large Language Models?, (E. J. Roh, H. Ahn, S. Y.-C. Chen, S. Park, J. Kim)
- [CIKM'25] Quantum-Amplitude Embedded Adaptation for Parameter-Efficient Fine-Tuning in Large Language Models, (E. J. Roh, J. Kim)
- [CIKM'25] Filtered One-Shot Training for Quantum Architecture Search, (S. B. Son, S. Y.-C. Chen, J. Kim, S. Park)
- [IPDPS'25] AQUA: Hardware-Agnostic Qubit Allocation for Quantum Multi-Programming, (X. Piao, J. Shim, J. Kim, J. Kim)

- [WiOpt'25] Stabilized Robust Control for Lightweight Autonomous Aircraft Mobility: A Quantum Reinforcement Learning Approach, (G. S. Kim, J. Chung, T. Q. Duong, S. Park, J. Kim)
- [ICASSP'25] Quantum Reinforcement Learning for Coordinated Satellite Systems, (G. S. Kim, S. Y.-C. Chen, S. Park, J. Kim)
- [CIKM'24] Hands-On Introduction to Quantum Machine Learning, (S. Y.-C. Chen, J. Kim)
- [CIKM'23] Quantum Split Learning for Privacy-Preserving Information Management, (S. Park, H. Baek, J. Kim)
- [CIKM'23] Logarithmic Dimension Reduction for Quantum Neural Networks, (H. Baek, S. Park, J. Kim)
- [AAAI'23] Quantum Multi-Agent Meta Reinforcement Learning, (W. Yun, J. Park, J. Kim)

### ■ Top-Tier Conferences: Artificial Intelligence

- [CIKM'25] LLM-based Interactive Coding Education via Predictive Query Management and Student-Centered Fine-Tuning: Design and Implementation with 1500-Student Class Data, (G. Youn, J. Lee, J. Kim, C. Yoo)
- [CIKM'22] Hierarchical Reinforcement Learning using Gaussian Random Trajectory Generation in Autonomous Furniture Assembly, (W. Yun, D. Mohaisen, S. Jung, J.-K. Kim, J. Kim)
- [IJCAI'19] Randomized Adversarial Imitation Learning for Autonomous Driving, (M. Shin, J. Kim)

### ■ Top-Tier Conferences: Communications, Networks, and Mobility Control

- [NOMS'25] Joint Multi-Agent Reinforcement Learning and Message-Passing for Distributed Multi-UAV Network Management using Conflict Graphs, (Y. Cho, H. Lee, S. Park, J. Kim)
- [WiOpt'24] Advanced Taxiing Path Guidance using Multi-Agent Reinforcement Learning for Air Traffic Management, (S. Lee, G. S. Kim, S. Park, J. Kim)
- [WiOpt'22] Cooperative Video Quality Adaptation for Delay-Sensitive Dynamic Streaming using Adaptive Super-Resolution, (M. Choi, W. Yun, J. Kim)
- [INFOCOM'22] Joint Superposition Coding and Training for Federated Learning over Multi-Width Neural Networks, (H. Baek, W. Yun, Y. Kwak, S. Jung, M. Ji, M. Bennis, J. Park, J. Kim)
- [ICDCS'20] Understanding the Potential Risks of Sharing Elevation Information on Fitness Applications, (Ü. Meteriz, N. F. Yildiran, J. Kim, D. Mohaisen)
- [ICDCS'18] ShmCaffe: A Distributed Deep Learning Platform with Shared Memory Buffer for HPC Architecture, (S. Ahn, J. Kim, E. Lim, W. Choi, A. Mohaisen, S. Kang)
- [MM'17] REQUEST: Seamless Dynamic Adaptive Streaming over HTTP for Multi-Homed Smartphone under Resource Constraints, (J. Koo, J. Yi, J. Kim, M. A. Hoque, S. Choi)
- [MobiSys'10] Energy-Efficient Rate-Adaptive GPS-based Positioning for Smartphones, (J. Paek, J. Kim, R. Govindan)

### ■ Journals and Magazines (totally, 151 publications; among them, 111 IEEE publications)

- [TMC.accepted] Quantum Multi-Agent Reinforcement Learning for Cooperative Mobile Access in Space-Air-Ground Integrated Networks, *IEEE Transactions on Mobile Computing*, v(n):ppp–ppp (G. S. Kim, Y. Cho, J. Chung, S. Park, S. Jung, Z. Han, J. Kim)
- [TVT.accepted] Large-Scale Battery-Conscious Collision-Free Path-Finding for Sustainable and Autonomous Multi-AGV Mobility Control, *IEEE Transactions on Vehicular Technology*, v(n):ppp–ppp (Y. Cho, S. Ahn, S. Park, J. Kim)
- [MM.accepted] Quantum Jump to Virtual Worlds: High-Quality Multiple Virtual Meta-Space Realization in Metaverse, *IEEE MultiMedia*, 32(3):ppp–ppp (S. Park, J. Kim)
- [JS.accepted] Joint Scalable Quantum Convolutional Neural Network and Reverse-Fidelity Training for High-Accurate Recognition in Unmanned Aerial Vehicle Surveillance, *The Journal of Supercomputing*, 81(n):ppp (E. J. Roh, J. Kim, S. Jung, S. Park)
- [TIV'25.11] Adaptive Quantum Federated Learning for Autonomous Surveillance Multi-Drone Networks, *IEEE Transactions on Intelligent Vehicles*, 10(11):ppp–ppp (S. Park, C. Park, S. Jung, J. Kim)
- [TASE'25.09] Adaptive Excavation Automation in Complex Soil Environments using Reinforcement Learning, *IEEE Transactions on Automation Science and Engineering*, 22:21181–21194 (M. Shin, J. Cho, J. Kim, S. Jung)
- [ESWA'25.09] Correlation-Assisted Spatio-Temporal Reinforcement Learning for Stock Revenue Maximization, *Expert Systems with Applications*, 289:128361 (J. Chung, M. Kim, S. Min, H. Choi, S. Park, J. Kim)
- [CIM'25.08] Quantum-Eyes: Scalable Quantum Convolutional Neural Networks for Low-Overhead Object Detection, *IEEE Computational Intelligence Magazine*, 20(3):63–74 (J. Kim, E. J. Roh, C. Im, S. Park)
- [TON'25.08] Slimmable Federated Reinforcement Learning for Energy-Efficient Proactive Caching, *IEEE Transactions on Networking*, 33(4):2079–2094 (H. Baek, G. S. Kim, S. Park, A. F. Molisch, J. Kim)
- [TAES'25.08] Quantum Multiagent Reinforcement Learning for Joint Cube-Satellites and High-Altitude Long-Endurance Aerial Vehicles in SAGIN, *IEEE Transactions on Aerospace and Electronic Systems*, 61(4):9490–9510 (G. S. Kim, Y. Cho, S. Park, S. Jung, J. Kim)
- [IOTJ'25.08] Joint Interference Approximation and Guard-Band Management for Spectrum-Efficient Integrated NTN-TN Networks, *IEEE Internet of Things Journal*, 12(15):32220–32236 (J. Jang, J. Kim, J. Kim, S. Jung)
- [IOTJ'25.08] Carbon-Aware Edge Computing for Internet of Everything Networks: A Digital Twin Approach, *IEEE Internet of Things Journal*, 12(15):29240–29251 (D. V. Huynh, S. R. Khosravirad, V. Sharma, J. Kim, B. Canberk, T. Q. Duong)
- [JCN'25.08] Stabilized Classification Control using Multi-Stage Quantum Convolutional Neural Networks for Autonomous Driving, *Journal of Communications and Networks*, 27(4):264–272 (E. J. Roh, S. Park, S. Jung, J. Kim)
- [JCN'25.08] Special Issue on Quantum Technologies for Communication Systems, *Journal of Communications and Networks*, 27(4):217–221 (S. Y. Shin, Z. Han, S. Ali, S. Y.-C. Chen, Y. Liu, S. Park, J. Kim)
- [IOTJ'25.07] Quantum Reinforcement Learning for Lightweight LEO Satellite Routing, *IEEE Internet of Things Journal*, 12(14):28986–29004 (G. S. Kim, S. Lee, I.-S. Cho, S. Park, J. Kim)

- [IOTJ'25.07] Privacy-Preserving Uncertainty Calibration using Perceptual Encryption in Cloud-Edge Collaborative Artificial Intelligence of Things, *IEEE Internet of Things Journal*, 12(13):25424–25441 (I. Ahmad, J. Kim, S. Shin)
- [IOTJ'25.07] Joint Quantum Reinforcement Learning and Neural Myerson Auction for High-Quality Digital-Twin Services in Multitier Networks, *IEEE Internet of Things Journal*, 12(13):23722–23735 (S. Park, G. S. Kim, J. Kim)
- [NN'25.07] Quantum Federated Learning with Pole-Angle Quantum Local Training and Trainable Measurement, *Neural Networks*, 187:107301 (S. Park, H. Lee, S. B. Son, S. Jung, J. Kim)
- [JS'25.07] Quantum Infidelity Codistillation for Fast and Accurate Distributed Quantum Machine Learning, *The Journal of Supercomputing*, 81(10):1151 (S. Oh, J. Kim, J. Park, H. Baek, H. Lee, J. Kim, S.-L. Kim)
- [IOTJ'25.06] Entanglement-Controlled Quantum Federated Learning, *IEEE Internet of Things Journal*, 12(11):18318–18330 (S. Park, H. Lee, S. Jung, J. Park, M. Bennis, J. Kim)
- [JS'25.06] SQUAD: Software Testing for Quantum Distributed Learning Software, *The Journal of Supercomputing*, 81(9):1071 (S. Park, J. H. Cho, H. J. Yook, G. S. Jhun, Y. K. Lee, J. Kim, S. Park)
- [TVT'25.05] Dynamic Quantum Federated Learning for UAV-based Autonomous Surveillance, *IEEE Transactions on Vehicular Technology*, 74(5):8158–8170 (S. Park, S. B. Son, S. Jung, J. Kim)
- [TNSM'25.04] Intelligent Extra Resource Allocation for Cooperative Awareness Message Broadcasting in Cellular-V2X Networks, *IEEE Transactions on Network and Service Management*, 22(2):1677–1689 (S. Jung, J.-H. Kim, J. Kim)
- [TMC'25.02] Fast Quantum Convolutional Neural Networks for Low-Complexity Object Detection in Autonomous Driving Applications, *IEEE Transactions on Mobile Computing*, 24(2):1031–1042 (E. J. Roh, H. Baek, D. Kim, J. Kim)
- [JS'25.02] Hybrid Quantum-Classical 3D Object Detection using Multi-Channel Quantum Convolutional Neural Network, *The Journal of Supercomputing*, 81(3):455 (E. J. Roh, J. Y. Shim, J. Kim, S. Park)
- [EL'25.01] Fast Batch Gradient Descent in Quantum Neural Networks, *IET Electronics Letters*, 61(1):e70162 (J. Y. Shim, J. Kim)
- [CM'24.12] The Matrix: Quantum AI for Interacting Two Worlds in Prioritized Metaverse Spaces, *IEEE Communications Magazine*, 62(12):97–103 (S. Park, H. Baek, J. Kim)
- [TON'24.12] Spatio-Temporal Multi-Metaverse Dynamic Streaming for Hybrid Quantum-Classical Systems, *IEEE/ACM Transactions on Networking*, 32(6):5279–5294 (S. Park, H. Baek, J. Kim)
- [TMC'24.12] Joint Quantum Reinforcement Learning and Stabilized Control for Spatio-Temporal Coordination in Metaverse, *IEEE Transactions on Mobile Computing*, 23(12):12410–12427 (S. Park, J. Chung, C. Park, S. Jung, M. Choi, S. Cho, J. Kim)
- [IOTJ'24.12] Markov Decision Policies for Distributed Angular Routing in LEO Mobile Satellite Constellation Networks, *IEEE Internet of Things Journal*, 11(23):38744–38754 (S. Park, G. S. Kim, S. Jung, J. Kim)
- [TIV'24.11] Neural Myerson Auction for Truthful and Distributed Mobile Charging in UAV-Assisted Digital-Twin Networks, *IEEE Transactions on Intelligent Vehicles*, 9(11):ppp–ppp (S. Jung, H. Baek, J. Kim)
- [CM'24.10] Quantum Multi-Agent Reinforcement Learning is All You Need: Coordinated Global Access in Integrated TN/NTN Cube-Satellite Networks, *IEEE Communications Magazine*, 62(10):86–92 (S. Park, G. S. Kim, Z. Han, J. Kim)
- [Access'24.10] Sensing-to-Sky Intermittent Connectivity Realization for LTE-Enabled Drone Platforms: Embedded Design, Measurement Study, and Positioning Applications, *IEEE Access*, 12:137360–137372 (J. Kim, S. Park, U. Jo, T. Kim, S. Jung, J. Kim)
- [FGCS'24.10] AQUA: Analytics-driven Quantum Neural Network (QNN) User Assistance for Software Validation, *Future Generation Computer Systems*, 159:545–556 (S. Park, H. Baek, J. W. Yoon, Y. K. Lee, J. Kim)
- [ETRI'24.10] Trends in Quantum Reinforcement Learning: State-of-the-Arts and the Road Ahead, *ETRI Journal*, 46(5):748–758 (S. Park, J. Kim)
- [TNSM'24.08] Cooperative Multi-UAV Positioning for Aerial Internet Service Management: A Multi-Agent Deep Reinforcement Learning Approach, *IEEE Transactions on Network and Service Management*, 21(4):3797–3812 (J. Kim, S. Park, S. Jung, C. Cordeiro)
- [Access'24.08] Enhancing Cost-Effective 5G Virtualized RAN Pooling Gain on Clouds: An Intelligent Auto-Scaling Approach, *IEEE Access*, 12:111322–111333 (K. Cho, J. Kim, S. Jung)
- [TVT'24.07] Age-of-Information Aware Caching and Delivery for Infrastructure-Assisted Connected Vehicles, *IEEE Transactions on Vehicular Technology*, 73(7):10681–10696 (S. Park, C. Park, S. Jung, M. Choi, J. Kim)
- [MTAP'24.07] Stabilized Performance Maximization for GAN-based Real-Time Authentication Image Generation over Internet, *Multimedia Tools and Applications*, 83(22):62045–62059 (J. Y. Shim, S. Jung, J. Kim, J.-K. Kim)
- [CM'24.06] Quantum Multi-Agent Reinforcement Learning for Autonomous Mobility Cooperation, *IEEE Communications Magazine*, 62(6):106–112 (S. Park, J. P. Kim, C. Park, S. Jung, J. Kim)
- [TVT'24.04] Learning-Based Cooperative Mobility Control for Autonomous Drone-Delivery, *IEEE Transactions on Vehicular Technology*, 73(4):4870–4885 (S. Park, C. Park, J. Kim)
- [Access'24.04] Dynamic Quantum Federated Learning for Satellite-Ground Integrated Systems using Slimmable Quantum Neural Networks, *IEEE Access*, 12:58239–58247 (S. Park, S. Jung, J. Kim)
- [Access'24.04] Quantum Reinforcement Learning for Spatio-Temporal Prioritization in Metaverse, *IEEE Access*, 12:54732–54744 (S. Park, H. Baek, J. Kim)
- [TWC'24.03] Joint User Clustering, Beamforming, and Power Allocation for mmWave-NOMA with Imperfect SIC, *IEEE Transactions on Wireless Communications*, 23(3):2025–2038 (B. Lim, W. Yun, J. Kim, Y.-C. Ko)
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## Academic Activities and Research Supervision

### Research Supervision

#### ■ Ph.D. Alumni

- Dr. Soohyun Park (03/2019–08/2023 (MS-PhD), 09/2023–02/2024 (Postdoc)), **Sookmyung Women's University** (Professor)
- Dr. Hankyul Baek (03/2021–02/2024 (MS-PhD), 03/2024–03/2025 (Postdoc)), ETRI AI Safety Institute (Researcher)
- Dr. Gyu Seon Kim (03/2023–02/2026 (MS-PhD)), Korea University (Postdoctoral Scholar)

#### ■ M.S. Alumni

- Kyeongseon Kim (09/2017–08/2019), POSTECH (Ph.D. Student in Electrical Engineering)
- Dohyun Kwon (03/2018–02/2020), Hyundai Motors Group
- Dohyun Kim (03/2018–02/2020), Naver Webtoon
- MyungJae Shin (03/2018–02/2020), Naver
- Jaeho Choi (03/2019–02/2021), Korea Meteorological Administration [Military Service Exception]
- Yoo Jeong (Anna) Ha (03/2021–02/2023), The University of Chicago (Ph.D. Student in Computer Science)
- Jaehyun Chung (09/2023–08/2025), Korea University (Ph.D. Student in Electrical and Computer Engineering)

#### ■ Postdoctoral Scholars

- Dr. Minseok Choi (09/2018–02/2019, jointly with Prof. Andreas F. Molisch (USC)), **Kyung Hee University** (Professor)
- Dr. Soyi Jung (03/2021–08/2021, jointly with Prof. Marco Levorato (UC-Irvine)), **Ajou University** (Professor)
- Dr. Ju-Hyung Lee (03/2022–02/2023, jointly with Prof. Andreas F. Molisch (USC)), Nokia USA (Principal Engineer)

### IEEE Activities (Membership, Editorial Boards, and Services)

- Senior Member (2018–), Member (2006–2017)
- Associate Editor (2025–), **IEEE Communications Surveys and Tutorials**
- Editor (2023–), **IEEE Internet of Things Journal**
- Associate Editor (2020–), **IEEE Transactions on Vehicular Technology**
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