

**Associate Professor**, Korea University – School of Electrical Engineering, Seoul, Republic of Korea

– *Adjunct Professor*, Department of Communications Engineering; Department of Semiconductor Engineering; and  
Department of Future Science and Technology Business (Graduate School)

– *Director (University ICT Research Center)*, Net-Zero CAFE (Connectivity and Autonomy for Future Ecosystem) Research Center

– *Principal Investigator (SW Star-Lab, Software Technology Advanced Research)*, Quantum AI Empowered Second-Life Platform Technology

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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**, Thomas Lord Department of Computer Science (Advisor: *Prof. Andreas F. Molisch (Fellow of the IEEE)*, Ming Hsieh Department of Electrical and Computer Engineering) **Research Assistant, Communications, Information, Learning, and Quantum (CILQ) 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 (Fellow of the IEEE)*, Department of Cyber Defense and Future Network Center)
    - B.S. (03/1999–02/2004) in **Computer Science and Engineering**
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## Professional Affiliations

### R&D Positions

- **Korea University**, Seoul, Republic of Korea
  - *Associate Professor* (03/2021–Present), *Assistant Professor* (09/2019–02/2021), School of Electrical Engineering
  - *Adjunct Professor* (03/2023–02/2028 (Expected)), Department of Communications Engineering (with **Samsung Electronics**)
  - *Adjunct Professor* (11/2022–02/2028 (Expected)), Department of Future Science and Technology Business (Graduate School)
  - *Adjunct Professor* (03/2021–02/2026 (Expected)), Department of Semiconductor Engineering (with **SK Hynix**)
  - **R&D LEADERSHIP**
    - \* *Director* (07/2024–12/2031), **Net-Zero CAFE (Connectivity and Autonomy for Future Ecosystem) Research Center** University ICT Research Center (ITRC), funded by IITP and the Ministry of Science and ICT
    - \* *Principal Investigator* (07/2024–12/2031), **Quantum AI Empowered Second-Life Platform Technology** SW Star-Lab (Software Technology Advanced Research), funded by IITP and the Ministry of Science and ICT
- **Chung-Ang University – College of Computer Science and Software**, Seoul, Republic of Korea
  - *Assistant Professor* (03/2016–08/2019), School of Computer Science and Engineering
- **Intel Corporation – Platform Engineering Group**, Silicon Valley (Santa Clara), California, USA
  - *Systems Engineer* (03/2015–02/2016), WiGig & mmWave Standards and Advanced Technology (SAT) Team
  - *Standards Scientist* (07/2014–03/2015), WiGig & mmWave SAT Team
  - *Wireless Standards Engineer Intern* (09/2013–07/2014), WiGig & mmWave SAT Team
- **University of Southern California (USC) – Viterbi School of Engineering**, Los Angeles, California, USA
  - *Annenberg Graduate Fellow* (08/2009), Awarded with Ph.D. admission in Computer Science from USC (2009)
  - *Ph.D. Research Assistant* (01/2011–08/2014), Communication Sciences Institute (CSI) (Advised by Prof. Andreas F. Molisch) (CSI is now re-organized as **Communications, Information, Learning, and Quantum (CILQ) Group**)
  - *Teaching Assistant* (01/2012–05/2013), Computer Science and Electrical Engineering Departments (CSCI455x and EE579)
- **InterDigital**, San Diego, California, USA
  - *Intern* (05/2012–08/2012), Wireless Systems Evolution Department
  - *Subject Matter Expert in IEEE 802.11ad* (01/2012–02/2012), Wireless Systems Evolution Department
- **LG Electronics CTO Office**, Seoul, Republic of Korea
  - *Research Engineer* (01/2006–08/2009), Multimedia Research Laboratory, Seocho R&D Campus
- **Korea University – Department of Computer Science and Engineering**, Seoul, Republic of Korea
  - *M.S. Research/Teaching Assistant* (03/2004–02/2006), Network Research Laboratory (Advised by Prof. Wonjun Lee)

### Administration Positions

- **Korea University**, Seoul, Republic of Korea
  - *Deputy Vice President* (02/2022–08/2024), Office of Academic Affairs
  - *Dean* (06/2021–08/2023), Center for Teaching and Learning (CTL)
- **NRF-Korea**, Daejeon, Republic of Korea
  - *Chief Review Board* (11/2024–10/2026), Area: Communications (Communication-based Convergence)

### Academia (Membership, Editorial Boards, and Services)

- **IEEE**

- Senior Member (2018–), Member (2006–2017)
- Distinguished Lecturer (2022–2023), **IEEE Communications Society**
- Editor (2023–), **IEEE Internet of Things Journal**
- Associate Editor (2020–), **IEEE Transactions on Vehicular Technology** (Area: Vehicular Electronics and Systems)
- Guest Editor, **Journal of Communications and Networks** (S.I. on Quantum Technologies for Communication Systems)
- Guest Editor, **IEEE Communications Standards Magazine** (S.I. on Recent and Future Evolution of Wi-Fi)
- **IEEE Vehicular Technology Society (VTS) Seoul Chapter**
  - \* Chapter Assistant Administrator for Planning (2024–), Chapter Treasurer (2022–2023, 2020–2021)
  - \* **IEEE VTS APWCS Organizing Committee: Finance Co-Chair** (2023), *Finance Chair* (2022), *Finance Co-Chair* (2021)
- **Elsevier/Springer/Wiley**
  - Editor (2021–), **ICT Express** (Area: AI for ICT Applications)
  - Guest Editor (2025), **The Journal of Supercomputing** (S.I. on Quantum Algorithms, Optimization, and A.I.)
  - Guest Editor (2023), **ETRI Journal** (S.I. on Autonomous Unmanned Aerial/Ground Vehicles and their Applications)
  - Guest Editor (2023), **Computer Networks** (S.I. on ML and AI for the Internet of Things, 5G, and Beyond)
  - Guest Editor (2022), **ICT Express** (S.I. on Artificial Intelligence and Machine Learning Approaches to Communication)
  - Guest Editor (2021), **ICT Express** (S.I. on Mobile and Edge Computing Systems)
- **KICS (Korean Institute of Communications and Information Sciences)**
  - Life Member (2018–)
  - Executive Director (2023–): IEEE ICTC AI (2025, 2024), AI Scholarship [AI Frontiers Summit] (2023)
  - Vice Executive Director (2021–2022): IEEE ICTC (2022, 2021), IEEE APCC (2022), Intelligence Technology Division (2021)
  - Director (2017–2022): KICS Summer Conference (2022), Intelligence Technology Division (2020, 2019, 2018), ICT Convergence Division (2017)
  - **KICS Technical Society on Communication Networking (2017–): Vice President** (2024, 2023, 2022)
  - **KICS Technical Society on Mobile Communications (2017–)**
  - **KICS Technical Committee on Quantum Computing and Quantum Communications (2025–): President** (2025)
  - **KICS Technical Committee on Military Communication (2019–): Secretary** (2024, 2023, 2022)
  - **KICS Technical Committee on Coding and Information Theory (2019–)**
  - **KICS Technical Committee on Spectrum Sharing (2018–)**
  - Editor, **The Journal of Korean Institute of Communications and Information Sciences**
  - Guest Editor (09/2019), **KICS Information and Communications Magazine** (S.I. on AI and Deep Learning)
  - **JCCI (Joint Conference on Communication and Information) Organizing Committee: Special Session** (2025, 2024), *Publication Chair* (2023, 2021, 2020, 2019, 2018), *General Affair Chair* (2022)
- **KIISE (Korean Institute of Information Scientists and Engineers)**
  - **Information Network Society: Vice President** (2024, 2023, 2022), *General Affair Manager* (2021), *General Affair Manager in Academia* (2020)
  - Editor, **Journal of KIISE** (Area: Information Network)
- **IEIE (Institute of Electronics and Information Engineers)**
  - Executive Director (2023), Director (2024, 2022)
  - **Telecommunication Society: General Affair Manager** (2025, 2024, 2023, 2022)
  - Editor, **Journal of the Institute of Electronics and Information Engineers** (Area: Telecommunication)
- **OSIA (Open Standards and ICT Association)**
  - Vice President (2025, 2024, 2023, 2022, 2021), *General Affair Manager* (2020)

## Awards and Honors

### Research and Academic Excellence (International)

- **IEEE Seoul Section Student Paper Contest, Bronze Paper Award (12/2024)**  
"Quantum convolutional neural networks based monocular 3D object detection for autonomous driving applications"
- **IEEE Seoul Section Student Paper Contest, Bronze Paper Award (12/2024)**  
"Correlation graph-based proximal policy optimization for stock prediction in volatile markets"
- **Certificate of Appreciation (10/2024) – IEEE/IFIP WiOpt (2024)**
- **IEEE VTS Seoul Chapter Award (2023) – IEEE Vehicular Technology Society**  
"Quantum reinforcement learning for large-scale multi-agent decision-making in autonomous aerial networks"
- **IEEE Seoul Section Student Paper Contest, Bronze Paper Award (12/2023)**  
"Aircraft taxi routing using reinforcement learning at Hartsfield Jackson Atlanta international airport"
- **Best Editor Award (2023) – ICT Express (Elsevier) (07/2023)**
- **Finalist (Top 25), AAI Student Abstract and Poster Session – Oral Presentation Contest (2023)**  
"FV-Train: Quantum convolutional neural network training with a finite number of qubits by extracting diverse features"
- **IEEE ICTC Best Paper Award (2022) – IEEE Communications Society**  
"Reinforcement learning empowered massive IoT access in LEO-based non-terrestrial networks"
- **IEEE VTS Seoul Chapter Award (2022) – IEEE Vehicular Technology Society**  
"DDPG-based deep reinforcement learning for loitering munition mobility control: Algorithm design and visualization"

- **Spotlight, Oral Presentation (2022)** – *ICML Workshop on Dynamic Neural Networks (2022)*  
"Slimmable quantum federated learning"
- **IEEE MMTC Best Journal Paper Award (2021)** – *IEEE Communications Society*  
– M. Choi, A.F. Molisch, and J. Kim, "Joint Distributed Link Scheduling and Power Allocation for Content Delivery in Wireless Caching Networks," *IEEE Transactions on Wireless Communications*, 19(12):7810-7824, December 2020.
- **IEEE VTS Seoul Chapter Award (2021)** – *IEEE Vehicular Technology Society*  
"Quantum scheduling for millimeter-wave observation satellite constellation"
- **IEEE VTS Seoul Chapter Award (2021)** – *IEEE Vehicular Technology Society*  
"Distributed and autonomous aerial data collection in smart city surveillance applications"
- **IEEE ICOIN Best Paper Award (2021)** – *IEEE Computer Society*  
"Infrastructure-assisted cooperative multi-UAV deep reinforcement energy trading learning for big-data processing"
- **IEEE MMTC Outstanding Young Researcher Award (2020)** – *IEEE Communications Society*
- **IEEE Systems Journal Best Paper Award (2020)** – *IEEE Systems Council*  
(Top 7 among 793 accepted papers in 2019 (Top 0.88%))  
– M. Saad, J. Choi, D. Nyang, J. Kim, and A. Mohaisen, "Towards Characterizing Blockchain-based Cryptocurrencies for Highly-Accurate Predictions," *IEEE Systems Journal*, 14(1):321-332, March 2020.
- **IEEE Seoul Section Student Paper Contest, Bronze Paper Award (2020)**  
"Reliable offloading target selection using deep reinforcement learning for large fire accident"
- **IEEE Seoul Section Student Paper Contest, Gold Paper Award (2019)**  
"Stabilized super-resolution deep learning adaptation for UAV-assisted mobile edges: A Lyapunov optimization approach"
- **IEEE VTS Seoul Chapter Award (2019)** – *IEEE Vehicular Technology Society*  
"Joint offloading and streaming in mobile edges: A deep reinforcement learning approach"
- **Next Generation and Standards (NGS) Division Recognition Award (Q1/2005)** – *Intel Corporation*  
For developing a 3-dual sector mmWave backhaul link software stack with mesh, relay, and load balancing capability for modular antenna array (MAA) proof-of-concept (POC)
- **Annenberg Graduate Fellowship Award (2009)** – *University of Southern California*  
Awarded with Ph.D. Admission in Computer Science, Viterbi School of Engineering

#### Research and Academic Excellence (Korea Regional)

- **Excellence Paper Award (12/2024)** – *2024 IEIE Electronics and Communications Conference*  
"Carbon emission aware satellite-terrestrial integrated network offloading method"
- **Best Paper Award, The Journal of KICS (11/2024)** – *KICS*  
"Reinforcement learning-based counter measure tactics to avoid torpedo threat"
- **HFR Paper Award (Area: Quantum Technologies and Quantum Communications) (11/2023)** – *KICS*  
"Quantum multi-agent reinforcement learning for multi-metaverse adaptive streaming in hybrid quantum-classical networks"
- **Korea Electronics Technology Institute (KETI) President Award (06/2023)** – *2023 KICS Summer Conference*  
"Grid environment design and grouping for optimal relay station placement"
- **Haedong Paper Award (02/2023)** – *KICS*  
"Dynamic quantum federated learning framework at satellites and ground stations using slimmable quantum neural networks"
- **Excellence Paper Award (02/2023)** – *2023 KICS Winter Conference*  
"Self-learning-based hybrid MAC for military UAV networks"
- **Insung Research Grant Award (01/2023)** – *Korea University*  
For recognizing Korea University professors in research excellence during the first 3 years at Korea University (Top 5%)
- **Excellence Paper Award (02/2022)** – *2022 KIISE Summer Workshop on Computer Communications (SWCC)*  
"Unity-based reinforcement learning visualization and simulations for suicide drone attacks"
- **Excellence Paper Award (02/2022)** – *2022 KICS Winter Conference*  
"Trends in neural architecture search for object detection"
- **Haedong Young Scholar Award (2018)** – *KICS and Haedong Foundation*  
For recognizing a researcher under the age of 40 who has made outstanding contributions to communication sciences R&D
- **Haedong Paper Award (06/2021)** – *KICS*  
"Neural architectural nonlinear pre-processing for mmWave radar-based human gesture perception in on-driving scenarios"
- **Excellence Paper Award (06/2021)** – *2021 KICS Summer Conference*  
"Deep learning based non-orthogonal pilot design for massive MIMO"
- **Excellence Paper Award (Undergraduate) (06/2021)** – *2021 KICS Summer Conference*  
"Deep reinforcement learning visualization and simulations using Unity-RL in an autonomous driving environment"
- **Encouragement Paper Award (11/2020)** – *2020 KICS Fall Conference*  
"UAV trajectory optimization via multi-agent deep reinforcement learning"
- **Encouragement Paper Award (06/2020)** – *2020 KICS Summer Conference*  
"3D modeling and WebVR implementation using Azure Kinect, Open3D, and Three.js"
- **Encouragement Paper Award (02/2020)** – *2020 KICS Winter Conference*  
"Quantum heuristic solver using QAOA for the maximum independent set problem"
- **Encouragement Paper Award (02/2020)** – *2020 KICS Winter Conference*  
"Multi-drone scheduling for high-reliable and high-performance UAV-based surveillance networking"



- **Outstanding Paper Award (2008)** – LG Electronics CTO Office, Multimedia Research Laboratory  
– W. Lee, E. Kim, J. Kim, I. Lee, and C. Lee, "Movement-Aware Vertical Handoff of WLAN and Mobile WiMAX for Seamless Ubiquitous Access," *IEEE Transactions on Consumer Electronics*, 53(4):1268-1275, November 2007.
- **RFID Expert Group President Award (2007)** – The 3rd RFID/USN Research Paper Contest
- **ETRI President Award (2006)** – The 2nd RFID/USN Research Paper Contest
- **Korea Association of RFID/USN (KARUS) President Award (2005)** – The 1st RFID/USN Research Paper Contest
- **Scholarships for Academic Excellence (Fall 1999, Fall 2000)** – Korea University, Department of Computer Science and Engineering

#### Teaching and Supervision Excellence (Korea University)

- **Granite Tower Best Teaching Award (Top 5%)** – (SW Programming Basics, GECT002-01, 297 students) Spring 2024
- **Best Teaching Award (Top 20%)** – (SW Programming Basics, GECT002-02, 240 students) Spring 2024
- **Best Teaching Award (Top 20%)** – (SW Programming Basics, GECT002-08, 375 students) Spring 2024
- **Granite Tower Best Teaching Award (Top 5%)** – (Future Mobility Technology, GEQR075-00, 198 students) Spring 2022
- **Best Teaching Award (Top 20%)** – (Probability and Random Process, KECE209-02, 90 students) Spring 2022
- **Granite Tower Best Teaching Award (Top 5%)** – (Computer Language and Lab, EGRN151-06, 98 students) Fall 2021
- **Best Teaching Award (Top 20%)** – (Object Oriented Programming, SEMI104-00, 22 students) Fall 2021
- **Granite Tower Best Teaching Award (Top 5%)** – (Introduction to Computers, SEMI103-00, 28 students) Spring 2021
- **Best Teaching Award (Top 20%)** – (Probability and Random Process, KECE209-02, 92 students) Spring 2021
- **Best Teaching Award (Top 20%)** – (Computer Language and Lab, EGRN151-09, 129 students) Fall 2020
- **Granite Tower Best Teaching Award (Top 5%)** – (Computer Language and Lab, EGRN151-07, 100 students) Fall 2019

#### Academic and University Services

- **Outstanding Contribution Award (11/2024)** – KICS
- **Outstanding Contribution Award (02/2023)** – KIISE Information Network Society
- **2022 Best Chapter Award, IEEE Vehicular Technology Society Chapter (12/2022)**, Awarded as a Treasure
- **Outstanding Contribution Award (02/2022)** – KIISE Information Network Society
- **Outstanding Contribution Award (12/2021)** – Open Standards and ICT Association (OSIA)
- **Outstanding Contribution Award (11/2021)** – KICS
- **Appreciation Recognition (10/2021)** – Daegu Gyeongbuk Institute of Science and Technology (DGIST)
- **Outstanding Contribution Award (11/2019)** – KICS
- **Fellow Employee Recognition [#3081146] (12/2014)** – Intel Corporation
- **Certificate of Appreciation (09/2010)** – Department of Computer Science, University of Southern California

### **R&D Projects (Totally, 15,795,033 USD ≈ 15,795,033,875 KRW)**

#### Industry-Funded Projects

- **Advancement Technology Development for Torpedo Deception Strategies in Submarines** 11/2022–11/2026  
Funded by *LIG Nex1* [Grant: \$700,000; Primary-PI]
- **Advancement Technology Development for Submarine Target Identification and Engagement Support Intelligence** 11/2022–11/2026  
Funded by *LIG Nex1* [Grant: \$300,000; Primary-PI]
- **Mapping between Real World and Virtual Reality (VR) for End-Edged Cloud Real-Time VR Servers** 09/2020–09/2025  
Funded by *Samsung Advanced Institute of Technology* [Grant: \$357,500; Primary-PI]
- **Research on Learning-based Swarm Mission Planning Algorithms** 03/2024–02/2025  
Funded by *LIG Nex1* [Grant: \$110,000; Primary-PI]
- **Quantum Machine Learning-based Objection Detection for Point Cloud and its Acceleration** 12/2022–04/2024  
Funded by *Hyundai Motors Group* [Grant: \$110,000; Primary-PI]
- **Routing Algorithms for LEO Satellite Networks** 12/2022–08/2023  
Funded by *Solvit System* [Grant: \$27,500; Primary-PI]
- **Optimal Positioning Algorithms for Wide-Area Relaying Networks** 12/2022–08/2023  
Funded by *Solvit System* [Grant: \$22,000; Primary-PI]
- **Distributed Learning Algorithms to Build AI Models with Multi-Center Clinical Data** 11/2022–02/2023  
Funded by *Cipherome* [Grant: \$12,000; Primary-PI]
- **Cellular/Wi-Fi Handover Technology Development** 02/2022–12/2022  
Funded by *LG Electronics CTO Division – Smart Mobility Lab., Advanced R&BD Center* [Grant: \$88,000; Primary-PI]
- **Research Trends in Digital Twin Applications to Autonomous Driving** 03/2022–04/2022  
Funded by *Hyundai NGV* [Grant: \$1,000; Primary-PI]
- **Distributed Learning System Design and Implementation for Clinical Applications** 02/2022–03/2022  
Funded by *Cipherome* [Grant: \$15,000; Primary-PI]
- **Super-Resolution Performance Optimization in Mobile Platforms** 05/2020–08/2020  
Funded by *Samsung SDS* [Grant: \$15,000; Primary-PI]
- **Deep Learning Algorithms for mVOC Concentration Analysis** 03/2020–06/2020  
Funded by *Samsung Electronics (C-Lab)* [Grant: \$12,000; Primary-PI]

- **Visual Recognition Software Implementation using Deep Learning Tools** 05/2019–11/2019  
Funded by *Hyundai Motors Company (Hyundai NGV)* [Grant: \$48,189,170; Primary-PI]
- **A Priori Techniques Research for Efficient Multi-Edge Computing** 06/2017–12/2017  
Funded by *Samsung Electronics (Software Center)* [Grant: \$80,000]

#### University/Center-Level Projects

- **Net-Zero CAFE (Connectivity and Autonomy for Future Ecosystem) Research Center** 07/2024–12/2031  
*University ICT Research Center (ITRC) @ Korea University, Funded by IITP [IITP-2024-RS-2024-00436887, Grant: \$6,940,000]*  
**Center Director**
- **Intelligent 6G Wireless Access System Research Center** 04/2021–12/2025  
*6G AI Research Center @ Korea University, Funded by IITP [2021-0-00467, Grant: \$290,000]*
- **K-Starlink: Dynamic Reconfigurable and Intelligent Space-Terrestrial Networks** 06/2021–05/2024  
*Basic Research Laboratory @ Ajou University, Funded by NRF-Korea [2021R1A4A1030775, Grant: \$251,000]*
- **Nano UAV Intelligence Systems Research Lab (NUiSRL)** 10/2020–08/2023  
*Military Special Research Center @ Kwangwoon University, Funded by Agency for Defense Development (ADD) [Grant: \$130,000]*
- **5G/Unmanned Vehicle Research Center (5G/UV-RC)** 06/2020–12/2022  
*University ICT Research Center (ITRC) @ Hanyang University, Funded by IITP [Grant: \$55,709]*
- **Human Resource Development for the Biomedical Unstructured Big Data Analysis** 08/2018–12/2021  
*University ICT Research Center (ITRC) @ Seoul National University Hospital, Funded by IITP*
- **Network Engineering: Development and Application of Novel Data Science Driven Framework for Efficient Network Design** 06/2017–05/2020  
*Basic Research Laboratory @ Chung-Ang University, Funded by NRF-Korea [2017R1A41015675, Grant: \$150,000]*
- **Intelligent Internet of Energy (IoE) Data Research Center** 02/2020–05/2020  
*University ICT Research Center (ITRC) @ Kookmin University, Funded by IITP*

#### Government-Funded Projects

- **Quantum AI Empowered Second-Life Platform Technology** 07/2024–12/2031  
Funded by IITP – SW Star-Lab (*Software Technology Advanced Research*) [RS-2024-00439803, Grant: \$2,200,000]
- **6GARROW: 6G AI-Native Integrated RAN-Core Networks** 09/2024–08/2027  
Funded by IITP [xxx, Grant: \$55,000]
- **AI Bots Collaborative Platform and Self-Organizing Artificial Intelligence Technology Development** 04/2022–12/2026  
Funded by IITP [2022-0-00907, Grant: \$537,222.852]
- **Development of AI Learning Platform for Intelligent Excavators based on Expert Work Data** 04/2023–12/2026  
Funded by *Korea Evaluation Institute of Industrial Technology (KEIT)*  
(Primary-PI: Prof. Soyi Jung at Ajou University)
- **Development of Integrated Development Framework that supports Automatic Neural Network Generation and Deployment optimized for Runtime Environment** 04/2021–12/2025  
Funded by IITP [2018-0-00170, Grant: \$291,073.362]
- **Quantum Hyper-Driving: Quantum-Inspired Hyper-Connected and Hyper-Sensing Autonomous Mobility Technologies** 03/2022–02/2025  
Funded by NRF-Korea [2022R1A2C2004869, Grant: \$571,836.753; Primary-PI]
- **Korea-Japan Joint Seminar Project for Generative and Multi-Modal AI Technologies** 10/2023–09/2024  
Funded by NRF-Korea (*International Research Collaboration*) [Grant: \$50,000; PI]
- **Integrated Perception Technology Developments for Public Safety Platforms** 06/2019–05/2023  
Funded by NRF-Korea [2019M3E3A1084054, Grant: \$400,000]
- **Development of Quantum Deep Reinforcement Learning Algorithm using QAOA** 10/2019–04/2022  
Funded by *Ministry of Science and ICT* [2019M3E4A1080391, Grant: \$503,361.794; Primary-PI]
- **mmWave Radar and Deep Reinforcement Learning based Optimal Policy Autonomous Driving** 06/2019–02/2022  
Funded by NRF-Korea [2019R1A2C4070663, Grant: \$282,124.926; Primary-PI]
- **Development of Privacy-Reinforcing Distributed Transfer-Iterative Learning Algorithm** 07/2019–12/2021  
Funded by *Ministry of Health and Welfare* [HI19C0842, Grant: \$149,558.670]
- **Virtual Presence in Moving Objects through 5G (PriMO-5G)** 06/2018–06/2021  
Funded by IITP [2018-0-00170, Grant: \$246,464]
- **Distributed Secure Platform for Scalable Clinical OMOP CDM Models** 04/2019–12/2020  
Funded by *Ministry of Health and Welfare* [HI19C0572, Grant: \$90,000]
- **mmWave High-Speed Networking Platform Design for Next-Generation Convergence Services** 06/2016–05/2019  
Funded by NRF-Korea [2016R1C1B1015406, Grant: \$150,000; Primary-PI]  
– Selected as **Initial Innovation Lab** [Grant: \$60,000]
- **Feasibility Study of 60 GHz IEEE 802.11ad for Virtual Reality (VR) Platforms** 04/2017–12/2017  
Funded by IITP [Grant: \$33,333; Primary-PI]

#### Government-Funded Research Institute Projects

- **Quantum Reinforcement Learning for Satellite Backhaul Routing in Disaster Networks** 05/2024–11/2024  
Funded by *Electronics and Telecommunications Research Institute* [Grant: \$40,000; Primary-PI]

- **Research on Quantum Multi-Agent Reinforcement Learning Stability**  
(Research on Multi-Agent Reinforcement Learning Exploration, Communication, Training Strategy)  
Funded by *Electronics and Telecommunications Research Institute*  
(Primary-PI: Prof. Soohyun Park at Sookmyung Women's University) 09/2023–01/2024
- **NOMA-based Resource Allocation Research in Space-Air-Ground Integrated Networks** 09/2023–11/2023  
Funded by *Electronics and Telecommunications Research Institute* [Grant: \$20,900; Primary-PI]
- **Autonomous Intelligent COA Search Methods for Cyber-Attacks** 12/2021–11/2022  
Funded by *Agency for Defense Development (ADD)* [UI210009XD, Grant: \$104,039; Primary-PI]
- **Fundamental Research on LEO Satellite Access Protocols in Non-Territorial Networks** 04/2021–11/2021  
Funded by *Electronics and Telecommunications Research Institute*  
(Primary-PI: Prof. Soyi Jung at Ajou University)
- **Research on Intelligent Agent-based CPS Security and Reliability** 04/2021–11/2021  
Funded by *Telecommunications Technology Association (TTA)* [Grant: \$48,000; Primary-PI]
- **Multi-GPU based Automotive HPC Platform Development** 04/2020–10/2020  
(A Development of Driving Decision Engine for Autonomous Driving using Driving Experience Information)  
Funded by *Electronics and Telecommunications Research Institute* [19HS2720 (IITP 2017-0-00068), Grant: \$20,000; Primary-PI]
- **Cooperative Deep Reinforcement Learning for Online Game Multi-Agents** 04/2020–08/2020  
(Human-Agent Cooperation Algorithm Design in Multi-Agent Environment)  
Funded by *Electronics and Telecommunications Research Institute* [19YE1400, Grant: \$28,000; Primary-PI]
- **Verification Testbed Implementation for Privacy-Preserving Trust Data Generation** 10/2019–11/2019  
Funded by *Electronics and Telecommunications Research Institute* [Grant: \$44,000]
- **Measurement and Analysis of Multi-Task GPU Scheduling Delays** 05/2019–10/2019  
(A Development of Driving Decision Engine for Autonomous Driving using Driving Experience Information)  
Funded by *Electronics and Telecommunications Research Institute* [19HS2720 (IITP 2017-0-00068), Grant: \$40,000; Primary-PI]
- **Probabilistic Decision Making and Econometric Methods for Micro-Grid** 05/2017–04/2019  
Funded by *Korea Electric Power Corporation (KEPCO) Research Institute* [R17XA05-41, Grant: \$143,128; Primary-PI]
- **GPU Scheduling Performance Analysis under Queueing Delay Considerations** 05/2018–10/2018  
(A Development of Driving Decision Engine for Autonomous Driving using Driving Experience Information)  
Funded by *Electronics and Telecommunications Research Institute* [18HS1420 (IITP 2017-0-00068), Grant: \$40,000; Primary-PI]
- **Improving Massive Deep Learning Training via Computation and Communication Acceleration** 04/2018–10/2018  
(Development of HPC System for Accelerating Large-Scale Deep Learning)  
Funded by *Electronics and Telecommunications Research Institute* [18HS1710 (IITP 2016-0-00087), Grant: \$30,000; Primary-PI]
- **Parsing Techniques for Artificial Neural Network (ANN) Data Processing** 09/2017–11/2017  
(A Development of Driving Decision Engine for Autonomous Driving using Driving Experience Information)  
Funded by *Electronics and Telecommunications Research Institute* [17HS2720 (IITP 2017-0-00068), Grant: \$40,000; Primary-PI]

#### Awards and Fellowship Funds

- **Insung Research Grant Award (2023) – Korea University** 03/2023–02/2024  
For recognizing Korea University professors in research excellence during the first 3 years at Korea University (Top 5%)  
Awarded Project Title: **Quantum Machine Learning for Autonomous Mobility Systems**  
Awarded Project Fund: \$20,000
- **Annenberg Graduate Fellowship Award (2009) – University of Southern California** 08/2009–06/2013  
Awarded with Ph.D. Admission in Computer Science, Viterbi School of Engineering  
Awarded Fund: 4 Year Full Scholarship (Tuition Waiver and \$120,000 Stipend (\$30,000/year for 4 years))

#### University of Southern California (USC) – Viterbi School of Engineering (Ph.D. Research Projects)

- **Video Aware Wireless Networks (VAWN) Research Program**  
Funded by *Intel Labs, Verizon Wireless, and Cisco Systems*; Under the guidance of Prof. Andreas F. Molisch (University of Southern California, USA) and Prof. Giuseppe Caire (Technische Universität Berlin, Germany)
- **60 GHz Real-Time Wireless Video Broadcasting**  
Supported by a Gift from *Disney Research Zürich*; Under the guidance of Prof. Andreas F. Molisch (University of Southern California, USA), Prof. Yafei Tian (Beihang Univ, China), and Dr. Stefan Mangold (Disney Research Zürich, Switzerland)

#### **Selected Publications**

- **8962+ Citations** (H-index: 45+, i10-index 194+), obtained from Google Scholar Profile (as of January 5, 2025)

#### Dissertation, Books, and Book Chapters

##### ■ Ph.D. Dissertation, Books, and Book Editing

- *Fundamentals of 6G Communications and Networking*, Springer (2023). (Editors: X. Lin, J. Zhang, Y. Liu, J. Kim)
- *Elements of Next-Generation Wireless Video Systems: Millimeter-Wave and Device-to-Device Algorithms*  
Ph.D. Dissertation (Computer Science), University of Southern California (Los Angeles, California, USA, August 2014)

##### ■ Book Chapters

- *Fundamentals of 6G Communications and Networking*, Springer (2023).  
– Chapter 30. Network Security and Trustworthiness, (S. Jung, S. Park, S.B. Son, H. Lee, J. Kim)



- Chapter 29. Semantic Communications and Networking, (W.J. Yun, S. Park, R. Lee, J. Park, Y.-C. Ko, [J. Kim](#))
- Chapter 28. Convergence of 6G and Wi-Fi Networks, (H. Lee, S. Park, M. Yoo, C. Park, H. Baek, [J. Kim](#))
- Chapter 26. UAV Communications and Networks, (S. Park, J.-H. Lee, S. Jung, [J. Kim](#))
- Chapter 22. AI-Native Network Algorithms and Architectures, (H. Lee, S. Park, H. Baek, C. Park, S. Son, J. Park, [J. Kim](#))
- Chapter 21. AI-Native Communications, (H. Baek, H. Lee, S. Park, H. Lee, J. Park, [J. Kim](#))
- Chapter 20. Network Disaggregation, (S. Park, C. Park, J.P. Kim, M. Choi, [J. Kim](#))
- Chapter 1. Introduction to 6G Communications and Networking, (X. Lin, J. Zhang, Y. Liu, [J. Kim](#))
- *Advances and Applications in Deep Learning*, IntechOpen (2020).
  - Chapter 6. Dynamic Decision-Making for Stabilized Deep Learning Software Platforms, (S. Park, D. Kim, [J. Kim](#))
- *Towards 5G: Applications, Requirements and Candidate Technologies*, Wiley (2017).
  - Chapter 9. Device-to-Device Communications, (A.F. Molisch, M. Ji, [J. Kim](#), D. Burghal, A.S. Tehrani)
- *Opportunities in 5G Networks: A Research and Development Perspective*, CRC Press (2016).
  - Chapter 19. Millimeter-Wave (mmWave) Medium Access Control: A Survey, ([J. Kim](#))
  - Chapter 17. Millimeter-Wave (mmWave) Radio Propagation Characteristics, ([J. Kim](#))
- *Handbook on Mobile and Ubiquitous Computing: Status and Perspective*, CRC Press (2012).
  - Chapter 22. Weighted Localized Clustering: A Coverage-Aware Reader Collision Arbitration Protocol in RFID Networks, ([J. Kim](#), E. Kim, W. Lee, D. Kim, J. Choi, J. Jung, C.K. Shin)
- *Wireless Mesh Networking*, McGraw-Hill (2008).
  - Chapter 2.5.4.1. Coverage-Time Optimized Dynamic Clustering for Two-Tiered WM2Nets, ([J. Kim](#), W. Lee, E. Kim, T.K. Shih)

## Selected Papers

### ■ Top-Tier Conferences

- [IPDPS'25] AQUA: Hardware-Agnostic Qubit Allocation for Quantum Multi-Programming, [IEEE IPDPS \(2025\)](#). (X. Piao, J.Y. Shim, [J. Kim](#), J.-K. Kim) ([xx.xx%](#))
- [NOMS'25] Joint Multi-Agent Reinforcement Learning and Message-Passing for Distributed Multi-UAV Network Management using Conflict Graphs, [IEEE/IFIP NOMS \(2025\)](#). (Y. Cho, H. Lee, S. Park, [J. Kim](#))
- [CIKM'24] Hands-On Introduction to Quantum Machine Learning, [ACM CIKM \(2024\)](#). (S. Y.-C. Chen, [J. Kim](#))
- [WiOpt'24] Advanced Taxiing Path Guidance using Multi-Agent Reinforcement Learning for Air Traffic Management, [IEEE/IFIP WiOpt \(2024\)](#). (S. Lee, G.S. Kim, S. Park, [J. Kim](#))
- [CIKM'23] Quantum Split Learning for Privacy-Preserving Information Management, [ACM CIKM \(2023\)](#). (S. Park, H. Baek, [J. Kim](#)) ([27.44%](#))
- [CIKM'23] Logarithmic Dimension Reduction for Quantum Neural Networks, [ACM CIKM \(2023\)](#). (H. Baek, S. Park, [J. Kim](#)) ([27.44%](#))
- [AAAI'23] Quantum Multi-Agent Meta Reinforcement Learning, [AAAI \(2023\)](#). (W.J. Yun, J. Park, [J. Kim](#)) ([19.61%](#))
- [CIKM'22] Hierarchical Reinforcement Learning using Gaussian Random Trajectory Generation in Autonomous Furniture Assembly, [ACM CIKM \(2022\)](#). (W.J. Yun, D. Mohaisen, S. Jung, J.-K. Kim, [J. Kim](#))
- [WiOpt'22] Cooperative Video Quality Adaptation for Delay-Sensitive Dynamic Streaming using Adaptive Super-Resolution, [IEEE/IFIP WiOpt \(2022\)](#). (M. Choi, W.J. Yun, [J. Kim](#))
- [INFOCOM'22] Joint Superposition Coding and Training for Federated Learning over Multi-Width Neural Networks, [IEEE INFOCOM \(2022\)](#). (H. Baek, W.J. Yun, Y. Kwak, S. Jung, M. Ji, M. Bennis, J. Park, [J. Kim](#)) ([19.93%](#))
- [ICDCS'20] Understanding the Potential Risks of Sharing Elevation Information on Fitness Applications, [IEEE ICDCS \(2020\)](#). (Ü. Meteriz, N.F. Yildiran, [J. Kim](#), D. Mohaisen) ([17.98%](#))
- [IJCAI'19] Randomized Adversarial Imitation Learning for Autonomous Driving, [IJCAI \(2019\)](#). (M. Shin, [J. Kim](#)) ([17.89%](#))
- [ICBC'19] Mempool Optimization for Defending Against DDoS Attacks in PoW-based Blockchain Systems, [IEEE ICBC \(2019\)](#). (M. Saad, L. Njilla, C. Kamhoua, [J. Kim](#), D. Nyang, A. Mohaisen) ([Citations: 100+](#)) ([19.61%](#))
- [ICDCS'18] ShmCaffe: A Distributed Deep Learning Platform with Shared Memory Buffer for HPC Architecture, [IEEE ICDCS \(2018\)](#). (S. Ahn, [J. Kim](#), E. Lim, W. Choi, A. Mohaisen, S. Kang) ([20.63%](#))
- [MM'17] REQUEST: Seamless Dynamic Adaptive Streaming over HTTP for Multi-Homed Smartphone under Resource Constraints, [ACM Multimedia \(2017\)](#). (J. Koo, J. Yi, [J. Kim](#), M.A. Hoque, S. Choi) ([27.63%](#))
- [MobiSys'10] Energy-Efficient Rate-Adaptive GPS-based Positioning for Smartphones, [ACM MobiSys \(2010\)](#). (J. Paek, [J. Kim](#), R. Govindan) ([Citations: 600+](#)) ([19.84%](#))
- [ICCCN'05] Effect of Localized Optimal Clustering for Reader Anti-Collision in RFID Networks: Fairness Aspect to the Readers, [IEEE ICCCN \(2005\)](#). ([J. Kim](#), W. Lee, J. Yu, J. Myung, E. Kim, C. Lee) ([32.17%](#))

### ■ Journals and Magazines

#### ◀ Review ▶

- [TIE.review] (Review since 03-Jan-2025) (Double Blind), [IEEE Transactions on Industrial Electronics](#). (M. Shin, J. Cho, [J. Kim](#), S. Jung)
- [CM.review] (Review since 31-Dec-2025) Living on the Quantum Edge: Quantum Machine Learning for Hybrid Cache-and-Edge Models, [IEEE Communications Magazine](#). (S. Park, J.Y. Shim, S. Jung, M. Bennis, [J. Kim](#))
- [CM.review] (Review since 30-Dec-2024) Quantum Jump to Connected Worlds: Paradigm Shifts in Mobility and Network Applications via Quantum Neural Networks, [IEEE Communications Magazine](#). (H. Lee, G.S. Kim, E.J. Roh, S. Lee, S. Park, T.Q. Duong, [J. Kim](#))
- [TIFS.review] (Review since 29-Dec-2024) A Privacy-Preserving Scheme using 2D Chaos for Medical Image Analysis and Archiving, [IEEE Transactions on Information Forensics and Security](#). (I. Ahmad, [J. Kim](#), S. Shin)
- [JCN.review] (Review since 22-Dec-2024) Stabilized Classification Control using Multi-Stage Quantum Convolutional Neural Networks for Autonomous Driving, [Journal of Communications and Networks](#). (E.J. Roh, S. Park, S. Jung, [J. Kim](#))

- [TAES.review] (Review since 21-Dec-2024) Integrated Control, Communication, and Computing for Mission-Critical Embedded Unmanned Aerial Vehicles, **IEEE Transactions on Aerospace and Electronic Systems**. (G.S. Kim, S. Park, S. Jung, D. Mohaisen, J. Kim)
- [JS.review] (Review since 28-Nov-2024) SQUAD: Software Testing for Quantum Distributed Learning Software, **The Journal of Supercomputing**. (S. Park, J.H. Cho, H.J. Yook, G.S. Jhun, Y.K. Lee, J. Kim)
- [TMC.review] (Review since 26-Nov-2024) Time-to-Collision Aware Autonomous Driving Motion Control under Risky Scenario Considerations, **IEEE Transactions on Mobile Computing**. (S. Kim, J. Kim, J. Kim, S. Jung)
- [TMC.review] (Review since 20-Nov-2024) Quantum Reinforcement Learning for Joint Control, Communication, and Computing in Stabilized Reusable Space Rocket, **IEEE Transactions on Mobile Computing**. (G.S. Kim, J. Chung, S. Jung, S. Park, J. Kim)
- [JS.review] (Review since 16-Nov-2024) Joint Scalable Quantum Convolutional Neural Network and Reverse-Fidelity Training for High-Accurate Recognition in Unmanned Aerial Vehicle Surveillance, **The Journal of Supercomputing**. (E.J. Roh, J. Kim, S. Jung, S. Park)
- [TON.review] (Review since 08-Nov-2024) Quantum Federated Aggregation: We Don't Need to Get Everything, **IEEE/ACM Transactions on Networking**. (J. Chung, C. Im, H. Baek, S. Park, J. Kim)
- [TMC.review] (Review since 03-Nov-2024) Quantum Reinforcement Learning for Lightweight LEO Satellite Routing, **IEEE Transactions on Mobile Computing**. (G.S. Kim, S. Lee, I.-S. Cho, S. Park, J. Kim)
- [TAES.review] (Review since 15-Oct-2024) Quantum Multi-Agent Reinforcement Learning for Joint Cube-Satellites and High-Altitude Long-Endurance Aerial Vehicles in SAGIN, **IEEE Transactions on Aerospace and Electronic Systems**. (G.S. Kim, Y. Cho, S. Park, S. Jung, J. Kim)
- [NN.review] (Review since 23-Sep-2024) Correlation-Assisted Spatio-Temporal Reinforcement Learning for Stock Revenue Maximization, **Neural Networks**. (J. Chung, M. Kim, S. Min, H. Choi, S. Park, J. Kim)
- [TVT.review] (Review since 20-Aug-2024) Learning-based Aircraft Taxi Routing: Empirical Evaluation Study for Hartsfield-Jackson Atlanta International Airport, **IEEE Transactions on Vehicular Technology**. (G.S. Kim, S. Lee, S. Park, J. Kim)
- [CM.review] (Review since 06-Jun-2024) Sustainable Quantum Multi-Agent Cooperative Learning: Algorithms and Software Methods, **IEEE Communications Magazine**. (S. Park, J. Kim)
- [TMC.review] (Review since 30-May-2024) Quantum Multi-Agent Reinforcement Learning for Cooperative Mobile Access in Space-Air-Ground Integrated Networks, **IEEE Transactions on Mobile Computing**. (G.S. Kim, Y. Cho, J. Chung, S. Park, S. Jung, Z. Han, J. Kim)
- [Neuro.review] (Review since 10-May-2024) Multi-Resolution 3D Quantum Convolutional Neural Networks, **Neurocomputing**. (S. Park, E.J. Roh, C. Im, J. Kim)

#### ◀ Revision ▶

- [JS.revision] Hybrid Quantum-Classical 3D Object Detection, **The Journal of Supercomputing**. (E.J. Roh, J.Y. Shim, J. Kim, S. Park)
- [IOT].revision] Joint Quantum Reinforcement Learning and Neural Myerson Auction for High-Quality Digital-Twin Services in Multi-Tier Networks, **IEEE Internet of Things Journal**. (S. Park, G.S. Kim, J. Kim)
- [CM.revision] Dynamic Software Testing for Run-Time Program Analysis in Quantum-based Autonomous Driving Applications, **IEEE Communications Magazine**. (S. Park, J. Kim)
- [CM.revision] Quantum Neural Network Software Testing, Analysis, and Code Optimization for Advanced IoT Systems: Design, Implementation, and Visualization, **IEEE Communications Magazine**. (S. Park, J. Kim)
- [IOT].revision] Entanglement-Controlled Quantum Federated Learning, **IEEE Internet of Things Journal**. (S. Park, H. Lee, S. Jung, J. Park, M. Bennis, J. Kim)
- [TMC.revision] Joint Sustainable Control and Quantum Reinforcement Learning for Energy-Efficient Cube-Satellite Networks, **IEEE Transactions on Mobile Computing**. (S. Park, G.S. Kim, S. Jung, Z. Han, J. Kim)
- [IET.revision] Fast Batch Gradient Descent in Quantum Neural Networks, **IET Electronics Letters**. (J.Y. Shim, J. Kim)
- [IOT].revision] Privacy-Preserving Uncertainty Calibration using Perceptual Encryption in Cloud-Edge Collaborative Artificial Intelligence of Things, **IEEE Internet of Things Journal**. (I. Ahmad, J. Kim, S. Shin)
- [TON.revision] Slimmable Federated Reinforcement Learning for Energy-Efficient Proactive Caching, **IEEE/ACM Transactions on Networking**. (H. Baek, G.S. Kim, S. Park, A.F. Molisch, J. Kim)
- [NN.revision] Quantum Federated Learning with Pole-Angle Quantum Local Training and Trainable Measurement, **Neural Networks**. (S. Park, H. Lee, S.B. Son, S. Jung, J. Kim)
- [MM.revision] Quantum Jump to Virtual Worlds: High-Quality Multiple Virtual Meta-Space Realization in Metaverse, **IEEE Multimedia**. (S. Park, J. Kim)

#### ◀ Accepted ▶

- [TVT.accepted] Dynamic Quantum Federated Learning for UAV-based Autonomous Surveillance, **IEEE Transactions on Vehicular Technology**. (S. Park, S.B. Son, S. Jung, J. Kim)
- [TNSM.accepted] Intelligent Extra Resource Allocation for Cooperative Awareness Message Broadcasting in Cellular-V2X Networks, **IEEE Transactions on Network and Service Management**. (S. Jung, J.-H. Kim, J. Kim)
- [TIV.accepted] Adaptive Quantum Federated Learning for Autonomous Surveillance Multi-Drone Networks, **IEEE Transactions on Intelligent Vehicles**. (S. Park, C. Park, S. Jung, J. Kim)
- [TIV.accepted] Neural Myerson Auction for Truthful and Distributed Mobile Charging in UAV-Assisted Digital-Twin Networks, **IEEE Transactions on Intelligent Vehicles**. (S. Jung, H. Baek, J. Kim)

#### ◀ 2025 ▶

- [TMC'25.02] Fast Quantum Convolutional Neural Networks for Low-Complexity Object Detection in Autonomous Driving Applications, **IEEE Transactions on Mobile Computing**, 24(2):ppp-ppp (2025). (E.J. Roh, H. Baek, D. Kim, J. Kim)

#### ◀ 2024 ▶



- [CM'24.12] The Matrix: Quantum AI for Interacting Two Worlds in Prioritized Metaverse Spaces, **IEEE Communications Magazine**, 62(12):97–103 (2024). (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 (2024). (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 (2024). (S. Park, J. Chung, C. Park, S. Jung, M. Choi, S. Cho, J. Kim)
- [IOTI'24.12] Markov Decision Policies for Distributed Angular Routing in LEO Mobile Satellite Constellation Networks, **IEEE Internet of Things Journal**, 11(23):38744–38754 (2024). (S. Park, G.S. Kim, S. Jung, 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 (2024). (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 (2024). (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 (2024). (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 (2024). (S. Park, J. Kim) (Invited Article)
- [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 (2024). (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 (2024). (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 (2024). (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 (2024). (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 (2024). (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 (2024). (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 (2024). (S. Park, S. Jung, J. Kim)
- [Access'24.04] Quantum Reinforcement Learning for Spatio-Temporal Prioritization in Metaverse, **IEEE Access**, 12:54732–54744 (2024). (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 (2024). (B. Lim, W.J. Yun, J. Kim, Y.-C. Ko)
- [TGCN'24.03] Joint Delay-Sensitive and Power-Efficient Quality Control of Dynamic Video Streaming using Adaptive Super-Resolution, **IEEE Transactions on Green Communications and Networking**, 8(1):103–117 (2024). (M. Choi, W.J. Yun, S.B. Son, S. Park, J. Kim)
- [TIV'24.02] Intelligent Caching for Seamless High-Quality Streaming in Vehicular Networks: A Multi-Agent Reinforcement Learning Approach, **IEEE Transactions on Intelligent Vehicles**, 9(2):3672–3686 (2024). (M. Choi, T. Xiang, J. Kim)
- [TNNLS'24.02] Hierarchical Deep Reinforcement Learning-based Propofol Infusion Assistant Framework in Anesthesia, **IEEE Transactions on Neural Networks and Learning Systems**, 35(2):2510–2521 (2024). (W.J. Yun, M. Shin, D. Mohaisen, K. Lee, J. Kim)
- [TMC'24.01] Learning Location from Shared Elevation Profiles in Fitness Apps: A Privacy Perspective, **IEEE Transactions on Mobile Computing**, 23(1):581–596 (2024). (U. Meteriz, N.F. Yildiran, J. Kim, D. Mohaisen)
- ◀ 2023 ▶
- [TON'23.12] SlimFL: Federated Learning with Superposition Coding over Slimmable Neural Networks, **IEEE/ACM Transactions on Networking**, 31(6):2499–2514 (2023). (W.J. Yun, Y. Kwak, H. Baek, S. Jung, M. Ji, M. Bennis, J. Park, J. Kim)
- [IET'23.12] Two-Stage Architectural Fine-Tuning for Neural Architecture Search in Efficient Transfer Learning, **IET Electronics Letters**, 59(24):e13066 (2023). (S. Park, S.B. Son, Y.K. Lee, S. Jung, J. Kim)
- [IOTI'23.11] Quantum Multiagent Actor-Critic Networks for Cooperative Mobile Access in Multi-UAV Systems, **IEEE Internet of Things Journal**, 10(22):20033–20048 (2023). (C. Park, W.J. Yun, J.P. Kim, S. Park, T.K. Rodrigues, S. Jung, J. Kim)
- [TVT'23.11] Two-Stage Self-Adaptive Task Outsourcing Decision Making for Edge-Assisted Multi-UAV Networks, **IEEE Transactions on Vehicular Technology**, 72(11):14889–14905 (2023). (S. Jung, C. Park, M. Levorato, J.-H. Kim, J. Kim)
- [ETRI'23.10] Joint Frame Rate Adaptation and Object Recognition Model Selection for Stabilized Unmanned Aerial Vehicle Surveillance, **ETRI Journal**, 45(5):811–821 (2023). (G.S. Kim, H. Lee, S. Park, J. Kim)
- [ETRI'23.10] Two Tales of Platoon Intelligence for Autonomous Mobility Control: Enabling Deep Learning Recipes, **ETRI Journal**, 45(5):735–745 (2023). (S. Park, H. Lee, C. Park, S. Jung, M. Choi, J. Kim) (Invited Article)
- [ETRI'23.10] Special Issue on Autonomous Unmanned Aerial/Ground Vehicles and their Applications, **ETRI Journal**, 45(5):731–734 (2023). (J. Kim, Y.-C. Lee, J.H. Lee, J.S. Choi)
- [IC'23.09-10] EQuaTE: Efficient Quantum Train Engine for Run-Time Dynamic Analysis and Visual Feedback in Autonomous Driving, **IEEE Internet Computing**, 27(5):24–31 (2023). (S. Park, H. Feng, C. Park, Y.K. Lee, S. Jung, J. Kim)
- [OJCS'23.09] Real-Time High-Quality Visualization for Volumetric Contents Rendering: A Lyapunov Optimization Framework, **IEEE Open Journal of the Computer Society**, 4:243–252 (2023). (H. Baek, R. Lee, S. Jung, J. Kim, S. Park)

- [TIV'23.08] Multi-Agent Reinforcement Learning for Cooperative Air Transportation Services in City-Wide Autonomous Urban Air Mobility, **IEEE Transactions on Intelligent Vehicles**, 8(8):4016–4030 (2023). (C. Park, G.S. Kim, S. Park, S. Jung, J. Kim)
- [NN'23.08] Stereoscopic Scalable Quantum Convolutional Neural Networks, **Neural Networks**, 165:860–867 (2023). (H. Baek, W.J. Yun, S. Park, J. Kim)
- [IOTI'23.06] Quantum Multiagent Actor-Critic Neural Networks for Internet-Connected Multirobot Coordination in Smart Factory Management, **IEEE Internet of Things Journal**, 10(11):9942–9952 (2023). (W.J. Yun, J.P. Kim, S. Jung, J.-H. Kim, J. Kim)
- [ICTE'23.06] Quantum Distributed Deep Learning Architectures: Models, Discussions, and Applications, **ICT Express**, 9(3):486–491 (2023). (Y. Kwak, W.J. Yun, J.P. Kim, H. Cho, J. Park, M. Choi, S. Jung, J. Kim)
- [Access'23.05] Entropy-Aware Similarity for Balanced Clustering: A Case Study with Melanoma Detection, **IEEE Access**, 11:46892–46902 (2023). (S.B. Son, S. Park, J. Kim)
- [ComNet'23.04] Self-Adaptive End-to-End Resource Management for Real-Time Monitoring in Cyber-Physical Systems, **Computer Networks**, 225:109669 (2023). (H.-C. Jo, H.-W. Jin, J. Kim)
- [ComNet'23.04] Truthful and Performance-Optimal Computation Outsourcing for Aerial Surveillance Platforms via Learning-based Auction, **Computer Networks**, 225:109651 (2023). (S. Jung, J.-H. Kim, D. Mohaisen, J. Kim)
- [CIBM'23.04] Deep Reinforcement Learning-based Propofol Infusion with a 3,000-subject Dataset in Anesthesia, **Computers in Biology and Medicine**, 156:106739 (2023). (W.J. Yun, M. Shin, S. Jung, J. Ko, H.-C. Lee, J. Kim)
- [Access'23.03] Audio-to-Visual Cross-Modal Generation of Birds, **IEEE Access**, 11:27719–27729 (2023). (J.Y. Shim, J. Kim, J.-K. Kim)
- [Access'23.02] Workload-Aware Scheduling using Markov Decision Process for Infrastructure-Assisted Learning-Based Multi-UAV Surveillance Networks, **IEEE Access**, 11:16533–16548 (2023). (S. Park, C. Park, S. Jung, J.-H. Kim, J. Kim)
- [TITS'23.01] Self-Configurable Stabilized Real-Time Detection Learning for Autonomous Driving Applications, **IEEE Transactions on Intelligent Transportation Systems**, 24(1):885–890 (2023). (W.J. Yun, S. Park, J. Kim, D. Mohaisen)
- ◀ 2022 ▶
- [JCN'22.12] Neural Myerson Auction for Truthful and Energy-Efficient Autonomous Aerial Data Delivery, **Journal of Communications and Networks**, 24(6):730–741 (2022). (H. Lee, S. Kwon, S. Jung, J. Kim)
- [JCN'22.12] Parallelized and Randomized Adversarial Imitation Learning for Safety-Critical Self-Driving Vehicles, **Journal of Communications and Networks**, 24(6):710–721 (2022). (W.J. Yun, M. Shin, S. Jung, S. Kwon, J. Kim)
- [TII'22.10] Cooperative Multi-Agent Deep Reinforcement Learning for Reliable Surveillance via Autonomous Multi-UAV Control, **IEEE Transactions on Industrial Informatics**, 18(10):7086–7096 (2022). (W.J. Yun, S. Park, J. Kim, M. Shin, S. Jung, D. Mohaisen, J.-H. Kim) (Citations: 100+)
- [ICTE'22.09] Trustworthy Handover in LEO Satellite Mobile Networks, **ICT Express**, 8(3):432–437 (2022). (S. Jung, M.-S. Lee, J. Kim, M.-Y. Yun, J. Kim, J.-H. Kim)
- [TVT'22.07] Joint Pilot Design and Channel Estimation using Deep Residual Learning for Multi-Cell Massive MIMO under Hardware Impairments, **IEEE Transactions on Vehicular Technology**, 71(7):7599–7612 (2022). (B. Lim, W.J. Yun, J. Kim, Y.-C. Ko)
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#### ■ Conferences – Top-Conference Related, Society-Representative, Awarded, Highly-Cited (Selected)

- [ICASSP'25] Quantum Reinforcement Learning for Coordinated Satellite Systems
- [AAAI'25] Hybrid Quantum-Classical Style Transfer, (*Student Abstract and Poster*)
- [APWCS'24] Quantum Multi-Agent Reinforcement Learning Software Design and Visual Simulations for Multi-Drone Mobility Control
- [APWCS'24] Diffusion-based Quantum Error Mitigation using Stochastic Differential Equation
- [IJCAI'24] Quantum Error Mitigation in Open Systems using Diffusion Models: Stochastic Differential Equation and Schrödinger Bridge Approaches, (*Workshop on Quantum Algorithms, Optimization, and AI*)
- [IJCAI'24] Depth-Controllable Quantum Federated Learning, (*Workshop on Quantum Algorithms, Optimization, and AI*)
- [IJCAI'24] Realizing Cooperative Global Internet Services for Space-Air-Ground Integrated Networks: A Quantum Multi-Agent Reinforcement Learning Framework, (*Workshop on Quantum Algorithms, Optimization, and AI*)
- [IJCAI'24] Multichannel Quantum Convolutional Neural Network, (*Workshop on Quantum Algorithms, Optimization, and AI*)
- [IJCAI'24] Quantum Style Transfer in Hybrid Quantum-Classical Computing, (*Workshop on Quantum Algorithms, Optimization, and AI*)
- [IJCAI'24] Shifting from Knowledge to Infidelity Distillation for Fast and Accurate Distributed Quantum Machine Learning, (*Workshop on Quantum Algorithms, Optimization, and AI*)
- [APWCS'23] Quantum Reinforcement Learning for Large-Scale Multi-Agent Decision-Making in Autonomous Aerial Networks (**IEEE VTS Seoul Chapter Award**)
- [ICDCS'23] EQuaTE: Efficient Quantum Train Engine Design and Demonstration for Dynamic Software Analysis, (*Demo*)
- [ICDCS'23] Multi-Site Clinical Federated Learning Using Recursive and Attentive Models and NVFlare, (*Demo*)
- [ICDCS'23] Coordinated Multi-Agent Reinforcement Learning for UAV Swarms in Autonomous Mobile Access Applications, (*Poster*)
- [ICC'23] Multi-Agent Deep Reinforcement Learning for Efficient Passenger Delivery in Urban Air Mobility
- [AAAI'23] 3D Scalable Quantum Convolutional Neural Networks for Point Cloud Data Processing in Classification Applications, (*Workshop on AI to Accelerate Science and Engineering*)
- [AAAI'23] FV-Train: Quantum Convolutional Neural Network Training with a Finite Number of Qubits by Extracting Diverse Features, (*Student Abstract and Poster*) (**Finalist, Oral Presentation Contest**)
- [ICTC'22] Reinforcement Learning Empowered Massive IoT Access in LEO-based Non-Terrestrial Networks (**Best Paper Award**)
- [APWCS'22] DDPG-based Deep Reinforcement Learning for Loitering Munition Mobility Control: Algorithm Design and Visualization (**IEEE VTS Seoul Chapter Award**)
- [APWCS'22] Trends in 3D Point Cloud Contents Sampling in Mobile AR/VR Platforms
- [ICML'22] Slimmable Quantum Federated Learning, (*Workshop on Dynamic Neural Networks*) (**Spotlight, Oral Presentation**)
- [ICDCS'22] Quantum Multi-Agent Reinforcement Learning via Variational Quantum Circuit Design, (*Demo*)
- [ICDCS'22] Quality-Aware Real-Time Augmented Reality Visualization under Delay Constraints, (*Poster*)
- [ICDCS'22] AoI-Aware Markov Decision Policies for Caching, (*Ph.D. Student Symposium*)
- [VTC'22] Adaptive and Stabilized Streaming for Edge-Assisted Connected Vehicles under Heterogeneous Computing Constraints
- [VTC'22] Random Access Protocol Learning in LEO Satellite Networks via Reinforcement Learning
- [SMC'21] Multi-Agent Deep Reinforcement Learning using Attentive Graph Neural Architectures for Real-Time Strategy Games
- [ISWCS'21] Attention-based Reinforcement Learning for Real-Time UAV Semantic Communication
- [APWCS'21] Quantum Scheduling for Millimeter-Wave Observation Satellite Constellation (**IEEE VTS Seoul Chapter Award**)
- [APWCS'21] Distributed and Autonomous Aerial Data Collection in Smart City Surveillance Applications (**IEEE VTS Seoul Chapter Award**)
- [ICML'21] Communication and Energy Efficient Slimmable Federated Learning via Superposition Coding and Successive Decoding, (*Workshop on Federated Learning for User Privacy and Data Confidentiality*)
- [DSN'21] Spatio-Temporal Split Learning, (*Supplemental Volume*)
- [INFOCOM'21] Visualization of Deep Reinforcement Autonomous Aerial Mobility Learning Simulations, (*Demo*)
- [ICOIN'21] Infrastructure-Assisted Cooperative Multi-UAV Deep Reinforcement Energy Trading Learning for Big-Data Processing (**Best Paper Award**)
- [QTML'20] A Quantum Approach to the Minimum Dominating Set Problem
- [ICTC'20] A Tutorial on Quantum Convolutional Neural Networks (QCNN) (**Citations: 100+**)
- [ICML'20] XOR Mixup: Privacy-Preserving Data Augmentation for One-Shot Federated Learning, (*Workshop on Federated Learning for User Privacy and Data Confidentiality*) (**Citations: 100+**)
- [ICC'20] User Scheduling and Power Allocation for Content Delivery in Caching Helper Networks
- [WCNC'20] Cache Allocations for Consecutive Requests of Categorized Contents: Service Provider's Perspective
- [Globecom'19] Multi-Agent Deep Reinforcement Learning for Cooperative Connected Vehicles
- [ICCV'19] Deep Multi-modal Unsupervised Pen Pressure Stylization, (*Demo*)
- [QTML'19] A Quantum Approach to Max-Weight Independent Set Problem
- [5G-WF'19] PriMO-5G: Making Firefighting Smarter with Immersive Videos through 5G
- [APWCS'19] Joint Offloading and Streaming in Mobile Edges: A Deep Reinforcement Learning Approach (**IEEE VTS Seoul Chapter Award**)
- [IJCNN'19] Depth-Controllable Very Deep Super-Resolution Network
- [IJCNN'19] Adversarial Imitation Learning via Random Search
- [DSN'19] Privacy-Preserving Deep Learning Computation for Geo-Distributed Medical Big-Data Platforms, (*Supplemental Volume*)

- [MobiSys'19] Multi-Agent Deep Reinforcement Learning for Connected Vehicles, (*Poster*)
- [MobiSys'19] Light-Weight Programming Language for Blockchain, (*Demo*)
- [ICML'19] Adversarial Imitation Learning via Random Search in Lane Change Decision-Making, (*Workshop on AI for Autonomous Driving*)
- [ICC'19] Probabilistic Caching Policy for Categorized Contents and Consecutive User Demands
- [CCS'18] Secure Big Data Processing with SGX and Compute Accelerators, (*Workshop on System Software for Trusted Execution*)
- [SMC'18] Low-Complexity Online Model Selection with Lyapunov Control for Reward Maximization in Stabilized Real-Time Deep Learning
- [MobiSys'18] Neural Network Syntax Analyzer for Embedded Standardized Deep Learning, (*Workshop on Embedded and Mobile Deep Learning*)
- [SECON'18] Recipient-Oriented Transaction for Preventing Double Spending Attacks in Private Blockchain, (*Poster*)
- [AsiaCCS'18] POSTER: Mining with Proof-of-Probability in Blockchain, (*Poster*)
- [ICSE'18] A Novel Shared Memory Framework for Distributed Deep Learning in High-Performance Computing, (*Companion Volume*)
- [ICASSP'18] Self-Adaptive Machine Learning Operating Systems for Security Applications
- [SOSP'17] A Reliable, Self-Adaptive Face Identification Framework via Lyapunov Optimization, (*Workshop on AI Systems*)
- [SIGCOMM'16] A Longitudinal Analysis of .i2p Leakage in the Public DNS Infrastructure, (*Poster*)
- [INFOCOM'16] Buffer-Stable Adaptive Per-Module Power Allocation for Energy-Efficient Millimeter-Wave MAA Platforms, (*Poster*)
- [EuCAP'16] Millimeter-Wave Outdoor Access Shadowing Mitigation using Beamforming Arrays
- [Globecom'15] mmWave MAA Client Access & Backhaul Platform, (*Industry Demonstration ID-14, Intel Corporation*)
- [Globecom'15] 60 GHz Frequency Sharing Study between Fixed Service Systems and Small-Cell Systems with Modular Antenna Arrays, (*Workshop on Millimeter-Wave Backhaul and Access*)
- [SOSP'15] A Case for Bad big.LITTLE Switching: How to Scale Power-Performance in SI-HMP, (*Workshop on Power-Aware Computing and Systems*)
- [IMS'15] Study of Coexistence between 5G Small-Cell Systems and Systems of the Fixed Service at 39 GHz Band
- [Globecom'14] mmWave Modular Antenna Array for Next-Generation Wireless Networks, (*Expo, Intel Corporation*)
- [Globecom'14] Required Frequency Rejection in 39 GHz Millimeter-Wave Small Cell Systems, (*Industry Program, Intel Corporation*)
- [ICC'14] Quality-Aware Millimeter-Wave Device-to-Device Multi-Hop Routing for 5G Cellular Networks
- [ITA'14] Joint Scheduling and Stochastic Streaming for Device-to-Device Video Delivery (*ITA Graduation Day Talk*)
- [MobiCom'13] Adaptive Video Streaming for Device-to-Device Mobile Platforms, (*Demo*)
- [ICC'13] Quality-Aware Coding and Relaying for 60 GHz Real-Time Wireless Video Broadcasting
- [RWS'13] Enabling Gigabit Services for IEEE 802.11ad-Capable High-Speed Train Networks
- [PIMRC'11] Joint Optimization of HD Video Coding Rates and Unicast Flow Control for IEEE 802.11ad Relaying
- [CCNC'10] mmWave SVD-based Beamformed MIMO Communication Systems
- [CCNC'09] Optimal Beaconing for 60 GHz Millimeter Wave
- [CCNC'09] Demonstration of Display Sharing over Multi-Gbps Wireless Video and Audio Network
- [Comsware'08] Cooperative Relaying Strategies for Multi-Hop Wireless Sensor Networks
- [CIT'06] A Power Balanced Multipath Routing Protocol in Wireless Ad-Hoc Sensor Networks
- [VTC'06] Energy-Aware Distributed Topology Control for Coverage-Time Optimization in Clustering-Based Heterogeneous Sensor Networks
- [VTC'05] An Adaptive Cluster Radius Configuration Scheme for Topology Control in Wireless Sensor Networks

## Patents (Granted), totally, 72

- **21 US Patents:** (US 10637154), (US 9973364), (US 9887755), (US 9786985), (US 9167562), (US 8842640), (US 8761063), (US 8738068), (US 8619741), (US 8605634), (US 8599731), (US 8565200), (US 8547889), (US 8503317), (US 8493949), (US 8493948), (US 8483171), (US 8422372), (US 8416782), (US 8411644), (US 8379612)
- **27 Korean Patents:** (KR 102632773), (KR 102573880), (KR 102523056), (KR 102522930), (KR 102500352), (KR 102492736), (KR 102472809), (KR 102444449), (KR 102442891), (KR 102433897), (KR 102370599), (KR 102340895), (KR 102293287), (KR 102244380), (KR 102240442), (KR 102240425), (KR 102234007), (KR 102178895), (KR 102167344), (KR 102052835), (KR 102015429), (KR 101663613), (KR 101619964), (KR 101606951), (KR 101567829), (KR 101558017), (KR 100779165)
- **7 European Patents:** (EP 3255730), (EP 2441203), (EP 2422578), (EP 2343836), (EP 2282601), (EP 2262342), (EP 2260669)
- **11 Chinese Patents:** (CN 107634349), (CN 102461318), (CN 102461050), (CN 102388658), (CN 102349340), (CN 102342162), (CN 102318430), (CN 102318425), (CN 102204115), (CN 102132602), (CN 102057739)
- **6 Japanese Patents:** (JP 5584209), (JP 5584205), (JP 5580308), (JP 5508403), (JP 5368573), (JP 5364785)

## Research Supervision and Teaching Experience

### Research Supervision

#### ■ Ph.D. Students and Alumni (Korea University, Department of Electrical and Computer Engineering)

- **Dr. Soohyun Park** ('19.03-'23.08 (MS-PhD), '23.09-'24.02 (Postdoc)), *Professor* at Sookmyung Women's University
- **Dr. Hankyul Baek** ('21.03-'24.02 (MS-PhD), '24.03-'25.02 (Postdoc)), *Active Member*
- **Hyunsoo Lee** ('21.03-), *Active Member*
- **Seok Bin Son** ('22.09-), *Active Member*
- **Gyu Seon Kim** ('23.03-), *Active Member*
- **Sungjoon Lee** ('24.03-), *Active Member*
- **Emily Jimin Roh** ('24.03-), *Active Member*
- **Seungcheol Oh** ('25.03-), *Active Member*

#### ■ M.S. Students and Alumni (Korea University, Department of Electrical and Computer Engineering)

- **Anna Yoo Jeong Ha** ('21.03-'23.02), *Ph.D. Student (Computer Science)* at the University of Chicago
- **Jaehyun Chung** ('23.09-), *Active Member*
- **Yeryeong Cho** ('24.03-), *Active Member*
- **Chaemoon Im** ('24.03-), *Active Member*
- **Hyojun Ahn** ('25.03-), *Active Member*

#### ■ M.S. Students and Alumni (Chung-Ang University, School of Computer Science and Engineering)



- Kyeongseon Kim ('17.09–'19.08), POSTECH (was with Upstage, LG AI Research)
- Dohyun Kwon ('18.03–'20.02), Hyundai Motors Group
- Dohyun Kim ('18.03–'20.02), Naver Webtoon
- MyungJae Shin ('18.03–'20.02), Naver
- Jaeho Choi ('19.03–'21.02), Korea Meteorological Administration (Military Service Exception)

#### ■ Postdoctoral Scholars

- Dr. Minseok Choi ('18.09–'19.02, jointly with Prof. Andreas F. Molisch (USC)), *Professor* at Kyung Hee University
- Dr. Soyi Jung ('21.03–'21.08, jointly with Prof. Marco Levorato (UC-Irvine)), *Professor* at Ajou University
- Dr. Ju-Hyung Lee ('22.03–'23.02, jointly with Prof. Andreas F. Molisch (USC)), *Principal Researcher* at Nokia
- Dr. Ijaz Ahmad (11/2023–, jointly with Prof. Seokjoo Shin (Chosun Univ.)), *Active Member*
- Dr. Joo Yong Shim (03/2024–, jointly with Prof. Jong-Kook Kim (Korea Univ.)), *Active Member*

#### ■ Ph.D. Research Collaboration for Dissertation

- Dr. Minseok Choi (Advisor: Prof. Jaekyun Moon at KAIST), *Professor* at Kyung Hee University
- Dr. Laihyuk Park (Advisor: Prof. Sungrae Cho at Chung-Ang Univ.), *Professor* at Seoul National University of Science and Technology
- Dr. Jonghoe Koo (Advisor: Prof. Sunghyun Choi at Seoul Nat'l Univ.), *Researcher* at Samsung Research
- Dr. Soyi Jung (Advisor: Prof. Jae-Hyun Kim at Ajou Univ.), *Professor* at Ajou University
- Dr. Seungyo Ryu (Advisor: Prof. Dongseung Kim at Korea Univ.), *Researcher* at LG Electronics
- Dr. Byungju Lim (Advisor: Prof. Young-Chai Ko at Korea Univ.), *Professor* at Pukyong National University

#### ■ B.S. Students and Alumni (Selected: Pursuing Ph.D./M.S. Degrees)

- Sunjun Hwang (Chung-Ang Univ.), Seoul National University (M.S. in Computer Science and Engineering)
- Hyomin Ahn (Korea Univ.), University of California at Los Angeles (UCLA) (Ph.D. in Electrical and Computer Engineering)
- Hyunhee Cho (Sungkyunkwan Univ.), KAIST (Ph.D. in Electrical Engineering)
- Rhoan Lee (Ewha Womans Univ.), Columbia University in the City of New York (M.S. in Statistics)

#### ■ Intel Corporation (Santa Clara, California, USA), Graduate Interns

- Dr. Minseok Choi, Ph.D. in EE from KAIST ('16.02–'16.07), now with Kyung Hee University
- Dr. Hidekazu Shimodaira, Ph.D. in EEE from Tokyo Institute of Technology ('15.07–'15.12), now with NTT DOCOMO

### Teaching Experience

#### ■ Korea University – Graduate Courses, Faculty Member

- IT R&D Policies 1 (ECE723): Fall 2020
- Design and Analysis of Wireless Communication Systems (ECE721): Spring 2025, Spring 2021
- Sensor Networks (ECE662): Spring 2023
- Advanced Network Theory (ECE657): Fall 2022
- Smart Mobile Platform (ECE654): Fall 2023, Fall 2021, Fall 2020, Fall 2019
- Advanced Topics in Socialware IT (ECE545): Spring 2022
- Queueing Theory 1 (ECE527): Fall 2024
- Wireless and Mobile Networks (ECE522): Spring 2024, Spring 2020
- Wireless Network 2 (ITH525): Fall 2022
- Wireless Network 1 (ITH524): Spring 2021

#### ■ Korea University – Undergraduate Courses, Faculty Member

- Data Communications (KECE316): Fall 2020
- Digital System Design and Laboratory (KECE210): Fall 2020
- Probability and Random Process (KECE209): Spring 2025, Spring 2024, Spring 2023, Spring 2022 (*Best Teaching Award, Top 20%*), Spring 2021 (*Best Teaching Award, Top 20%*), Spring 2020
- Digital System (KECE207): Spring 2020
- Computer Language and Laboratory (EGRN151): Fall 2024, Fall 2023, Fall 2022, Fall 2021 (*Granite Tower Best Teaching Award, Top 5%*), Fall 2020 (*Best Teaching Award, Top 20%*), Fall 2019 (*Granite Tower Best Teaching Award, Top 5%*)
- Introduction to Communication/Computing (COMM105): Spring 2024, Spring 2023
- Object-Oriented Programming (SEMI104): Fall 2021 (*Best Teaching Award, Top 20%*)
- Introduction to Computers (SEMI103): Spring 2021 (*Granite Tower Best Teaching Award, Top 5%*)
- Future Mobility Technology (GEQR075): Spring 2023, Spring 2022 (*Granite Tower Best Teaching Award, Top 5%*)
- Data Science and Artificial Intelligence (GECT003): Fall 2024 (2 classes)
- SW Programming Basics (GECT002): Spring 2025, Spring 2024 (3 classes) (*Granite Tower Best Teaching Award, Top 5%*), (*Best Teaching Award, Top 20%*), (*Best Teaching Award, Top 20%*)

#### ■ Korea University – International Winter Campus, Faculty Member

- Introduction to Artificial Intelligence (IWC420): Winter 2024-2025, Winter 2023-2024, Winter 2022-2023, Winter 2021-2022
- Introduction to Computer Science (IWC293): Winter 2024-2025, Winter 2023-2024

#### ■ Chung-Ang University – College of Computer Science and Software, Faculty Member

- Optimal Design Theory and Applications (Graduate): Spring 2019, Spring 2018, Spring 2017
- Topics in Computer Science and Engineering (Graduate): Fall 2018, Fall 2017, Fall 2016
- Numerical Analysis (Undergraduate): Spring 2019
- Compiler Design (Undergraduate): Spring 2019, Spring 2018, Spring 2017
- Principles of Programming Languages (Undergraduate): Fall 2018, Fall 2017, Fall 2016
- Algorithm Analysis (Undergraduate): Fall 2016
- Operating Systems (Undergraduate): Spring 2017, Spring 2016
- Calculus (Undergraduate): Spring 2017, Spring 2016
- Mobile Application Development (Undergraduate): Fall 2018, Fall 2017

#### ■ University of Southern California – Viterbi School of Engineering, Teaching Assistant

- **Wireless and Mobile Networks Design and Lab [EE579]** (Spring 2013), Lectured by **Professor Murali Annavaram**  
Graduate Course dedicated to Android Mobile Platform Research and Programming
- **Programming Systems Design [CSci455x]** (Spring 2012, Fall 2012)  
Undergraduate Course dedicated to Object-Oriented Programming (Java and C++) and Advanced Data Structures

## Professional Academic Activities

### Visiting for Research Collaboration

#### ■ Academia

- *California State University at Long Beach*, Long Beach, CA, USA (Electrical Engineering); Host: **Prof. Sean Kwon** (01/2020); Collaboration for [JCN'22.12], [JCN'22.12], [TVT'16.12]
- *University of California at Irvine*, Irvine, CA, USA (Computer Science); Host: **Prof. Marco Levorato** (08/2018); Collaboration for [TVT'23.11], [ITU'22.07], [TVT'21.08], [TVT'19.05]

### Academic Conference, Workshop, Forum, Symposium Organization (Selected)

#### ■ Organizing Committee (OC) Activities

- **IEEE WiOpt: 2024** (Workshop Chair), 2022 (Organizer, *Caching, Computing and Delivery in Wireless Networks Workshop*)
- **IEEE GLOBECOM: 2015** (Organizer, *Workshop on Millimeter-Wave Backhaul and Access*)
- **IEEE ICC: 2022** (Patronage Chair)
- **IEEE VTS APWCS: 2023** (Finance Co-Chair), 2022 (Finance Chair), 2021 (Finance Co-Chair), 2017 (Publication Vice Chair)
- **IEEE ICASSP: 2018** (Special Session Organizing Chair, *Special Session on Cybersecurity and Privacy*)
- **IEEE APCC: 2022** (Local Arrangement Chair)
- **ACM CoNEXT: 2019** (Poster Session Chair)
- **IEEE ICTC: 2024** (AI Special Session Organizer), 2023 (Workshop Co-Chairs), 2022 (TPC Vice Chair for Administration, a.k.a., Secretary), 2021 (Workshop Organizer, *Workshop on KU-AIER (Korea University, A.I. Engineering Research)*), 2021 (Secretary), 2020 (Secretary), 2020 (Special Session Organizing Chair, *Special Session on KU-AIER (Korea University, A.I. Engineering Research)*), 2019 (Secretary), 2018 (Secretary)
- **IEEE ICUFN: 2024** (Workshop Chair), 2023 (Workshop Chair), 2022 (Workshop Chair), 2021 (Workshop Chair), 2021 (Workshop Organizing Chair, *Artificial Intelligence Emerging Applications (AIEA) Workshop*)
- **IEEE ICOIN: 2024** (Workshop Chair), 2023 (Workshop Co-Chair), 2023 (Workshop Organizing Chair, *Workshop on Artificial Intelligence and Mobility*), 2022 (Workshop Organizing Chair, *Workshop on Artificial Intelligence and Mobility*), 2022 (Finance Co-Chairs), 2021 (Workshop Organizing Chair, *Workshop on Artificial Intelligence and Mobility*), 2020 (Workshop Organizing Chair, *Workshop on Artificial Intelligence and Mobility*)
- **IEEE ICEIC: 2021** (Local Arrangement Chair)
- **IEEE ICAIIC: 2019** (Publication Chair)

#### ■ Quantum Machine Learning

- **IEEE/CVF CVPR 2025: Organizer**, *Workshop on The Interplay between Quantum Computing and Generative Artificial Intelligence*
- **IEEE ICCCN 2025: Organizer**, *Quantum Machine Learning for Communication Networks*
- **IEEE ICASSP 2025: Organizer**, *Workshop on Quantum Machine Learning in Signal Processing and Artificial Intelligence*
- **IEEE Quantum Week 2024: Organizer**, *Workshop on Quantum Computing and Reinforcement Learning*
- **IJCAI 2024: Organizer**, *Workshop on Quantum Algorithms, Optimization, and Artificial Intelligence*

### Talks and Presentations (Selected)

#### ■ IEEE Distinguished Lectures

- *Federated Learning for Medical and Mobile Platforms: Motivation, Challenges, and Potential Solutions*  
**California State University, Long Beach** (Long Beach, CA, USA, 01/2020), Hosted by Prof. Sean Kwon and Prof. Henry Yeh  
IEEE Systems Council – IEEE Coastal Los Angeles Section Chapter

#### ■ IEEE/ACM Conference Tutorials and Special Session Talks

- **ACM CIKM 2024 Tutorial**, *Hands-On Introduction to Quantum Machine Learning*, Joint Presentation with Dr. Samuel Yen-Chi Chen (Wells Fargo, New York, NY, USA)
- **ICIT 2024 Keynote Speech**, *Quantum Reinforcement Learning: Concepts, Models, and Applications*
- **IEEE ICUFN 2022 Tutorial**, *A Paradigm Shift in Future Networks with Quantum Deep Learning*
- **IEEE ICOIN 2022 Tutorial**, *Advanced Deep Learning Methods for Autonomous Mobility*
- **IEEE ICUFN 2021 Tutorial**, *Distributed and Split Deep Learning: Theory and Applications*
- **IEEE ICAIIC 2021 Tutorial**, *Multi-Agent Deep Reinforcement Learning for Connected and Autonomous Vehicles*
- **IEEE ICTC 2019 Special Session Talk**, *Advanced Deep Learning Methods and Their Applications to Distributed and Network Platforms*
- **IEEE ICOIN 2019 Tutorial**, *Distributed Platform Research for Emerging Deep Learning Applications*
- **IEEE ICC 2018 Tutorial**, *Securing the Internet of Things: A Machine Learning Approach (Making Machine Learning Practical)*, Joint Presentation with Prof. Aziz Mohaisen (University of Central Florida, Orlando, FL, USA)

#### ■ Industry Presentations (Selected)

- *International: Huawei Research Center (Text-Aware Image Understanding Workshop)* (Online, 11/2021), **Ericsson-LG (R&D Hackathon / AI Learning Challenge – Keynote Speech)** (Seoul, Korea, 05/2021), **Huawei Research Center (Deep Learning/Machine Learning for Computer Vision)** (Online, 09/2020), **Huawei Research Center (Fundamental and Applied Problems of Machine Learning)** (Nizhny Novgorod, Russia, 12/2019), **City University of Hong Kong** (Hong Kong, 11/2018), **Intel Communications and Devices Group (iCDG) [Cellular Modem TechTalk]** (Santa Clara, CA, USA, 01/2016), **Nokia Research Center at Berkeley** (Berkeley, CA, USA, 08/2014), **Qualcomm Research Center** (San Diego, CA, USA, 02/2014)
- *Korea: LIG Nex1* (Pankyo), **Solvit System** (Seoul), **Korea Institute of Machinery & Materials** (Daejeon), **Korea Meteorological Administration** (Seoul), **Hyundai NGV** (Seoul), **SK Telecom (SKT)** (Seoul), **Agency for Defense Development (ADD)** (Seoul), **SK Hynix** (Icheon), **Naver Labs - Robotics Lab** (Pankyo), **ETRI** (Daejeon), **KT AI Tech Center** (Seoul), **LG Electronics** (Seoul), **Posco ICT** (Pankyo), **LG U+** (Seoul), **SK Broadband** (Seoul), **Korea Electronics Technology Institute (KETI)** (Pankyo), **Korea Electric Power Corporation (KEPCO) Research Institute** (Daejeon), **Samsung Electronics** (Hwasung)

## ■ Prototyping at Industry Exhibitions

- **Mobile World Congress (MWC) 2016** (Barcelona, Spain, 02/2016), *Mobile Edge mmWave Backhaul and Access*
- **Intel 360 degree 2016** (Anaheim, CA, 02/2016), *mmWave MAA Client Access & Backhaul Platform*
- **Intel Asia Innovation Summit 2015** (Taipei, Taiwan, 10/2015), *mmWave Modular Antenna Array Client Access & Backhaul Platform*
- **Intel Developer Forum (IDF) 2015** (San Francisco, CA, USA, 08/2015), *Enabling 5G Densification*
- **Intel Design and Test Technology Conference (DTTC) 2015** (Portland, OR, USA, 08/2015), *Enabling 5G Densification*
- **Mobile World Congress (MWC) 2015** (Barcelona, Spain, 03/2015), *Enabling 5G Densification*

## Technical Program Committee (TPC)

### ■ Chair-Level Activities (Selected)

- **CCNC**: 2022 (Track Chair, T7 (*Security, Privacy and Content Protection*))
- **NAS**: 2019 (Track Co-Chair, *Network Track*)
- **GLOBECOM**: 2015 (TPC Chair, *Workshop on Millimeter-Wave Backhaul and Access*)

### ■ General Activities (Selected)

- **IEEE ICC**: 20205 (Selected Areas in Communications – Reconfigurable Intelligent Surfaces and Smart Environments Track), 2025 (Communication Theory Symposium), 2024 (Selected Areas in Communications – Integrated Sensing and Communication Track), 2024 (Selected Areas in Communications – Reconfigurable Intelligent Surfaces and Smart Environments Track), 2023 (Wireless Communications Symposium), 2023 (Selected Areas in Communications – Integrated Sensing and Communication Track), 2023 (Selected Areas in Communications – Reconfigurable Intelligent Surfaces and Smart Environments Track), 2022 (Wireless Communications Symposium), 2022, 2021 (Wireless Communications Symposium)
- **IEEE GLOBECOM**: 2022 (Selected Areas in Communications – Machine Learning for Communications), 2021 (Selected Areas in Communications – Machine Learning for Communications), 2021 (IoTSN), 2020 (Ad-hoc and Sensor Networks Symposium)
- **IEEE MASS**: 2024 (Algorithms and Theory Track), 2023, 2022, 2021, 2012 (Workshop on Internet of Things Technology and Architectures)
- **IEEE Quantum Week**: 2024 (Quantum Machine Learning Track)
- **ACM MobiHoc**: 2019
- **IEEE ICCCN**: 2025 (International Workshop on Quantum Machine Learning for Communication Networks), 2021
- **IEEE WCNC**: 2023, 2022, 2021, 2020, 2020 (Workshop on Aerial Communications in 5G and Beyond Networks)
- **IEEE PIMRC**: 2024 (Track 1: PHY & Fundamentals), 2024 (Workshop on Secured, Intelligent, and Collaborative Cell-free Networking for 6G and Beyond)
- **IEEE ICDCS**: 2019 (Distributed Green Computing & Energy Management)
- **IEEE VTC**: 2022-Fall, 2019-Spring, 2016-Spring, 2015-Spring, 2014-Fall
- **IJCAI**: 2024 (Workshop on Quantum Algorithms, Optimization, and Artificial Intelligence)
- *Others*: 2025 (IPDPS (Heterogeneity in Computing Workshop), ICOIN, ICTC), 2024 (COMNETSAT, ICTC, GESS, ICOIN), 2022 (MSN (Track 3: Security, Privacy, Trust, and Blockchain), ICTC, ICC, IPDPS (Heterogeneity in Computing Workshop), ICUFN, WCSP, COMNETSAT, CyberneticsCom, ICEIC, ICNGC), 2021 (MSN, ICTC, ICC, ICUFN, EuCAP, COMNETSAT, ICAIIC, IGESSC, ICEIC, ICNGC, ITC-CSCC), 2020 (ICTC, ICUFN, ICC, COMNETSAT, Blockchain, ICAIIC, IGESSC), 2019 (ICTC, ICUFN, ICC, Blockchain, EuCAP, IGESSC, NAS (Network Track), ICPADS (Security & Dependable Computing), WISA, SecureComm, IE), 2018 (ICTC, ICUFN, IGESSC, APWCS, AsiaCCS (Workshop on Security in Cloud Computing), ATC, SigTelCom, WCSP, IE), 2017 (ICTC, ICUFN, IE), 2016 (ICUFN), 2015 (EuCAP)

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## References

- **Prof. Andreas F. Molisch** (*Fellow of the IEEE*), *Ph.D. Research and Dissertation Advisor*
  - Solomon Golomb – Andrew and Erna Viterbi Chair at the University of Southern California (Los Angeles, CA, USA)
  - Professor of Electrical and Computer Engineering at the University of Southern California (Los Angeles, CA, USA)
  - URL: <https://wides.usc.edu/founder.html>
  - E-mail: [molisch@usc.edu](mailto:molisch@usc.edu)