

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

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Highlights

Research Milestones

- **147 Journals** (among them, **112 IEEE Journals**), <https://sites.google.com/view/aimlab-kuee/publications/journals>
– 119 Published / Accepted (among them, **86 IEEE**), **12 Under-Revision**, and **16 Under-Review Journals**
- **8032+ Citations** (H-index: 43+, i10-index 184+), obtained from Google Scholar Profile (as of July 6, 2024)
- **IEEE MMTC Best Journal Paper Award (2021)**, *IEEE Communications Society*
- **IEEE MMTC Outstanding Young Researcher Award (2020)**, *IEEE Communications Society*
- **IEEE Systems Journal Best Paper Award (2020)**, Top 7 among 793 accepted papers in 2019 (0.88%)
- **10 Awards from IEEE Conferences and Contests**, i.e., *IEEE ICTC Best Paper Award (2022)*, *IEEE ICOIN Best Paper Award (2021)*, *3 IEEE Seoul Section Student Paper Contest Awards*, and *5 IEEE VTS Seoul Chapter Awards*
- **6 Tutorials at IEEE Conferences**, i.e., *ICUFN (2022)*, *ICOIN (2022)*, *ICUFN (2021)*, *ICAIIC (2021)*, *ICOIN (2019)*, and *ICC (2018)*
- **71+ Patents** are granted, and among them, **46 Granted Patents** are successfully adopted by 60 GHz Millimeter-Wave IEEE 802.11 Standards, i.e., IEEE 802.11ad and IEEE 802.11ay
- **Research Funds (since March 2016)**: 14,490,784 USD \approx 14,490,784,000 KRW (except University Internal Funds)

Research Supervision and Teaching (As a faculty member since March 2016)

- **3 Tenure-Track Professors (formerly supervised by Prof. Joongheon Kim (Ph.D., M.S., Postdoctoral, Interns))**
 - *Ph.D. Alumni*: Soohyun Park (Sookmyung Women's Univ., Korea)
 - *Postdoctoral Scholars*: Minseok Choi (Kyung Hee Univ., Korea), Soyi Jung (Ajou Univ., Korea)
- **8 Best Teaching Awards at Korea University**, i.e.,
4 awards are for top 5% (*Granite Tower Best Teaching Award*) and 4 awards are for top 20% (*Best Teaching Award*)

IEEE Society Academic Activities

- **Senior Member of the IEEE (2018–)** and IEEE Membership (2005–) for 19+ years
 - **Distinguished Lecturer, IEEE Communications Society (ComSoc)** (class of 2022–2023) IEEE ComSoc
 - **Distinguished Lecturer, IEEE Systems Council** (class of 2022–2024) IEEE Systems Council
 - **Editor (2023–)**, *IEEE Internet of Things Journal* IEEE ComSoc, Computer Society, Sensors Council
 - **Associate Editor (2020–)**, *IEEE Transactions on Vehicular Technology* IEEE VTS
 - **Guest Editor (06/2022)**, *IEEE Communications Standards Magazine* (S.I. on Recent and Future Evolution of Wi-Fi) IEEE ComSoc
 - **IEEE Vehicular Technology Society (VTS)**, Seoul Chapter Treasurer for 4 years (2020–2023) IEEE VTS
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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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R&D Positions

Full-Time 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**)
(*Steering Committee Member* (03/2023–Present), Department of Communications Engineering)
 - *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 POSITIONS AND LEADERSHIP**
 - * *Center Director* (07/2024–12/2031), **Net-Zero CAFE Research Center**
University ICT Research Center (ITRC), funded by IITP and the Ministry of Science and ICT (Grant: \$7,500K)
 - **ADMINISTRATIVE POSITIONS**

- * *Deputy Vice President (02/2022–Present), Office of Academic Affairs*
- * *Dean (06/2021–08/2023), Center for Teaching and Learning (CTL)*
- **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*

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 (03/2022), 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/Wiley**
 - *Editor (2021–), ICT Express (Area: AI for ICT Applications)*
 - *Guest Editor (2024), ICT Express (S.I. on Surveys and Tutorials in Emerging AI Technologies)*
 - *Guest Editor (2022), ETRI Journal (S.I. on Autonomous Unmanned Aerial/Ground Vehicles and their Applications)*
 - *Guest Editor (2022), 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)*

Awards and Honors

Research and Academic Excellence (International)

- **IEEE VTS Seoul Chapter Award (2023) – IEEE Vehicular Technology Society (w/ S. Park)**
"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) (w/ G.S. Kim, J. Chung, S.B. Son, H. Lee, H. Baek, S. Park)**
"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) (w/ H. Baek, et al)**
"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 (w/ J.-H. Lee, D.P. Selvam, A.F. Molisch)**
"Reinforcement learning empowered massive IoT access in LEO-based non-terrestrial networks"
- **IEEE VTS Seoul Chapter Award (2022) – IEEE Vehicular Technology Society (w/ H. Lee, S. Jung, J.-H. Kim, et al)**
"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) (w/ S. Jung, J. Park, M. Bennis, et al)**
"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 (w/ S. Jung, J.-H. Kim, et al)**
"Quantum scheduling for millimeter-wave observation satellite constellation"
- **IEEE VTS Seoul Chapter Award (2021) – IEEE Vehicular Technology Society (w/ S. Jung, et al)**
"Distributed and autonomous aerial data collection in smart city surveillance applications"
- **IEEE ICOIN Best Paper Award (2021) – IEEE Computer Society (w/ S. Jung, J.-H. Kim, et al)**
"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) (w/ S. Park)**
 - "Reliable offloading target selection using deep reinforcement learning for large fire accident"
- **IEEE Seoul Section Student Paper Contest, Gold Paper Award (2019) (w/ D. Kim, et al)**
 - "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 (w/ S. Park, D. Kwon, M. Shin)**
 - "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)

- **HFR Paper Award (Area: Quantum Technologies and Quantum Communications) (11/2023) – KICS (w/ S. Park, H. Baek)**
 - "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 (w/ H. Lee, S. Park)**
 - "Grid environment design and grouping for optimal relay station placement"
- **Haedong Paper Award (02/2023) – KICS (w/ S. Jung, J. Park, et al)**
 - "Dynamic quantum federated learning framework at satellites and ground stations using slimmable quantum neural networks"
- **Excellence Paper Award (02/2023) – 2023 KICS Winter Conference (w/ H. Lee, S. Jung, J.-H. Kim, et al)**
 - "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) (w/ H. Lee, S. Jung)**
- **Excellence Paper Award (02/2022) – 2022 KICS Winter Conference (w/ Y.K. Lee, S. Jung, et al)**
 - "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 (w/ H. Baek, S. Jung, et al)**
 - "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 (w/ B. Lim, Y.-C. Ko, et al)**
 - "Deep learning based non-orthogonal pilot design for massive MIMO"
- **Excellence Paper Award (Undergraduate) (06/2021) – 2021 KICS Summer Conference (w/ S. Jung, et al)**
 - "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**

Research and Academic Excellence of the Students under Joongheon Kim's Supervision

- **Best Presentation Award (12/2022) – A3 Foresight Program 2022 Workshop** (awarded to Soohyun Park)
- **ICT Express Best Reviewer Award (12/2021) – ICT Express (Elsevier)** (awarded to Soohyun Park)
- **Best Presentation Award (02/2021) – A3 Foresight Program 2021 Workshop** (awarded to Hankyul Baek)

Teaching and Supervision Excellence

- **Granite Tower Best Teaching Award (Top 5%) – Korea University** (Future Mobility Technology, GEQR075) Spring 2022
- **Best Teaching Award (Top 20%) – Korea University** (Probability and Random Process, KECE209) Spring 2022
- **Granite Tower Best Teaching Award (Top 5%) – Korea University** (Computer Language and Lab, EGRN151) Fall 2021

- **Best Teaching Award (Top 20%)** – Korea University (Object Oriented Programming, SEMI104) Fall 2021
- **Granite Tower Best Teaching Award (Top 5%)** – Korea University (Introduction to Computers, SEMI103) Spring 2021
- **Best Teaching Award (Top 20%)** – Korea University (Probability and Random Process, KECE209) Spring 2021
- **Best Teaching Award (Top 20%)** – Korea University (Computer Language and Lab, EGRN151) Fall 2020
- **Granite Tower Best Teaching Award (Top 5%)** – Korea University (Computer Language and Lab, EGRN151) Fall 2019

Academic and University Services

- **Outstanding Contribution Award** – KIISE Information Network Society 02/2023
- **2022 Best Chapter Award, IEEE Vehicular Technology Society Chapter (12/2022)** – IEEE Seoul Section
Awarded as a Treasure with Seung-Hoon Hwang, Byeonghyo Shim, Oh-Soon Shin, Junsu Kim
- **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

Highly-Cited Publications (IEEE Magazines, Journals, and Conferences)

- **Highly-Cited (100+ citations)**, as of July 6, 2024
- (MobiSys'10) [651+] *Energy-efficient rate-adaptive GPS-based positioning for smartphones*
- (PIEEE'21) [194+] *Communication-efficient and distributed learning over wireless networks: Principles and applications*
- (TON'16) [190+] *Quality-aware streaming and scheduling for device-to-device video delivery*
- (ISJ'20) [181+] *Toward characterizing blockchain-based cryptocurrencies for highly accurate predictions, (Best Paper Award)*
- (TII'20) [169+] *Cooperative management for PV/ESS-enabled electric vehicle charging stations*
- (TVT'19) [138+] *Auction-based charging scheduling with deep learning framework for multi-drone networks*
- (TII'17) [130+] *Residential demand response for renewable energy resources in smart grid systems*
- (TII'22) [117+] *Cooperative multi-agent deep reinforcement learning for reliable surveillance via autonomous multi-UAV control*
- (JCN'14) [117+] *Fast millimeter-wave beam training with receive beamforming*
- (ICTC'20) [116+] *A tutorial on quantum convolutional neural networks (QCNN)*
- (IOTJ'20) [115+] *Multiagent DDPG-based deep learning for smart ocean federated learning IoT networks*
- (TCE'07) [115+] *Movement-aware vertical handoff of WLAN and mobile WiMAX for seamless ubiquitous access*
- (IOTJ'18) [109+] *Energy-efficient mobile charging for wireless power transfer in Internet of Things networks*

R&D Projects (Totally, 14,490,784 USD ≈ 14,490,784,000 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]
- **Research on Learning-based Swarm Mission Planning Algorithms** 03/2024–02/2025
Funded by LIG Nex1 [Grant: \$110,000; Primary-PI]
- **Mapping between Real World and Virtual Reality (VR) for End-Edged Cloud Real-Time VR Servers** 09/2020–08/2024
Funded by Samsung Advanced Institute of Technology [Grant: \$286,000; 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: \$59,500; 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 – ITRC** 07/2024–12/2031
Funded by *Institute for ICT Promotion (IITP)* [XXX, Grant: \$7,500,000], PI: Korea University (Korea)
Center Director
- **Intelligent 6G Wireless Access System Research Center – 6G AI Research Center** 04/2021–12/2025
Funded by *Institute for ICT Promotion (IITP)* [2021-0-00467, Grant: \$154,000 (2 yrs)], PI: Korea University (Korea)
- **Nano UAV Intelligence Systems Research Lab (NUiSRL) – ADD Military Special Research Center** 10/2020–08/2023
Funded by *Agency for Defense Development (ADD)* [UD200027ED, Grant: \$130,000], PI: Kwangwoon University (Korea)
- **5G/Unmanned Vehicle Research Center (5G/UV-RC) – ITRC** 06/2020–12/2022
Funded by *Institute for ICT Promotion (IITP)* [2020-0-01637, Grant: \$55,709], PI: Hanyang University (Korea)
Part Lead
- **Human Resource Development for the Biomedical Unstructured Big Data Analysis – ITRC** 08/2018–12/2021
Funded by *Institute for ICT Promotion (IITP)* [2018-0-01833], PI: Seoul National University Hospital (Korea)
- **Intelligent Internet of Energy (IoE) Data Research Center – ITRC** 02/2020–05/2020
Funded by *Institute for ICT Promotion (IITP)* [2018-0-01396], PI: Kookmin University (Korea)

Government-Funded Projects

- **AI Bots Collaborative Platform and Self-Organizing Artificial Intelligence Technology Development** 04/2022–12/2026
Funded by *Institute for ICT Promotion (IITP)* [2022-0-00907, Grant: \$950,000]
- **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-PIs: Prof. Soyi Jung at Ajou University, Prof. Soohyun Park at Sookmyung Women's University)
- **Quantum Hyper-Driving: Quantum-Inspired Hyper-Connected and Hyper-Sensing Autonomous Mobility Technologies** 03/2022–02/2025
Funded by *National Research Foundation of Korea* [2022R1A2C2004869, Grant: \$600,000; Primary-PI]
- **Development of Integrated Development Framework that supports Automatic Neural Network Generation and Deployment optimized for Runtime Environment** 04/2021–12/2024
Funded by *Institute for ICT Promotion (IITP)* [2018-0-00170, Grant: \$270,000]
- **Korea-Japan Joint Seminar Project for Generative and Multi-Modal AI Technologies** 10/2023–09/2024
Funded by *National Research Foundation of Korea (International Research Collaboration)* [Grant: \$50,000; PI]
- **K-Starlink: Dynamic Reconfigurable and Intelligent Space-Terrestrial Networks** 06/2021–05/2024
Funded by *National Research Foundation of Korea (Basic Research Lab)* [2021R1A4A1030775, Grant: \$251,000]
- **Integrated Perception Technology Developments for Public Safety Platforms** 06/2019–05/2023
Funded by *National Research Foundation of 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: \$503,250; Primary-PI]
- **mmWave Radar and Deep Reinforcement Learning based Optimal Policy Autonomous Driving** 06/2019–02/2022
Funded by *National Research Foundation of Korea* [2019R1A2C4070663, Grant: \$275,000; Primary-PI]
- **Development of Privacy-Reinforcing Distributed Transfer-Iterative Learning Algorithm** 07/2019–12/2021
Funded by *Ministry of Health and Welfare* [HI19C0842, Grant: \$150,000]
- **Virtual Presence in Moving Objects through 5G (PriMO-5G)** 06/2018–06/2021
Funded by *Institute for ICT Promotion (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]
- **Network Engineering: Development and Application of Novel Data Science Driven Framework for Efficient Network Design** 06/2017–05/2020
Funded by *National Research Foundation of Korea (Basic Research Lab)* [2017R1A4A1015675, Grant: \$150,000]
- **mmWave High-Speed Networking Platform Design for Next-Generation Convergence Services** 06/2016–05/2019
Funded by *National Research Foundation of 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 *Institute for ICT Promotion (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)** 09/2023–01/2024
Funded by *Electronics and Telecommunications Research Institute*
(Primary-PI: Prof. Soohyun Park at Sookmyung Women's University)

- **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: \$100,000; 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** 05/2021–11/2021
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

- **8032+ Citations** (H-index: 43+, i10-index 184+), obtained from Google Scholar Profile (as of July 6, 2024)
- **147 journals and 11 top-tier conferences**, <https://sites.google.com/view/aimlab-kuee/publications>
– **112 IEEE journals/magazines**, among them, **78 publications** are in **IEEE Magazines and ComSoc/VTS Journals**

Dissertation, Books, and Book Chapters

■ Ph.D. Dissertation

- *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)

■ Books and Book Editing

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

■ 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

■ Conferences – Top-Tiers and Awarded/Honored

- [[CIKM'23](#)] Quantum Split Learning for Privacy-Preserving Information Management, in [CIKM \(2023\)](#). (S. Park, H. Baek, [J. Kim](#))
- [[CIKM'23](#)] Logarithmic Dimension Reduction for Quantum Neural Networks, [CIKM \(2023\)](#). (H. Baek, S. Park, [J. Kim](#))
- [[APWCS'23](#)] Quantum Reinforcement Learning for Large-Scale Multi-Agent Decision-Making in Autonomous Aerial Networks, [APWCS \(2023\)](#). (S. Park, [J. Kim](#)) ([IEEE VTS Seoul Chapter Award](#))
- [[AAAI'23](#)] Quantum Multi-Agent Meta Reinforcement Learning, [AAAI \(2023\)](#). (W.J. Yun, J. Park, [J. Kim](#))
- [[AAAI'23](#)] FV-Train: Quantum Convolutional Neural Network Training with a Finite Number of Qubits by Extracting Diverse Features, [AAAI Student Abstract and Poster \(2023\)](#). (H. Baek, W.J. Yun, [J. Kim](#)) ([Finalist, Oral Presentation Contest](#))
- [[CIKM'22](#)] Hierarchical Reinforcement Learning using Gaussian Random Trajectory Generation in Autonomous Furniture Assembly, [CIKM \(2022\)](#). (W.J. Yun, D. Mohaisen, S. Jung, J.-K. Kim, [J. Kim](#))
- [[ICTC'22](#)] Reinforcement Learning Empowered Massive IoT Access in LEO-based Non-Terrestrial Networks, [ICTC \(2022\)](#). (J.-H. Lee, D.P. Selvam, A.F. Molisch, [J. Kim](#)) ([Best Paper Award](#))
- [[WiOpt'22](#)] Cooperative Video Quality Adaptation for Delay-Sensitive Dynamic Streaming using Adaptive Super-Resolution, [WiOpt \(2022\)](#). (M. Choi, W.J. Yun, [J. Kim](#))
- [[APWCS'22](#)] DDPG-based Deep Reinforcement Learning for Loitering Munition Mobility Control: Algorithm Design and Visualization, [APWCS \(2022\)](#). (H. Lee, W.J. Yun, S. Jung, J.-H. Kim, [J. Kim](#)) ([IEEE VTS Seoul Chapter Award](#))
- [[ICML'22](#)] Slimmable Quantum Federated Learning, [ICML Workshop on Dynamic Neural Networks \(2022\)](#). (W.J. Yun, J.P. Kim, S. Jung, J. Park, M. Bennis, [J. Kim](#)) ([Spotlight, Oral Presentation](#))
- [[INFOCOM'22](#)] Joint Superposition Coding and Training for Federated Learning over Multi-Width Neural Networks, [INFOCOM \(2022\)](#). (H. Baek, W.J. Yun, Y. Kwak, S. Jung, M. Ji, M. Bennis, J. Park, [J. Kim](#))
- [[APWCS'21](#)] Quantum Scheduling for Millimeter-Wave Observation Satellite Constellation, [APWCS \(2021\)](#). ([J. Kim](#), Y. Kwak, S. Jung, J.-H. Kim) ([IEEE VTS Seoul Chapter Award](#))
- [[APWCS'21](#)] Distributed and Autonomous Aerial Data Collection in Smart City Surveillance Applications, [APWCS \(2021\)](#). (H. Lee, S. Jung, [J. Kim](#)) ([IEEE VTS Seoul Chapter Award](#))
- [[ICOIN'21](#)] Infrastructure-Assisted Cooperative Multi-UAV Deep Reinforcement Energy Trading Learning for Big-Data Processing, [ICOIN \(2021\)](#). (S. Jung, W.J. Yun, [J. Kim](#), J.-H. Kim) ([Best Paper Award](#))
- [[ICDCS'20](#)] Understanding the Potential Risks of Sharing Elevation Information on Fitness Applications, [ICDCS \(2020\)](#). (Ü. Meteriz, N.E. Yildiran, [J. Kim](#), D. Mohaisen)
- [[APWCS'19](#)] Joint Offloading and Streaming in Mobile Edges: A Deep Reinforcement Learning Approach, [APWCS \(2019\)](#). (S. Park, J. Kim, D. Kwon, M. Shin, [J. Kim](#)) ([IEEE VTS Seoul Chapter Award](#))
- [[IJCAI'19](#)] Randomized Adversarial Imitation Learning for Autonomous Driving, [IJCAI \(2019\)](#). (M. Shin, [J. Kim](#))
- [[ICDCS'18](#)] ShmCaffe: A Distributed Deep Learning Platform with Shared Memory Buffer for HPC Architecture, [ICDCS \(2018\)](#). (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, [Multimedia \(2017\)](#). (J. Koo, J. Yi, [J. Kim](#), M.A. Hoque, S. Choi)
- [[ITA'14](#)] Joint Scheduling and Stochastic Streaming for Device-to-Device Video Delivery, [ITA Workshop \(2014\)](#). ([J. Kim](#), A. Turci, G. Caire, A.F. Molisch) ([ITA Graduation Day Talk](#))
- [[MobiSys'10](#)] Energy-Efficient Rate-Adaptive GPS-based Positioning for Smartphones, [MobiSys \(2010\)](#). (J. Paek, [J. Kim](#), R. Govindan)

■ Journals and Magazines

◀ Review ▶

- [[TETC.review](#)] (Review since 26-Jun-2024) Reliable Transpilation Control for Cloud-based Quantum Learning Systems, [IEEE Transactions on Emerging Topics in Computing](#). (J. Y. Shim, X. Piao, S. Park, [J. Kim](#), J.-K. Kim)

- [TIV.review] (Review since 24-Jun-2024) Quantum Multi-Agent Reinforcement Learning for Joint Cube-Satellites and High-Altitude Long-Endurance Aerial Vehicles in SAGIN, *IEEE Transactions on Intelligent Vehicles*. (G.S. Kim, Y. Cho, S. Park, S. Jung, J. Kim)
- [IOTJ.review] (Review since 24-Jun-2024) 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)
- [TETCI.review] (Review since 08-Jun-2024) (Double Blind Review), *IEEE Transactions on Emerging Topics in Computational Intelligence*. (C. Im, 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)
- [NN.review] (Review since 02-Jun-2024) Quantum Federated Learning with Pole-Angle Quantum Local Training and Trainable Measurement, *Neural Networks (Elsevier)*. (S. Park, H. Lee, S.B. Son, S. Jung, J. Kim)
- [IOTJ.review] (Review since 01-Jun-2024) Entanglement-Controlled Quantum Federated Learning, *IEEE Internet of Things Journal*. (S. Park, H. Lee, S. Jung, J. Park, M. Bennis, 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 (Elsevier)*. (S. Park, E.J. Roh, C. Im, J. Kim)
- [IOTJ.review] (Review since 22-Apr-2024) 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)
- [TVT.review] (Review since 22-Apr-2024) Joint Communication, Computing, and Control for Mission-Critical Aerial Distributed Systems, *IEEE Transactions on Vehicular Technology*. (G.S. Kim, S. Park, S. Jung, D. Mohaisen, J. Kim)
- [TNNLS.review] (Double Blind Review), *IEEE Transactions on Neural Networks and Learning Systems*. (H. Baek, J. Chung, S. Park, J. Kim)
- [TNSM.review] 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)
- [TON.review] (Review since 05-Apr-2024) 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)
- [TITS.review] (Review since 30-Mar-2024) Learning-based Aircraft Taxi Routing: Empirical Evaluation Study for Hartsfield-Jackson Atlanta International Airport, *IEEE Transactions on Intelligent Transportation Systems*. (G.S. Kim, S. Lee, S. Park, J. Kim)
- [MM.review] (Review since 25-Mar-2024) Quantum Jump to Virtual Worlds: High-Quality Multiple Virtual Meta-Space Realization in Metaverse, *IEEE Multimedia*. (S. Park, J. Kim)

◀ Revision ▶

- [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)
- [TMC.revision] Fast Quantum Convolutional Neural Networks for Low-Complexity Object Detection in Autonomous Driving Applications, *IEEE Transactions on Mobile Computing*. (H. Baek, E.J. Roh, D. 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)
- [Access.revision] Enhancing Cost-Effective 5G Virtualized RAN Pooling Gain on Clouds: An Intelligent Auto-Scaling Approach, *IEEE Access*. (K. Cho, J. Kim, S. Jung)
- [Access.revision] Sensing-to-Sky Intermittent Connectivity Realization for LTE-Enabled Drone Platforms: Embedded Design, Measurement Study, and Positioning Applications, *IEEE Access (VTS Section)*. (J. Kim, S. Park, U. Jo, T. Kim, S. Jung, J. Kim)
- [TIV.revision] Adaptive Quantum Federated Learning for Autonomous Surveillance Multi-Drone Networks, *IEEE Transactions on Intelligent Vehicles*. (S. Park, C. Park, S. Jung, J. Kim)
- [IOTJ.revision] Markov Decision Policies for Distributed Angular Routing in LEO Mobile Satellite Constellation Networks, *IEEE Internet of Things Journal*. (S. Park, G.S. Kim, S. Jung, J. Kim)
- [TON.revision] Spatio-Temporal Multi-Metaverse Dynamic Streaming for Hybrid Quantum-Classical Systems, *IEEE/ACM Transactions on Networking*. (S. Park, H. Baek, J. Kim)
- [TVT.revision] Dynamic Quantum Federated Learning for UAV-based Autonomous Surveillance, *IEEE Transactions on Vehicular Technology*. (S. Park, S.B. Son, S. Jung, J. Kim)
- [CM.revision] The Matrix: Quantum AI for Interacting Two Worlds in Prioritized Metaverse Spaces, *IEEE Communications Magazine*. (S. Park, H. Baek, J. Kim)
- [CM.revision] Quantum Multi-Agent Reinforcement Learning is All You Need: Coordinated Global Access in Integrated TN/NTN Cube-Satellite Networks, *IEEE Communications Magazine*. (S. Park, G.S. Kim, Z. Han, J. Kim)+

◀ Accepted ▶

- [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)

◀ 2024 ▶

- [TMC'24.11] Joint Quantum Reinforcement Learning and Stabilized Control for Spatio-Temporal Coordination in Metaverse, *IEEE Transactions on Mobile Computing*, 23(11):ppp-ppp (2024). (S. Park, J. Chung, C. Park, S. Jung, M. Choi, S. Cho, J. Kim)
- [FGCS'24.10] AQUA: Analytics-driven Quantum Neural Network (QNN) User Assistance for Software Validation, *Future Generation Computer Systems (Elsevier)*, 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 (Wiley)*, v(n):ppp-ppp

(2024). (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*, v(n):ppp–ppp (2024). (J. Kim, S. Park, S. Jung, C. Cordeiro)
- [TVT'24.07] Age-of-Information Aware Caching and Delivery for Infrastructure-Assisted Connected Vehicles, *IEEE Transactions on Vehicular Technology*, 73(7):ppp–ppp (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 (Springer)*, 83:62045–62059 (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 (VTS Section)*, 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 (Wiley)*, 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 (Wiley)*, 45(5):735–745 (2023). (S. Park, H. Lee, C. Park, S. Jung, M. Choi, J. Kim)
- [ETRI'23.10] Special Issue on Autonomous Unmanned Aerial/Ground Vehicles and their Applications, *ETRI Journal (Wiley)*, 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 (Elsevier)*, 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 (Elsevier)*, 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 (Elsevier)*, 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 (Elsevier)*, 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 (Elsevier)*, 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 (VTS Section)*, 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)
- [ICTE'22.09] Trustworthy Handover in LEO Satellite Mobile Networks, *ICT Express (Elsevier)*, 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)
- [ITU'22.07] Dynamic Resource Scheduling for Real-Time Group Broadcasting in 6G Cellular Vehicular Networks, *ITU Journal on Future and Evolving Technologies*, 3(1):81–88 (2022). (S. Jung, M. Levorato, J. Kim)
- [ISJ'22.06] Securing Heterogeneous IoT with Intelligent DDoS Attack Behavior Learning, *IEEE Systems Journal*, 16(2):1974–1983 (2022). (N.-N. Dao, T. Phan, U. Sa'ad, J. Kim, T. Bauschert, D.-T. Do, S. Cho)
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- [Access'21.09] Spatio-Temporal Split Learning for Privacy-Preserving Medical Platforms: Case Studies with COVID-19 CT, X-Ray, and Cholesterol Data, *IEEE Access*, 9:121046–121059 (2021). (Y.J. Ha, M. Yoo, G. Lee, S. Jung, S. Choi, J. Kim, S. Yoo)
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- [Access'21.06] Joint Mobile Charging and Coverage-Time Extension for Unmanned Aerial Vehicles, *IEEE Access*, 9:94053–94063 (2021). (S. Park, M. Choi, W.-Y. Shin, J. Kim)
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- [PIEEE'21.05] Communication-Efficient and Distributed Learning Over Wireless Networks: Principles and Applications, *Proceedings of the IEEE*, 109(5):796–819 (2021). (J. Park, S. Samarakoon, A. Elgabli, J. Kim, M. Bennis, S.-L. Kim, M. Debbah)
- [TWC'21.04] Probabilistic Caching and Dynamic Delivery Policies for Categorized Contents and Consecutive User Demands, *IEEE Transactions on Wireless Communications*, 20(4):2685–2699 (2021). (M. Choi, A.F. Molisch, D.-J. Han, D. Kim, J. Kim, J. Moon)
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- [JCN'21.04] Dynamic Video Delivery using Deep Reinforcement Learning for Device-to-Device Underlaid Cache-Enabled Internet-of-Vehicle Networks, *Journal of Communications and Networks*, 23(2):117–128 (2021). (M. Choi, M. Shin, J. Kim)
- [JNCA'21.04] Contra-*. Mechanisms for Countering Spam Attacks on Blockchain's Memory Pools, *Journal of Network and Computer Applications (Elsevier)*, 179:102971 (2021). (M. Saad, J. Kim, D. Nyang, D. Mohaisen)
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- [ICTE'21.03] Distributed Deep Reinforcement Learning for Autonomous Aerial eVTOL Mobility in Drone Taxi Applications, *ICT Express (Elsevier)*, 7(1):1–4 (2021). (W.J. Yun, S. Jung, J. Kim, J.-H. Kim)
- [IET'21.03] Empirically Comparing the Performance of Blockchain's Consensus Algorithms, *IET Blockchain*, 1(1):56–64 (2021). (A. Ahmad, A. Alabduljabbar, M. Saad, D. Nyang, J. Kim, D. Mohaisen)

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- [TWC'20.12] Joint Distributed Link Scheduling and Power Allocation for Content Delivery in Wireless Caching Networks, *IEEE Transactions on Wireless Communications*, 19(12):7810–7824 (2020). (M. Choi, A.F. Molisch, J. Kim) [\(IEEE ComSoc MMTC Best Journal Paper Award \(2021\)\)](#)
- [IOTI'20.10] Multiagent DDPG-Based Deep Learning for Smart Ocean Federated Learning IoT Networks, *IEEE Internet of Things Journal*, 7(10):9895–9903 (2020). (D. Kwon, J. Jeon, S. Park, J. Kim, S. Cho)
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- [Access'20.06] Blind Signal Classification Analysis and Impact on User Pairing and Power Allocation in Nonorthogonal Multiple Access, *IEEE Access*, 8:100916–100929 (2020). (M. Choi, J. Kim)
- [TII'20.05] Cooperative Management for PV/ESS-Enabled Electric-Vehicle Charging Stations: A Multiagent Deep Reinforcement Learning Approach, *IEEE Transactions on Industrial Informatics*, 16(5):3493–3503 (2020). (M. Shin, D. Choi, J. Kim)
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- ◀ 2016 ▶
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- [TON'16.08] Quality-Aware Streaming and Scheduling for Device-to-Device Video Delivery, *IEEE/ACM Transactions on Networking*, 24(4):2319–2331 (2016). (J. Kim, G. Caire, A.F. Molisch)
- ([Best Reading Papers in Device-to-Device Communications by IEEE Communications Society](#))
- [JRTIP'16.08] Stochastic Stable Buffer Control for Quality-Adaptive HEVC Video Transmission in Enterprise WLAN Architectures, *Journal of Real-Time Image Processing (Springer)*, 12(2):465–471 (2016). (J. Kim, E.-S. Ryu)
- ◀ 2007–2015 ▶
- [TII'15.12] Energy-Efficient Dynamic Packet Downloading for Medical IoT Platforms, *IEEE Transactions on Industrial Informatics*, 11(6):1653–1659 (2015). (J. Kim)
- [TSMC'15.11] Stochastic Decision Making for Adaptive Crowdsourcing in Medical Big-Data Platforms, *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, 45(11):1471–1476 (2015). (J. Kim, W. Lee)
- [MTAP'15.10] Interference Impacts on 60 GHz Real-Time Online Video Streaming in Wireless Smart TV Platforms, *Multimedia Tools and Applications (Springer)*, 74(19):8613–8629 (2015). (J. Kim, S.-N. Hong)
- [IJEC'15.07] Error Concealment Mode Signaling for Robust Mobile Video Transmission, *International Journal of Electronics and Communications (Elsevier)*, 69(7):1070–1073 (2015). (E.-S. Ryu, J. Kim)
- [TS'15.05] Dynamic Two-Stage Beam Training for Energy-Efficient Millimeter-Wave 5G Cellular Systems, *Telecommunication Systems (Springer)*, 59(1):111–122 (2015). (J. Kim, S.-N. Hong)
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- [CL'14.09] Joint Coding and Stochastic Data Transmission for Uplink Cloud Radio Access Networks, *IEEE Communications Letters*, 18(9):1619–1622 (2014). (S.-N. Hong, J. Kim)
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- [TBC'13.09] Joint Scalable Coding and Routing for 60 GHz Real-Time Live HD Video Streaming Applications, *IEEE Transactions on Broadcasting*, 59(3):500–512 (2013). (J. Kim, Y. Tian, S. Mangold, A.F. Molisch)
- [IET'13.02] Distributed Stochastic Buffering for Enterprise WLAN Architectures, *IET Electronics Letters*, 49(4):302–304 (2013). (J. Kim, E.-S. Ryu)
- [TCE'07.11] Movement-Aware Vertical Handoff of WLAN and Mobile WiMAX for Seamless Ubiquitous Access, *IEEE Transactions on Consumer Electronics*, 53(4):1268–1275 (2007). (W. Lee, E. Kim, J. Kim, I. Lee, C. Lee)
- [TCE'07.05] Coverage-Time Optimized Dynamic Clustering of Networked Sensors for Pervasive Home Networking, *IEEE Transactions on Consumer Electronics*, 53(2):433–441 (2007). (J. Kim, W. Lee, E. Kim, D.-W. Kim, H. Kim)
- [CL'07.01] Optimized Transmission Power Control of Interrogators for Collision Arbitration in UHF RFID Systems, *IEEE Communications Letters*, 11(1):22–24 (2007). (J. Kim, W. Lee, E. Kim, D. Kim, K. Suh)

Patents (Granted), totally, 71

- **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)
- **26 Korean Patents:** (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

- 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–'25.08 (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*

■ M.S. Students and Alumni

- 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), MyungJae Shin ('18.03–'20.02, Naver), Jaeho Choi ('19.03–'21.02, Korea Meteorological Administration), Jaehyun Chung ('23.09–, *Active*), Yeryeong Cho ('24.03–, *Active*), Chaemoon Im ('24.03–, *Active*)

■ 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. 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. Students and Alumni (Tight Collaboration for Ph.D. Dissertation)

- Seungyo Ryu (Primary Advisor: Prof. Dongseung Kim at Korea Univ.), *Researcher at LG Electronics, Korea*

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

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

■ USC Viterbi School of Engineering (Los Angeles, California, USA), Graduate Students

- Feiyu Meng, M.S. in EE from USC (Summer 2013, Fall 2013), now with **Apple**, Silicon Valley, CA, USA
- Vivek Sankaravadivel, M.S. in EE from USC (Spring 2011, Fall 2011), now with **Uber**, Silicon Valley, CA, USA

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 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
- 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

- Introduction to Artificial Intelligence (IWC420): Winter 2023-2024, Winter 2022-2023, Winter 2021-2022
- Introduction to Computer Science (IWC293): Winter 2023-2024
- Data Communications (KECE316): Fall 2020
- Digital System Design and Laboratory (KECE210): Fall 2020
- Probability and Random Process (KECE209): 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%*)
- SW Programming Basics (GECT002): Spring 2024 (3 classes)

■ 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

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: 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 ICAIC: 2019** (Publication Chair)
- **Quantum Computing and Artificial Intelligence**
 - **IEEE Quantum Week 2024:** Organizer, *Workshop on Quantum Computing and Reinforcement Learning* (Montréal, Canada, 09/2024)
 - **IJCAI 2024:** Organizer, *Workshop on Quantum Algorithms, Optimization, and Artificial Intelligence* (Jeju, Korea, 08/2024)

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** (10/2024), *Hands-On Introduction to Quantum Machine Learning*,
Joint Presentation with Dr. Samuel Yen-Chi Chen (Wells Fargo, New York, NY, USA)
 - **IEEE ICUFN 2022 Tutorial** (07/2022), *A Paradigm Shift in Future Networks with Quantum Deep Learning*
 - **IEEE ICOIN 2022 Tutorial** (01/2022), *Advanced Deep Learning Methods for Autonomous Mobility*
 - **IEEE ICUFN 2021 Tutorial** (08/2021), *Distributed and Split Deep Learning: Theory and Applications*
 - **IEEE ICAIC 2021 Tutorial** (04/2021), *Multi-Agent Deep Reinforcement Learning for Connected and Autonomous Vehicles*
 - **IEEE ICTC 2019 Special Session** (10/2019), *Advanced Deep Learning Methods and Their Applications to Distributed and Network Platforms*
 - **IEEE ICOIN 2019 Tutorial** (01/2019), *Distributed Platform Research for Emerging Deep Learning Applications*
 - **IEEE ICC 2018 Tutorial** (05/2018), *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)
- **Korean (Local) Conference Tutorials and Special Session Talks**
 - **2024 IEIE Summer Conference Tutorial** (06/2024), *GAN-based and Quantum Reinforcement Learning for Mobility Applications*
 - **2023 KICS Summer Conference Tutorial** (06/2023), *Quantum Machine Learning: Theory and Trends*
 - **2023 KIISE Summer Conference Information Network Society Special Session** (06/2023), *Quantum Neural Networks*
 - **2022 KIPS Fall Conference Tutorial** (11/2022), *Quantum Deep Learning Basics*
 - **2022 Korea A.I. Conference Tutorial** (09/2022), *Trends in Deep Reinforcement Learning*
 - **2022 KICS Summer Conference Tutorial** (06/2022), *Quantum Multi-Agent Deep Reinforcement Learning*
 - **2022 KIEES Winner Conference Tutorial** (02/2022), *Deep Learning Theory and Implementation*
 - **2021 Korea AI Conference Tutorial** (09/2021), *Understanding the Potential Risks of Sharing Elevation Information on Fitness Applications*
 - **2021 JCCI Mobile Machine Learning Special Session** (04/2021), *Multi-Agent Deep Reinforcement Learning for Autonomous Vehicles*
 - **2020 Korea AI Conference Tutorial** (12/2020), *Randomized Adversarial Imitation Learning for Autonomous Driving*
 - **2020 KICS Fall Conference Tutorial** (11/2020), *Trends in Multi-Agent Deep Reinforcement Learning for Distributed Computing*
 - **2020 KICS Summer Conference Tutorial** (08/2020), *Deep Learning Computation for Economic Theory and Its Applications*
 - **2020 KICS Winter Conference Tutorial** (02/2020), *Deep Learning Applications to Computer Networking*
 - **2020 KICS Winter Conference Tutorial** (02/2020), *Deep Neural Network Basics*
 - **2019 KICS Fall Conference Special Session Talk** (11/2019), *AI Methods for Network and Mobility Platform*
 - **2019 IEK Hyundai Motors Special Session** (06/2019), *Explainable AI (XAI) and Imitation Learning for Automotive Applications*
 - **2019 KIPS Spring Conference Tutorial** (05/2019), *Deep Learning Basics and Representative Models*
 - **2019 KICS Winter Conference Tutorial** (01/2019), *Deep Learning Methods for Advanced Network*
 - **2017 KICS Summer Conference Tutorial** (06/2017), *GPU Computing Platforms and Software for Deep Learning*

- **2017 KCC Summer Conference Special Session** (06/2017), *Dynamic Control and Software for Next-Generation Distributed Platforms*
- **2017 KICS Winter Conference Tutorial** (01/2017), *Machine Learning Techniques for Mobile Computing*
- **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)
- **Demonstration at Academic Conferences**
 - *EQuaTE: Efficient Quantum Train Engine Design and Demonstration for Dynamic Software Analysis*; **IEEE ICDCS 2023** (Hong Kong, China)
 - *Multi-Site Clinical Federated Learning using NLP Models and NVFlare*; **IEEE ICDCS 2023** (Hong Kong, China)
 - *Quantum Multi-Agent Reinforcement Learning via Variational Quantum Circuit Design*; **IEEE ICDCS 2022** (Bologna, Italy)
 - *Visualization of Deep Reinforcement Autonomous Aerial Mobility Learning Simulations*; **IEEE INFOCOM 2021** (Online)
 - *Deep Multi-modal Unsupervised Pen Pressure Stylization*; **IEEE/CVF ICCV 2019** (Seoul, Korea)
 - *Light-Weight Programming Language for Blockchain*; **ACM MobiSys 2019** (Seoul, Korea)
 - *mmWave MAA Client Access & Backhaul Platform*; **IEEE GLOBECOM 2015 (Industry Demonstration ID-14)** (San Diego, CA, USA)
 - *mmWave Modular Antenna Array for Next-Generation Wireless Networks*; **IEEE GLOBECOM 2014 (Expo)** (Austin, TX, USA)
 - *Adaptive Video Streaming for Device-to-Device Mobile Platforms*; **ACM MobiCom 2013** (Miami, FL, USA)
- **Prototyping at Industry Exhibitions**
 - *Mobile Edge mmWave Backhaul and Access*; **Mobile World Congress (MWC) 2016** (Barcelona, Spain, 02/2016)
 - *mmWave MAA Client Access & Backhaul Platform*; **Intel 360 degree 2016** (Anaheim, CA, 02/2016)
 - *mmWave Modular Antenna Array Client Access & Backhaul Platform*; **Intel Asia Innovation Summit 2015** (Taipei, Taiwan, 10/2015)
 - *Enabling 5G Densification*; **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)

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: 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: 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: 2024** (COMNETSAT), 2022 (MSN (Track 3: Security, Privacy, Trust, and Blockchain), ICTC, ICCCN, IPDPS (Heterogeneity in Computing Workshop), ICUFN, WCSP, COMNETSAT, CyberneticsCom, ICEIC, ICNGC), 2021 (MSN, ICTC, ICCCN, ICUFN, EuCAP, COMNETSAT, ICAIIC, IGESSC, ICEIC, ICNGC, ITC-CSCC), 2020 (ICTC, ICUFN, ICCCN, COMNETSAT, Blockchain, ICAIIC, IGESSC), 2019 (ICTC, ICUFN, ICCCN, 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)

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, California, USA)
 - Professor of Electrical and Computer Engineering at the University of Southern California (Los Angeles, California, USA)
 - URL: <https://wides.usc.edu/founder.html>