

Highlights

Research Milestones

- **135 Journals** (among them, **104 IEEE Journals**), <https://sites.google.com/view/aimlab-kuee/publications/journals> – 111 Published / Accepted (among them, **80 IEEE**), **14** Under-Revision, and **10** Under-Review Journals
- **7264+ Citations** (H-index: 41+, i10-index 170+), obtained from Google Scholar Profile (as of December 30, 2023)
- **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)*, *IEEE Seoul Section Student Paper Contest Awards (1 in 2023; 1 in 2020; 1 in 2019)*, and *IEEE VTS Seoul Chapter Awards (1 in 2023; 1 in 2022; 2 in 2021; 1 in 2019)*
- **6 Tutorials at IEEE Conferences**, i.e., *ICUFN (2022)*, *ICOIN (2022)*, *ICUFN (2021)*, *ICAHC (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)**: 6,710,784 USD \approx 6,710,784,000 KRW (except University Internal Funds)

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

- **2 Tenure-Track Professors (formerly supervised by Prof. Joongheon Kim (Postdoctoral, Ph.D., M.S., Interns))**
 - *Postdoctoral Scholars*: Minseok Choi (Kyung Hee University), Soyi Jung (Ajou University)
- **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 18+ 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
- **99+ Technical Program Committee (TPC) and 26+ Organizing Committee (OC) Contributions** for IEEE Conferences

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)
 - 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**

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**)
 - *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**
 - * *Vice Director (10/2020–Present)*, Artificial Intelligence Engineering Research Center (KU-AIER)
 - **ADMINISTRATIVE POSITIONS**
 - * *Deputy Vice President (02/2022–Present)*, **Office of Academic Affairs**
 - * *Dean (06/2021–08/2023)*, **Center for Teaching and Learning (CTL)**
 - * *Chair (03/2023–08/2023)*, Distance Learning Management Committee, Center for Teaching and Learning

- * *Member* (03/2023–02/2027), Korea University 120th Anniversary Promotion Committee (Academic Subcommittee)
- * *Member* (06/2021–03/2022, 09/2022–08/2024), Academic Affairs and Planning Steering Committee
- * *Member* (07/2020–06/2022), Korea University Institute of Data Science (KUIDS) Steering Committee
- **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), CA, USA
 - *Systems Engineer* (09/2013–02/2016), mmWave Standards and Advanced Technology (mSAT) Team (with Dr. Ali S. Sadri)
- **University of Southern California (USC) – Viterbi School of Engineering**, Los Angeles, CA, 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 (Advised by Prof. Andreas F. Molisch)
 - *Teaching Assistant* (01/2012–05/2013), Computer Science and Electrical Engineering Departments (CSCI455x and EE579)
- **InterDigital**, San Diego, CA, 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

Industry, Advisory, and Consulting Positions

- **Samsung Electronics (C-Lab), Seoul National University R&D Center**, Seoul, Republic of Korea
Advisory Professor (02/2020–08/2020), Nonlinear Regression Deep Learning Algorithm Design and Implementation

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 Treasurer* (2022–Present), *Chapter Treasurer* (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* (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)
 - **KICS (Korean Institute of Communications and Information Sciences)**
 - *Life Member* (2018–)
 - *Executive Director* (2023–): IEEE ICTC AI (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 Military Communication** (2019–): *Secretary* (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* (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)
 - **Telecommunication Society**: *General Affair Manager* (2023, 2022)
 - *Editor*, **Journal of the Institute of Electronics and Information Engineers** (Area: Telecommunication)
 - **OSIA (Open Standards and ICT Association)**
 - *Vice President* (2024, 2023, 2022, 2021), *General Affair Manager* (2020)
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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), AAAI 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"
- **Best Special Issue Guest Editor Award (2022)** – *ICT Express (Elsevier), S.I. on Mobile Edge Computing Systems* (06/2021)
- **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

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| • 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

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| • 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 December 30, 2023
 - (MobiSys'10) [648+] Energy-efficient rate-adaptive GPS-based positioning for smartphones
 - (TON'16) [184+] Quality-aware streaming and scheduling for device-to-device video delivery
 - (PIEEE'21) [167+] Communication-efficient and distributed learning over wireless networks: Principles and applications
 - (ISJ'20) [155+] Toward characterizing blockchain-based cryptocurrencies for highly accurate predictions, (**Best Paper Award**)
 - (TII'20) [147+] Cooperative management for PV/ESS-enabled electric vehicle charging stations
 - (TVT'19) [133+] Auction-based charging scheduling with deep learning framework for multi-drone networks
 - (TII'17) [124+] Residential demand response for renewable energy resources in smart grid systems
 - (TCE'07) [114+] Movement-aware vertical handoff of WLAN and mobile WiMAX for seamless ubiquitous access
 - (JCN'14) [112+] Fast millimeter-wave beam training with receive beamforming
 - (IOTJ'18) [107+] Energy-efficient mobile charging for wireless power transfer in Internet of Things networks
 - (IOTJ'20) [093+] Multiagent DDGP-based deep learning for smart ocean federated learning IoT networks
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R&D Projects (Totally, 6,710,784 USD ≈ 6,710,784,000 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]
- **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; Co-PI]

University/Center-Level Projects

- **Intelligent 6G Wireless Access System Research Center** 04/2021–12/2025
Funded by *Institute for ICT Promotion (IITP)* [2021-0-00467, Grant: \$154,000 (2 yrs); Co-PI]
- **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; Co-PI], 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; Co-PI], PI: Hanyang University (Korea)
- **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; Co-PI], 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; Co-PI], 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; Co-PI]
- **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]
- **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)* [\$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: \$161,000 (2 yrs); Co-PI]
- **Development of Integrated Development Framework that supports Automatic Neural Network Generation and Deployment optimized for Runtime Environment** 04/2021–12/2023
Funded by *Institute for ICT Promotion (IITP)* [2018-0-00170, Grant: \$230,000; Co-PI]
- **Integrated Perception Technology Developments for Public Safety Platforms** 06/2019–05/2023
Funded by *National Research Foundation of Korea* [2019M3E3A1084054, Grant: \$400,000; Co-PI]
- **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; Co-PI]
- **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; Co-PI]
- **Distributed Secure Platform for Scalable Clinical OMOP CDM Models** 04/2019–12/2020
Funded by *Ministry of Health and Welfare* [HI19C0572, Grant: \$90,000; Co-PI]
- **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; Co-PI]
- **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

- **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]
- **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; Co-PI]
- **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

- **7264+ Citations** (H-index: 41+, i10-index 170+), obtained from Google Scholar Profile (as of December 30, 2023)
- Totally, **135 journals**, <https://sites.google.com/view/aimlab-kuee/publications/journals>
 - **104** IEEE publications, among them, **73** 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

- Network Security and Trustworthiness, *Fundamentals of 6G Communications and Networking*, Springer (2023). (S. Jung, S. Park, S.B. Son, H. Lee, [J. Kim](#))
- Semantic Communications and Networking, *Fundamentals of 6G Communications and Networking*, Springer (2023). (W.J. Yun, S. Park, R. Lee, J. Park, Y.-C. Ko, [J. Kim](#))
- Convergence of 6G and Wi-Fi Networks, *Fundamentals of 6G Communications and Networking*, Springer (2023). (H. Lee, S. Park, M. Yoo, C. Park, H. Baek, [J. Kim](#))
- UAV Communications and Networks, *Fundamentals of 6G Communications and Networking*, Springer (2023). (S. Park, J.-H. Lee, S. Jung, [J. Kim](#))
- AI-Native Network Algorithms and Architectures, *Fundamentals of 6G Communications and Networking*, Springer (2023). (H. Lee, S. Park, H. Baek, C. Park, S. Son, J. Park, [J. Kim](#))
- AI-Native Communications, *Fundamentals of 6G Communications and Networking*, Springer (2023). (H. Baek, H. Lee, S. Park, H. Lee, J. Park, [J. Kim](#))
- Network Disaggregation, *Fundamentals of 6G Communications and Networking*, Springer (2023). (S. Park, C. Park, J.P. Kim, M. Choi, [J. Kim](#))
- Introduction to 6G Communications and Networking, *Fundamentals of 6G Communications and Networking*, Springer (2023). (X. Lin, J. Zhang, Y. Liu, [J. Kim](#))
- Dynamic Decision-Making for Stabilized Deep Learning Software Platforms, *Advances and Applications in Deep Learning*, IntechOpen (2020). (S. Park, D. Kim, [J. Kim](#))
- Device-to-Device Communications, *Towards 5G: Applications, Requirements and Candidate Technologies*, Wiley (2017). (A.F. Molisch, M. Ji, [J. Kim](#), D. Burghal, A.S. Tehrani)
- Millimeter-Wave (mmWave) Medium Access Control: A Survey, *Opportunities in 5G Networks: A Research and Development Perspective*, CRC Press (2016). ([J. Kim](#))
- Millimeter-Wave (mmWave) Radio Propagation Characteristics, *Opportunities in 5G Networks: A Research and Development Perspective*, CRC Press (2016). ([J. Kim](#))
- Weighted Localized Clustering: A Coverage-Aware Reader Collision Arbitration Protocol in RFID Networks, *Handbook on Mobile and Ubiquitous Computing: Status and Perspective*, CRC Press (2012). ([J. Kim](#), E. Kim, W. Lee, D. Kim, J. Choi, J. Jung, C.K. Shin)
- Coverage-Time Optimized Dynamic Clustering for Two-Tiered WM2Nets, *Wireless Mesh Networking*, McGraw-Hill (2008). ([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, **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**)
- [ICDCS'23] EQuaTE: Efficient Quantum Train Engine Design and Demonstration for Dynamic Software Analysis, **ICDCS (2023)**. (S. Park, H. Feng, W.J. Yun, C. Park, Y.K. Lee, S. Jung, [J. Kim](#))
- [ICDCS'23] Multi-Site Clinical Federated Learning Using Recursive and Attentive Models and NVFlare, **ICDCS (2023)**. (W.J. Yun, S. Kim, [J. Kim](#))
- [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**)
- [ICDCS'22] Quantum Multi-Agent Reinforcement Learning via Variational Quantum Circuit Design, **ICDCS (2022)**. (W.J. Yun, Y. Kwak, J.P. Kim, H. Cho, S. Jung, J. Park, [J. Kim](#))
- [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.F. 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](#))
- [MobiCom'13] Adaptive Video Streaming for Device-to-Device Mobile Platforms, **MobiCom (2013)**. (*J. Kim, F. Meng, P. Chen, H.E. Egilmez, D. Bethanabhotla, A.F. Molisch, M.J. Neely, G. Caire, A. Ortega*)
- [MobiSys'10] Energy-Efficient Rate-Adaptive GPS-based Positioning for Smartphones, **MobiSys (2010)**. (*J. Paek, J. Kim, R. Govindan*)
- [ICCCN'05] Effect of Localized Optimal Clustering for Reader Anti-Collision in RFID Networks: Fairness Aspect to the Readers, **ICCCN (2005)**. (*J. Kim, W. Lee, J. Yu, J. Myung, E. Kim, C. Lee*)

■ Journals and Magazines

◀ Review ▶

- [WC.review] (Review since 30-Dec-2023) Quantum Jump to Virtual Worlds: High-Quality Multiple Virtual Meta-Space Realization in Metaverse, [IEEE Wireless Communications](#). (*S. Park, J. Kim*)
- [TNSM.review] (Review since 29-Nov-2023) Cooperative Multi-UAV Positioning for Aerial Internet Service Management: A Multi-Agent Deep Reinforcement Learning Approach, [IEEE Transactions on Network and Service Management](#). (*J. Kim, S. Park, S. Jung, C. Cordeiro*)
- [IOTJ.review] (Review since 24-Nov-2023) SlimQFL: Slimmable Quantum Federated Learning with Pole-to-Angle Local Training and Trainable Measurement, [IEEE Internet of Things Journal](#). (*S. Park, H. Baek, H. Lee, S.B. Son, S. Jung, J. Park, M. Bennis, J. Kim*)
- [Access.review] (Review since 20-Nov-2023) Dynamic Quantum Federated Learning for Satellite-Ground Integrated Systems using Slimmable Quantum Neural Networks, [IEEE Access \(IEEE Vehicular Technology Society \(VTS\) Section\)](#). (*S. Park, S. Jung, J. Kim*)
- [TETCI.review] (Review since 14-Nov-2023) Joint Scalable Quantum Convolutional Neural Network and Reverse-Fidelity Training for High-Accurate Recognition, [IEEE Transactions on Emerging Topics in Computational Intelligence](#). (*H. Baek, S. Park, J. Kim*)
- [TON.review] (Review since 02-Nov-2023) Spatio-Temporal Multi-Metaverse Dynamic Streaming for Hybrid Quantum-Classical Networks, [IEEE/ACM Transactions on Networking](#). (*S. Park, H. Baek, J. Kim*)
- [TWC.review] (Review since 29-Oct-2023) Joint Control and Communications Framework for Mission-Critical Multi-UAV Networks, [IEEE Transactions on Wireless Communications](#). (*G.S. Kim, S. Park, S. Jung, D. Mohaisen, J. Kim*)
- [JCN.review] (Review since 29-Oct-2023) Software Design and Visualization for Quantum Multi-Agent Reinforcement Learning in Multi-Drone Mobility Control, [Journal of Communications and Networks](#). (*S. Park, S. Jung, J. Kim*)
- [WC.review] (Review since 15-Oct-2023) Sustainable Spatio-Temporal Quantum Multi-Agent Reinforcement Learning for Autonomous Networks, [IEEE Wireless Communications](#). (*S. Park, J. Kim*)
- [TON.review] (Review since 05-Oct-2023) Joint Quantum Reinforcement Learning and Neural Myerson Auction for High-Quality Digital-Twin Services in Multi-Tier Networks, [IEEE/ACM Transactions on Networking](#). (*S. Park, G.S. Kim, S.B. Son, J. Kim*)

◀ Revision ▶

- [Access.revision] Quantum Reinforcement Learning for Spatio-Temporal Prioritization in Metaverse, [IEEE Access](#). (*S. Park, H. Baek, J. Kim*)
- [TIV.revision] Fast Quantum Convolution Neural Networks for Low-Complexity Object Detection in Autonomous Driving Applications, [IEEE Transactions on Intelligent Vehicles](#). (*H. Baek, D. Kim, J. Kim*)
- [Access.revision] Sensing-to-Sky Intermittent Connectivity Realization for LTE-Enabled Drone Platforms: Embedded Design, Measurement Study, and Positioning Applications, [IEEE Access \(IEEE Vehicular Technology Society \(VTS\) Section\)](#). (*J. Kim, S. Park, U. Jo, T. Kim, 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*)
- [IOTJ.revision] Intelligent Extra Resource Allocation for Cooperative Awareness Message Broadcasting in Cellular-V2X Networks, [IEEE Internet of Things Journal](#). (*S. Jung, J.-H. Kim, J. Kim*)
- [TVT.revision] Dynamic Quantum Federated Learning for Unmanned Aerial Vehicles in Autonomous Surveillance Applications, [IEEE Transactions on Vehicular Technology](#). (*S. Park, S.B. Son, S. Jung, J. Kim*)
- [TMC.revision] Joint Quantum Reinforcement Learning and Stabilized Control for Spatio-Temporal Coordination in Metaverse, [IEEE Transactions on Mobile Computing](#). (*S. Park, C. Park, S. Jung, M. Choi, S. Cho, J. Kim*)
- [TVT.revision] Age-of-Information Aware Caching and Delivery for Infrastructure-Assisted Connected Vehicles, [IEEE Transactions on Vehicular Technology](#). (*S. Park, C. Park, S. Jung, M. Choi, J. Kim*)

- [CM.revision] Quantum Entanglement Software Testing (QuEST) for Dynamic Software Analysis in Autonomous Driving: 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)
- [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)
- [TIV.revision] 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)
- [CM.revision] The Matrix: Quantum AI for Interacting Two Worlds in Prioritized Metaverse Spaces, *IEEE Communications Magazine*. (S. Park, H. Baek, J. Kim)
- [ITSM.revision] Dynamic Software Testing for Run-Time Program Analysis in Quantum-based Autonomous Driving Applications, *IEEE Intelligent Transportation Systems Magazine*. (S. Park, C. Park, W.J. Yun, J. Kim)

◀ 2024 and Accepted ▶

- [TIV.accepted] Intelligent Caching for Seamless High-Quality Streaming in Vehicular Networks: A Multi-Agent Reinforcement Learning Approach, *IEEE Transactions on Intelligent Vehicles*. (M. Choi, T. Xiang, J. Kim)
- [TNNLS.accepted] Hierarchical Deep Reinforcement Learning-based Propofol Infusion Assistant Framework in Anesthesia, *IEEE Transactions on Neural Networks and Learning Systems*. (W.J. Yun, M. Shin, D. Mohaisen, K. Lee, J. Kim)
- [MTAP.accepted] Stabilized Performance Maximization for GAN-based Real-Time Authentication Image Generation over Internet, *Multimedia Tools and Applications (Springer)*. (J.Y. Shim, S. Jung, J. Kim, J.-K. Kim)
- [CM.accepted] Quantum Multi-Agent Reinforcement Learning for Autonomous Mobility Cooperation, *IEEE Communications Magazine*. (S. Park, J.P. Kim, C. Park, S. Jung, J. Kim)
- [TWC.accepted] Joint User Clustering, Beamforming, and Power Allocation for mmWave-NOMA with Imperfect SIC, *IEEE Transactions on Wireless Communications*. (B. Lim, W.J. Yun, J. Kim, Y.-C. Ko)
- [TVT.accepted] Learning-based Cooperative Mobility Control for Autonomous Drone-Delivery, *IEEE Transactions on Vehicular Technology*. (S. Park, C. Park, J. Kim)
- [TGCN.accepted] Joint Delay-Sensitive and Power-Efficient Quality Control of Dynamic Video Streaming using Adaptive Super-Resolution, *IEEE Transactions on Green Communications and Networking*. (M. Choi, W.J. Yun, 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) (Invited Article)
- [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 (IEEE Vehicular Technology Society (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)

[CSM'22.06] Recent and Future Evolution of Wi-Fi, *IEEE Communications Standards Magazine*, 6(2):8–11 (2022). (E. Au, L. Wilhelmsson, T. Baykas, J. Kim)

[TMC'22.05] Supremo: Cloud-Assisted Low-Latency Super-Resolution in Mobile Devices, *IEEE Transactions on Mobile Computing*, 21(5):1847–1860 (2022). (J. Yi, S. Kim, J. Kim, S. Choi)

[TVT'22.05] Stabilized Detection Accuracy Maximization using Adaptive SAR Image Processing in LEO Networks, *IEEE Transactions on Vehicular Technology*, 71(5):5661–5665 (2022). (K. Kim, J.-H. Lee, S. Jung, J. Kim, J.-H. Kim)

[ISJ'22.03] LiteZKP: Lightning Zero-Knowledge Proof-based Blockchains for IoT and Edge Platforms, *IEEE Systems Journal*, 16(1):112–123 (2022). (E. Boo, J. Kim, J. Ko)

[TVT'22.02] Quality-Aware Deep Reinforcement Learning for Streaming in Infrastructure-Assisted Connected Vehicles, *IEEE Transactions on Vehicular Technology*, 71(2):2002–2017 (2022). (W.J. Yun, D. Kwon, M. Choi, J. Kim, G. Caire, A.F. Molisch)

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◀ 2021 ▶

[JRTIP'21.10] Adaptive and Stabilized Real-Time Super-Resolution Control for UAV-Assisted Smart Harbor Surveillance Platforms, *Journal of Real-Time Image Processing (Springer)*, 18(5):1815–1825 (2021). (S. Jung, J. Kim)

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[JCN'21.04] Stabilized Adaptive Sampling Control for Reliable Real-Time Learning-based Surveillance Systems, *Journal of Communications and Networks*, 23(2):129–137 (2021). (D. Kim, S. Park, J. Kim, J.y. Bang, S. Jung)

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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)

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[\(IEEE ComSoc MMTC Best Journal Paper Award \(2021\)\)](#)

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[TVT'19.05] Auction-Based Charging Scheduling With Deep Learning Framework for Multi-Drone Networks, *IEEE Transactions on Vehicular Technology*, 68(5):4235–4248 (2019). (M. Shin, J. Kim, M. Levorato)

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- [VTM'17.03] The Useful Impact of Carrier Aggregation: A Measurement Study in South Korea for Commercial LTE-Advanced Networks, *IEEE Vehicular Technology Magazine*, 12(1):55–62 (2017). (S. Lee, S. Hyeon, J. Kim, H. Roh, W. Lee)

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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)

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- [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)
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- [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)
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- [CAEE'15.04] Adaptive Buffer Control for Distributed Autonomous Robust Routing in Mobile Surveillance Robots, *Computers and Electrical Engineering (Elsevier)*, 43:306–316 (2015). (J. Kim, S.-N. Hong)
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- [IET'14.10] Quality of Video Streaming in 38 GHz Millimetre-Wave Heterogeneous Cellular Networks, *IET Electronics Letters*, 50(21):1526–1528 (2014). (J. Kim, E.-S. Ryu)
- [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)
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■ Conferences

– <https://sites.google.com/view/aimlab-kuee/publications/conferences>

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)

Teaching Experience and Research Supervision

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 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%*)

■ 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

Research Collaboration and Supervision

■ Postdoctoral Scholars

- **Dr. Minseok Choi** ('18.09–'19.02), *Professor at Kyung Hee University*, Yong-In, Korea
Joint Postdoctoral Research with Prof. Andreas F. Molisch (University of Southern California, Los Angeles, CA, USA)
- **Dr. Soyi Jung** ('21.03–'21.08), *Professor at Ajou University*, Suwon, Korea
Joint Postdoctoral Research with Prof. Marco Levorato (University of California at Irvine, Irvine, CA, USA)

■ Ph.D. Students and Alumni

- **Dr. Soohyun Park** ('19.03–'23.08 (MS-PhD), '23.09–'24.02 (Postdoc)), *Active Member*
– Dissertation: *Advanced Learning for Time-Average Optimization and Software Analysis in Quantum-based Multi-Agent Systems*
- **Dr. Hankyul Baek** ('21.03–'24.02 (MS-PhD), '24.03–'25.08 (Postdoc)), *Active Member*
– Dissertation: *Adaptive Deep Neural Network Optimization: Algorithmic and Architectural Frameworks*
- **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), *Researcher at POSTECH, Korea*
- Dohyun Kwon ('18.03–'20.02), *Researcher at Hyundai Motors Group, Korea*
- Dohyun Kim ('18.03–'20.02), *Researcher at Naver, Korea*
- MyungJae Shin ('18.03–'20.02), *Researcher at Naver, Korea*
- Jaeho Choi ('19.03–'21.02), *Researcher (Military Service Exception) at Korea Meteorological Administration, Korea*
- JaeHyun Chung ('23.09–), *Active Member*
- Yeryeong Cho ('24.03–), *Active Member*
- Chaemoon Im ('24.03–), *Active Member*

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

- Seungyo Ryu (Primary Advisor: Prof. Dongseung Kim at Korea University), *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

Professional Academic Activities

Academic Conference, Workshop, Forum, Symposium Organization

■ 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) [\$50,000]
- Korean-PI: Prof. Joongheon Kim (Korea University), Japanese-PI: Prof. Kuniyoshi (Director of AI Center, The University of Tokyo)
- **The 1st Japan Korea Workshop on Artificial Intelligence** (December 26-27, 2023, Hongo Campus, The University of Tokyo)

■ IEEE Workshop Organization Chair

- **IEEE ICOIN 2023**, Organizing Chair, *Workshop on Artificial Intelligence and Mobility*
- **IEEE WiOpt 2022**, Organizer, *Caching, Computing and Delivery in Wireless Networks Workshop (CCDWN)*
- **IEEE ICOIN 2022**, Organizing Chair, *Workshop on Artificial Intelligence and Mobility*
- **IEEE ICTC 2021**, Organizer, *Workshop on KU-AIER (Korea University, AI Engineering Research)*
- **IEEE ICUFN 2021**, Organizing Chair, *Artificial Intelligence Emerging Applications (AIEA) Workshop*
- **IEEE ICOIN 2021**, Organizing Chair, *Workshop on Artificial Intelligence and Mobility*
- **IEEE ICTC 2020**, Special Session Organizing Chair, *Special Session on KU-AIER (Korea University, AI Engineering Research)*
- **IEEE ICOIN 2020**, Organizing Chair, *Workshop on Artificial Intelligence and Mobility*
- **IEEE ICASSP 2018**, Special Session Organizing Chair, *Special Session on Cybersecurity and Privacy*
- **IEEE GLOBECOM 2015**, Organizer, *Workshop on Millimeter-Wave Backhaul and Access*

■ Korean/Local Academic Forum Organization (more than 100 participants)

- **The 32nd Korea Internet Conference (KRNet 2024)** (06/2024), as a *Vice TPC Chair (Responsible for AI Tracks)*, hosted by OSIA
- **The 3rd AI Frontiers Summit 2023** (07/2023), as a *TPC Chair*, hosted by KICS (more than 300 participants)
- **The 31st Korea Internet Conference (KRNet 2023)** (06/2023), as a *TPC (Responsible for AI Tracks)*, hosted by OSIA

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 Conference Tutorials and Special Session Talks

- **IEEE ICUFN 2022 Tutorial** (Barcelona, Spain, 07/2022), *A Paradigm Shift in Future Networks with Quantum Deep Learning*
- **IEEE ICOIN 2022 Tutorial** (Online, 01/2022), *Advanced Deep Learning Methods for Autonomous Mobility*
- **IEEE ICUFN 2021 Tutorial** (Jeju, Korea, 08/2021), *Distributed and Split Deep Learning: Theory and Applications*
- **IEEE ICAIIC 2021 Tutorial** (Online, 04/2021), *Multi-Agent Deep Reinforcement Learning for Connected and Autonomous Vehicles*
- **IEEE ICTC 2019 Special Session Talk** (Jeju, Korea, 10/2019), *Advanced Deep Learning Methods and Their Applications to Distributed and Network Platforms*
- **IEEE ICOIN 2019 Tutorial** (Kuala Lumpur, Malaysia, 01/2019), *Distributed Platform Research for Emerging Deep Learning Applications*
- **IEEE ICC 2018 Tutorial** (Kansas City, MO, USA, 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

- **2023 KICS Summer Conference Tutorial** (Jeju, 06/2023), *Quantum Machine Learning: Theory and Trends*
- **2023 KIISE Summer Conference Information Network Society Special Session** (Jeju, 06/2023), *Quantum Neural Networks*
- **2022 KIPS Fall Conference Tutorial** (Chuncheon, 11/2022), *Quantum Deep Learning Basics*
- **2022 Korea A.I. Conference Tutorial** (Jeju, 09/2022), *Trends in Deep Reinforcement Learning*
- **2022 KICS Summer Conference Tutorial** (Jeju, 06/2022), *Quantum Multi-Agent Deep Reinforcement Learning*
- **2022 KIEES Winner Conference Tutorial** (Online, 02/2022), *Deep Learning Theory and Implementation*
- **2021 Korea A.I. Conference Tutorial** (Jeju, 09/2021), *Understanding the Potential Risks of Sharing Elevation Information on Fitness Applications*
- **2021 JCCI Mobile Machine Learning Special Session** (Online, 04/2021), *Multi-Agent Deep Reinforcement Learning for Autonomous Vehicles*
- **2020 Korea A.I. Conference Tutorial** (Jeju, 12/2020), *Randomized Adversarial Imitation Learning for Autonomous Driving*

- 2020 KICS Fall Conference Tutorial (Seoul, 11/2020), *Trends in Multi-Agent Deep Reinforcement Learning for Distributed Computing*
- 2020 KICS Summer Conference Tutorial (Jeju, 08/2020), *Deep Learning Computation for Economic Theory and Its Applications*
- 2020 KICS Winter Conference Tutorial (Kangwon, 02/2020), *Deep Learning Applications to Computer Networking*
- 2020 KICS Winter Conference Tutorial (Kangwon, 02/2020), *Deep Neural Network Basics*
- 2019 KICS Fall Conference Special Session Talk (Seoul, 11/2019), *AI Methods for Network and Mobility Platform*
- 2019 IEEK Hyundai Motors Special Session (Jeju, 06/2019), *Explainable AI (XAI) and Imitation Learning for Automotive Applications*
- 2019 KIPS Spring Conference Tutorial (Seoul, 05/2019), *Deep Learning Basics and Representative Models*
- 2019 KICS Winter Conference Tutorial (Kangwon, 01/2019), *Deep Learning Methods for Advanced Network*
- 2017 KICS Summer Conference Tutorial (Jeju, 06/2017), *GPU Computing Platforms and Software for Deep Learning*
- 2017 KCC Summer Conference Special Session (Jeju, 06/2017), *Dynamic Control and Software for Next-Generation Distributed Platforms*
- 2017 KICS Winter Conference Tutorial (Kangwon, 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:* 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 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)

■ 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)

Conference Activities and Services

■ Organizing Committee (OC) Activities

- **IEEE WiOpt:** 2022 (Organizer, *Caching, Computing and Delivery in Wireless Networks Workshop (CCDWN)*)
- **IEEE GLOBECOM:** 2015 (Organizer, *Workshop on Millimeter-Wave Backhaul and Access (mmWave)*)
- **IEEE ICC:** 2022 (Patronage 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 ICAIIC:** 2019 (Publication Chair)
- **IEEE VTS APWCS:** 2023 (Finance Co-Chair), 2022 (Finance Chair), 2021 (Finance Co-Chair), 2017 (Publication Vice Chair)
- **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 ICASSP:** 2018 (Special Session Organizing Chair, *Special Session on Cybersecurity and Privacy*)
- **IEEE APCC:** 2022 (Local Arrangement Chair)
- **IEEE ICEIC:** 2021 (Local Arrangement Chair)
- **ACM CoNEXT:** 2019 (Poster Session Chair)

■ Technical Program Committee (TPC) Chair-Level Activities

- **CCNC:** 2022 (Track Chair for T7 (*Security, Privacy and Content Protection*))
- **ICTC:** 2022 (TPC Vice Chair for Administration)
- **ICAIIC:** 2024 (TPC Co-Chair), 2023 (TPC Co-Chair), 2022 (TPC Co-Chair), 2021 (TPC Co-Chair), 2020 (TPC Co-Chair), 2019 (TPC Co-Chair)
- **ICOIN:** 2021 (TPC Vice Chair), 2020 (TPC Vice Chair), 2019 (TPC Vice Chair), 2018 (TPC Vice Chair)
- **NAS:** 2019 (Track Co-Chair for Network Track)
- **GLOBECOM:** 2015 (TPC Chair for the *Workshop on Millimeter-Wave Backhaul and Access*)

■ Technical Program Committee (TPC) Non-Chair-Level Activities

- **2024:** ICTC
 - **2023:** ICC (Wireless Communications Symposium), ICC (Integrated Sensing and Communication Track), ICC (Reconfigurable Intelligent Surfaces and Smart Environments Track), MASS, WCNC, ICOIN, IE
 - **2022:** GLOBECOM (Selected Areas in Communications – Machine Learning for Communications), MASS, ICC (Wireless Communications Symposium), WCNC, VTC-Fall, COMNETSAT, ICAIIC, ICTC, ICUFN, ICOIN, IPDPS (*Heterogeneity in Computing Workshop*), ICCCN, WCSP, CyberneticsCom, ICEIC, MSN (Track 3: Security, Privacy, Trust, and Blockchain), ICNGC
 - **2021:** GLOBECOM (Selected Areas in Communications – Machine Learning for Communications), GLOBECOM (IoT/N), ICC (Wireless Communications Symposium), ICCCN, MSN, COMNETSAT, ICTC, ICTC (*Workshop on Intelligent 6G Communication Systems*), ICTC (*Workshop on KU-AIER (Korea University, A.I. Engineering Research)*), WCNC, ICCCN, IGESSC, ICAIIC, ICUFN, ICOIN, MASS, EuCAP, ICEIC, ICNGC, ITC-CSCC
 - **2020:** GLOBECOM (Ad-hoc and Sensor Networks Symposium), ICTC, WCNC, WCNC (*Workshop on Aerial Communications in 5G and Beyond Networks*), IGESSC, ICUFN, ICOIN, Blockchain, ICCCN, COMNETSAT
 - **2019:** ICTC, ICCCN, IGESSC, ICUFN, VTC-Spring, ICDCS (Distributed Green Computing & Energy Management), NAS (Network Track), Blockchain, MobiHoc, EuCAP, IE, WISA, SecureComm, ICPADS (Security & Dependable Computing)
 - **2018:** ICTC, IGESSC, ICUFN, WCSP, APWCS, ICOIN, AsiaCCS (*Workshop on Security in Cloud Computing*), SigTelCom, ATC, IE
 - **2017:** ICUFN, ICTC, IE
 - **2016:** ICUFN, VTC-Spring
 - **2015:** VTC-Spring, EuCAP
 - **2014:** VTC-Fall
 - **2012:** MASS (*Workshop on Internet of Things Technology and Architectures*)
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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, California, USA)
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 - URL: <https://wides.usc.edu/founder.html>