Joongheon Kim

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Highlights

Research Milestones

- **134 Journals** (among them, **102 IEEE Journals**), https://sites.google.com/view/aimlab-kuee/publications/journals – **109** Published/Accepted (among them, **79 IEEE**), **10** Under-Revision, and **15** Under-Review Journals
- **6929+ Citations** (H-index: 40+, i10-index 162+), obtained from Google Scholar Profile (as of November 1, 2023)
- **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%)
- **8 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 2020; 1 in 2019)*, and *IEEE VTS Seoul Chapter Awards (1 in 2022; 2 in 2021; 1 in 2019)*
- **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):** 6,660,784 USD ≈ 6,660,784,000 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 at Kyung Hee University (2018–2020), Soyi Jung at Ajou University (2021)
- **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
- **Editor (2022–)**, *IEEE Transactions on Machine Learning in Communications and Networking* IEEE ComSoc
- **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 3 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 (Advisor: *Prof. Andreas F. Molisch*, Fellow of the IEEE)
  – M.S. (05/2014) in Computer Science with specialization in High Performance Computing and Simulations
  – M.S. (05/2012) in Electrical Engineering
- **Korea University**, Seoul, Republic of Korea
  – M.S. (03/2004–02/2006) in Computer Science and Engineering
  – 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–Present)*, Department of Communications Engineering (with **Samsung Electronics**)
  - *Adjunct Professor (03/2021–02/2026)*, Department of Semiconductor Engineering (with **SK Hynix**)
  - *Adjunct Professor (11/2022–Present)*, Department of Future Science and Technology Business (Graduate School)
  - Administrative Positions
    - *Deputy Vice President (02/2022–)*, **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), 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**
  - *Editor (2022–)*, **IEEE Transactions on Machine Learning in Communications and Networking**
  - *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 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)

Awards and Honors

Research and Academic Excellence (International)

- **Best Editor Award (2023)** – *ICT Express (Elsevier) (07/2023)*
- **Finalist (Top 25), AAAI Student Abstract and Poster Session – Oral Presentation Contest (2023)**
  "FV-Train: Quantum Convolutional Neural Network Training with a Finite Number of Qubits by Extracting Diverse Features"
- **IEEE ICTC Best Paper Award (2022)** – *IEEE Communications Society*
  "Reinforcement Learning Empowered Massive IoT Access in LEO-based Non-Terrestrial Networks"
- **Best Special Issue Guest Editor Award (2022)** – *ICT Express (Elsevier), S.I. on Mobile Edge Computing Systems (06/2021)*
- **Distinguished Lecturer (class of 2022–2024)** – *IEEE Systems Council*
- **Distinguished Lecturer (class of 2022–2023)** – *IEEE Communications Society*
- **IEEE VTS Seoul Chapter Award (2022)** – *IEEE Vehicular Technology Society*
  "DDPG-based Deep Reinforcement Learning for Loitering Munition Mobility Control: Algorithm Design and Visualization"
- **Spotlight, Oral Presentation (2022)** – *ICML Workshop on Dynamic Neural Networks (2022)*
  "Slimmable Quantum Federated Learning"
- **IEEE MMTC Best Journal Paper Award (2021)** – *IEEE Communications Society*
  - M. Choi, A.F. Molisch, and J. Kim, "Joint Distributed Link Scheduling and Power Allocation for Content Delivery in Wireless Caching Networks," *IEEE Transactions on Wireless Communications*, 19(12):7810-7824, December 2020.
- **IEEE VTS Seoul Chapter Award (2021)** – *IEEE Vehicular Technology Society*
  "Quantum Scheduling for Millimeter-Wave Observation Satellite Constellation"
- **IEEE VTS Seoul Chapter Award (2021)** – *IEEE Vehicular Technology Society*
  "Distributed and Autonomous Aerial Data Collection in Smart City Surveillance Applications"
- **IEEE ICOIN Best Paper Award (2021)** – *IEEE Computer Society*
  "Infrastructure-Assisted Cooperative Multi-UAV Deep Reinforcement Energy Trading Learning for Big-Data Processing"
- **IEEE MMTC Outstanding Young Researcher Award (2020)** – *IEEE Communications Society*
- **Bronze Paper Award (2020)** – *2020 IEEE Seoul Section Student Paper Contest*
  "Reliable Offloading Target Selection using Deep Reinforcement Learning for Large Fire Accident"
- **IEEE Systems Journal Best Paper Award (2020)** – *IEEE Systems Council*
  (Top 7 among 793 accepted papers in 2019 (Top 0.88%))
  "Towards Characterizing Blockchain-based Cryptocurrencies for Highly-Accurate Predictions," 14(1):321-332, March 2020.
- **Gold Paper Award (2019)** – *2019 IEEE Seoul Section Student Paper Contest*
  "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)

- **Korea Electronics Technology Institute (KETI) President Award (06/2023)** – *2023 KICS Summer Conference*
  "Grid environment design and grouping for optimal relay station placement"
- **Haedong Paper Award (02/2023)** – *KICS*
  "Dynamic quantum federated learning framework at satellites and ground stations using slimmable quantum neural networks"
- **Excellence Paper Award (02/2023)** – *2023 KICS Winter Conference*
  "Self-learning-based hybrid MAC for military UAV networks"
- **Insung Research Grant Award (01/2023)** – *Korea University*
  For recognizing Korea University professors in research excellence during the first 3 years at Korea University (Top 5%)
- **Excellence Paper Award (02/2022)** – *2022 Summer Workshop on Computer Communications (SWCC)* (w/ H. Lee, S. Jung)
- **Excellence Paper Award (02/2022)** – *2022 KICS Winter Conference*
  "Trends in neural architecture search for object detection"
- **Haedong Young Scholar Award (2018)** – *KICS* and *Haedong Foundation*
  For recognizing a researcher under the age of 40 who has made outstanding contributions to communication sciences R&D
- **Haedong Paper Award (06/2021)** – *KICS*
  "Neural architectural nonlinear pre-processing for mmWave radar-based human gesture perception in on-driving scenarios"
- **Excellence Paper Award (06/2021)** – *2021 KICS Summer Conference*
  "Deep learning based non-orthogonal pilot design for massive MIMO"
- **Excellence Paper Award (Undergraduate) (06/2021)** – *2021 KICS Summer Conference*
  "Deep reinforcement learning visualization and simulations using Unity-RL in an autonomous driving environment"
- **Encouragement Paper Award (11/2020)** – *2020 KICS Fall Conference*
  "UAV trajectory optimization via multi-agent deep reinforcement learning"
- **Encouragement Paper Award (06/2020)** – *2020 KICS Summer Conference*
  "3D modeling and WebVR implementation using Azure Kinect, Open3D, and Three.js"
- **Encouragement Paper Award (02/2020)** – *2020 KICS Winter Conference*
  "Quantum heuristic solver using QAOA for the maximum independent set problem"
- **Encouragement Paper Award (02/2020)** – *2020 KICS Winter Conference*
  "Multi-drone scheduling for high-reliable and high-performance UAV-based surveillance networking"
- **Outstanding Paper Award (2008)** – *LG Electronics CTO Office, Multimedia Research Laboratory*
  - W. Lee, E. Kim, J. Kim, I. Lee, and C. Lee, "Movement-Aware Vertical Handoff of WLAN and Mobile WiMAX for Seamless Ubiquitous Access," *IEEE Transactions on Consumer Electronics*, 53(4):1268-1275, November 2007.
- **RFID Expert Group President Award (2007)** – *The 3rd RFID/USN Research Paper Contest*
- **ETRI President Award (2006)** – *The 2nd RFID/USN Research Paper Contest*
- **Korea Association of RFID/USN (KARUS) President Award (2005)** – *The 1st RFID/USN Research Paper Contest*
- **Scholarships for Academic Excellence (Fall 1999, Fall 2000)** – *Korea University, Department of Computer Science and Engineering*

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

- **Best Presentation Awards (12/2022)** – *A3 Foresight Program 2022 Workshop, Tokyo, Japan (AI-Based Future IoT Technologies and Services)* (two awards for Soohyun Park and Chanyoung Park)
- **ICT Express Best Reviewer Award (2021)** – *ICT Express (Elsevier)* (for Soohyun Park)
- **Best Presentation Award (02/2021)** – *A3 Foresight Program 2021 Workshop, Online (AI-Based Future IoT Technologies and Services)* (for 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*

Business Administration

- **The 5th Hyundai/Kia Motors Marketing Forum (02/2004)**, 2nd Prize Winner (Sales Promotion)

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

- **Highly-Cited *(70+ citations)***, as of November 1, 2023

(MobiSys'10) [639+] *Energy-efficient rate-adaptive GPS-based positioning for smartphones*
(TON'16) [179+] *Quality-aware streaming and scheduling for device-to-device video delivery*
(PIEEE'21) [155+] *Communication-efficient and distributed learning over wireless networks: Principles and applications*
(ISJ'20) [148+] *Toward characterizing blockchain-based cryptocurrencies for highly accurate predictions*, **(Best Paper Award)**
(TII'20) [143+] *Cooperative management for PV/ESS-enabled electric vehicle charging stations*
(TVT'19) [129+] *Auction-based charging scheduling with deep learning framework for multi-drone networks*
(TII'17) [121+] *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) [111+] *Fast millimeter-wave beam training with receive beamforming*
(IOTJ'18) [103+] *Energy-efficient mobile charging for wireless power transfer in Internet of Things networks*
(IOTJ'20) [087+] *Multiagent DDPG-based deep learning for smart ocean federated learning IoT networks*
(ICTC'20) [078+] *A tutorial on quantum convolutional neural networks (QCNN)*
(JSAC'18) [075+] *Wireless video caching and dynamic streaming under differentiated quality requirements*
(ICBC'19) [072+] *Mempool optimization for defending against DDoS attacks in PoW-based blockchain systems*
(TII'15) [068+] *Energy-efficient dynamic packet downloading for medical IoT platforms*
(FL@ICML'20) [067+] *XOR mixup: Privacy-preserving data augmentation for one-shot federated learning*
(IOTJ'18) [067+] *Internet of Things for smart manufacturing system: Trust issues in resource allocation*
(TBC'13) [065+] *Joint scalable coding and routing for 60 GHz real-time live HD video streaming applications*
(TII'22) [064+] *Cooperative multi-agent deep reinforcement learning for reliable surveillance via autonomous multi-UAV control*
(ICCCN'05) [063+] *Effect of localized optimal clustering for reader anti-collision in RFID networks: Fairness aspects to the readers*
(TVT'21) [062+] *Orchestrated scheduling and multi-agent deep reinforcement learning for cloud-assisted multi-UAV charging systems*

R&D Projects (Totally, 6,660,784 USD ≈ 6,660,784,000 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** 09/2020–09/2024
  Funded by *Samsung Advanced Institute of Technology* [Grant: $286,000; Primary-PI]
- **Quantum Machine Learning-based Objection Detection for Point Cloud and its Acceleration** 12/2022–11/2023
  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]
- **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 (A Development of Driving Decision Engine for Autonomous Driving using Driving Experience Information)** 04/2020–10/2020
  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 (Human-Agent Cooperation Algorithm Design in Multi-Agent Environment)** 04/2020–08/2020
  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

- **6929+ Citations** (H-index: 40+, i10-index 162+), obtained from Google Scholar Profile (as of November 1, 2023)
- Totally, **134** journals, `https://sites.google.com/view/aimlab-kuee/publications/journals`
  – **102** IEEE publications, among them, **71** 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 Nature, December 2023. *(Editors: X. Lin, J. Zhang, Y. Liu, J. Kim)*

■ **Book Chapters**

- Chapter 30. Network Security and Trustworthiness, *Fundamentals of 6G Communications and Networking*, Springer, December 2023. (Editor: X. Lin, J. Zhang, Y. Liu, J. Kim) *((S. Jung, S. Park, S.B. Son, H. Lee, J. Kim)*
- Chapter 29. Semantic Communications and Networking, *Fundamentals of 6G Communications and Networking*, Springer, December 2023. (Editor: X. Lin, J. Zhang, Y. Liu, J. Kim) *(W.J. Yun, S. Park, R. Lee, J. Park, Y.-C. Ko, J. Kim)*
- Chapter 28. Convergence of 6G and Wi-Fi Networks, *Fundamentals of 6G Communications and Networking*, Springer, December 2023. (Editor: X. Lin, J. Zhang, Y. Liu, J. Kim) *(H. Lee, S. Park, M. Yoo, C. Park, H. Baek, J. Kim)*
- Chapter 26. UAV Communications and Networks, *Fundamentals of 6G Communications and Networking*, Springer, December 2023. (Editor: X. Lin, J. Zhang, Y. Liu, J. Kim) *(S. Park, J.-H. Lee, S. Jung, J. Kim)*
- Chapter 22. AI-Native Network Algorithms and Architectures, *Fundamentals of 6G Communications and Networking*, Springer, December 2023. (Editor: X. Lin, J. Zhang, Y. Liu, J. Kim) *(H. Lee, S. Park,, H. Baek, C. Park, S. Son, J. Park, J. Kim)*
- Chapter 21. AI-Native Communications, *Fundamentals of 6G Communications and Networking*, Springer, December 2023. (Editor: X. Lin, J. Zhang, Y. Liu, J. Kim) *(H. Baek, H. Lee, S. Park, H. Lee, J. Park, J. Kim)*
- Chapter 20. Network Disaggregation, *Fundamentals of 6G Communications and Networking*, Springer, December 2023. (Editor: X. Lin, J. Zhang, Y. Liu, J. Kim) *(S. Park, C. Park, J.P. Kim, M. Choi, J. Kim)*
- Chapter 6. Dynamic Decision-Making for Stabilized Deep Learning Software Platforms, *Advances and Applications in Deep Learning*, IntechOpen, September 2020. (Editor: M.A. Aceves-Fernandez) *(S. Park, D. Kim, J. Kim)*
- Chapter 9. Device-to-Device Communications, *Towards 5G: Applications, Requirements and Candidate Technologies*, Wiley, January 2017. (Editors: R. Vannithamby, S. Talwar) *(A.F. Molisch, M. Ji, J. Kim, D. Burghal, A.S. Tehrani)*
- Chapter 19. Millimeter-Wave (mmWave) Medium Access Control: A Survey, *Opportunities in 5G Networks: A Research and Development Perspective*, CRC Press, April 2016. (Editor: F. Hu) *(J. Kim)*

- Chapter 17. Millimeter-Wave (mmWave) Radio Propagation Characteristics, *Opportunities in 5G Networks: A Research and Development Perspective*, CRC Press, April 2016. (Editor: F. Hu) *(J. Kim)*
- Chapter 22. Weighted Localized Clustering: A Coverage-Aware Reader Collision Arbitration Protocol in RFID Networks, *Handbook on Mobile and Ubiquitous Computing: Status and Perspective*, CRC Press, October 2012. (Editors: L.T. Yang, E. Syukur, S.W. Loke) *(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, August 2008. (Editor: G. Aggelou) *(J. Kim, W. Lee, E. Kim, T.K. Shih)*

Selected Papers

■ *Conferences* – Top-Tiers and Awarded/Honored

[FSE'24] *(Notification: 13-Dec-2023)* TBD, **FSE (2024)**. *(S. Park, H. Baek, J.W. Yoon, Y.K. Lee, J. Kim)*

[INFOCOM'24] *(Notification: 01-Dec-2023)* TBD, **INFOCOM (2024)**. *(S. Park, H. Baek, S. Jung, J. Park, M. Bennis, J. Kim)*

[INFOCOM'24] *(Notification: 01-Dec-2023)* TBD, **INFOCOM (2024)**. *(S. Park, C. Park, G.S. Kim, S. Jung, Z. Han, J. Kim)*

[AAAI'24] *(Notification: 09-Dec-2023; Feedback: 02-Nov-2023)* TBD, **AAAI (2024)**. *(H. Baek, S. Park, J. Kim)*

[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)*

[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 (Top 25), 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 ►

[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)*

[TITS.*review*] *(Review since 29-Oct-2023)* Dynamic Quantum Federated Learning for Satellite-Ground Integrated Systems using Slimmable Quantum Neural Networks, *IEEE Transactions on Intelligent Transportation Systems*. *(S. Park, S. Jung, 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)*

[TIV.*review*] *(Review since 24-Oct-2023)* 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.*review*] *(Review since 18-Oct-2023)* Quantum Reinforcement Learning for Spatio-Temporal Prioritization in Metaverse, *IEEE Access*. *(S. Park, H. Baek, J. Kim)*

[TVT.*review*] *(Review since 17-Oct-2023)* 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)*

[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)*

[TIV.*review*] *(Review since 15-Oct-2023)* 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.*review*] *(Review since 14-Oct-2023)* Quantum Jump to Virtual Worlds: High-Quality Multiple Virtual Meta-Space Realization in Metaverse, *IEEE Communications Magazine*. *(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)*

[IOTJ.*review*] *(Review since 24-Sep-2023)* LEO-Assisted Deep Reinforcement Learning for Multi-UAV Positioning in QoS-Aware Differentiated Aerial Internet Services, *IEEE Internet of Things Journal*. *(J. Kim, S. Park, S. Jung, C. Cordeiro)*

[CM.*review*] *(Review since 20-Aug-2023)* Quantum Entanglement Software Testing (QuEST) for Dynamic Software Analysis in Autonomous Driving: Design, Implementation, and Visualization, *IEEE Communications Magazine*. *(S. Park, J. Kim)*

[IET.*review*] *(Review since 08-Aug-2023)* Scalable Quantum Convolutional Neural Networks, *IET Electronics Letters*. *(H. Baek, S. Park, J. Kim)*

[TMC.*review*] *(Review since 17-Jun-2023)* 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)*

[JSAC.*review*] *(Review since 01-Jun-2023)* (SI: The Quantum Internet: Principles, Protocols, and Architectures), *IEEE Journal on Selected Areas in Communications*. *(S. Park, H. Baek, J. Kim)*

◂ Revision ▸

[Access.*revision*] Sensing-to-Sky Intermittent Connectivity Realization for LTE-Enabled Drone Platforms: Embedded Design, Measurement Study, and Positioning Applications, *IEEE Access (IEEE VTS Section)*. *(J. Kim, S. Park, U. Jo, T. Kim, S. Jung, 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)*

[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*] 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)*

[IET.*revision*] Two-Stage Architectural Fine-Tuning for Neural Architecture Search in Efficient Transfer Learning, *IET Electronics Letters*. *(S. Park, S.B. Son, Y.K. Lee, 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)*

[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)*

[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)*

[TIV.*revision*] Intelligent Caching for Seamless High-Quality Streaming in Vehicular Networks: A Multi-Agent Reinforcement Learning Approach, *IEEE Transactions on Intelligent Vehicles*. *(M. Choi, J. Kim)*

◂ Accept ▸

[TVT.*accept*] Learning-based Cooperative Mobility Control for Autonomous Drone-Delivery, *IEEE Transactions on Vehicular Technology*. *(S. Park, C. Park, J. Kim)*

[TNNLS.*accept*] 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.*accept*] 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.*accept*] Quantum Multi-Agent Reinforcement Learning for Autonomous Mobility Cooperation, *IEEE Communications Magazine*, 61(10):ppp–ppp (2023). *(S. Park, J.P. Kim, C. Park, S. Jung, J. Kim)*

◂ 2024 ▸

[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):ppp–ppp (2024). *(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):ppp–ppp (2024). *(U. Meteriz, N.F. Yildiran, J. Kim, D. Mohaisen)*

[TWC'24.01] Joint User Clustering, Beamforming, and Power Allocation for mmWave-NOMA with Imperfect SIC, *IEEE Transactions on Wireless Communications*, 23(1):ppp–ppp (2024). *(B. Lim, W.J. Yun, J. Kim, Y.-C. Ko)*

◂ 2023 ▸

[TON'23.12] SlimFL: Federated Learning with Superposition Coding over Slimmable Neural Networks, *IEEE/ACM Transactions on Networking*, 31(6):ppp–ppp (2023). *(W.J. Yun, Y. Kwak, H. Baek, S. Jung, M. Ji, M. Bennis, J. Park, J. Kim)*

[IOTJ'23.11] Quantum Multi-Agent 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):ppp–ppp (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)*

[IOTJ'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 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: Lightening 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)*

[SR'22.01] Feasibility Study of Multi-Site Split Learning for Privacy-Preserving Medical Systems under Data Imbalance Constraints in COVID-19, X-Ray, and Cholesterol Dataset, *Scientific Reports (Nature)*, 12:1534 (2022). *(Y.J. Ha, G. Lee, M. Yoo, S. Jung, S. Yoo, J. Kim)*

◄ 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)*

[ISJ'21.09] Intelligent Active Queue Management for Stabilized QoS Guarantees in 5G Mobile Networks, *IEEE Systems Journal*, 15(3):4293–4302 (2021). *(S. Jung, J. Kim, J.-H. Kim)*

[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)*

[TVT'21.08] Infrastructure-Assisted On-Driving Experience Sharing for Millimeter-Wave Connected Vehicles, *IEEE Transactions on Vehicular Technology*, 70(8):7307–7321 (2021). *(S. Jung, J. Kim, M. Levorato, C. Cordeiro, J.-H. Kim)*

[TMC'21.06] A Personalized Preference Learning Framework for Caching in Mobile Networks, *IEEE Transactions on Mobile Computing*, 20(6):2124–2139 (2021). *(A. Malik, K.S. Kim, J. Kim, W.-Y. Shin)*

[TVT'21.06] Orchestrated Scheduling and Multi-Agent Deep Reinforcement Learning for Cloud-Assisted Multi-UAV Charging Systems, *IEEE Transactions on Vehicular Technology*, 70(6):5362–5377 (2021). *(S. Jung, W.J. Yun, M. Shin, J. Kim, J.-H. Kim)*

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[ICTE'21.06] Truthful Electric Vehicle Charging via Neural-Architectural Myerson Auction, *ICT Express (Elsevier)*, 7(2):196–199 (2021). *(H. Lee, S. Jung, J. Kim)*

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[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)*

[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)*

[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)*

[ISJ'21.03] Multiscale LSTM-Based Deep Learning for Very-Short-Term Photovoltaic Power Generation Forecasting in Smart City Energy Management, *IEEE Systems Journal*, 15(1):346–354 (2021). *(D. Kim, D. Kwon, L. Park, J. Kim, S. Cho)*

[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)*

◄ 2020 ►

[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))

[IOT]'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)*

[JCN'20.08] Self-Adaptive Power Control with Deep Reinforcement Learning for Millimeter-Wave Internet-of-Vehicles Video Caching, *Journal of Communications and Networks*, 22(4):326–337 (2020). *(D. Kwon, J. Kim, D. Mohaisen, W. Lee)*

[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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[ISJ'20.03] Towards Characterizing Blockchain-based Cryptocurrencies for Highly-Accurate Predictions, *IEEE Systems Journal*, 14(1):321–332 (2020). *(M. Saad, J. Choi, D. Nyang, J. Kim, A. Mohaisen)* **(IEEE Systems Journal Best Paper Award (2020))**

[JCN'20.02] Numerical Approximation of Millimeter-Wave Frequency Sharing between Cellular Systems and Fixed Service Systems, *Journal of Communications and Networks*, 22(1):37–45 (2020). *(S. Han, J.-W. Choi, J. Kim)*

[JAIHC'20.01] A Novel Network Virtualization based on Data Analytics in Connected Environment, *Journal of Ambient Intelligence and Humanized Computing (Springer)*, 11(1):75-86 (2020). *(K.-H.N. Bui, S. Cho, J.J. Jung, J. Kim, O-J. Lee, W. Na)*

◄ 2019 ►

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[TVT'19.10] Blind Signal Classification for Non-Orthogonal Multiple Access in Vehicular Networks, *IEEE Transactions on Vehicular Technology*, 68(10):9722–9734 (2019). *(M. Choi, D. Yoon, J. Kim)*

[IOTJ'19.10] Two-Stage IoT Device Scheduling with Dynamic Programming for Energy Internet Systems, *IEEE Internet of Things Journal*, 6(5):8782–8791 (2019). *(L. Park, C. Lee, J. Kim, A. Mohaisen, S. Cho)*

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[WPC'19.08] Semantic Hashtag Relation Classification Using Co-occurrence Word Information, *Wireless Personal Communications (Springer)*, 107(3):1355–1365 (2019). *(S. Seo, J.-K. Kim, S.-I. Kim, J. Kim, J. Kim)*

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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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[ETT'19.04] Thriving on Chaos: Proactive Detection of Command and Control Domains in Internet of Things-Scale Botnets using DRIFT, *Transactions on Emerging Telecommunications Technologies (Wiley)*, 30(4):e3505 (2019). *(J. Spaulding, J. Park, J. Kim, D. Nyang, A. Mohaisen)*

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◂ 2018 ▸

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◂ 2017 ▸

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[Access'17.06] Adaptive Resource Balancing for Serviceability Maximization in Fog Radio Access Networks, *IEEE Access*, 5:14548–14559 (2017). *(N.-N. Dao, J. Lee, D.-N. Vu, J. Paek, J. Kim, S. Cho, K. Chung, C. Keum)*

[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)*

◂ 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)*

[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)*

[JCN'14.10] Fast Millimeter-Wave Beam Training with Receive Beamforming, *Journal of Communications and Networks*, 16(5):512–522 (2014). *(J. Kim, A.F. Molisch)*

[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)*

[CL'14.07] A Low-Complexity Algorithm for Neighbor Discovery in Wireless Networks, *IEEE Communications Letters*, 18(7):1119–1122 (2014). *(S.-N. Hong, J. Kim)*

[CL'14.03] Fast and Low-Power Link Setup for IEEE 802.15.3c Multi-Gigabit/s Wireless Sensor Networks, *IEEE Communications Letters*, 18(3):455–458 (2014). *(J. Kim, A. Mohaisen, J.-K. Kim)*

[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)*

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[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)*

■ ***Conferences***

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

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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, Research Supervision, and Professional Activities

Teaching Experience

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

- **Sensor Networks (ECExxx):** Spring 2023
- **IT R&D Policies 1 (ECE723):** Fall 2020
- **Design and Analysis of Wireless Communication Systems (ECE721):** Spring 2021
- **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 2020
- **Wireless Network 2 (ITH525)** Fall 2022
- **Wireless Network 1 (ITH524)** Spring 2021

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

- **Introduction to Computer Science (IWC293):** Winter 2023-2024
- **Introduction to Artificial Intelligence (IWC420):** Winter 2023-2024, Winter 2022-2023, Winter 2021-2022
- **Data Communications (KECE316):** Fall 2020
- **Digital System Design and Laboratory (KECE210):** Fall 2020
- **Probability and Random Process (KECE209):** 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%)*
- **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** (09/2018–02/2019, *Jointly with **USC** (co-advised by Prof. Andreas F. Molisch)*), *Professor* at **Kyung Hee University**, Korea
- **Dr. Soyi Jung** (03/2021–08/2021, *Jointly with **UC-Irvine** (co-advised by Prof. Marco Levorato)*), *Professor* at **Ajou University**, Korea
- **Dr. Soohyun Park** (09/2023–Present)
- **Dr. Ijaz Ahmad** (11/2023–Present, *Jointly with **Chusun Univ.** (co-advised by Prof. Seokjoo Shin)*)
- **Dr. Joo Yong Shim** (03/2024–Present, *Jointly with **Korea Univ.** (co-advised by Prof. Jong-Kook Kim)*)

■ **Ph.D. Course Students and Alumni**
- **Soohyun Park** (03/2019–08/2023), *Postdoctoral Scholar* at **Korea University**, Korea
  – Dissertation: "Advanced Learning for Time-Average Optimization and Software Analysis in Quantum-based Multi-Agent Systems"
- **Emily Jimin Roh** (*active*, 03/2024–)
- **Seongjoon Lee** (*active*, 03/2024–)

■ **M.S. Course Students and Alumni**
- **Kyeongseon Kim** (09/2017–08/2019), *Researcher* at **POSTECH**, Korea
- **Dohyun Kwon** (03/2018–02/2020), *Researcher* at **Hyundai Motors Group**, Korea
- **Dohyun Kim** (03/2018–02/2020), *Researcher* at **Naver**, Korea
- **MyungJae Shin** (03/2018–02/2020), *Researcher* at **Naver**, Korea
- **Jaeho Choi** (03/2019–02/2021), *Researcher (Military Service Exception)* at **Korea Meteorological Administration**, Korea
- **JaeHyun Chung** (*active*, 09/2023–)
- **Chaemoon Lim** (*active*, 03/2024-)
- **Yeryeong Cho** (*active*, 03/2024-)

■ **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 (02/2016–07/2016), now with **Kyung Hee University**, Korea
- **Hidekazu Shimodaira**, Ph.D. in EEE from Tokyo Institute of Technology (07/2015–12/2015), 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

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 wih 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 Exhibitios

- *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:** 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:** 2022 (Workshop Chair), 2021 (Workshop Chair), 2021 (Workshop Organizing Chair, *Artificial Intelligence Emerging Applications (AIEA) Workshop*)
- **IEEE ICAIIC:** 2019 (Publication Chair)
- **IEEE VTS APWCS:** 2022 (Finance Chair), 2021 (Finance Co-Chair), 2017 (Publication Vice Chair)
- **IEEE ICOIN:** 2023 (Workshop Co-Chair), 2023 (Workshop Organizing Chair, *Workshop on Artificial Intelligence and Mobility*), 2022 (Workshop Organizing Chair, *Workshop on Artificial Intelligence and Mobility*), 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:** 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**

- **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*), ICCC, WCSP, CyberneticsCom, ICEIC, MSN (Track 3: Security, Privacy, Trust, and Blockchain), ICNGC
- **2021:** GLOBECOM (Selected Areas in Communications – Machine Learning for Communications), GLOBECOM (IoTSN), 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, ICCC, 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, ICCC, COMNETSAT
- **2019:** ICTC, ICCC, 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*)

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`