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Highlights

Research Milestones

- **107 Journals** (among them, **80 IEEE Journals**), <https://sites.google.com/view/aimlab-kuee/publications/journals>
– 87 Published / Accepted (among them, **69 IEEE**), **6** Under-Revision, and **14** Under-Review Journals
- **12 Top Conferences**, i.e., INFOCOM (2023, review), ICSE (2023, review), AAAI (2023), CIKM (2022), WiOpt (2022), ICDCS (2022), INFOCOM (2022), ICDCS (2020), IJCAI (2019), ICDCS (2018), MM (2017), MobiSys (2010, Citation: 600+)
- **5489+ Citations** (H-index: 35+, i10-index 134+), obtained from Google Scholar Profile (as of November 23, 2022)
- **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%)
- **7 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 (2 in 2021; 1 in 2019)*
- **6 Tutorials at IEEE Conferences**, i.e., *ICUFN (2022)*, *ICOIN (2022)*, *ICUFN (2021)*, *ICAIIIC (2021)*, *ICOIN (2019)*, and *ICC (2018)*
- **65+ 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)**: 6,280,384 USD \approx 6,280,384,000 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)), i.e., Minseok Choi (*Kyung Hee University, Korea*), Soyi Jung (*Ajou University, Korea*)
- **8 Best Teaching Awards at Korea University**, i.e.,
4 awards are for top 5% (*Granite Tower Best Teaching Award*) and 4 awards are for top 20% (*Best Teaching Award*)

IEEE Society Academic Activities

- **Senior Member of the IEEE (2018–)** and IEEE Membership (2005–) for 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 (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
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Educational Backgrounds

- **University of Southern California (USC) – Viterbi School of Engineering**, Los Angeles, California, USA
– Ph.D. (08/2009–08/2014) in Computer Science (Advisor: *Prof. Andreas F. Molisch*, 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
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R&D Positions

Full-Time Positions

- **Korea University – College of Engineering**, 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 (11/2022–Present), Department of Future Science and Technology Business (Graduate School)
 - Adjunct Professor (09/2022–Present), Department of Smart Convergence (Graduate School, with **LG Electronics**)
 - Adjunct Professor (03/2021–02/2023), Department of Semiconductor Engineering (with **SK Hynix**)
 - R&D POSITIONS
 - * Vice Director (10/2020–Present), **Artificial Intelligence Engineering Research Center (KU-AIER)**
 - ADMINISTRATIVE POSITIONS
 - * Dean (06/2021–Present), **Center for Teaching and Learning (CTL)**
 - * Deputy Vice President (02/2022–Present), **Office of Academic Affairs**
 - * Steering Committee Member (09/2022–08/2023), Academic Affairs and Planning Steering Committee
 - * Steering Committee Member (07/2020–06/2022), Korea University Institute of Data Science (KUIDS)

* *Steering Committee Member* (06/2021–03/2022), Academic Affairs and Planning 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* (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 Asia Pacific Wireless Communications Symposium (APWCS) Organizing Committee: Finance Chair** (2022), *Finance Co-Chair* (2021)
- **Elsevier**
 - *Editor* (2021–), **ICT Express** (Area: AI for ICT Applications)
 - *Guest Editor* (10/2022), **Computer Networks** (S.I. on Machine Learning (ML) and Artificial Intelligence (AI) for the Internet of Things, 5G, and Beyond)
 - *Guest Editor* (03/2022), **ICT Express** (S.I. on Artificial Intelligence and Machine Learning Approaches to Communication)
 - *Guest Editor* (06/2021), **ICT Express** (S.I. on Mobile and Edge Computing Systems)

Awards and Honors

Research and Academic Excellence (International)

- **Highly Cited Publications (Top 10 Publications)** – *Google Scholar Profile (as of November 23, 2022)*
 - (624+) *Energy-Efficient Rate-Adaptive GPS-based Positioning for Smartphones*, **ACM MobiSys** ('10)
 - (157+) *Quality-Aware Streaming and Scheduling for Device-to-Device Video Delivery*, **IEEE/ACM TON** ('16)
 - (113+) *Movement-Aware Vertical Handoff of WLAN and Mobile WiMAX for Seamless Ubiquitous Access*, **IEEE TCE** ('07)
 - (108+) *Communication-Efficient and Distributed Learning Over Wireless Networks: Principles and Applications*, **PIEEE** ('21)
 - (107+) *Towards Characterizing Blockchain-based Cryptocurrencies for Highly-Accurate Predictions*, **IEEE SJ** ('20), *Best Paper Award*
 - (105+) *Residential Demand Response for Renewable Energy Resources in Smart Grid Systems*, **IEEE TII** ('17)
 - (103+) *Fast Millimeter-Wave Beam Training with Receive Beamforming*, **IEEE/KICS JCN** ('14)
 - (098+) *Auction-Based Charging Scheduling With Deep Learning Framework for Multi-Drone Networks*, **IEEE TVT** ('19)
 - (085+) *Energy-Efficient Mobile Charging for Wireless Power Transfer in Internet of Things Networks*, **IEEE IOTJ** ('18)
 - (074+) *Cooperative Management for PV/ESS-Enabled Electric Vehicle Charging Stations*, **IEEE TII** ('20)
- **Top Conference Publications (Quantum, Mobility/Networks/Systems, and AI/Learning)**

[INFOCOM'23] (Double Blind Review)

[ICSE'23] (Double Blind Review)

[AAAI'23] Quantum Multi-Agent Meta Reinforcement Learning

[CIKM'22] Hierarchical Reinforcement Learning using Gaussian Random Trajectory Generation in Autonomous Furniture Assembly

[WiOpt'22] Cooperative Video Quality Adaptation for Delay-Sensitive Dynamic Streaming using Adaptive Super-Resolution

[ICDCS'22] Quantum Multi-Agent Reinforcement Learning via Variational Quantum Circuit Design

[INFOCOM'22] Joint Superposition Coding and Training for Federated Learning over Multi-Width Neural Networks

[ICDCS'20] Understanding the Potential Risks of Sharing Elevation Information on Fitness Applications

[IJCAI'19] Randomized Adversarial Imitation Learning for Autonomous Driving

[ICDCS'18] ShmCaffe: A Distributed Deep Learning Platform with Shared Memory Buffer for HPC Architecture

[MM'17] REQUEST: Seamless Dynamic Adaptive Streaming over HTTP for Multi-Homed Smartphone under Resource Constraints

[MobiSys'10] Energy-Efficient Rate-Adaptive GPS-based Positioning for Smartphones

- **IEEE ICTC Best Paper Award (2022)** – *IEEE Communications Society* (with J.-H. Lee, D.P. Selvam, A.F. Molisch)
– J.-H. Lee, D.P. Selvam, A.F. Molisch, and J. Kim, "Reinforcement Learning Empowered Massive IoT Access in LEO-based Non-Terrestrial Networks," *IEEE ICTC*, Jeju, Korea, October 2022.
- **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* (with H. Lee)
"Deep Reinforcement Learning for Loitering Munition Mobility Control: Algorithm Design and Visualization"
- **Spotlight Presentation (2022)** – *ICML Workshop on Dynamic Neural Networks* (2022)
– W.J. Yun, J.P. Kim, S. Jung, J. Park, M. Bennis, and J. Kim, "Slimmable Quantum Federated Learning," *ICML Workshop on Dynamic Neural Networks*, Baltimore, MD, USA, July 2022.
- **IEEE MMTC Best Journal Paper Award (2021)** – *IEEE Communications Society* (with M. Choi, A.F. Molisch)
– 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* (with Y. Kwak, S. Jung, J.-H. Kim)
"Quantum Scheduling for Millimeter-Wave Observation Satellite Constellation"
- **IEEE VTS Seoul Chapter Award (2021)** – *IEEE Vehicular Technology Society* (with H. Lee, S. Jung)
"Distributed and Autonomous Aerial Data Collection in Smart City Surveillance Applications"
- **IEEE ICOIN Best Paper Award (2021)** – *IEEE Computer Society* (with S. Jung, W.J. Yun, J.-H. Kim)
– S. Jung, W.J. Yun, J. Kim, and J.-H. Kim, "Infrastructure-Assisted Cooperative Multi-UAV Deep Reinforcement Energy Trading Learning for Big-Data Processing," *IEEE ICOIN*, Jeju, Korea, January 2021.
- **IEEE MMTC Outstanding Young Researcher Award (2020)** – *IEEE Communications Society*
- **Bronze Paper Award (2020)** – *2020 IEEE Seoul Section Student Paper Contest* (with S. Park)
"Reliable Offloading Target Selection using Deep Reinforcement Learning for Large Fire Accident"
- **IEEE Systems Journal Best Paper Award (2020)** – *IEEE Systems Council* (with M. Saad, J. Choi, D. Nyang, A. Mohaisen)
– 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.
- **Gold Paper Award (2019)** – *2019 IEEE Seoul Section Student Paper Contest* (with J. Yoo)
"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* (with 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 – 4 Year Full Scholarship (\$30,000/year for 4 years, i.e., \$120,000)

Research and Academic Excellence (Korea Regional)

- **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
- **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

- **Excellence Paper Award (02/2022)** – *2022 Summer Workshop on Computer Communications (SWCC)* (with H. Lee, S. Jung)
- **Excellence Paper Award (02/2022)** – *2022 KICS Winter Conference* (with Y. Kim, Y.K. Lee, S. Jung)
- **ICT Express Best Reviewer Award (2021)** – *ICT Express (Elsevier)* (Awarded to Soohyun Park)
- **ICT Express Best Reviewer Award (2021)** – *ICT Express (Elsevier)* (Awarded to Haemin Lee)
- **Haedong Paper Award (06/2021)** – *2021 KICS Summer Conference* (with H. Baek, Y.J. Ha, M. Yoo, S. Jung)
- **Excellence Paper Award (06/2021)** – *2021 KICS Summer Conference* (with B. Lim, W.J. Yun, Y.-C. Ko)
- **Excellence Paper Award (Undergraduate) (06/2021)** – *2021 KICS Summer Conference* (with G. Lee, W.J. Yun, S. Jung)
- **Encouragement Paper Award (11/2020)** – *2020 KICS Fall Conference* (with W.J. Yun)
- **Encouragement Paper Award (06/2020)** – *2020 KICS Summer Conference* (with W.J. Yun)
- **Encouragement Paper Award (02/2020)** – *2020 KICS Winter Conference* (with S. Oh, J. Choi)
- **Encouragement Paper Award (02/2020)** – *2020 KICS Winter Conference* (with J. Kim)

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 (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)**

R&D Projects (Totally, 6,280,384 USD ≈ 6,280,384,000 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]
- **Mapping between Real World and Virtual Reality (VR) for End-Edged Cloud Real-Time VR Servers** 09/2020–09/2024
Funded by *Samsung Electronics – 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 Company (Hyundai NGV)* [Grant: \$100,000; 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* [Grant: \$12,000; Primary-PI]
- **Visual Recognition Software Implementation using Deep Learning Tools** 05/2019–11/2019
Funded by *Hyundai NGV and Hyundai/Kia Motors Company* [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

- **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]

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

- **5489+ Citations** (H-index: 35+, i10-index 134+), obtained from Google Scholar Profile (as of November 23, 2022)
- Totally, **107 journals**, <https://sites.google.com/view/aimlab-kuee/publications/journals>
 - **80 IEEE publications**, among them, **48 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

- **Fundamentals of 6G Communications and Networking** (Springer, June 2024) (X. Lin, J. Zhang, Y. Liu, J. Kim)

■ Book Chapters

- 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)
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- 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)
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Selected Papers, i.e., Journals, Top-Tier Conferences, Awarded/Honored, and GLOBECOM/ICC/VTc

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- [TNNLS] (REVIEW) *SlimQFL: Quantum Federated Learning using Slimmable Neural Networks*, **IEEE Transactions on Neural Networks and Learning Systems**. (W.J. Yun, J.P. Kim, S. Jung, J. Park, M. Bennis, J. Kim)
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- [IOTJ] (REVIEW) *Quantum Multi-Agent Actor-Critic Neural Networks for Internet-Connected Multi-Robot Coordination in Smart Factory Management*, **IEEE Internet of Things Journal**. (W.J. Yun, J.P. Kim, S. Jung, J.-H. Kim, J. Kim)
- [SPL] (REVIEW) *Quantum Split Neural Network Learning using Cross-Channel Pooling*, **IEEE Signal Processing Letters**. (W.J. Yun, H. Baek, J. Kim)
- [SPL] (REVIEW) *Scalable Quantum Convolutional Neural Networks*, **IEEE Signal Processing Letters**. (H. Baek, W.J. Yun, J. Kim)
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([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, August 2016. (J. Kim, E.-S. Ryu)
- [SIGCOMM'16] *A Longitudinal Analysis of .ip Leakage in the Public DNS Infrastructure*, ACM SIGCOMM Extended Abstract, August 2016. (S.H. Jeong, A.R. Kang, J. Kim, H.K. Kim, A. Mohaisen)
- [INFOCOM'16] *Buffer-Stable Adaptive Per-Module Power Allocation for Energy-Efficient Millimeter-Wave Modular Antenna Array (MAA) Platforms*, IEEE INFOCOM Extended Abstract, April 2016. (J. Kim)
- [GLOBECOM'15] *60 GHz Frequency Sharing Study between Fixed Service Systems and Small-Cell Systems with Modular Antenna Arrays*, IEEE GLOBECOM Workshop on Millimeter-Wave Backhaul and Access, December 2015. (J. Kim, L. Xian, R. Arefi, A.S. Sadri)
- [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, October 2015. (J. Kim, S.-N. Hong)
- [SOSP'15] *A Case for Bad big.LITTLE Switching: How to Scale Power-Performance in SI-HMP*, ACM SOSP Workshop on Power-Aware Computing and Systems, October 2015. (S. Yoo, Y. Shim, S. Lee, S.-A. Lee, J. Kim)
- [IJEC'15.07] *Error Concealment Mode Signaling for Robust Mobile Video Transmission*, **International Journal of Electronics and Communications (Elsevier)**, 69(7):1070–1073, July 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, May 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, April 2015. (J. Kim, S.-N. Hong)
- [GLOBECOM'14] *Required Frequency Rejection in 39 GHz Millimeter-Wave Small Cell Systems*, IEEE GLOBECOM Industry Program, December 2014. (J. Kim, L. Xian, A. Maltsev, R. Arefi, A.S. Sadri)
- [JCN'14.10] *Fast Millimeter-Wave Beam Training with Receive Beamforming*, **IEEE/KICS Journal of Communications and Networks**, 16(5):512–522, October 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, October 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, September 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, July 2014. (S.-N. Hong, J. Kim)
- [ICC'14] *Quality-Aware Millimeter-Wave Device-to-Device Multi-Hop Routing for 5G Cellular Networks*, IEEE ICC, June 2014. (J. Kim, A.F. Molisch)
- [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, March 2014. (J. Kim, A. Mohaisen, J.-K. Kim)
- [ITA'14] *Joint Scheduling and Stochastic Streaming for Device-to-Device Video Delivery*, IEEE ITA, February 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*, ACM MobiCom Extended Abstract, October 2013. (J. Kim, F. Meng, P. Chen, H.E. Egilmez, D. Bethanabhotla, A.F. Molisch, M.J. Neely, G. Caire, A. Ortega)
- [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, September 2013. (J. Kim, Y. Tian, S. Mangold, A.F. Molisch)
- [ICC'13] *Quality-Aware Coding and Relaying for 60 GHz Real-Time Wireless Video Broadcasting*, IEEE ICC, June 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, February 2013. (J. Kim, E.-S. Ryu)
- [MobiSys'10] *Energy-Efficient Rate-Adaptive GPS-based Positioning for Smartphones*, **ACM International Conference on Mobile Systems, Applications, and Services**, June 2010. (J. Paek, J. Kim, R. Govindan)
- [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, November 2007. (W. Lee, E. Kim, J. Kim, I. Lee, C. Lee)
([LG Electronics Outstanding Paper Award](#))
- [TCE'07.05] *Coverage-Time Optimized Dynamic Clustering of Networked Sensors for Pervasive Home Networking*, **IEEE Transactions on Consumer Electronics**, 53(2):433–441, May 2007. (J. Kim, W. Lee, E. Kim, D.-W. Kim, H. Kim)
- [CL'07.01] *Optimized Transmission Power Control of Interrogators for Collision Arbitration in UHF RFID Systems*, **IEEE Communications Letters**, 11(1):22–24, January 2007. (J. Kim, W. Lee, E. Kim, D. Kim, K. Suh)
- [VTC'06-Spring] *Energy-Aware Distributed Topology Control for Coverage-Time Optimization in Clustering-Based Heterogeneous Sensor Networks*, IEEE VTC, May 2006. (J. Kim, J. Choi, W. Lee)
- [VTC'05-Spring] *Low-Energy Localized Clustering: An Adaptive Cluster Radius Configuration Scheme for Topology Control in Wireless Sensor Networks*, IEEE VTC, May/June 2005. (J. Kim, S. Kim, D. Kim, W. Lee, E. Kim)

■ Machine Learning, Informatics, and Learning Platforms

- [ISJ] (REVIEW) *Two-Stage Architectural Fine-Tuning with Neural Architecture Search using Early-Stopping*, **IEEE Systems Journal**. (Y. Kim, W.J. Yun, Y.K. Lee, S. Jung, J. Kim)
- [MTAP] (REVIEW) *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)
- [MTAP] (REVIEW) *Audio-to-Visual Cross-Modal Generation of Birds*, **Multimedia Tools and Applications (Springer)**. (J.Y. Shim, J. Kim, J.-K. Kim)
- [CIBM] (MAJOR REVISION) *Deep Reinforcement Learning-based Propofol Infusion with a 3,000-subject Dataset in Anesthesia*, **Computers in Biology and Medicine (Elsevier)**. (W.J. Yun, M. Shin, S. Jung, J. Ko, H.-C. Lee, J. Kim)
- [TITS.accept] *Self-Configurable Stabilized Real-Time Detection Learning for Autonomous Driving Applications*, **IEEE Transactions on Intelligent Transportation Systems**, v(n):ppp-ppp, Month Year. (W.J. Yun, S. Park, J. Kim, D. Mohaisen)
- [TNNLS.accept] *Hierarchical Deep Reinforcement Learning-based Propofol Infusion Assistant Framework in Anesthesia*, **IEEE Transactions on Neural Networks and Learning Systems**, v(n):ppp-ppp, Month Year. (W.J. Yun, M. Shin, D. Mohaisen, K. Lee, J. Kim)
- [CIKM'22] *Hierarchical Reinforcement Learning using Gaussian Random Trajectory Generation in Autonomous Furniture Assembly*, **ACM Conference on Information and Knowledge Management**, October 2022. (W.J. Yun, D. Mohaisen, S. Jung, J. Kim, 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, October 2022. (W.J. Yun, S. Park, J. Kim, M. Shin, S. Jung, D. Mohaisen, J.-H. Kim)
- [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, January 2022. (Y.J. Ha, G. Lee, M. Yoo, S. Jung, S. Yoo, J. 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, September 2021. (Y.J. Ha, M. Yoo, G. Lee, S. Jung, S. Choi, J. Kim, S. Yoo)
- [DSN'21] *Spatio-Temporal Split Learning*, **IEEE/IFIP DSN Supplemental Volume**, June 2021. (S. Park, S. Jung, M. Choi, J. Kim)
- [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, March 2021. (D. Kim, D. Kwon, L. Park, J. Kim, S. Cho)
- [ICML'20] *XOR Mixup: Privacy-Preserving Data Augmentation for One-Shot Federated Learning*, **ICML Workshop on Federated Learning for User Privacy and Data Confidentiality**, July 2020. (M. Shin, C. Hwang, J. Kim, J. Park, M. Bennis, S.-L. 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, May 2020. (M. Shin, D. 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, January 2020. (K.-H.N. Bui, S. Cho, J.J. Jung, J. Kim, O.-J. Lee, W. Na)
- [ICCV'19] *Deep Multi-modal Unsupervised Pen Pressure Stylization*, **IEEE/CVF ICCV Demo**, November 2019. (D. Kim, J. Kim)
- [IJCAI'19] *Randomized Adversarial Imitation Learning for Autonomous Driving*, **International Joint Conference on Artificial Intelligence**, August 2019. (M. Shin, J. Kim)
- [DSN'19] *Privacy-Preserving Deep Learning Computation for Geo-Distributed Medical Big-Data Platforms*, **IEEE/IFIP DSN Supplemental Volume**, June 2019. (J. Jeon, J. Kim, J. Kim, K. Kim, A. Mohaisen, J.-K. Kim)
- [ICML'19] *Adversarial Imitation Learning via Random Search in Lane Change Decision-Making*, **ICML Workshop on AI for Autonomous Driving**, June 2019. (M. Shin, J. Kim)
- [TIE'19.02] *Joint Geometric Unsupervised Learning and Truthful Auction for Local Energy Market*, **IEEE Transactions on Industrial Electronics**, 66(2):1499–1508, February 2019. (L. Park, S. Jeong, J. Kim, S. Cho)
- [MobiSys'18] *Neural Network Syntax Analyzer for Embedded Standardized Deep Learning*, **ACM MobiSys Workshop on Embedded and Mobile Deep Learning**, June 2018. (M. Shin, J. Kim, A. Mohaisen, J. Park, K.H. Lee)
- [Access'18.05] *Soft Memory Box: A Virtual Shared Memory Framework for Fast Deep Neural Network Training in Distributed High Performance Computing*, **IEEE Access**, 6:26493–26504, May 2018. (S. Ahn, J. Kim, E. Lim, S. Kang)
- [TII'17.12] *Residential Demand Response for Renewable Energy Resources in Smart Grid Systems*, **IEEE Transactions on Industrial Informatics**, 13(6):3165–3173, December 2017. (L. Park, Y. Jang, S. Cho, J. Kim)
- [TII'15.12] *Energy-Efficient Dynamic Packet Downloading for Medical IoT Platforms*, **IEEE Transactions on Industrial Informatics**, 11(6):1653–1659, December 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, November 2015. (J. Kim, W. Lee)

Patents (Granted), totally, 65

- **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)
- **20 Korean Patents:** (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

- 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 2021, Fall 2020, Fall 2019
- Advanced Topics in Socialware IT (ECE545): Spring 2022
- Wireless and Mobile Networks (ECE522): Spring 2020
- Wireless Network 2 (ITH525), Graduate School of Engineering and Technology: Fall 2022
- Wireless Network 1 (ITH524), Graduate School of Engineering and Technology: Spring 2021

■ Korea University – Undergraduate Courses, Faculty Member

- Introduction to Artificial Intelligence (IWC420): Winter 2021 (12/2021–01/2022)
- Data Communications (KECE316): Fall 2020
- Digital System Design and Laboratory (KECE210): Fall 2020
- Probability and Random Process (KECE209): 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 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 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 Course): Spring 2019, Spring 2018, Spring 2017
- Topics in Computer Science and Engineering (Graduate Course): Fall 2018, Fall 2017, Fall 2016
- Numerical Analysis (Undergraduate Course): Spring 2019
- Compiler Design (Undergraduate Course): Spring 2019, Spring 2018, Spring 2017
- Principles of Programming Languages (Undergraduate Course): Fall 2018, Fall 2017, Fall 2016
- Algorithm Analysis (Undergraduate Course): Fall 2016
- Operating Systems (Undergraduate Course): Spring 2017, Spring 2016
- Calculus (Undergraduate Course): Spring 2017, Spring 2016
- Mobile Application Development (Undergraduate Course): 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), *Professor at Kyung Hee University*, Yongin, Korea
Jointly with **University of Southern California** (co-advised by Prof. Andreas F. Molisch)
- Dr. Soyi Jung (03/2021–08/2021), *Professor at Ajou University*, Suwon, Korea
Jointly with **University of California at Irvine** (co-advised by Prof. Marco Levorato)
- Dr. Ju-Hyung Lee (08/2021–), *Postdoctoral Visiting Scholar at University of Southern California* (co-advised by Prof. Andreas F. Molisch)

■ Ph.D. Course Students and Alumni

- Soohyun Park (03/2019–08/2023 (expected)), *Postdoctoral Scholar at Korea University*, Seoul, Korea
- Haemin Lee (09/2020–02/2024 (expected)), *Postdoctoral Scholar at Yonsei University*, Seoul, Korea
- Won Joon Yun (03/2021–08/2024 (expected))
- Hankyul Baek (03/2021–08/2024 (expected)), *Postdoctoral Scholar at Korea University*, Seoul, Korea
- Hyunsoo Lee (03/2021–)
- Chanyoung Park (09/2022–)
- Gyu Seon Kim (03/2023–)

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

- Minseok Choi (Advisor: Prof. Jaekyun Moon at KAIST), *Professor at Kyung Hee University*, Yongin, Korea
- Laihyuk Park (Advisor: Prof. Sungrae Cho at CAU), *Professor at Seoul National University of Science and Technology*, Seoul, Korea
- Seungyo Ryu (Advisor: Prof. Dongseung Kim at Korea University), *Researcher at LG Electronics*, Changwon, Korea
- Soyi Jung (Advisor: Prof. Jae-Hyun Kim at Ajou University), *Professor at Ajou University*, Suwon, Korea

■ M.S. Course Students and Alumni

- Kyeongseon Kim (09/2017–08/2019), *Researcher at Upstage*, Seongnam, Korea
- Dohyun Kwon (03/2018–02/2020), *Researcher at Hyundai Motors Group*, Uiwang, Korea
- Dohyun Kim (03/2018–02/2020), *Researcher at Naver Corporation*, Seongnam, Korea
- MyungJae Shin (03/2018–02/2020), *Engineer at mofl (startup)*, Daejeon, Korea
- Jaeho Choi (03/2019–02/2021), *Researcher (Military Service Exception) at Korea Meteorological Administration*, Seoul, Korea

- Youngkee Kim (03/2021–02/2023), *Researcher at Korea Electronics Technology Institute (KETI)*, Seoul, Korea
- Minjae Yoo (03/2021–)
- Seok Bin Son (03/2022–)
- Jae Pyoung Kim (03/2023–)
- **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**, Yongin, Korea
 - Hidekazu Shimodaira, Ph.D. in EEE from Tokyo Institute of Technology (07/2015–12/2015), now with **NTT DOCOMO**, Tokyo, 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 with Prof. Aziz Mohaisen (University of Central Florida, Orlando, FL, USA)

■ Korean (Local) Conference Tutorials and Special Session Talks

- **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*: **Korea Meteorological Administration** (Seoul), **SK Telecom (SKT)** (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 - Memory Business** (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

- *Quantum Multi-Agent Reinforcement Learning via Variational Quantum Circuit Design*; **IEEE ICDCS 2022** (Bologna, Italy, 07/2022)
- *Visualization of Deep Reinforcement Autonomous Aerial Mobility Learning Simulations*; **IEEE INFOCOM 2021** (Online, 05/2021)
- *Deep Multi-modal Unsupervised Pen Pressure Stylization*; **IEEE/CVF ICCV 2019** (Seoul, Korea, 11/2019)
- *Light-Weight Programming Language for Blockchain*; **ACM MobiSys 2019** (Seoul, Korea, 06/2019)

- *mmWave MAA Client Access & Backhaul Platform*; **IEEE GLOBECOM 2015 (Industry Demonstration ID-14)** (San Diego, CA, 12/2015)
- *mmWave Modular Antenna Array for Next-Generation Wireless Networks*; **IEEE GLOBECOM 2014 (Expo)** (Austin, TX, USA, 12/2014)
- *Adaptive Video Streaming for Device-to-Device Mobile Platforms*; **ACM MobiCom 2013** (Miami, FL, USA, 10/2013)

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)*), 2020 (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), 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*), ICC, 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, ICC, 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, ICC, COMNETSAT
- **2019**: ICTC, ICC, 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

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 - URL: <https://wides.usc.edu/founder.html>