

## Highlights

### Research Milestones

- **108 Journals** (among them, **81 IEEE Journals**), <https://sites.google.com/view/aimlab-kuee/publications/journals> – 88 Published/ Accepted (among them, **66 IEEE**), **6** Under-Revision, and **14** Under-Review Journals
- **5624+ Citations** (H-index: 35+, i10-index 137+), obtained from Google Scholar Profile (as of December 24, 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%)
- **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)*, *ICAHC (2021)*, *ICOIN (2019)*, and *ICC (2018)*
- **66+ 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)**: 6,339,884 USD  $\approx$  6,339,884,000 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**
- **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 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 ML and 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)

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## Awards and Honors

### Research and Academic Excellence (International)

- **Finalist (Top 25), AAAI Student Abstract and Poster Session – Oral Presentation Contest (2023)** (w/ H. Baek, W.J. Yun)  
"FV-Train: Quantum Convolutional Neural Network Training with a Finite Number of Qubits by Extracting Diverse Features"
- **IEEE ICTC Best Paper Award (2022) – IEEE Communications Society** (w/ J.-H. Lee, D.P. Selvam, A.F. Molisch)  
"Reinforcement Learning Empowered Massive IoT Access in LEO-based Non-Terrestrial Networks"
- **Best Special Issue Guest Editor Award (2022) – ICT Express (Elsevier), S.I. on Mobile Edge Computing Systems** (06/2021)
- **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** (w/ H. Lee, W.J. Yun, S. Jung, J.-H. Kim)  
"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** (w/ 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** (w/ 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** (w/ H. Lee, S. Jung)  
"Distributed and Autonomous Aerial Data Collection in Smart City Surveillance Applications"
- **IEEE ICOIN Best Paper Award (2021) – IEEE Computer Society** (w/ S. Jung, W.J. Yun, J.-H. Kim)  
"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** (w/ S. Park)  
"Reliable Offloading Target Selection using Deep Reinforcement Learning for Large Fire Accident"
- **IEEE Systems Journal Best Paper Award (2020) – IEEE Systems Council** (w/ M. Saad, J. Choi, D. Nyang, A. Mohaisen)  
"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** (w/ 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** (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 – 4 Year Full Scholarship (\$30,000/year for 4 years, i.e., \$120,000)

### Research and Academic Excellence (Korea Regional)

- **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 (w/ Y. Kim, Y.K. Lee, S. Jung)
- **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)** – 2021 KICS Summer Conference (w/ H. Baek, Y.J. Ha, M. Yoo, S. Jung)
- **Excellence Paper Award (06/2021)** – 2021 KICS Summer Conference (w/ B. Lim, W.J. Yun, Y.-C. Ko)
- **Excellence Paper Award (Undergraduate) (06/2021)** – 2021 KICS Summer Conference (w/ G. Lee, W.J. Yun, S. Jung)
- **Encouragement Paper Award (11/2020)** – 2020 KICS Fall Conference (w/ W.J. Yun)
- **Encouragement Paper Award (06/2020)** – 2020 KICS Summer Conference (w/ W.J. Yun)
- **Encouragement Paper Award (02/2020)** – 2020 KICS Winter Conference (w/ S. Oh, J. Choi)
- **Encouragement Paper Award (02/2020)** – 2020 KICS Winter Conference (w/ J. Kim)
- **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)
- **ICT Express Best Reviewer Award (2021)** – ICT Express (Elsevier) (for Haemin Lee)
- **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

- **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)
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## R&D Projects (Totally, 6,339,884 USD ≈ 6,339,884,000 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 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

- **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**

- **5624+ Citations** (H-index: 35+, i10-index 137+), obtained from Google Scholar Profile (as of December 24, 2022)
- Totally, **108 journals**, <https://sites.google.com/view/aimlab-kuee/publications/journals>  
– **81 IEEE publications**, among them, **49 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, Month Year. (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)

- 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-Tier and Awarded/Honored (including Workshops/Demos/Posters)

- [[review](#)] ([20-JAN-23](#)) Visual Simulation Software Demonstration for Quantum Multi-Drone Reinforcement Learning, [IEEE/ACM ICSE \(2023\)](#). ([C. Park](#), [J.P. Kim](#), [W.J. Yun](#), [S. Jung](#), [J. Kim](#))
- [[review](#)] ([03-MAR-23](#)) Two-Stage Architectural Fine-Tuning Software with Neural Architecture Search using Early-Stopping, [IEEE/ACM ICSE \(2023\)](#). ([Y. Kim](#), [W.J. Yun](#), [Y.K. Lee](#), [S. Jung](#), [J. Kim](#))
- [[review](#)] ([10-FEB-23](#)) Coordinated Multi-Agent Reinforcement Learning for Unmanned Aerial Vehicle Swarms in Autonomous Mobile Access Applications, *IEEE INFOCOM Extended Abstract (2023)*. ([C. Park](#), [H. Lee](#), [W.J. Yun](#), [S. Jung](#), [J. Kim](#))
- [[AAAI'23](#)] Quantum Multi-Agent Meta Reinforcement Learning, [AAAI \(2023\)](#). ([W.J. Yun](#), [J. Park](#), [J. Kim](#))
- [[AAAI'23](#)] 3D Scalable Quantum Convolutional Neural Networks for Point Cloud Data Processing in Classification Applications, *AAAI Workshop on AI to Accelerate Science and Engineering (2023)*. ([H. Baek](#), [W.J. Yun](#), [J. Kim](#))
- [[review](#)] ([02-JAN-23](#)) Privacy-Preserving Quantum Split Learning, *AAAI Workshop on Privacy-Preserving Artificial Intelligence (2023)*. ([W.J. Yun](#), [H. Baek](#), [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, [ACM 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, *IEEE 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, [IEEE 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, *IEEE VTS 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, [IEEE ICDCS \(2022\)](#). ([W.J. Yun](#), [Y. Kwak](#), [J.P. Kim](#), [H. Cho](#), [S. Jung](#), [J. Park](#), [J. Kim](#))
- [[ICDCS'22](#)] AoI-Aware Markov Decision Policies for Caching, *IEEE ICDCS Ph.D. Student Symposium (2022)*. ([S. Park](#), [S. Jung](#), [M. Choi](#), [J. Kim](#))
- [[ICDCS'22](#)] Quality-Aware Real-Time Augmented Reality Visualization under Delay Constraints, *IEEE ICDCS Extended Abstract (2022)*. ([R. Lee](#), [S. Park](#), [S. Jung](#), [J. Kim](#))
- [[INFOCOM'22](#)] Joint Superposition Coding and Training for Federated Learning over Multi-Width Neural Networks, [IEEE INFOCOM \(2022\)](#). ([H. Baek](#), [W.J. Yun](#), [Y. Kwak](#), [S. Jung](#), [M. Ji](#), [M. Bennis](#), [J. Park](#), [J. Kim](#))
- [[APWCS'21](#)] Quantum Scheduling for Millimeter-Wave Observation Satellite Constellation, *IEEE VTS 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, *IEEE VTS APWCS (2021)*. ([H. Lee](#), [S. Jung](#), [J. Kim](#)) ([IEEE VTS Seoul Chapter Award](#))
- [[ICML'21](#)] Communication and Energy Efficient Slimmable Federated Learning via Superposition Coding and Successive Decoding, *ICML Workshop on Federated Learning for User Privacy and Data Confidentiality (2021)*. ([H. Baek](#), [W.J. Yun](#), [S. Jung](#), [M. Ji](#), [J. Kim](#), [J. Park](#), [M. Bennis](#))
- [[DSN'21](#)] Spatio-Temporal Split Learning, *IEEE/IFIP DSN Supplemental Volume (2021)*. ([S. Park](#), [S. Jung](#), [M. Choi](#), [J. Kim](#))
- [[INFOCOM'21](#)] Visualization of Deep Reinforcement Autonomous Aerial Mobility Learning Simulations, *IEEE INFOCOM Extended Abstract (2021)*. ([G. Lee](#), [W.J. Yun](#), [S. Jung](#), [J. Kim](#), [J.-H. Kim](#))
- [[ICOIN'21](#)] Infrastructure-Assisted Cooperative Multi-UAV Deep Reinforcement Energy Trading Learning for Big-Data Processing, *IEEE 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, [IEEE ICDCS \(2020\)](#). ([Ü. Meteriz](#), [N.F. Yildiran](#), [J. Kim](#), [D. Mohaisen](#))
- [[ICML'20](#)] XOR Mixup: Privacy-Preserving Data Augmentation for One-Shot Federated Learning, *ICML Workshop on Federated Learning for User Privacy and Data Confidentiality (2020)*. ([M. Shin](#), [C. Hwang](#), [J. Kim](#), [J. Park](#), [M. Bennis](#), [S.-L. Kim](#))
- [[ICCV'19](#)] Deep Multi-modal Unsupervised Pen Pressure Stylization, *IEEE/CVF ICCV Demo (2019)*. ([D. Kim](#), [J. Kim](#))
- [[APWCS'19](#)] Joint Offloading and Streaming in Mobile Edges: A Deep Reinforcement Learning Approach, *IEEE VTS 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](#))
- [[DSN'19](#)] Privacy-Preserving Deep Learning Computation for Geo-Distributed Medical Big-Data Platforms, *IEEE/IFIP DSN Supplemental Volume (2019)*. ([J. Jeon](#), [J. Kim](#), [J. Kim](#), [K. Kim](#), [A. Mohaisen](#), [J.-K. Kim](#))
- [[MobiSys'19](#)] Multi-Agent Deep Reinforcement Learning for Connected Vehicles, *ACM MobiSys Extended Abstract (2019)*. ([D. Kwon](#),



S. Park, J. Kim)

- [MobiSys'19] Light-Weight Programming Language for Blockchain, *ACM MobiSys Extended Abstract* (2019). (J. Kim, J. Kim)
- [ICML'19] Adversarial Imitation Learning via Random Search in Lane Change Decision-Making, *ICML Workshop on AI for Autonomous Driving* (2019). (M. Shin, J. Kim)
- [CCS'18] Secure Compute-VM: Secure Big Data Processing with SGX and Compute Accelerators, *ACM CCS Workshop on System Software for Trusted Execution* (2018). (S. Yoo, H. Kim, J. Kim)
- [ICDCS'18] ShmCaffe: A Distributed Deep Learning Platform with Shared Memory Buffer for HPC Architecture, *IEEE ICDCS* (2018). (S. Ahn, J. Kim, E. Lim, W. Choi, A. Mohaisen, S. Kang)
- [MobiSys'18] Neural Network Syntax Analyzer for Embedded Standardized Deep Learning, *ACM MobiSys Workshop on Embedded and Mobile Deep Learning* (2018). (M. Shin, J. Kim, A. Mohaisen, J. Park, K.H. Lee)
- [SECON'18] Recipient-Oriented Transaction for Preventing Double Spending Attacks in Private Blockchain, *IEEE SECON Extended Abstract* (2018). (H. Lee, M. Shin, K.S. Kim, Y. Kang, J. Kim)
- [AsiaCCS'18] Mining with Proof-of-Probability in Blockchain, *ACM AsiaCCS Extended Abstract* (2018). (S. Kim, J. Kim)
- [ICSE'18] A Novel Shared Memory Framework for Distributed Deep Learning in High-Performance Computing Architecture, *IEEE/ACM ICSE Companion Volume* (2018). (S. Ahn, J. Kim, S. Kang)
- [MM'17] REQUEST: Seamless Dynamic Adaptive Streaming over HTTP for Multi-Homed Smartphone under Resource Constraints, *ACM Multimedia* (2017). (J. Koo, J. Yi, J. Kim, M.A. Hoque, S. Choi)
- [SOSP'17] A Reliable, Self-Adaptive Face Identification Framework via Lyapunov Optimization, *ACM SOSP Workshop on AI Systems* (2017). (D. Kim, J. Kim, J.Y. Bang)
- [SIGCOMM'16] A Longitudinal Analysis of .i2p Leakage in the Public DNS Infrastructure, *ACM SIGCOMM Extended Abstract* (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* (2016). (J. Kim)
- [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* (2015). (S. Yoo, Y. Shim, S. Lee, S.-A. Lee, J. Kim)
- [ITA'14] Joint Scheduling and Stochastic Streaming for Device-to-Device Video Delivery, *IEEE Information Theory and Applications 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, *ACM MobiCom Extended Abstract* (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, *ACM 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, *IEEE ICCCN* (2005). (J. Kim, W. Lee, J. Yu, J. Myung, E. Kim, C. Lee)

#### ■ Journals (Topic 1) – Quantum Machine Learning

- [TETC.review] ([12-DEC-22](#)) Scalable Quantum Convolutional Neural Networks, *IEEE Transactions on Emerging Topics in Computing*. (H. Baek, W.J. Yun, J. Kim)
- [IOTJ.review(2)] ([05-DEC-22](#)) 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)
- [TON.review] ([04-DEC-22](#)) Quantum Federated Learning with Entanglement Controlled Circuits and Superposition Coding, *IEEE/ACM Transactions on Networking*. (W.J. Yun, J.P. Kim, H. Baek, S. Jung, J. Park, M. Bennis, J. Kim)
- [TSMC.review] ([14-NOV-22](#)) Projection Valued Measure-based Quantum Machine Learning for Multi-Class Classification, *IEEE Transactions on Systems, Man, and Cybernetics: Systems*. (W.J. Yun, H. Baek, J. Kim)
- [SPL.review] ([12-NOV-22](#)) Quantum Split Neural Network Learning using Cross-Channel Pooling, *IEEE Signal Processing Letters*. (W.J. Yun, H. Baek, J. Kim)
- [TNNLS.review] ([02-NOV-22](#)) Stereoscopic Scalable Quantum Convolutional Neural Networks, *IEEE Transactions on Neural Networks and Learning Systems*. (H. Baek, W.J. Yun, J. Kim)
- [TNNLS.review] ([05-SEP-22](#)) 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)
- [ICTE.accept] Quantum Distributed Deep Learning Architectures: Models, Discussions, and Applications, *ICT Express* (Elsevier), v(n):ppp-ppp, Month Year. (Y. Kwak, W.J. Yun, J.P. Kim, H. Cho, J. Park, M. Choi, S. Jung, J. Kim)

#### ■ IEEE/ACM Journals (Topic 2) – Mobility, Networks, Systems, and Multimedia

- [TVT.wip] ([WIP](#)) Sensing-to-Sky Intermittent Connectivity Realization for LTE-Enabled Drone Platforms, *IEEE Transactions on Vehicular Technology*. (J. Kim, U. Jo, T. Kim, S. Jung, J. Kim)
- [ISJ.review] ([11-DEC-22](#)) Orchestrated Mobile Charging for Sustainable and Trustworthy UAV-Assisted CyberTwin Networks, *IEEE Systems Journal*. (S. Jung, H. Baek, M. Levorato, J. Kim)
- [TVT.review] ([27-NOV-22](#)) Two-Stage Self-Adaptive Task Outsourcing Decision Making for Edge-Assisted Multi-UAV Networks, *IEEE Transactions on Vehicular Technology*. (S. Jung, C. Park, M. Levorato, J.-H. Kim, J. Kim)
- [ISJ.review] ([22-NOV-22](#)) Real-Time High-Quality Visualization Systems for Volumetric Contents Rendering: A Lyapunov Optimization Framework, *IEEE Systems Journal*. (H. Baek, R. Lee, Y.K. Lee, S. Jung, J. Kim)
- [TVT.review] ([01-NOV-22](#)) Delay-Sensitive and Power-Efficient Quality Control of Dynamic Video Streaming using Adaptive Super-Resolution, *IEEE Transactions on Vehicular Technology*. (M. Choi, W.J. Yun, J. Kim)
- [TVT.review] ([02-OCT-22](#)) Cooperative Multi-Agent Deep Reinforcement Learning for Reliable and Energy-Efficient Mobile Access via Multi-UAV Control, *IEEE Transactions on Vehicular Technology*. (C. Park, H. Lee, W.J. Yun, S. Jung, C. Cordeiro, J. Kim)

- [JCN].review] (01-SEP-22) Age-of-Information Aware Contents Caching and Distribution for Connected Vehicles, *IEEE/KICS Journal of Communications and Networks*. (S. Park, C. Park, S. Jung, M. Choi, J. Kim)
- [ComNet.review] (REVISION, WIP) Self-Adaptive End-to-End Resource Management for Real-Time Monitoring in Cyber-Physical Systems, *Computer Networks (Elsevier)*. (H.-C. Jo, H.-W. Jin, J. Kim)
- [ComNet.review] (29-SEP-22) Truthful and Performance-Optimal Computation Outsourcing for Aerial Surveillance Platforms via Learning-based Auction, *Computer Networks (Elsevier)*. (S. Jung, J.-H. Kim, D. Mohaisen, J. Kim)
- [TWC.review] (REVISION, WIP) Joint User Clustering and Beamforming using Cross-Entropy based Machine Learning for mmWave-NOMA with Imperfect SIC, *IEEE Transactions on Wireless Communications*. (B. Lim, W.J. Yun, J. Kim, Y.-C. Ko)
- [TON.accept] SlimFL: Federated Learning with Superposition Coding over Slimmable Neural Networks, *IEEE/ACM Transactions on Networking*, (ONLINE). (W.J. Yun, Y. Kwak, H. Baek, S. Jung, M. Ji, M. Bennis, J. Park, J. Kim)
- [TMC.accept] Learning Location from Shared Elevation Profiles in Fitness Apps: A Privacy Perspective, *IEEE Transactions on Mobile Computing*, (ONLINE). (U. Meteriz, N.F. Yildiran, J. Kim, D. Mohaisen)
- [JCN.accept] Neural Myerson Auction for Truthful and Energy-Efficient Autonomous Aerial Data Delivery, *IEEE/KICS Journal of Communications and Networks*, (ONLINE). (H. Lee, S. Kwon, S. Jung, J. Kim)
- [JCN.accept] Parallelized and Randomized Adversarial Imitation Learning for Safety-Critical Self-Driving Vehicles, *IEEE/KICS Journal of Communications and Networks*, (ONLINE). (W.J. Yun, M. Shin, S. Jung, S. Kwon, J. Kim)
- [ICTE'22.09] Trustworthy Handover in LEO Satellite Mobile Networks, *ICT Express (Elsevier)*, 8(3):432–437, September 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, July 2022. (B. Lim, W.J. Yun, J. Kim, Y. 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, July 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, June 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, June 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, May 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, May 2022. (K. Kim, J.-H. Lee, S. Jung, J. Kim, J.-H. Kim)
- [ISJ'22.03] LiteZKP: Lightning Zero-Knowledge Proof-based Blockchains for IoT and Edge Platforms, *IEEE Systems Journal*, 16(1):112–123, March 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, February 2022. (W.J. Yun, D. Kwon, M. Choi, J. Kim, G. Caire, A.F. Molisch)
- [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, October 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, September 2021. (S. Jung, J. Kim, J.-H. Kim)
- [TVT'21.08] Infrastructure-Assisted On-Driving Experience Sharing for Millimeter-Wave Connected Vehicles, *IEEE Transactions on Vehicular Technology*, 70(8):7307–7321, August 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, June 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, June 2021. (S. Jung, W.J. Yun, M. Shin, J. Kim, J. Kim)
- [Access'21.06] Joint Mobile Charging and Coverage-Time Extension for Unmanned Aerial Vehicles, *IEEE Access*, 9:94053–94063, June 2021. (S. Park, M. Choi, W.-Y. Shin, J. Kim)
- [ICTE'21.06] Truthful Electric Vehicle Charging via Neural-Architectural Myerson Auction, *ICT Express (Elsevier)*, 7(2):196–199, June 2021. (H. Lee, S. Jung, J. Kim)
- [PIEEE'21.05] Communication-Efficient and Distributed Learning Over Wireless Networks: Principles and Applications, *Proceedings of the IEEE*, 109(5):796–819, May 2021. (J. Park, S. Samarakoon, A. Elgabli, J. Kim, M. Bennis, S.-L. Kim, M. Debbah)
- [TWC'21.04] Probabilistic Caching and Dynamic Delivery Policies for Categorized Contents and Consecutive User Demands, *IEEE Transactions on Wireless Communications*, 20(4):2685–2699, April 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, *IEEE/KICS Journal of Communications and Networks*, 23(2):129–137, April 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, *IEEE/KICS Journal of Communications and Networks*, 23(2):117–128, April 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, April 2021. (M. Saad, J. Kim, D. Nyang, D. Mohaisen)
- [ICTE'21.03] Distributed Deep Reinforcement Learning for Autonomous Aerial eVTOL Mobility in Drone Taxi Applications, *ICT Express (Elsevier)*, 7(1):1–4, March 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, March 2021. (A. Ahmad, A. Alabduljabbar, M. Saad, D. Nyang, J. Kim, D. Mohaisen)
- [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, December 2020. (M. Choi, A.F. Molisch, J. Kim) **(IEEE ComSoc MMTC Best Journal Paper Award (2021))**
- [IOTJ'20.10] Multiagent DDPG-Based Deep Learning for Smart Ocean Federated Learning IoT Networks, *IEEE Internet of Things Journal*, 7(10):9895–9903, October 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, *IEEE/KICS Journal of Communications and Networks*, 22(4):326–337, August 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, June 2020. (M. Choi, J. Kim)
- [ETRI'20.04] Simulation and Measurement: Feasibility Study of Tactile Internet Applications for mmWave Virtual Reality, *ETRI Journal* (Wiley), 42(2):163–174, April 2020. (W. Na, N.-N. Dao, J. Kim, E.-S. Ryu, S. Cho)
- [ISJ'20.03] Towards Characterizing Blockchain-based Cryptocurrencies for Highly-Accurate Predictions, *IEEE Systems Journal*, 14(1):321–332, March 2020. (M. Saad, J. Choi, D. Nyang, J. Kim, A. Mohaisen) **(IEEE Systems Journal Best Paper Award), Top 7 among 793 accepted papers in 2019 (Top 0.88%)**
- [JCN'20.02] Numerical Approximation of Millimeter-Wave Frequency Sharing between Cellular Systems and Fixed Service Systems, *IEEE/KICS Journal of Communications and Networks*, 22(1):37–45, February 2020. (S. Han, J.-W. Choi, J. Kim)
- [TWC'19.12] Markov Decision Policies for Dynamic Video Delivery in Wireless Caching Networks, *IEEE Transactions on Wireless Communications*, 18(12):5705–5718, December 2019. (M. Choi, A. No, M. Ji, J. Kim)
- [TWC'19.10] Dynamic Power Allocation and User Scheduling for Power-Efficient and Delay-Constrained Multiple Access Networks, *IEEE Transactions on Wireless Communications*, 18(10):4846–4858, October 2019. (M. Choi, J. Kim, J. Moon)
- [IOTJ'19.10] Two-Stage IoT Device Scheduling with Dynamic Programming for Energy Internet Systems, *IEEE Internet of Things Journal*, 6(5):8782–8791, October 2019. (L. Park, C. Lee, J. Kim, A. Mohaisen, S. Cho)
- [TVT'19.10] Blind Signal Classification for Non-Orthogonal Multiple Access in Vehicular Networks, *IEEE Transactions on Vehicular Technology*, 68(10):9722–9734, October 2019. (M. Choi, D. Yoon, J. Kim)
- [TCAD'19.09] TEI-ULP: Exploiting Body Biasing to Improve the TEI-Aware Ultra-Low Power Methods, *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*, 38(9):1758–1770, September 2019. (W. Lee, T. Kang, J.-J. Lee, K. Han, J. Kim, M. Pedram)
- [WPC'19.08] Semantic Hashtag Relation Classification Using Co-occurrence Word Information, *Wireless Personal Communications* (Springer), 107(3):1355–1365, August 2019. (S. Seo, J.-K. Kim, S.-I. Kim, J. Kim, J. Kim)
- [TMC'19.07] Seamless Dynamic Adaptive Streaming in LTE/Wi-Fi Integrated Network under Smartphone Resource Constraints, *IEEE Transactions on Mobile Computing*, 18(7):1647–1660, July 2019. (J. Koo, J. Yi, J. Kim, M.A. Hoque, S. Choi)
- [TVT'19.05] Auction-Based Charging Scheduling With Deep Learning Framework for Multi-Drone Networks, *IEEE Transactions on Vehicular Technology*, 68(5):4235–4248, May 2019. (M. Shin, J. Kim, M. Levorato)
- [FGCS'19.04] Resource-Aware Relay Selection for Inter-Cell Interference Avoidance in 5G Heterogeneous Network for Internet of Things Systems, *Future Generation Computer Systems* (Elsevier), 93:877–887, April 2019. (N. Dao, M. Park, J. Kim, J. Paek, S. Cho)
- [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, April 2019. (J. Spaulding, J. Park, J. Kim, D. Nyang, A. Mohaisen)
- [CM'19.03] New Challenges of Wireless Power Transfer and Secured Billing for Internet of Electric Vehicles, *IEEE Communications Magazine*, 57(3):118–124, March 2019. (L. Park, S. Jeong, D.S. Lakew, J. Kim, S. Cho)
- [IOTJ'18.12] Internet of Things for Smart Manufacturing System: Trust Issues in Resource Allocation, *IEEE Internet of Things Journal*, 5(6):4418–4427, December 2018. (S. Jeong, W. Na, J. Kim, S. Cho)
- [JSAC'18.11] SGCO: Stabilized Green Crosshaul Orchestration for Dense IoT Offloading Services, *IEEE Journal on Selected Areas in Communications*, 36(11):2538–2548, November 2018. (N.-N. Dao, D.-N. Vu, W. Na, J. Kim, S. Cho)
- [JSAC'18.06] Wireless Video Caching and Dynamic Streaming under Differentiated Quality Requirements, *IEEE Journal on Selected Areas in Communications*, 36(6):1245–1257, June 2018. (M. Choi, J. Kim, J. Moon)
- [TVT'18.04] Adaptive Detector Selection for Queue-Stable Word Error Rate Minimization in Connected Vehicle Receiver Design, *IEEE Transactions on Vehicular Technology*, 67(4):3635–3639, April 2018. (M. Choi, J. Kim, J. Moon)
- [IOTJ'18.02] Energy-Efficient Mobile Charging for Wireless Power Transfer in Internet of Things Networks, *IEEE Internet of Things Journal*, 5(1):79–92, February 2018. (W. Na, J. Park, C. Lee, K. Park, J. Kim, S. Cho)
- [IOTJ'17.10] Feasibility Study of 60 GHz Millimeter-Wave Technologies for Hyperconnected Fog Computing Applications, *IEEE Internet of Things Journal*, 4(5):1165–1173, October 2017. (J. Kim, W. Lee)
- [Access'17.09] A Software-based Monitoring Framework for Time-Space Partitioned Avionics Systems, *IEEE Access*, 5:19132–19143, September 2017. (C. Shin, C. Lim, J. Kim, H. Roh, W. Lee)
- [JRTIP'17.09] QoS Optimal Real-Time Video Streaming in Distributed Wireless Image-Sensing Platforms, *Journal of Real-Time Image Processing* (Springer), 13(3):547–556, September 2017. (J. Kim, E.-S. Ryu)
- [Access'17.08] Energy-Efficient Stabilized Automatic Control for Multicore Baseband in Millimeter-Wave Systems, *IEEE Access*, 5:16584–16591, August 2017. (J. Kim, J.-J. Lee, J.-K. Kim, W. Lee)
- [Access'17.06] Adaptive Resource Balancing for Serviceability Maximization in Fog Radio Access Networks, *IEEE Access*, 5:14548–14559, June 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, March 2017. (S. Lee, S. Hyeon, J. Kim, H. Roh, W. Lee)
- [TVT'16.12] Performance of Video Streaming in Infrastructure-to-Vehicle Telematic Platforms With 60-GHz Radiation and IEEE 802.11ad Baseband, *IEEE Transactions on Vehicular Technology*, 65(12):10111–10115, December 2016. (J. Kim, S. Kwon, G. Choi)
- [Access'16.12] Numerical Simulation Study for Frequency Sharing between Micro-Cellular Systems and Fixed Service Systems in Millimeter-Wave Bands, *IEEE Access*, 4:9847–9859, December 2016. (J. Kim, L. Xian, A.S. Sadri)
- [TON'16.08] Quality-Aware Streaming and Scheduling for Device-to-Device Video Delivery, *IEEE/ACM Transactions on Networking*, 24(4):2319–2331, August 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, August 2016. (J. Kim, E.-S. Ryu)
- [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)
- [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)
- [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)
- [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)
- [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)
- [IET'13.02] Distributed Stochastic Buffering for Enterprise WLAN Architectures, *IET Electronics Letters*, 49(4):302–304, February 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, 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)

#### ■ IEEE/ACM Journals – Learning and Informatics

- [MTAP.review] ([26-JUL-22](#)) Audio-to-Visual Cross-Modal Generation of Birds, *Multimedia Tools and Applications (Springer)*. (J.Y. Shim, J. Kim, J.-K. Kim)
- [MTAP.review(2)] ([01-DEC-22](#)) 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)
- [CIBM.review(2)] ([26-NOV-22](#)) 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*, (ONLINE). (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*, (ONLINE). (W.J. Yun, M. Shin, D. Mohaisen, K. Lee, 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)
- [ISI'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)
- [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)
- [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)
- [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, 66

- **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)
  - **21 Korean Patents:** (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)
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## 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 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 Artificial Intelligence (IWC420): Winter 2022 (12/2022–01/2023), 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 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 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

### ■ Ph.D. Course Students and Alumni

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

### ■ M.S. Course Students and Alumni

- *Academia*: Jae Pyoung Kim (*active*, 03/2023–Present)
- *Industry*: Kyeongseon Kim (09/2017–08/2019, Upstage), Dohyun Kwon (03/2018–02/2020, Hyundai Motors Group), Dohyun Kim (03/2018–02/2020, Naver Corporation), MyungJae Shin (03/2018–02/2020, mofl (*Startup*)), Jaeho Choi (03/2019–02/2021, Korea Meteorological Administration (*Military Service Exception*)), Youngkee Kim (*active*, 03/2021–02/2023, Korea Electronics Technology Institute (KETI)), Minjae Yoo (*inactive*, 03/2021–Present), Seok Bin Son (*active*, 03/2022–Present)

### ■ B.S. Course Students and Alumni, Undergraduate Interns

- *Academia*: Soohyun Park (Ph.D. Student at Korea University), Won Joon Yun (Ph.D. Student at Korea University), Jae Pyoung Kim (M.S. Student at Korea University), Hyunhee Cho (*active*), Hyomin Ahn (M.S. Student at the University of California at Los Angeles (UCLA)), Rhoan Lee (*active*), Chanyoung Park (Ph.D. Student at Korea University), Gyu Seon Kim (Ph.D. Student at Korea University), Dohyun Lim (*active*), Kyunglyul Baek (*active*)
- *Industry*: Nawon Kim (SK Hynix), Seongmin Kim (KEB Hana Bank), Si Yun Kim (LG U+), Yejin Kim (CJ OliveNetworks), Yeong Jong Mo (Samsung Electronics), Miji Park (LG CNS), Inhui Yeo (LG Innotek), Sangjin Lee (SK Hynix), Cheol Lee (Naver, *after the M.S. degree from Chung-Ang University*), Sunjun Hwang (Samsung Electronics, *after the M.S. degree from Seoul National University*)

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

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

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

- Dr. Minseok Choi, Ph.D. in EE from KAIST (02/2016–07/2016), now with **Kyung Hee University**, Korea
- Dr. 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 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 IEK Hyundai Motors Special Session (Jeju, 06/2019), *Explainable AI (XAI) and Imitation Learning for Automotive Applications*
- 2019 KIPS Spring Conference Tutorial (Seoul, 05/2019), *Deep Learning Basics and Representative Models*
- 2019 KICS Winter Conference Tutorial (Kangwon, 01/2019), *Deep Learning Methods for Advanced Network*
- 2017 KICS Summer Conference Tutorial (Jeju, 06/2017), *GPU Computing Platforms and Software for Deep Learning*

- 2017 KCC Summer Conference Special Session (Jeju, 06/2017), *Dynamic Control and Software for Next-Generation Distributed Platforms*
- 2017 KICS Winter Conference Tutorial (Kangwon, 01/2017), *Machine Learning Techniques for Mobile Computing*

#### ■ Industry Presentations (Selected)

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

#### ■ Prototyping at Industry Exhibitions

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

#### ■ Demonstration at Academic Conferences

- *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)*), 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), 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*), ICCS, WCSP, CyberneticsCom, ICEIC, MSN (Track 3: Security, Privacy, Trust, and Blockchain), ICNGC
- 2021: GLOBECOM (Selected Areas in Communications – Machine Learning for Communications), GLOBECOM (IoT/TSN), 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, ICCS, 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, ICCS, COMNETSAT

- **2019:** ICTC, ICCS, 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>