

## Highlights

### Research Milestones

- **62 IEEE Journals** (published and accepted),  
The Complete Journals List: <https://sites.google.com/view/aimlab-kuee/publications/journals>
- **10 Top-Tier Conference Papers**, i.e., IEEE INFOCOM (review), AAAI (review), ACM CIKM (review), IEEE ICDCS (2022), IEEE INFOCOM (2022), IEEE ICDCS (2020), IJCAI (2019), IEEE ICDCS (2018), ACM Multimedia (2017), and ACM MobiSys (2010)
- **4932+ Citations** in Google Scholar Profile (H-index: 33+, i10-index 110+)
- **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%)
- **6 Awards from IEEE Conferences and Contests**, i.e., 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), ICAIIC (2021), ICOIN (2019), and ICC (2018)
- **62+ 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
- **16 Awards** from Local (Korean) Conferences and Contests
- **Research Funds (since March 2016)**: 5,468,384 USD  $\approx$  5,468,384,000 KRW (except University Internal Funds)

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

- **Supervised 3 Postdoctoral Scholars**, tenure-track professors at Kyung Hee University (Korea) and Hallym University (Korea); and a postdoctoral scholar at the University of Southern California (USA, jointly advised by Prof. Andreas F. Molisch)
- **Supervised 1 Ph.D. and 5 M.S. Students**, researchers at LG Electronics, Hyundai, Naver, government agency, and startup
- **6 Best Teaching Awards at Korea University**, 3 awards are for top 5% (*Granite Tower Best Teaching Award*) and 3 awards are for top 20% (*Best Teaching Award*)

### IEEE Society Academic Activities

- **Senior Member of the IEEE (2018–)** and IEEE Membership for 17+ 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
  - **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
  - **21+ Organizing Committee (OC) Contributions** for IEEE Conferences
  - **57+ Technical Program Committee (TPC) 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)*, School of Electrical Engineering
  - *Adjunct Professor (03/2023–Present)*, Department of Communication Engineering (with **Samsung Electronics**)
  - *Adjunct Professor (03/2021–02/2023)*, Department of Semiconductor Engineering (with **SK Hynix**)
  - *Assistant Professor (09/2019–02/2021)*, School of Electrical Engineering
  - **R&D POSITIONS**
    - \* *Vice Director (10/2020–Present)*, Artificial Intelligence Engineering Research Center (KU-AIER)
- **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**
  - *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* (03/2021), **ICT Express** (S.I. on Mobile and Edge Computing Systems)

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## Awards and Honors

### Research and Academic Excellence (International)

- **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 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* (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, 5,468,384 USD $\approx$ 5,468,384,000 KRW)**

#### Industry-Funded Projects

- **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]
- **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** 10/2020–12/2022  
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)* [xxx, 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)* [xxx, 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

- Citation: 4932+, H-Index: 33+, i10-Index: 110+; obtained from Google Scholar Profile (as of July 31, 2022)
- The Complete Journals List (totally, 99): <https://sites.google.com/view/aimlab-kuee/publications/journals>

#### Dissertation, Books, and Book Chapters

##### ■ Ph.D. Dissertation

- J. Kim, *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

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

##### ■ Book Translation (from English to Korean)

- J. Choi, J. Kim, J. No, C. Sohn, D. Ahn, H. Ahn, H. Lee, and H. Jung, *Programming in ANSI C*, Haksan Media, January 2021 (8th Edition, ISBN: 979-1185294315)., Originally written by E. Balagurusamy (Publisher: McGraw Hill, ISBN: 978-9351343202, January 2019)

##### ■ Book Chapters

- S. Park, D. Kim, and J. Kim, "Dynamic Decision-Making for Stabilized Deep Learning Software Platforms," *Advances and Applications in Deep Learning*, IntechOpen, September 2020., (Editor: M.A. Aceves-Fernandez)
- A.F. Molisch, M. Ji, J. Kim, D. Burghal, and A.S. Tehrani, "Device-to-Device Communications," *Towards 5G: Applications, Requirements and Candidate Technologies*, Wiley, January 2017., (Editors: R. Vannithamby, S. Talwar)
- J. Kim, "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, "Millimeter-Wave (mmWave) Radio Propagation Characteristics," *Opportunities in 5G Networks: A Research and Development Perspective*, CRC Press, April 2016., (Editor: F. Hu)
- J. Kim, E. Kim, W. Lee, D. Kim, J. Choi, J. Jung, and C.K. Shin, "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, W. Lee, E. Kim, and T.K. Shih, "Coverage-Time Optimized Dynamic Clustering for Two-Tiered WM2Nets," *Wireless Mesh Networking*, McGraw-Hill, August 2008., (Editor: G. Aggelou)

#### Top-Tier Selected Conferences and Workshops

##### ■ Top-Tier Conference Papers

- [Review'23] W.J. Yun, J.P. Kim, H. Baek, S. Jung, J. Park, M. Bennis, and J. Kim, **IEEE INFOCOM (2023)** (Decision: 02-Dec-2022)
- [Review'23] W.J. Yun, J. Park, and J. Kim, **AAAI (2023)** (Decision: 18-Nov-2022)
- [Review'22] W.J. Yun, D. Mohaisen, S. Jung, J.-K. Kim, and J. Kim, **ACM CIKM (2022)**
- [ICDCS'22] W.J. Yun, Y. Kwak, J.P. Kim, H. Cho, S. Jung, J. Park, and J. Kim, "Quantum Multi-Agent Reinforcement Learning via Variational Quantum Circuit Design," **IEEE ICDCS (2022)**
- [INFOCOM'22] H. Baek, W.J. Yun, Y. Kwak, S. Jung, M. Ji, M. Bennis, J. Park, and J. Kim, "Joint Superposition Coding and Training for Federated Learning over Multi-Width Neural Networks," **IEEE INFOCOM (2022)**
- [ICDCS'20] Ü. Meteriz, N.F. Yildiran, J. Kim, and D. Mohaisen, "Understanding the Potential Risks of Sharing Elevation Information on Fitness Applications," **IEEE ICDCS (2020)**
- [IJCAI'19] M. Shin and J. Kim, "Randomized Adversarial Imitation Learning for Autonomous Driving," **IJCAI (2019)**
- [ICDCS'18] S. Ahn, J. Kim, E. Lim, W. Choi, A. Mohaisen, and S. Kang, "ShmCaffe: A Distributed Deep Learning Platform with Shared Memory Buffer for HPC Architecture," **IEEE ICDCS (2018)**

- [MM'17] J. Koo, J. Yi, J. Kim, M.A. Hoque, and S. Choi, "REQUEST: Seamless Dynamic Adaptive Streaming over HTTP for Multi-Homed Smartphone under Resource Constraints," [ACM Multimedia \(2017\)](#)
- [MobiSys'10] J. Paek, J. Kim, and R. Govindan, "Energy-Efficient Rate-Adaptive GPS-based Positioning for Smartphones," [ACM MobiSys \(2010\)](#) (Citations: 620+)

■ **Top-Tier Workshop and Awarded/Highly-Selected (50+ by Google Scholar) Papers**

- [WiOpt'22] M. Choi, W.J. Yun, and J. Kim, "Cooperative Video Quality Adaptation for Delay-Sensitive Dynamic Streaming using Adaptive Super-Resolution," *IEEE WiOpt Workshop on Caching, Computing and Delivery in Wireless Networks (2022)*
- [ICML'22] 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 (2022)* (Spotlight, Oral Presentation)
- [ICML'21] H. Baek, W.J. Yun, S. Jung, M. Ji, J. Kim, J. Park, and M. Bennis, "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)*
- [ICOIN'21] 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 (2021)* (Best Paper Award)
- [ICML'20] M. Shin, C. Hwang, J. Kim, J. Park, M. Bennis, and S.-L. Kim, "XOR Mixup: Privacy-Preserving Data Augmentation for One-Shot Federated Learning," *ICML Workshop on Federated Learning for User Privacy and Data Confidentiality (2020)*
- [MobiSys'18] M. Shin, J. Kim, A. Mohaisen, J. Park, and K. Lee, "Neural Network Syntax Analyzer for Embedded Standardized Deep Learning," *ACM MobiSys Workshop on Embedded and Mobile Deep Learning (2018)*
- [SOSP'15] S. Yoo, Y. Shim, S. Lee, S.-A. Lee, and J. Kim, "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)*
- [ICC'14] J. Kim and A.F. Molisch, "Quality-Aware Millimeter-Wave Device-to-Device Multi-Hop Routing for 5G Cellular Networks," *IEEE ICC (2014)* (Citations: 50+)
- [ICCCN'05] J. Kim, W. Lee, J. Yu, J. Myung, E. Kim, and C. Lee, "Effect of Localized Optimal Clustering for Reader Anti-Collision in RFID Networks: Fairness Aspects to the Readers," *IEEE ICCCN (2005)* (Citations: 65+)

Journals and Magazines

■ **100 publications (among them, 74 journals are in IEEE)**

◀ **Review** ▶

- [TVT.wip] H. Lee, W.J. Yun, S. Jung, J.-H. Kim, and J. Kim, "Autonomous Multi-Drone Mobility Control for Multi-Target Loitering Munition: A Deep Reinforcement Learning Approach," [IEEE Transactions on Vehicular Technology](#), (Expected Submission Date: 15-Sep-2022).
- [JCN.wip] S. Park, S. Jung, M. Choi, and J. Kim, "Age-of-Information Aware Contents Caching and Distribution for Connected Vehicles," [IEEE/KICS Journal of Communications and Networks](#), (Expected Submission Date: 31-Aug-2022).
- [ISJ.wip] S. Jung, M. Levorato, and J. Kim, "Orchestrated Mobile Charging for Sustainable and Trustworthy UAV-Assisted Cybertwin Networks," [IEEE Systems Journal](#), (Expected Submission Date: 31-Aug-2022).
- [TVT.wip] M. Choi, W.J. Yun, and J. Kim, "Delay-Sensitive and Power-Efficient Quality Control of Dynamic Video Streaming using Adaptive Super-Resolution," [IEEE Transactions on Vehicular Technology](#), (Expected Submission Date: 15-Aug-2022).
- [CEE.wip] J.Y. Shim, S. Jung, J. Kim, and J.-K. Kim, "Stabilized Performance Maximization for GAN-based Real-Time Authentication Image Generation over Internet," *Computers and Electrical Engineering (Elsevier)*, (Expected Submission Date: 10-Aug-2022).
- [MTAP.review] J.Y. Shim, J. Kim, and J.-K. Kim, "Audio-to-Visual Cross-Modal Generation of Birds," *Multimedia Tools and Applications (Springer)*, (26-Jul-2022).
- [IOTJ.review] W.J. Yun, J.P. Kim, S. Jung, J.-H. Kim, and J. Kim, "Quantum Multi-Agent Actor-Critic Neural Networks for Internet-Connected Multi-Robot Coordination in Smart Factory Management," [IEEE Internet of Things Journal](#), (13-Jul-2022).
- [ICTE.review] Y. Kim, W.J. Yun, Y.K. Lee, S. Jung, and J. Kim, "Two-Stage Architectural Fine-Tuning with Neural Architecture Search using Early-Stopping in Image Classification," *ICT Express (Elsevier)*, (03-Jul-2022).
- [ComNet.review] S. Jung, J.-H. Kim, D. Mohaisen, and J. Kim, "Truthful and Performance-Optimal Computation Outsourcing for Aerial Surveillance Platforms via Learning-based Auction," *Computer Networks (Elsevier)*, (02-Mar-2022).
- [TMC.review] S. Jung, J.-H. Kim, M. Levorato, and J. Kim, "Adaptive and Additive Extra Resource Allocation for Cooperative Awareness Message Broadcasting in Cellular-V2X Networks," [IEEE Transactions on Mobile Computing](#), (29-Jan-2022).
- [TCST.review] W.J. Yun, S. Jung, M. Shin, J. Ko, H.-C. Lee, K. Lee, and J. Kim, "Deep Reinforcement Learning-based Propofol Infusion with a 3,000-subject Dataset in Anesthesia," [IEEE Transactions on Control Systems Technology](#), (18-Jan-2022).

◀ **Revision** ▶

- [TITS.minor] W.J. Yun, S. Park, J. Kim, and D. Mohaisen, "Self-Configurable Stabilized Real-Time Detection Learning for Autonomous Driving Applications," [IEEE Transactions on Intelligent Transportation Systems](#), (Accept after Minor Revision due on 04-Oct-2022).
- [TON.major] W.J. Yun, Y. Kwak, H. Baek, S. Jung, M. Ji, M. Bennis, J. Park, and J. Kim, "SlimFL: Federated Learning with Superposition Coding over Slimmable Neural Networks," [IEEE/ACM Transactions on Networking](#), (Under 1st Revision (Major) due on 01-Oct-2022).
- [TWC.major] B. Lim, W.J. Yun, J. Kim, and Y.-C. Ko, "Joint User Clustering and Beamforming using Cross-Entropy based Machine Learning for mmWave-NOMA with Imperfect SIC," [IEEE Transactions on Wireless Communications](#), (Under 1st Revision (Major) due on 27-Aug-2022).
- [JCN.minor] H. Lee, S. Kwon, S. Jung, and J. Kim, "Neural Myerson Auction for Truthful and Energy-Efficient Autonomous Aerial



Data Delivery," [IEEE/KICS Journal of Communications and Networks](#), (Review after 2nd Revision (Minor) since 10-Jul-2022).

[ICTE.major] Y. Kwak, W.J. Yun, J.P. Kim, H. Cho, J. Park, M. Choi, S. Jung, and J. Kim, "Quantum Distributed Deep Learning Architectures: Models, Discussions, and Applications," *ICT Express (Elsevier)*, (Review after 1st Revision since 05-Jul-2022).

[TMC.major] U. Meteriz, N.F. Yildiran, J. Kim, and D. Mohaisen, "Learning Location from Shared Elevation Profiles in Fitness Apps: A Privacy Perspective," [IEEE Transactions on Mobile Computing](#), (Review after 1st Revision since 20-Jun-2022).

#### ◀ Accepted ▶

[TNNLS.accept] W.J. Yun, M. Shin, D. Mohaisen, K. Lee, and J. Kim, "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.

[ICTE.accept] S. Jung, M.-S. Lee, J. Kim, M.-Y. Yun, J. Kim, and J.-H. Kim, "Trustworthy Handover in LEO Satellite Mobile Networks," *ICT Express (Elsevier)*, v(n):ppp-ppp, Month Year.

[JCN.accept] W.J. Yun, M. Shin, S. Jung, S. Kwon, and J. Kim, "Parallelized and Randomized Adversarial Imitation Learning for Safety-Critical Self-Driving Vehicles," [IEEE/KICS Journal of Communications and Networks](#), v(n):ppp-ppp, Month Year.

[CSM.accept] E. Au, L. Wilhelmsson, T. Baykas, and J. Kim, "Recent and Future Evolution of Wi-Fi (Editorial)," [IEEE Communications Standards Magazine](#), v(n):ppp-ppp, Month Year.

#### ◀ 2022 ▶

[TII'22.10] W.J. Yun, S. Park, J. Kim, M. Shin, S. Jung, D. Mohaisen, and J.-H. Kim, "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.

[TVT'22.07] B. Lim, W.J. Yun, J. Kim, and Y.-C. Ko, "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.

[ITU'22.06] S. Jung, M. Levorato, and J. Kim, "Dynamic Resource Scheduling for Real-Time Group Broadcasting in 6G Cellular Vehicular Networks," *ITU Journal on Future and Evolving Technologies*, 3(2):83-90, July 2022.

[ISJ'22.06] N.-N. Dao, T. Phan, U. Sa'ad, J. Kim, T. Bauschert, D.-T. Do, and S. Cho, "Securing Heterogeneous IoT with Intelligent DDoS Attack Behavior Learning," [IEEE Systems Journal](#), 16(2):1974–1983, June 2022.

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

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

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

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

[SR'22.01] Y.J. Ha, G. Lee, M. Yoo, S. Jung, S. Yoo, and J. Kim, "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.

#### ◀ 2021 ▶

[JRTIP'21.10] S. Jung and J. Kim, "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.

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

[Access'21.09] Y.J. Ha, M. Yoo, G. Lee, S. Jung, S.W. Choi, J. Kim, and S. Yoo, "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.

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

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

[TVT'21.06] S. Jung, W.J. Yun, M. Shin, J. Kim, and J.-H. Kim, "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.

[Access'21.06] S. Park, M. Choi, W.-Y. Shin, and J. Kim, "Joint Mobile Charging and Coverage-Time Extension for Unmanned Aerial Vehicles," [IEEE Access](#), 9:94053–94063, June 2021.

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

[PIEEE'21.05] J. Park, S. Samarakoon, A. Elgabri, J. Kim, M. Bennis, S.-L. Kim, and M. Debbah, "Communication-Efficient and Distributed Learning Over Wireless Networks: Principles and Applications," [Proceedings of the IEEE](#), 109(5):796–819, May 2021., ([Citations: 77+](#))

[TWC'21.04] M. Choi, A.F. Molisch, D.-J. Han, D. Kim, J. Kim, and J. Moon, "Probabilistic Caching and Dynamic Delivery Policies for

Categorized Contents and Consecutive User Demands," [IEEE Transactions on Wireless Communications](#), 20(4):2685–2699, April 2021.

- [JCN'21.04] D. Kim, S. Park, J. Kim, J.y. Bang, and S. Jung, "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.
- [JCN'21.04] M. Choi, M. Shin, and J. Kim, "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.
- [JNCA'21.04] M. Saad, J. Kim, D. Nyang, and D. Mohaisen, "Contra-\*. Mechanisms for Countering Spam Attacks on Blockchain's Memory Pools," *Journal of Network and Computer Applications (Elsevier)*, 179:102971, April 2021.
- [ISJ'21.03] D. Kim, D. Kwon, L. Park, J. Kim, and S. Cho, "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.
- [ICTE'21.03] W.J. Yun, S. Jung, J. Kim, and J.-H. Kim, "Distributed Deep Reinforcement Learning for Autonomous Aerial eVTOL Mobility in Drone Taxi Applications," *ICT Express (Elsevier)*, 7(1):1–4, March 2021.
- [IET'21.03] A. Ahmad, A. Alabduljabbar, M. Saad, D. Nyang, J. Kim, and D. Mohaisen, "Empirically Comparing the Performance of Blockchain's Consensus Algorithms," *IET Blockchain*, 1(1):56–64, March 2021.

#### ◀ 2020 ▶

- [TWC'20.12] 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 MMTC Best Journal Paper Award](#))
- [IOTJ'20.10] D. Kwon, J. Jeon, S. Park, J. Kim, and S. Cho, "Multiagent DDPG-Based Deep Learning for Smart Ocean Federated Learning IoT Networks," [IEEE Internet of Things Journal](#), 7(10):9895–9903, October 2020., ([Citations: 53+](#))
- [JCN'20.08] D. Kwon, J. Kim, D. Mohaisen, and W. Lee, "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.
- [Access'20.06] M. Choi and J. Kim, "Blind Signal Classification Analysis and Impact on User Pairing and Power Allocation in Nonorthogonal Multiple Access," [IEEE Access](#), 8:100916–100929, June 2020.
- [TII'20.05] M. Shin, D.-H. Choi, and J. Kim, "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., ([Citations: 59+](#))
- [ETRI'20.04] W. Na, N.-N. Dao, J. Kim, E.-S. Ryu, and S. Cho, "Simulation and Measurement: Feasibility Study of Tactile Internet Applications for mmWave Virtual Reality," *Electronics and Telecommunications Research Institute (ETRI) Journal (Wiley)*, 42(2):163–174, April 2020.
- [ISJ'20.03] M. Saad, J. Choi, D. Nyang, J. Kim, and A. Mohaisen, "Towards Characterizing Blockchain-based Cryptocurrencies for Highly-Accurate Predictions," [IEEE Systems Journal](#), 14(1):321–332, March 2020., ([IEEE Systems Journal Best Paper Award, Top 7 among 793 accepted papers in 2019: 0.88%](#)), ([Citations: 94+](#))
- [JCN'20.02] S. Han, J.-W. Choi, and J. Kim, "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.
- [JAIHC'20.01] K.-H.N. Bui, S. Cho, J.J. Jung, J. Kim, O.-J. Lee, and W. Na, "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.

#### ◀ 2019 ▶

- [TWC'19.12] M. Choi, A. No, M. Ji, and J. Kim, "Markov Decision Policies for Dynamic Video Delivery in Wireless Caching Networks," [IEEE Transactions on Wireless Communications](#), 18(12):5705–5718, December 2019.
- [TWC'19.10] M. Choi, J. Kim, and J. Moon, "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.
- [IOTJ'19.10] L. Park, C. Lee, J. Kim, A. Mohaisen, and S. Cho, "Two-Stage IoT Device Scheduling with Dynamic Programming for Energy Internet Systems," [IEEE Internet of Things Journal](#), 6(5):8782–8791, October 2019.
- [TVT'19.10] M. Choi, D. Yoon, and J. Kim, "Blind Signal Classification for Non-Orthogonal Multiple Access in Vehicular Networks," [IEEE Transactions on Vehicular Technology](#), 68(10):9722–9734, October 2019.
- [TCAD'19.09] W. Lee, T. Kang, J.-J. Lee, K. Han, J. Kim, and M. Pedram, "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.
- [WPC'19.08] S. Seo, J.-K. Kim, S.-I. Kim, J. Kim, and J. Kim, "Semantic Hashtag Relation Classification Using Co-occurrence Word Information," *Wireless Personal Communications (Springer)*, 107(3):1355–1365, August 2019.
- [TMC'19.07] J. Koo, J. Yi, J. Kim, M.A. Hoque, and S. Choi, "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.
- [TVT'19.05] M. Shin, J. Kim, and M. Levorato, "Auction-Based Charging Scheduling With Deep Learning Framework for Multi-Drone Networks," [IEEE Transactions on Vehicular Technology](#), 68(5):4235–4248, May 2019., ([Citations: 83+](#))
- [FGCS'19.04] N.-N. Dao, M. Park, J. Kim, J. Paek, and S. Cho, "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.
- [ETT'19.04] J. Spaulding, J. Park, J. Kim, D. Nyang, and A. Mohaisen, "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.

- [CM'19.03] L. Park, S. Jeong, D.S. Lakew, [J. Kim](#), and S. Cho, "New Challenges of Wireless Power Transfer and Secured Billing for Internet of Electric Vehicles," [IEEE Communications Magazine](#), 57(3):118–124, March 2019.
- [TIE'19.02] L. Park, S. Jeong, [J. Kim](#), and S. Cho, "Joint Geometric Unsupervised Learning and Truthful Auction for Local Energy Market," [IEEE Transactions on Industrial Electronics](#), 66(2):1499–1508, February 2019.
- ◀ 2018 ▶
- [IOTJ'18.12] S. Jeong, W. Na, [J. Kim](#), and S. Cho, "Internet of Things for Smart Manufacturing System: Trust Issues in Resource Allocation," [IEEE Internet of Things Journal](#), 5(6):4418–4427, December 2018., ([Citations: 51+](#))
- [JSAC'18.11] N.-N. Dao, D.-N. Vu, W. Na, [J. Kim](#), and S. Cho, "SGCO: Stabilized Green Crosshaul Orchestration for Dense IoT Offloading Services," [IEEE Journal on Selected Areas in Communications](#), 36(11):2538–2548, November 2018.
- [JSAC'18.06] M. Choi, [J. Kim](#), and J. Moon, "Wireless Video Caching and Dynamic Streaming under Differentiated Quality Requirements," [IEEE Journal on Selected Areas in Communications](#), 36(6):1245–1257, June 2018., ([Citations: 57+](#))
- [Access'18.05] S. Ahn, [J. Kim](#), E. Lim, and S. Kang, "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.
- [TVT'18.04] M. Choi, [J. Kim](#), and J. Moon, "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.
- [IOTJ'18.02] W. Na, J. Park, C. Lee, K. Park, [J. Kim](#), and S. Cho, "Energy-Efficient Mobile Charging for Wireless Power Transfer in Internet of Things Networks," [IEEE Internet of Things Journal](#), 5(1):79–92, February 2018., ([Citations: 76+](#))
- ◀ 2017 ▶
- [TII'17.12] L. Park, Y. Jang, S. Cho, and [J. Kim](#), "Residential Demand Response for Renewable Energy Resources in Smart Grid Systems," [IEEE Transactions on Industrial Informatics](#), 13(6):3165–3173, December 2017., ([Citations: 99+](#))
- [IOTJ'17.10] [J. Kim](#) and W. Lee, "Feasibility Study of 60 GHz Millimeter-Wave Technologies for Hyperconnected Fog Computing Applications," [IEEE Internet of Things Journal](#), 4(5):1165–1173, October 2017.
- [Access'17.09] C. Shin, C. Lim, [J. Kim](#), H. Roh, and W. Lee, "A Software-based Monitoring Framework for Time-Space Partitioned Avionics Systems," [IEEE Access](#), 5:19132–19143, September 2017.
- [JRTIP'17.09] [J. Kim](#) and E.-S. Ryu, "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.
- [Access'17.08] [J. Kim](#), J.-J. Lee, J.-K. Kim, and W. Lee, "Energy-Efficient Stabilized Automatic Control for Multicore Baseband in Millimeter-Wave Systems," [IEEE Access](#), 5:16584–16591, August 2017.
- [Access'17.06] N.-N. Dao, J. Lee, D.-N. Vu, J. Paek, [J. Kim](#), S. Cho, K. Chung, and C. Keum, "Adaptive Resource Balancing for Serviceability Maximization in Fog Radio Access Networks," [IEEE Access](#), 5:14548–14559, June 2017.
- [VTM'17.03] S. Lee, S. Hyeon, [J. Kim](#), H. Roh, and W. Lee, "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.
- ◀ 2016 ▶
- [TVT'16.12] [J. Kim](#), S.-C. Kwon, and G. Choi, "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.
- [Access'16.12] [J. Kim](#), L. Xian, and A.S. Sadri, "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.
- [TON'16.08] [J. Kim](#), G. Caire, and A.F. Molisch, "Quality-Aware Streaming and Scheduling for Device-to-Device Video Delivery," [IEEE/ACM Transactions on Networking](#), 24(4):2319–2331, August 2016., ([Best Reading Papers in Device-to-Device Communications by IEEE Communications Society](#)), ([Citations: 144+](#))
- [JRTIP'16.08] [J. Kim](#) and E.-S. Ryu, "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.
- ◀ 2007–2015 ▶
- [TII'15.12] [J. Kim](#), "Energy-Efficient Dynamic Packet Downloading for Medical IoT Platforms," [IEEE Transactions on Industrial Informatics](#), 11(6):1653–1659, December 2015., ([Citations: 56+](#))
- [TSMC'15.11] [J. Kim](#) and W. Lee, "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.
- [MTAP'15.10] [J. Kim](#) and S.-N. Hong, "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.
- [IJEC'15.07] E.-S. Ryu and [J. Kim](#), "Error Concealment Mode Signaling for Robust Mobile Video Transmission," *International Journal of Electronics and Communications (Elsevier)*, 69(7):1070–1073, July 2015.
- [TS'15.05] [J. Kim](#) and S.-N. Hong, "Dynamic Two-Stage Beam Training for Energy-Efficient Millimeter-Wave 5G Cellular Systems," *Telecommunication Systems (Springer)*, 59(1):111–122, May 2015.
- [CEE'15.04] [J. Kim](#) and S.-N. Hong, "Adaptive Buffer Control for Distributed Autonomous Robust Routing in Mobile Surveillance Robots," *Computers and Electrical Engineering (Elsevier)*, 43:306–316, April 2015.
- [JCN'14.10] [J. Kim](#) and A.F. Molisch, "Fast Millimeter-Wave Beam Training with Receive Beamforming," [IEEE/KICS Journal of Communications and Networks](#), 16(5):512–522, October 2014., ([Citations: 96+](#))
- [EL'14.10] [J. Kim](#) and E.-S. Ryu, "Quality of Video Streaming in 38 GHz Millimetre-Wave Heterogeneous Cellular Networks," *IET Electronics Letters*, 50(21):1526–1528, October 2014.
- [CL'14.09] S.-N. Hong and [J. Kim](#), "Joint Coding and Stochastic Data Transmission for Uplink Cloud Radio Access Networks," [IEEE Communications Letters](#), 18(9):1619–1622, September 2014.

- [CL'14.07] S.-N. Hong and J. Kim, "A Low-Complexity Algorithm for Neighbor Discovery in Wireless Networks," *IEEE Communications Letters*, 18(7):1119–1122, July 2014.
- [CL'14.03] J. Kim, A. Mohaisen, and J.-K. Kim, "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.
- [TBC'13.09] J. Kim, Y. Tian, S. Mangold, and A.F. Molisch, "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., (*Citations: 56+*)
- [EL'13.02] J. Kim and E.-S. Ryu, "Distributed Stochastic Buffering for Enterprise WLAN Architectures," *IET Electronics Letters*, 49(4):302–304, February 2013.
- [TCE'07.11] 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., (*LG Electronics Outstanding Paper Award*), (*Citations: 113+*)
- [TCE'07.05] J. Kim, W. Lee, E. Kim, D.-W. Kim, and H. Kim, "Coverage-Time Optimized Dynamic Clustering of Networked Sensors for Pervasive Home Networking," *IEEE Transactions on Consumer Electronics*, 53(2):433–441, May 2007.
- [CL'07.01] J. Kim, W. Lee, E. Kim, D. Kim, and K. Suh, "Optimized Transmission Power Control of Interrogators for Collision Arbitration in UHF RFID Systems," *IEEE Communications Letters*, 11(1):22–24, January 2007.

## Patents (Granted), totally 62

- **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)
- **17 Korean Patents:** (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
- 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, 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

#### ■ 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), jointly with **University of Southern California** (co-advised by Prof. Andreas F. Molisch) (Ph.D. Advisor: Prof. Jaekyun Moon at Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Korea)  
Currently, *Assistant Professor* at **Kyung Hee University**, Suwon, Korea
- **Dr. Soyi Jung** (03/2021–08/2021), jointly with **University of California at Irvine** (co-advised by Prof. Marco Levorato) (Ph.D. Advisor: Prof. Jae-Hyun Kim at Ajou University, Suwon, Korea)  
Currently, *Assistant Professor* at **Hallym University**, Chuncheon, Korea
- **Dr. Ju-Hyung Lee** (08/2021–), jointly with **University of Southern California** (co-advised by Prof. Andreas F. Molisch) (Ph.D. Advisor: Prof. Young-Chai Ko at Korea University, Seoul, Korea)

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

- **Soo Hyun Park** (03/2019–08/2023 (expected))  
Dissertation) *Learning and Optimization for Data Science Methods in Connected Mobility (Tentative)*
- **Haemin Lee** (09/2020–02/2024 (expected))
- **Won Joon Yun** (03/2021–08/2024 (expected))
- **Hankyul Baek** (03/2021–)
- **Hyunsoo Lee** (03/2021–)
- **Seok Bin Son** (03/2022–)
- **Chanyoung Park** (09/2022–)
- **Jae Pyoung 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**, Suwon, Korea
- **Laihyuk Park** (Advisor: Prof. Sungrae Cho at CAU), *Professor* at **Seoul National University of Science and Technology**, Seoul, Korea
- **Shinyoung Ahn** (Advisor: Prof. Sungwon Kang at KAIST), *Researcher* at **ETRI**, Daejeon, Korea
- **Jonghoe Koo** (Advisor: Prof. Sunghyun Choi at SNU), *Researcher* at **Samsung Research**, 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 **Hallym University**, Chuncheon, Korea
- **Joo Yong Shim** (Advisor: Prof. Jong-Kook Kim at Korea University)

### ■ M.S. Course Students and Alumni

- **Kyeongseon Kim** (09/2017–08/2019), *Researcher* at **LG Electronics AI Research**, Seoul, 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)**, Seongnam, Korea

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

- **Minseok Choi**, Ph.D. in EE from KAIST (02/2016–07/2016), now with **Kyung Hee University**, Suwon, 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)

## 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>