Joongheon Kim

Associate Professor, Korea University – School of Electrical Engineering, Seoul, Republic of Korea
- E-mail: joongheon@korea.ac.kr • WWW: `https://joongheon.github.io`

Highlights

Research Milestones

- **107 Journals** (among them, **80 IEEE Journals**), `https://sites.google.com/view/aimlab-kuee/publications/journals` – **87** Published/Accepted (among them, **69 IEEE**), **6** Under-Revision, and **14** Under-Review Journals
- **13 Top Networks/Systems/Multimedia Conferences**, *i.e.*, MobiHoc (2023, review), MM (2023, review), WiOpt (2023, review), ICDCS (2023, review), ICDCS (2023, review), INFOCOM (2023, review), WiOpt (2022), ICDCS (2022), INFOCOM (2022), ICDCS (2020), ICDCS (2018), MM (2017), MobiSys (2010)
- **5 Top AI/Learning Conferences**, *i.e.*, IJCAI (2023, Review), ICML (2023, Review), AAAI (2023), CIKM (2022), IJCAI (2019)
- **5445+ Citations** (H-index: 35+, i10-index 132+), obtained from Google Scholar Profile (as of November 13, 2022)
- **IEEE MMTC Best Journal Paper Award (2021)**, *IEEE Communications Society*
- **IEEE MMTC Outstanding Young Researcher Award (2020)**, *IEEE Communications Society*
- **IEEE Systems Journal Best Paper Award (2020)**, Top 7 among 793 accepted papers in 2019 (0.88%)
- **7 Awards from IEEE Conferences and Contests**, i.e., *IEEE ICTC Best Paper Award (2022)*, *IEEE ICOIN Best Paper Award (2021)*, *IEEE Seoul Section Student Paper Contest Awards (1 in 2020; 1 in 2019)*, and *IEEE VTS Seoul Chapter Awards (2 in 2021; 1 in 2019)*
- **6 Tutorials at IEEE Conferences**, i.e., *ICUFN (2022)*, *ICOIN (2022)*, *ICUFN (2021)*, *ICAIIC (2021)*, *ICOIN (2019)*, and *ICC (2018)*
- **65+ Patents** are granted, and among them, **46 Granted Patents** are successfully adopted by 60 GHz Millimeter-Wave IEEE 802.11 Standards, i.e., IEEE 802.11ad and IEEE 802.11ay
- **Research Funds (since March 2016):** 5,568,384 USD $\approx$ 5,568,384,000 KRW (except University Internal Funds)

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

- **2 Tenure-Track Professors (formerly supervised by Prof. Joongheon Kim (Postdoctoral, Ph.D., M.S., Interns))**, i.e., Minseok Choi *(Kyung Hee University, Korea)*, Soyi Jung *(Ajou University, Korea)*
- **8 Best Teaching Awards at Korea University**, i.e., 4 awards are for top 5% *(Granite Tower Best Teaching Award)* and 4 awards are for top 20% *(Best Teaching Award)*

IEEE Society Academic Activities

- **Senior Member of the IEEE (2018–)** and IEEE Membership (2005–) for 18+ years
- **Distinguished Lecturer, IEEE Communications Society (ComSoc)** (class of 2022–2023) — IEEE ComSoc
- **Distinguished Lecturer, IEEE Systems Council** (class of 2022–2024) — IEEE Systems Council
- **Editor (2022–)**, *IEEE Transactions on Machine Learning in Communications and Networking* — IEEE ComSoc
- **Associate Editor (2020–)**, *IEEE Transactions on Vehicular Technology* — IEEE VTS
- **Guest Editor (06/2022)**, *IEEE Communications Standards Magazine* (S.I. on Recent and Future Evolution of Wi-Fi) — IEEE ComSoc
- **IEEE Vehicular Technology Society (VTS)**, Seoul Chapter Treasurer for 3 years (2020–2023) — IEEE VTS
- **99+ Technical Program Committee (TPC)** and **26+ Organizing Committee (OC)** Contributions for IEEE Conferences

Educational Backgrounds

- **University of Southern California (USC) – Viterbi School of Engineering**, Los Angeles, California, USA
  – Ph.D. (08/2009–08/2014) in Computer Science (Advisor: *Prof. Andreas F. Molisch*, Fellow of the IEEE)
  – M.S. (05/2014) in Computer Science with specialization in High Performance Computing and Simulations
  – M.S. (05/2012) in Electrical Engineering
- **Korea University**, Seoul, Republic of Korea
  – M.S. (03/2004–02/2006) in Computer Science and Engineering
  – B.S. (03/1999–02/2004) in Computer Science and Engineering

R&D Positions

Full-Time Positions

- **Korea University – College of Engineering**, Seoul, Republic of Korea
  – *Associate Professor (03/2021–Present)*, *Assistant Professor (09/2019–02/2021)*, School of Electrical Engineering
  – *Adjunct Professor (03/2023–Present)*, Department of Communications Engineering (with **Samsung Electronics**)
  – *Adjunct Professor (11/2022–Present)*, Department of Future Science and Technology Business (Graduate School)
  – *Adjunct Professor (09/2022–Present)*, Department of Smart Convergence (Graduate School, with **LG Electronics**)
  – *Adjunct Professor (03/2021–02/2023)*, Department of Semiconductor Engineering (with **SK Hynix**)
  – R&D Positions
    * *Vice Director (10/2020–Present)*, **Artificial Intelligence Engineering Research Center (KU-AIER)**
  – Administrative Positions
    * *Dean (06/2021–Present)*, **Center for Teaching and Learning (CTL)**
    * *Deputy Vice President (02/2022–Present)*, **Office of Academic Affairs**

      * *Steering Committee Member (09/2022–08/2023)*, Academic Affairs and Planning Steering Committee
      * *Steering Committee Member (07/2020–06/2022)*, Korea University Institute of Data Science (KUIDS)
      * *Steering Committee Member (06/2021–03/2022)*, Academic Affairs and Planning Steering Committee
- **Chung-Ang University – College of Computer Science and Software**, Seoul, Republic of Korea
  - *Assistant Professor (03/2016–08/2019)*, School of Computer Science and Engineering
- **Intel Corporation – Platform Engineering Group**, Silicon Valley (Santa Clara), CA, USA
  - *Systems Engineer (09/2013–02/2016)*, mmWave Standards and Advanced Technology (mSAT) Team (with Dr. Ali S. Sadri)
- **University of Southern California (USC) – Viterbi School of Engineering**, Los Angeles, CA, USA
  - *Annenberg Graduate Fellow (08/2009)*, Awarded with Ph.D. admission in Computer Science from USC (2009)
  - *Ph.D. Research Assistant (01/2011–08/2014)*, Communication Sciences Institute (Advised by Prof. Andreas F. Molisch)
  - *Teaching Assistant (01/2012–05/2013)*, Computer Science and Electrical Engineering Departments (CSCI455x and EE579)
- **InterDigital**, San Diego, CA, USA
  - *Intern (05/2012–08/2012)*, Wireless Systems Evolution Department
  - *Subject Matter Expert in IEEE 802.11ad (01/2012–02/2012)*, Wireless Systems Evolution Department
- **LG Electronics CTO Office**, Seoul, Republic of Korea
  - *Research Engineer (01/2006–08/2009)*, Multimedia Research Laboratory, Seocho R&D Campus

Industry, Advisory, and Consulting Positions

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

Academia (Membership, Editorial Boards, and Services)

- **IEEE**
  - *Senior Member (2018–)*, *Member (2006–2017)*
  - *Distinguished Lecturer (2022–2023)*, **IEEE Communications Society**
  - *Editor (2022–)*, **IEEE Transactions on Machine Learning in Communications and Networking**
  - *Associate Editor (2020–)*, **IEEE Transactions on Vehicular Technology** (Area: Vehicular Electronics and Systems)
  - *Guest Editor (03/2022)*, **IEEE Communications Standards Magazine** (S.I. on Recent and Future Evolution of Wi-Fi)
  - **IEEE Vehicular Technology Society (VTS) Seoul Chapter**
    * *Chapter Treasurer (2022–Present)*
      Chapter Treasurer (2020–2021)
    * **IEEE VTS Asia Pacific Wireless Communications Symposium (APWCS) Organizing Committee:** *Finance Chair (2022)*, *Finance Co-Chair (2021)*
- **Elsevier**
  - *Editor (2021–)*, **ICT Express** (Area: AI for ICT Applications)
  - *Guest Editor (10/2022)*, **Computer Networks** (S.I. on Machine Learning (ML) and Artificial Intelligence (AI) for the Internet of Things, 5G, and Beyond)
  - *Guest Editor (03/2022)*, **ICT Express** (S.I. on Artificial Intelligence and Machine Learning Approaches to Communication)
  - *Guest Editor (06/2021)*, **ICT Express** (S.I. on Mobile and Edge Computing Systems)
    (Best Special Issue Guest Editor Award (2022))

Awards and Honors

Research and Academic Excellence (International)

- **IEEE ICTC Best Paper Award (2022)** – *IEEE Communications Society* (with J.-H. Lee, D.P. Selvam, A.F. Molisch)
  - J.-H. Lee, D.P. Selvam, A.F. Molisch, and J. Kim, "Reinforcement Learning Empowered Massive IoT Access in LEO-based Non-Terrestrial Networks," *IEEE ICTC*, Jeju, Korea, October 2022.
- **Best Special Issue Guest Editor Award (2022)** – *ICT Express (Elsevier), S.I. on Mobile Edge Computing Systems (06/2021)*
- **Distinguished Lecturer (class of 2022–2024)** – *IEEE Systems Council*
- **Distinguished Lecturer (class of 2022–2023)** – *IEEE Communications Society*
- **IEEE VTS Seoul Chapter Award (2022)** – *IEEE Vehicular Technology Society* (with H. Lee)
  "Deep Reinforcement Learning for Loitering Munition Mobility Control: Algorithm Design and Visualization"
- **Spotlight Presentation (2022)** – *ICML Workshop on Dynamic Neural Networks (2022)*
  - W.J. Yun, J.P. Kim, S. Jung, J. Park, M. Bennis, and J. Kim, "Slimmable Quantum Federated Learning," *ICML Workshop on Dynamic Neural Networks*, Baltimore, MD, USA, July 2022.
- **IEEE MMTC Best Journal Paper Award (2021)** – *IEEE Communications Society* (with M. Choi, A.F. Molisch)
  - M. Choi, A.F. Molisch, and J. Kim, "Joint Distributed Link Scheduling and Power Allocation for Content Delivery in Wireless Caching Networks," *IEEE Transactions on Wireless Communications*, 19(12):7810-7824, December 2020.
- **IEEE VTS Seoul Chapter Award (2021)** – *IEEE Vehicular Technology Society* (with Y. Kwak, S. Jung, J.-H. Kim)
  "Quantum Scheduling for Millimeter-Wave Observation Satellite Constellation"
- **IEEE VTS Seoul Chapter Award (2021)** – *IEEE Vehicular Technology Society* (with H. Lee, S. Jung)
  "Distributed and Autonomous Aerial Data Collection in Smart City Surveillance Applications"
- **IEEE ICOIN Best Paper Award (2021)** – *IEEE Computer Society* (with S. Jung, W.J. Yun, J.-H. Kim)

– S. Jung, W.J. Yun, J. Kim, and J.-H. Kim, "Infrastructure-Assisted Cooperative Multi-UAV Deep Reinforcement Energy Trading Learning for Big-Data Processing," *IEEE ICOIN*, Jeju, Korea, January 2021.
- **IEEE MMTC Outstanding Young Researcher Award (2020)** – *IEEE Communications Society*
- **Bronze Paper Award (2020)** – *2020 IEEE Seoul Section Student Paper Contest* (with S. Park)
  "Reliable Offloading Target Selection using Deep Reinforcement Learning for Large Fire Accident"
- **IEEE Systems Journal Best Paper Award (2020)** – *IEEE Systems Council* (with M. Saad, J. Choi, D. Nyang, A. Mohaisen)
  – M. Saad, J. Choi, D. Nyang, J. Kim, and A. Mohaisen, "Towards Characterizing Blockchain-based Cryptocurrencies for Highly-Accurate Predictions," *IEEE Systems Journal*, 14(1):321-332, March 2020.
- **Gold Paper Award (2019)** – *2019 IEEE Seoul Section Student Paper Contest* (with J. Yoo)
  "Stabilized Super-Resolution Deep Learning Adaptation for UAV-Assisted Mobile Edges: A Lyapunov Optimization Approach"
- **IEEE VTS Seoul Chapter Award (2019)** – *IEEE Vehicular Technology Society* (with S. Park, D. Kwon, M. Shin)
  "Joint Offloading and Streaming in Mobile Edges: A Deep Reinforcement Learning Approach"
- **Next Generation and Standards (NGS) Division Recognition Award (Q1/2005)** – *Intel Corporation*
  For developing a 3-dual sector mmWave backhaul link software stack with mesh, relay, and load balancing capability for modular antenna array (MAA) proof-of-concept (POC)
- **Annenberg Graduate Fellowship Award (2009)** – *University of Southern California*
  Awarded with Ph.D. Admission – 4 Year Full Scholarship ($30,000/year for 4 years, i.e., $120,000)

Research and Academic Excellence (Korea Regional)

- **Haedong Young Scholar Award (2018)** – *KICS* and *Haedong Foundation*
  For recognizing a researcher under the age of 40 who has made outstanding contributions to communication sciences R&D
- **Outstanding Paper Award (2008)** – *LG Electronics CTO Office, Multimedia Research Laboratory*
  – W. Lee, E. Kim, J. Kim, I. Lee, and C. Lee, "Movement-Aware Vertical Handoff of WLAN and Mobile WiMAX for Seamless Ubiquitous Access," *IEEE Transactions on Consumer Electronics*, 53(4):1268-1275, November 2007.
- **RFID Expert Group President Award (2007)** – *The 3rd RFID/USN Research Paper Contest*
- **ETRI President Award (2006)** – *The 2nd RFID/USN Research Paper Contest*
- **Korea Association of RFID/USN (KARUS) President Award (2005)** – *The 1st RFID/USN Research Paper Contest*
- **Scholarships for Academic Excellence (Fall 1999, Fall 2000)** – *Korea University. Department of Computer Science and Engineering*

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

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

Teaching and Supervision Excellence

- **Granite Tower Best Teaching Award (Top 5%)** – *Korea University* (Future Mobility Technology, GEQR075)   Spring 2022
- **Best Teaching Award (Top 20%)** – *Korea University* (Probability and Random Process, KECE209)   Spring 2022
- **Granite Tower Best Teaching Award (Top 5%)** – *Korea University* (Computer Language and Lab, EGRN151)   Fall 2021
- **Best Teaching Award (Top 20%)** – *Korea University* (Object Oriented Programming, SEMI104)   Fall 2021
- **Granite Tower Best Teaching Award (Top 5%)** – *Korea University* (Introduction to Computers, SEMI103)   Spring 2021
- **Best Teaching Award (Top 20%)** – *Korea University* (Probability and Random Process, KECE209)   Spring 2021
- **Best Teaching Award (Top 20%)** – *Korea University* (Computer Language and Lab, EGRN151)   Fall 2020
- **Granite Tower Best Teaching Award (Top 5%)** – *Korea University* (Computer Language and Lab, EGRN151)   Fall 2019

Academic and University Services

- **Outstanding Contribution Award (02/2022)** – *KIISE Information Network Society*
- **Outstanding Contribution Award (12/2021)** – *Open Standards and ICT Association (OSIA)*
- **Outstanding Contribution Award (11/2021)** – *KICS*
- **Appreciation Recognition (10/2021)** – *Daegu Gyeongbuk Institute of Science and Technology (DGIST)*
- **Outstanding Contribution Award (11/2019)** – *KICS*
- **Fellow Employee Recognition [#3081146] (12/2014)** – *Intel Corporation*
- **Certificate of Appreciation (09/2010)** – *Department of Computer Science, University of Southern California*

Business Administration

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

R&D Projects (Totally, 5,568,384 USD ≈ 5,568,384,000 KRW)

Industry-Funded Projects

- **Quantum Machine Learning-based Objection Detection for Point Cloud and its Acceleration** 11/2022–11/2023
  Funded by *Hyundai Motors Company (Hyundai NGV)* [Grant: $100,000; Primary-PI]
- **Mapping between Real World and Virtual Reality (VR) for End-Edged Cloud Real-Time VR Servers** 09/2020–09/2024
  Funded by *Samsung Electronics – Samsung Advanced Institute of Technology* [Grant: $286,000; Primary-PI]
- **Cellular/Wi-Fi Handover Technology Development** 02/2022–12/2022
  Funded by *LG Electronics CTO Division – Smart Mobility Lab., Advanced R&BD Center* [Grant: $88,000; Primary-PI]
- **Research Trends in Digital Twin Applications to Autonomous Driving** 03/2022–04/2022
  Funded by *Hyundai NGV* [Grant: $1,000; Primary-PI]
- **Distributed Learning System Design and Implementation for Clinical Applications** 02/2022–03/2022
  Funded by *Cipherome* [Grant: $15,000; Primary-PI]
- **Super-Resolution Performance Optimization in Mobile Platforms** 05/2020–08/2020
  Funded by *Samsung SDS* [Grant: $15,000; Primary-PI]
- **Deep Learning Algorithms for mVOC Concentration Analysis** 03/2020–06/2020
  Funded by *Samsung Electronics* [Grant: $12,000; Primary-PI]
- **Visual Recognition Software Implementation using Deep Learning Tools** 05/2019–11/2019
  Funded by *Hyundai NGV* and *Hyundai/Kia Motors Company* [Grant: $59,500; Primary-PI]
- **A Priori Techniques Research for Efficient Multi-Edge Computing** 06/2017–12/2017
  Funded by *Samsung Electronics Software Center* [Grant: $80,000; Co-PI]

University/Center-Level Projects

- **Intelligent 6G Wireless Access System Research Center** 04/2021–12/2025
  Funded by *Institute for ICT Promotion (IITP)* [2021-0-00467, Grant: $154,000 (2 yrs); Co-PI]
- **Nano UAV Intelligence Systems Research Lab (NUiSRL) – *ADD Military Special Research Center*** 10/2020–08/2023
  Funded by *Agency for Defense Development (ADD)* [UD200027ED, Grant: $130,000; Co-PI], PI: Kwangwoon University (Korea)
- **5G/Unmanned Vehicle Research Center (5G/UV-RC) – *ITRC*** 06/2020–12/2022
  Funded by *Institute for ICT Promotion (IITP)* [2020-0-01637, Grant: $55,709; Co-PI], PI: Hanyang University (Korea)
- **Human Resource Development for the Biomedical Unstructured Big Data Analysis – *ITRC*** 08/2018–12/2021
  Funded by *Institute for ICT Promotion (IITP)* [2018-0-01833; Co-PI], PI: Seoul National University Hospital (Korea)
- **Intelligent Internet of Energy (IoE) Data Research Center – *ITRC*** 02/2020–05/2020
  Funded by *Institute for ICT Promotion (IITP)* [2018-0-01396; Co-PI], PI: Kookmin University (Korea)

Government-Funded Projects

- **AI Bots Collaborative Platform and Self-Organizing Artificial Intelligence Technology Development** 04/2022–12/2026
  Funded by *Institute for ICT Promotion (IITP)* [2022-0-00907, Grant: $950,000; Co-PI]
- **Quantum Hyper-Driving: Quantum-Inspired Hyper-Connected and Hyper-Sensing
  Autonomous Mobility Technologies** 03/2022–02/2025
  Funded by *National Research Foundation of Korea* [2022R1A2C2004869, Grant: $600,000; Primary-PI]
- **K-Starlink: Dynamic Reconfigurable and Intelligent Space-Terrestrial Networks** 06/2021–05/2024
  Funded by *National Research Foundation of Korea* **(Basic Research Lab)** [2021R1A4A1030775, Grant: $161,000 (2 yrs); Co-PI]
- **Development of Integrated Development Framework that supports Automatic Neural Network Generation and
  Deployment optimized for Runtime Environment** 04/2021–12/2023
  Funded by *Institute for ICT Promotion (IITP)* [2018-0-00170, Grant: $230,000; Co-PI]
- **Integrated Perception Technology Developments for Public Safety Platforms** 06/2019–05/2023
  Funded by *National Research Foundation of Korea* [2019M3E3A1084054, Grant: $400,000; Co-PI]
- **Development of Quantum Deep Reinforcement Learning Algorithm using QAOA** 10/2019–04/2022
  Funded by *Ministry of Science and ICT* [2019M3E4A1080391, Grant: $503,250; Primary-PI]
- **mmWave Radar and Deep Reinforcement Learning based Optimal Policy Autonomous Driving** 06/2019–02/2022
  Funded by *National Research Foundation of Korea* [2019R1A2C4070663, Grant: $275,000; Primary-PI]
- **Development of Privacy-Reinforcing Distributed Transfer-Iterative Learning Algorithm** 07/2019–12/2021
  Funded by *Ministry of Health and Welfare* [HI19C0842, Grant: $150,000; Co-PI]
- **Virtual Presence in Moving Objects through 5G (PriMO-5G)** 06/2018–06/2021
  Funded by *Institute for ICT Promotion (IITP)* [2018-0-00170, Grant: $246,464; Co-PI]
- **Distributed Secure Platform for Scalable Clinical OMOP CDM Models** 04/2019–12/2020
  Funded by *Ministry of Health and Welfare* [HI19C0572, Grant: $90,000; Co-PI]
- **Network Engineering: Development and Application of Novel Data Science Driven
  Framework for Efficient Network Design** 06/2017–05/2020
  Funded by *National Research Foundation of Korea* **(Basic Research Lab)** [2017R1A4A1015675, Grant: $150,000; Co-PI]
- **mmWave High-Speed Networking Platform Design for Next-Generation Convergence Services** 06/2016–05/2019
  Funded by *National Research Foundation of Korea* [2016R1C1B1015406, Grant: $150,000; Primary-PI]
  – Selected as **Initial Innovation Lab** [Grant: $60,000]
- **Feasibility Study of 60 GHz IEEE 802.11ad for Virtual Reality (VR) Platforms** 04/2017–12/2017
  Funded by *Institute for ICT Promotion (IITP)* [Grant: $33,333; Primary-PI]

Government-Funded Research Institute Projects

- **Autonomous Intelligent COA Search Methods for Cyber-Attacks**   12/2021–11/2022
  Funded by *Agency for Defense Development (ADD)* [UI210009XD, Grant: $100,000; Primary-PI]
- **Research on Intelligent Agent-based CPS Security and Reliability**   05/2021–11/2021
  Funded by *Telecommunications Technology Association (TTA)* [Grant: $48,000; Primary-PI]
- **Multi-GPU based Automotive HPC Platform Development**   04/2020–10/2020
  (A Development of Driving Decision Engine for Autonomous Driving using Driving Experience Information)
  Funded by *Electronics and Telecommunications Research Institute* [19HS2720 (IITP 2017-0-00068), Grant: $20,000; Primary-PI]
- **Cooperative Deep Reinforcement Learning for Online Game Multi-Agents**   04/2020–08/2020
  (Human-Agent Cooperation Algorithm Design in Multi-Agent Environment)
  Funded by *Electronics and Telecommunications Research Institute* [19YE1400, Grant: $28,000; Primary-PI]
- **Verification Testbed Implementation for Privacy-Preserving Trust Data Generation**   10/2019–11/2019
  Funded by *Electronics and Telecommunications Research Institute* [Grant: $44,000; Co-PI]
- **Measurement and Analysis of Multi-Task GPU Scheduling Delays**   05/2019–10/2019
  (A Development of Driving Decision Engine for Autonomous Driving using Driving Experience Information)
  Funded by *Electronics and Telecommunications Research Institute* [19HS2720 (IITP 2017-0-00068), Grant: $40,000; Primary-PI]
- **Probabilistic Decision Making and Econometric Methods for Micro-Grid**   05/2017–04/2019
  Funded by *Korea Electric Power Corporation (KEPCO) Research Institute* [R17XA05-41, Grant: $143,128; Primary-PI]
- **GPU Scheduling Performance Analysis under Queueing Delay Considerations**   05/2018–10/2018
  (A Development of Driving Decision Engine for Autonomous Driving using Driving Experience Information)
  Funded by *Electronics and Telecommunications Research Institute* [18HS1420 (IITP 2017-0-00068), Grant: $40,000; Primary-PI]
- **Improving Massive Deep Learning Training via Computation and Communication Acceleration**   04/2018–10/2018
  (Development of HPC System for Accelerating Large-Scale Deep Learning)
  Funded by *Electronics and Telecommunications Research Institute* [18HS1710 (IITP 2016-0-00087), Grant: $30,000; Primary-PI]
- **Parsing Techniques for Artificial Neural Network (ANN) Data Processing**   09/2017–11/2017
  (A Development of Driving Decision Engine for Autonomous Driving using Driving Experience Information)
  Funded by *Electronics and Telecommunications Research Institute* [17HS2720 (IITP 2017-0-00068), Grant: $40,000; Primary-PI]

University of Southern California (USC) – Viterbi School of Engineering (Ph.D. Research Projects)

- **Video Aware Wireless Networks (VAWN) Research Program**
  Funded by *Intel Labs*, *Verizon Wireless*, and *Cisco Systems*; Under the guidance of Prof. Andreas F. Molisch (University of Southern California, USA) and Prof. Giuseppe Caire (Technische Universität Berlin, Germany)
- **60 GHz Real-Time Wireless Video Broadcasting**
  Supported by a Gift from *Disney Research Zürich*; Under the guidance of Prof. Andreas F. Molisch (University of Southern California, USA), Prof. Yafei Tian (Beihang Univ, China), and Dr. Stefan Mangold (Disney Research Zürich, Switzerland)

Selected Publications

- **5445+ Citations** (H-index: 35+, i10-index 132+), obtained from Google Scholar Profile (as of November 13, 2022)
- Totally, **107** journals, `https://sites.google.com/view/aimlab-kuee/publications/journals`
  – **80** IEEE publications, among them, **48** publications are in **IEEE Magazines and ComSoc/VTS Journals**

Dissertation, Books, and Book Chapters

■ **Ph.D. Dissertation**
- 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)

Selected Papers, *i.e.*, (i) Journals and (ii) Top-Tier Conferences

■ Quantum Deep Learning: Algorithms, Systems, and Applications

[TNNLS] (REVIEW) Stereoscopic Scalable Quantum Convolutional Neural Networks, *IEEE Transactions on Neural Networks and Learning Systems*. (H. Baek, W.J. Yun, J. Kim)

[TNNLS] (REVIEW) SlimQFL: Quantum Federated Learning using Slimmable Neural Networks, *IEEE Transactions on Neural Networks and Learning Systems*. (W.J. Yun, J.P. Kim, S. Jung, J. Park, M. Bennis, J. Kim)

[TSMC] (REVIEW) 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)

[IOTJ] (REVIEW) Quantum Multi-Agent Actor-Critic Neural Networks for Internet-Connected Multi-Robot Coordination in Smart Factory Management, *IEEE Internet of Things Journal*. (W.J. Yun, J.P. Kim, S. Jung, J.-H. Kim, J. Kim)

[SPL] (REVIEW) Quantum Split Neural Network Learning using Cross-Channel Pooling, *IEEE Signal Processing Letters*. (W.J. Yun, H. Baek, J. Kim)

[SPL] (REVIEW) Scalable Quantum Convolutional Neural Networks, *IEEE Signal Processing Letters*. (H. Baek, W.J. Yun, J. Kim)

[ICML] (DOUBLE BLIND REVIEW) *Int'l Conf. on Machine Learning (ICML)*, July 2023. (W.J. Yun, J. Park, J. Kim)

[ICML] (DOUBLE BLIND REVIEW) *Int'l Conf. on Machine Learning (ICML)*, July 2023. (W.J. Yun, H. Baek, J. Park, J. Kim)

[ICDCS] (DOUBLE BLIND REVIEW) *IEEE Int'l Conf. on Distributed Computing Systems (ICDCS)*, July 2023. (J.P. Kim, W.J. Yun, H. Baek, 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)

[INFOCOM] (DOUBLE BLIND REVIEW) *IEEE Conf. on Computer Communications (INFOCOM)*, May 2023. (W.J. Yun, J.P. Kim, H. Baek, S. Jung, J. Park, M. Bennis, J. Kim)

[AAAI'23] (DOUBLE BLIND REVIEW) *AAAI Conf. on Artificial Intelligence (AAAI)*, February 2023. (W.J. Yun, J. Park, J. Kim)

[ICDCS'22] Quantum Multi-Agent Reinforcement Learning via Variational Quantum Circuit Design, *IEEE Int'l Conf. on Distributed Computing Systems (ICDCS)*, July 2022. (W.J. Yun, Y. Kwak, J.P. Kim, H. Cho, S. Jung, J. Park, J. Kim)

■ Learning and Optimization for Mobility, Networks, Multimedia, and Internet-of-Things

[ISJ] (WIP, REVIEW: 15-Nov-2022) Real-Time High-Quality Visualization Systems for Volumetric Contents Rendering: A Lyapunov Optimization Framework, *IEEE Systems Journal*. (H. Baek, R. Lee, J.-Y. Kim, Y.K. Lee, S. Jung, J. Kim)

[TVT] (WIP, REVIEW: 15-Nov-2022) 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)

[TVT] (REVIEW) 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)

[ComNet] (REVIEW) 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)

[TVT] (REVIEW) 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) 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)

[TMC] (REVIEW) Adaptive and Additive Extra Resource Allocation for Cooperative Awareness Message Broadcasting in Cellular-V2X Networks, *IEEE Transactions on Mobile Computing*. (S. Jung, J.-H. Kim, M. Levorato, J. Kim)

[TON.major] SlimFL: Federated Learning with Superposition Coding over Slimmable Neural Networks, *IEEE/ACM Transactions on Networking*, (Major Revision). (W.J. Yun, Y. Kwak, H. Baek, S. Jung, M. Ji, M. Bennis, J. Park, J. Kim)

[TWC.major] Joint User Clustering and Beamforming using Cross-Entropy based Machine Learning for mmWave-NOMA with Imperfect SIC, *IEEE Transactions on Wireless Communications*, (Major Revision). (B. Lim, W.J. Yun, J. Kim, Y.-C. Ko)

[ComNet.major] Truthful and Performance-Optimal Computation Outsourcing for Aerial Surveillance Platforms via Learning-based Auction, *Computer Networks (Elsevier)*, (Major Revision). (S. Jung, J.-H. Kim, D. Mohaisen, J. Kim)

[TMC.accept] Learning Location from Shared Elevation Profiles in Fitness Apps: A Privacy Perspective, *IEEE Transactions on Mobile Computing*, v(n):ppp–ppp, Month Year. (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*, v(n):ppp–ppp, Month Year. (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*, v(n):ppp–ppp, Month Year. (W.J. Yun, M. Shin, S. Jung, S. Kwon, J. Kim)

[WiOpt'22] Cooperative Video Quality Adaptation for Delay-Sensitive Dynamic Streaming using Adaptive Super-Resolution, *IEEE Int'l Symp. on Modeling and Optimization in Mobile, Ad hoc, and Wireless Networks (WiOpt)*, September 2022. (M. Choi, W.J. Yun, 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)

[INFOCOM'22] Joint Superposition Coding and Training for Federated Learning over Multi-Width Neural Networks, *IEEE Conf. on Computer Communications (INFOCOM)*, May 2022. (H. Baek, W.J. Yun, Y. Kwak, S. Jung, M. Ji, M. Bennis, J. Park, 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: Lightening 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.-H. 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) **(Citations: 104+)**

[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))**

[ICDCS'20] Understanding the Potential Risks of Sharing Elevation Information on Fitness Applications, *IEEE Int'l Conf. on Distributed Computing Systems (ICDCS)*, November 2020. (Ü. Meteriz, N.F. Yildiran, J. Kim, D. Mohaisen)

[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, *Electronics and Telecommunications Research Institute (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: 0.88%)
(Citations: 102+)

[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)
(Citations: 98+)

[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.-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)

[MM'17] REQUEST: Seamless Dynamic Adaptive Streaming over HTTP for Multi-Homed Smartphone under Resource Constraints, *ACM Multimedia (MM)*, October 2017. (J. Koo, J. Yi, J. Kim, M.A. Hoque, S. Choi)

[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.-C. 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)

(Citations: 154+)

[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)
(Citations: 102+)

[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)

[MobiSys'10] Energy-Efficient Rate-Adaptive GPS-based Positioning for Smartphones, *ACM Int'l Conf. on Mobile Systems, Applications and Services (MobiSys)*, June 2010. (J. Paek, J. Kim, R. Govindan)
(Citations: 622+)

[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)
(Citations: 113+)

[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)

■ Machine Learning, Informatics, and Learning Platforms

[ISJ] (REVIEW) Two-Stage Architectural Fine-Tuning with Neural Architecture Search using Early-Stopping, *IEEE Systems Journal*. (Y. Kim, W.J. Yun, Y.K. Lee, S. Jung, J. Kim)

[MTAP] (REVIEW) Stabilized Performance Maximization for GAN-based Real-Time Authentication Image Generation over Internet, *Multimedia Tools and Applications (Springer)*. (J.Y. Shim, S. Jung, J. Kim, J.-K. Kim)

[MTAP] (REVIEW) Audio-to-Visual Cross-Modal Generation of Birds, *Multimedia Tools and Applications (Springer)*. (J.Y. Shim, J. Kim, J.-K. Kim)

[CIBM.major] Deep Reinforcement Learning-based Propofol Infusion with a 3,000-subject Dataset in Anesthesia, *Computers in Biology and Medicine (Elsevier)*, (Major Revision). (W.J. Yun, M. Shin, S. Jung, J. Ko, H.-C. Lee, J. Kim)

[TITS.accept] Self-Configurable Stabilized Real-Time Detection Learning for Autonomous Driving Applications, *IEEE Transactions on Intelligent Transportation Systems*, v(n):ppp–ppp, Month Year. (W.J. Yun, S. Park, J. Kim, D. Mohaisen)

[TNNLS.accept] Hierarchical Deep Reinforcement Learning-based Propofol Infusion Assistant Framework in Anesthesia, *IEEE Transactions on Neural Networks and Learning Systems*, v(n):ppp–ppp, Month Year. (W.J. Yun, M. Shin, D. Mohaisen, K. Lee, J. Kim)

[CIKM'22] Hierarchical Reinforcement Learning using Gaussian Random Trajectory Generation in Autonomous Furniture Assembly, *ACM Conf. on Information and Knowledge Management (CIKM)*, October 2022. (W.J. Yun, D. Mohaisen, S. Jung, J.-K. Kim, J. Kim)

[TII'22.10] Cooperative Multi-Agent Deep Reinforcement Learning for Reliable Surveillance via Autonomous Multi-UAV Control, *IEEE Transactions on Industrial Informatics*, 18(10):7086–7096, October 2022. (W.J. Yun, S. Park, J. Kim, M. Shin, S. Jung, D. Mohaisen, J.-H. Kim)

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

[Access'21.09] Spatio-Temporal Split Learning for Privacy-Preserving Medical Platforms: Case Studies with COVID-19 CT, X-Ray, and Cholesterol Data, *IEEE Access*, 9:121046–121059, September 2021. (Y.J. Ha, M. Yoo, G. Lee, S. Jung, S.W. Choi, J. Kim, S. Yoo)

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

[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.-H. 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)

[IJCAI'19] Randomized Adversarial Imitation Learning for Autonomous Driving, *Int'l Joint Conf. on Artificial Intelligence (IJCAI)*, August 2019. (M. Shin, J. Kim)

[TIE'19.02] Joint Geometric Unsupervised Learning and Truthful Auction for Local Energy Market, *IEEE Transactions on Industrial Electronics*, 66(2):1499–1508, February 2019. (L. Park, S. Jeong, J. Kim, S. Cho)

[ICDCS'18] ShmCaffe: A Distributed Deep Learning Platform with Shared Memory Buffer for HPC Architecture, *IEEE Int'l Conf. on Distributed Computing Systems (ICDCS)*, July 2018. (S. Ahn, J. Kim, E. Lim, W. Choi, A. Mohaisen, S. Kang)

[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)
(Citations: 102+)

[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)

Selected Conference Contributions

■ Workshops in conjunction with Top Conferences

[AAAI] (REVIEW) Privacy-Preserving Quantum Split Learning, *AAAI Workshop on Privacy-Preserving Artificial Intelligence*, February 2023. (W.J. Yun, H. Baek, J. Kim)

[AAAI] (DOUBLE BLIND REVIEW) *AAAI Workshop on AI to Accelerate Science and Engineering*, February 2023. (H. Baek, W.J. Yun, J. Kim)

[ICML'22] Slimmable Quantum Federated Learning, *ICML Workshop on Dynamic Neural Networks*, July 2022. (W.J. Yun, J.P. Kim, S. Jung, J. Park, M. Bennis, J. Kim)
(Spotlight, Oral Presentation)

[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*, July 2021. (H.Baek, W.J. Yun, S. Jung, M. Ji, J. Kim, J. Park, M. Bennis)

[ICML'20] XOR Mixup: Privacy-Preserving Data Augmentation for One-Shot Federated Learning, *ICML Workshop on Federated Learning for User Privacy and Data Confidentiality*, July 2020. (M. Shin, C. Hwang, J. Kim, J. Park, M. Bennis, S.-L. Kim)

[MobiSys'18] Neural Network Syntax Analyzer for Embedded Standardized Deep Learning, *ACM MobiSys Workshop on Embedded and Mobile Deep Learning*, June 2018. (M. Shin, J. Kim, A. Mohaisen, J.Park, K.H. Lee)

[SOSP'15] A Case for Bad big.LITTLE Switching: How to Scale Power-Performance in SI-HMP, *ACM SOSP Workshop on Power-Aware Computing and Systems*, October 2015. (S. Yoo, Y. Shim, S. Lee, S.-A. Lee, J. Kim)

■ GLOBECOM/ICC/VTC and Awarded Papers in IEEE ComSoc, VTS, and Computer Society

[ICC] (REVIEW) Multi-Agent Deep Reinforcement Learning for Efficient Passenger Delivery in Urban Air Mobility, *IEEE Int'l Conf. on Communications*, May/June 2023. (C. Park, S. Park, G.S. Kim, S. Jung, J.-H. Kim, J. Kim)

[ICTC'22] Reinforcement Learning Empowered Massive IoT Access in LEO-based Non-Terrestrial Networks, *IEEE Int'l Conf. on ICT Convergence*, October 2022. (J.-H. Lee, D.P. Selvam, A.F. Molisch, J. Kim)
(Best Paper Award)

[VTC'22-Spring] Adaptive and Stabilized Streaming for Edge-Assisted Connected Vehicles under Heterogeneous Computing Constraints, *IEEE Vehicular Technology Conf.*, June 2022. (R. Lee, H. Lee, S. Park, J. Kim)

[VTC'22-Spring] Random Access Protocol Learning in LEO Satellite Networks via Reinforcement Learning, *IEEE Vehicular Technology Conf.*, June 2022. (J.-H. Lee, H. Seo, J. Park, M. Bennis, J. Kim, Y.-C. Ko)

[APWCS'21] Quantum Scheduling for Millimeter-Wave Observation Satellite Constellation, *IEEE VTS Asia Pacific Wireless Communications Symposium*, August 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 Asia Pacific Wireless Communications Symposium*, August 2021. (H. Lee, S. Jung, J. Kim)
(IEEE VTS Seoul Chapter Award)

[ICOIN'21] Infrastructure-Assisted Cooperative Multi-UAV Deep Reinforcement Energy Trading Learning for Big-Data Processing, *IEEE Int'l Conf. on Information Networking*, January 2021. (S. Jung, W.J. Yun, J. Kim, J.-H. Kim)
(Best Paper Award)

[ICC'20] User Scheduling and Power Allocation for Content Delivery in Caching Helper Networks, *IEEE Int'l Conf. on Communications*, June 2020. (M. Choi, A.F. Molisch, J. Kim)

[GLOBECOM'19] Multi-Agent Deep Reinforcement Learning for Cooperative Connected Vehicles, *IEEE Global Communications Conf.,*

December 2019. (D. Kwon, J. Kim)

[APWCS'19] Joint Offloading and Streaming in Mobile Edges: A Deep Reinforcement Learning Approach, *IEEE VTS Asia Pacific Wireless Communications Symposium*, August 2019. (S. Park, J. Kim, D. Kwon, M. Shin, J. Kim) **(IEEE VTS Seoul Chapter Award)**

[ICC'19] Probabilistic Caching Policy for Categorized Contents and Consecutive User Demands, *IEEE Int'l Conf. on Communications*, May 2019. (M. Choi, D. Kim, D.-J. Han, J. Kim, J. Moon)

[GLOBECOM'15] 60 GHz Frequency Sharing Study between Fixed Service Systems and Small-Cell Systems with Modular Antenna Arrays, *IEEE GLOBECOM Workshop on Millimeter-Wave Backhaul and Access*, December 2015. (J. Kim, L. Xian, R. Arefi, A.S.Sadri)

[GLOBECOM'14] Required Frequency Rejection in 39 GHz Millimeter-Wave Small Cell Systems, *IEEE GLOBECOM Industry Program*, December 2014. (J. Kim, L. Xian, A. Maltsev, R. Arefi, A.S.Sadri)

[ICC'14] Quality-Aware Millimeter-Wave Device-to-Device Multi-Hop Routing for 5G Cellular Networks, *IEEE Int'l Conf. on Communications*, June 2014. (J. Kim, A.F. Molisch)

[ICC'13] Quality-Aware Coding and Relaying for 60 GHz Real-Time Wireless Video Broadcasting, *IEEE Int'l Conf. on Communications*, June 2013. (J. Kim, Y. Tian, S. Mangold, A.F. Molisch)

[VTC'06-Spring] Energy-Aware Distributed Topology Control for Coverage-Time Optimization in Clustering-Based Heterogeneous Sensor Networks, *IEEE Vehicular Technology Conf.*, May 2006. (J. Kim, J. Choi, W. Lee)

[VTC'05-Spring] Low-Energy Localized Clustering: An Adaptive Cluster Radius Configuration Scheme for Topology Control in Wireless Sensor Networks, *IEEE Vehicular Technology Conf.*, May 2005. (J. Kim, S. Kim, D. Kim, W. Lee, E. Kim)

■ **Poster/Demo Abstracts in Top Conferences (or Related Workshops)**

[AAAI'23] FV-Train: Quantum Convolutional Neural Network Training with a Finite Number of Qubits by Extracting Diverse Features, *AAAI Conf. on Artificial Intelligence*, February 2023. (H. Baek, W.J. Yun, J. Kim)

[ICDCS'22] AoI-Aware Markov Decision Policies for Caching, *IEEE Int'l Conf. on Distributed Computing Systems*, July 2022. (S. Park, S. Jung, M. Choi, J. Kim)

[ICDCS'22] Quality-Aware Real-Time Augmented Reality Visualization under Delay Constraints, *IEEE Int'l Conf. on Distributed Computing Systems*, July 2022. (R. Lee, S. Park, S. Jung, J. Kim)

[DSN'21] Spatio-Temporal Split Learning, *IEEE/IFIP Int'l Conf. on Dependable Systems and Networks*, July 2022. (S. Park, S. Jung, M. Choi, J. Kim)

[INFOCOM'21] Visualization of Deep Reinforcement Autonomous Aerial Mobility Learning Simulations, *IEEE Conf. on Computer Communications*, May 2021. (G. Lee, W.J. Yun, S. Jung, J. Kim, J.-H. Kim)

[QTML'20] A Quantum Approach to the Minimum Dominating Set Problem, *Quantum Techniques in Machine Learning*, November 2020. (J. Choi, S. Oh, S. Park, J. Kim)

[ICCV'19] Deep Multi-modal Unsupervised Pen Pressure Stylization, *IEEE/CVF Int'l Conf. on Computer Vision*, October/November 2019. (D. Kim, J. Kim)

[QTML'19] A Quantum Approach to Max-Weight Independent Set Problem, *Quantum Techniques in Machine Learning*, October 2019. (J. Choi, J. Kim)

[DSN'19] Privacy-Preserving Deep Learning Computation for Geo-Distributed Medical Big-Data Platforms, *IEEE/IFIP Int'l Conf. on Dependable Systems and Networks*, June 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 Int'l Conf. on Mobile Systems, Applications, and Services*, June 2019. (D. Kwon, S. Park, J. Kim)

[MobiSys'19] Light-Weight Programming Language for Blockchain, *ACM Int'l Conf. on Mobile Systems, Applications, and Services*, June 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*, June 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*, October 2018. (S. Yoo, H. Kim, J. Kim)

[SECON'18] Recipient-Oriented Transaction for Preventing Double Spending Attacks in Private Blockchain, *IEEE Int'l Conf. on Sensing, Communication and Networking*, June 2018. (H. Lee, M. Shin, K.S. Kim, Y. Kang, J. Kim)

[AsiaCCS'18] Mining with Proof-of-Probability in Blockchain, *ACM Asia Conf. on Computer and Communications Security*, June 2018. (S. Kim, J. Kim)

[ICSE'18] A Novel Shared Memory Framework for Distributed Deep Learning in High-Performance Computing Architecture, *IEEE/ACM Int'l Conf. on Software Engineering*, May/June 2018. (S. Ahn, J. Kim, S. Kang)

[SOSP'17] A Reliable, Self-Adaptive Face Identification Framework via Lyapunov Optimization, *ACM SOSP Workshop on AI Systems*, October 2017. (D. Kim, J. Kim, J.Y. Bang)

[SIGCOMM'16] A Longitudinal Analysis of .i2p Leakage in the Public DNS Infrastructure, *ACM SIGCOMM*, August 2016. (S.H. Jeong, A.R. Kang, J. Kim, H.K. Kim, A. Mohaisen)

[INFOCOM'16] Buffer-Stable Adaptive Per-Module Power Allocation for Energy-Efficient Millimeter-Wave Modular Antenna Array (MAA) Platforms, *IEEE Conf. on Computer Communications*, April 2016. (J. Kim)

[ITA'14] Joint Scheduling and Stochastic Streaming for Device-to-Device Video Delivery, *IEEE Information Theory and Applications Workshop*, February 2014. (J. Kim, A. Turci, G. Caire, A.F. Molisch) **(ITA Graduation Day Talk)**

[MobiCom'13] Adaptive Video Streaming for Device-to-Device Mobile Platforms, *ACM Int'l Conf. on Mobile Computing and Networking*, September/October 2013. (J. Kim, F. Meng, P. Chen, H.E. Egilmez, D. Bethanabhotla, A.F. Molisch, M.J. Neely, G. Caire,

Patents (Granted), *totally, 65*

- **21 US Patents:** (US 10637154), (US 9973364), (US 9887755), (US 9786985), (US 9167562), (US 8842640), (US 8761063), (US 8738068), (US 8619741), (US 8605634), (US 8599731), (US 8565200), (US 8547889), (US 8503317), (US 8493949), (US 8493948), (US 8483171), (US 8422372), (US 8416782), (US 8411644), (US 8379612)
- **20 Korean Patents:** (KR 102444449), (KR 102442891), (KR 102433897), (KR 102370599), (KR 102340895), (KR 102293287), (KR 102244380), (KR 102240442), (KR 102240425), (KR 102234007), (KR 102178895), (KR 102167344), (KR 102052835), (KR 102015429), (KR 101663613), (KR 101619964), (KR 101606951), (KR 101567829), (KR 101558017), (KR 100779165)
- **7 European Patents:** (EP 3255730), (EP 2441203), (EP 2422578), (EP 2343836), (EP 2282601), (EP 2262342), (EP 2260669)
- **11 Chinese Patents:** (CN 107634349), (CN 102461318), (CN 102461050), (CN 102388658), (CN 102349340), (CN 102342162), (CN 102318430), (CN 102318425), (CN 102204115), (CN 102132602), (CN 102057739)
- **6 Japanese Patents:** (JP 5584209), (JP 5584205), (JP 5580308), (JP 5508403), (JP 5368573), (JP 5364785)

Teaching Experience, Research Supervision, and Professional Activities

Teaching Experience

■ **Korea University – Graduate Courses,** *Faculty Member*
- *IT R&D Policies 1 (ECE723):* Fall 2020
- *Design and Analysis of Wireless Communication Systems (ECE721):* Spring 2021
- *Advanced Network Theory (ECE657):* Fall 2022
- *Smart Mobile Platform (ECE654):* Fall 2021, Fall 2020, Fall 2019
- *Advanced Topics in Socialware IT (ECE545):* Spring 2022
- *Wireless and Mobile Networks (ECE522):* Spring 2020
- *Wireless Network 2 (ITH525), Graduate School of Engineering and Technology:* Fall 2022
- *Wireless Network 1 (ITH524), Graduate School of Engineering and Technology:* Spring 2021

■ **Korea University – Undergraduate Courses,** *Faculty Member*
- *Introduction to Artificial Intelligence (IWC420):* Winter 2021 (12/2021–01/2022)
- *Data Communications (KECE316):* Fall 2020
- *Digital System Design and Laboratory (KECE210):* Fall 2020
- *Probability and Random Process (KECE209):* Spring 2022 *(Best Teaching Award, Top 20%)*, Spring 2021 *(Best Teaching Award, Top 20%)*, Spring 2020
- *Digital System (KECE207):* Spring 2020
- *Computer Language and Laboratory (EGRN151):* Fall 2022, Fall 2021 *(Granite Tower Best Teaching Award, Top 5%)*, Fall 2020 *(Best Teaching Award, Top 20%)*, Fall 2019 *(Granite Tower Best Teaching Award, Top 5%)*
- *Object-Oriented Programming (SEMI104):* Fall 2021 *(Best Teaching Award, Top 20%)*
- *Introduction to Computers (SEMI103):* Spring 2021 *(Granite Tower Best Teaching Award, Top 5%)*
- *Future Mobility Technology (GEQR075):* Spring 2022 *(Granite Tower Best Teaching Award, Top 5%)*

■ **Chung-Ang University – College of Computer Science and Software,** *Faculty Member*
- *Optimal Design Theory and Applications (Graduate Course):* Spring 2019, Spring 2018, Spring 2017
- *Topics in Computer Science and Engineering (Graduate Course):* Fall 2018, Fall 2017, Fall 2016
- *Numerical Analysis (Undergraduate Course):* Spring 2019
- *Compiler Design (Undergraduate Course):* Spring 2019, Spring 2018, Spring 2017
- *Principles of Programming Languages (Undergraduate Course):* Fall 2018, Fall 2017, Fall 2016
- *Algorithm Analysis (Undergraduate Course):* Fall 2016
- *Operating Systems (Undergraduate Course):* Spring 2017, Spring 2016
- *Calculus (Undergraduate Course):* Spring 2017, Spring 2016
- *Mobile Application Development (Undergraduate Course):* Fall 2018, Fall 2017

■ **University of Southern California – Viterbi School of Engineering,** *Teaching Assistant*
- *Wireless and Mobile Networks Design and Lab* [EE579] (Spring 2013), Lectured by **Professor Murali Annavaram**
  Graduate Course dedicated to Android Mobile Platform Research and Programming
- *Programming Systems Design* [CSci455x] (Spring 2012, Fall 2012)
  Undergraduate Course dedicated to Object-Oriented Programming (Java and C++) and Advanced Data Structures

Research Collaboration and Supervision

■ **Postdoctoral Scholars**
- **Dr. Minseok Choi** (09/2018–02/2019), *Professor* at **Kyung Hee University**, Yongin, Korea
  Jointly with **University of Southern California** (co-advised by Prof. Andreas F. Molisch)
- **Dr. Soyi Jung** (03/2021–08/2021), *Professor* at **Ajou University**, Suwon, Korea
  Jointly with **University of California at Irvine** (co-advised by Prof. Marco Levorato)
- **Dr. Ju-Hyung Lee** (08/2021–), *Postdoctoral Visiting Scholar* at **University of Southern California** (co-advised by Prof. Andreas F. Molisch)

■ **Ph.D. Course Students and Alumni**
- **Soohyun Park** (03/2019–08/2023 (expected)), *Postdoctoral Scholar* at **Korea University**, Seoul, Korea
- **Haemin Lee** (09/2020–02/2024 (expected)), *Postdoctoral Scholar* at **Yonsei University**, Seoul, Korea
- **Won Joon Yun** (03/2021–08/2024 (expected))

- **Hankyul Baek** (03/2021–08/2024 (expected)), *Postdoctoral Scholar* at **Korea University**, Seoul, Korea
- **Hyunsoo Lee** (03/2021–)
- **Chanyoung Park** (09/2022–)
- **Gyu Seon Kim** (03/2023–)

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

■ **M.S. Course Students and Alumni**
- **Kyeongseon Kim** (09/2017–08/2019), *Researcher* at **Upstage**, Seongnam, Korea
- **Dohyun Kwon** (03/2018–02/2020), *Researcher* at **Hyundai Motors Group**, Uiwang, Korea
- **Dohyun Kim** (03/2018–02/2020), *Researcher* at **Naver Corporation**, Seongnam, Korea
- **MyungJae Shin** (03/2018–02/2020), *Engineer* at **mofl** (startup), Daejeon, Korea
- **Jaeho Choi** (03/2019–02/2021), *Researcher (Military Service Exception)* at **Korea Meteorological Administration**, Seoul, Korea
- **Youngkee Kim** (03/2021–02/2023), *Researcher* at **Korea Electronics Technology Institute (KETI)**, Seoul, Korea
- **Minjae Yoo** (03/2021–)
- **Seok Bin Son** (03/2022–)
- **Jae Pyoung Kim** (03/2023–)

■ **Intel Corporation (Santa Clara, California, USA),** *Graduate Interns*
- **Minseok Choi**, Ph.D. in EE from KAIST (02/2016–07/2016), now with **Kyung Hee University**, Yongin, Korea
- **Hidekazu Shimodaira**, Ph.D. in EEE from Tokyo Institute of Technology (07/2015–12/2015), now with **NTT DOCOMO**, Tokyo, Japan

■ **USC Viterbi School of Engineering (Los Angeles, California, USA),** *Graduate Students*
- **Feiyu Meng**, M.S. in EE from USC (Summer 2013, Fall 2013), now with **Apple**, Silicon Valley, CA, USA
- **Vivek Sankaravadivel**, M.S. in EE from USC (Spring 2011, Fall 2011), now with **Uber**, Silicon Valley, CA, USA

Talks and Presentations (Selected)

■ **IEEE Distinguished Lectures**
- *Federated Learning for Medical and Mobile Platforms: Motivation, Challenges, and Potential Solutions*
  California State University, Long Beach (Long Beach, CA, USA, 01/2020), Hosted by Prof. Sean Kwon and Prof. Henry Yeh
  IEEE Systems Council – IEEE Coastal Los Angeles Section Chapter

■ **IEEE Conference Tutorials and Special Session Talks**
- **IEEE ICUFN 2022 Tutorial** (Barcelona, Spain, 07/2022), *A Paradigm Shift in Future Networks with Quantum Deep Learning*
- **IEEE ICOIN 2022 Tutorial** (Online, 01/2022), *Advanced Deep Learning Methods for Autonomous Mobility*
- **IEEE ICUFN 2021 Tutorial** (Jeju, Korea, 08/2021), *Distributed and Split Deep Learning: Theory and Applications*
- **IEEE ICAIIC 2021 Tutorial** (Online, 04/2021), *Multi-Agent Deep Reinforcement Learning for Connected and Autonomous Vehicles*
- **IEEE ICTC 2019 Special Session Talk** (Jeju, Korea, 10/2019), *Advanced Deep Learning Methods and Their Applications to Distributed and Network Platforms*
- **IEEE ICOIN 2019 Tutorial** (Kuala Lumpur, Malaysia, 01/2019), *Distributed Platform Research for Emerging Deep Learning Applications*
- **IEEE ICC 2018 Tutorial** (Kansas City, MO, USA, 05/2018), *Securing the Internet of Things: A Machine Learning Approach (Making Machine Learning Practical)*, Joint Presentation wih Prof. Aziz Mohaisen (University of Central Florida, Orlando, FL, USA)

■ **Korean (Local) Conference Tutorials and Special Session Talks**
- **2022 KIPS Fall Conference Tutorial** (Chuncheon, 11/2022), *Quantum Deep Learning Basics*
- **2022 Korea A.I. Conference Tutorial** (Jeju, 09/2022), *Trends in Deep Reinforcement Learning*
- **2022 KICS Summer Conference Tutorial** (Jeju, 06/2022), *Quantum Multi-Agent Deep Reinforcement Learning*
- **2022 KIEES Winner Conference Tutorial** (Online, 02/2022), *Deep Learning Theory and Implementation*
- **2021 Korea A.I. Conference Tutorial** (Jeju, 09/2021), *Understanding the Potential Risks of Sharing Elevation Information on Fitness Applications*
- **2021 JCCI Mobile Machine Learning Special Session** (Online, 04/2021), *Multi-Agent Deep Reinforcement Learning for Autonomous Vehicles*
- **2020 Korea A.I. Conference Tutorial** (Jeju, 12/2020), *Randomized Adversarial Imitation Learning for Autonomous Driving*
- **2020 KICS Fall Conference Tutorial** (Seoul, 11/2020), *Trends in Multi-Agent Deep Reinforcement Learning for Distributed Computing*
- **2020 KICS Summer Conference Tutorial** (Jeju, 08/2020), *Deep Learning Computation for Economic Theory and Its Applications*
- **2020 KICS Winter Conference Tutorial** (Kangwon, 02/2020), *Deep Learning Applications to Computer Networking*
- **2020 KICS Winter Conference Tutorial** (Kangwon, 02/2020), *Deep Neural Network Basics*
- **2019 KICS Fall Conference Special Session Talk** (Seoul, 11/2019), *AI Methods for Network and Mobility Platform*
- **2019 IEEK Hyundai Motors Special Session** (Jeju, 06/2019), *Explainable AI (XAI) and Imitation Learning for Automotive Applications*
- **2019 KIPS Spring Conference Tutorial** (Seoul, 05/2019), *Deep Learning Basics and Representative Models*
- **2019 KICS Winter Conference Tutorial** (Kangwon, 01/2019), *Deep Learning Methods for Advanced Network*
- **2017 KICS Summer Conference Tutorial** (Jeju, 06/2017), *GPU Computing Platforms and Software for Deep Learning*
- **2017 KCC Summer Conference Special Session** (Jeju, 06/2017), *Dynamic Control and Software for Next-Generation Distributed Platforms*
- **2017 KICS Winter Conference Tutorial** (Kangwon, 01/2017), *Machine Learning Techniques for Mobile Computing*

■ **Industry Presentations (Selected)**
- <u>*International:*</u> **Huawei Research Center (Text-Aware Image Understanding Workshop)** (Online, 11/2021), **Ericsson-LG (R&D Hackathon / AI Learning Challenge – Keynote Speech)** (Seoul, Korea, 05/2021), **Huawei Research Center (Deep Learning/Machine Learning for Computer Vision)** (Online, 09/2020), **Huawei Research Center (Fundamental and Applied Problems of Machine Learning)** (Nizhny Novgorod, Russia, 12/2019), **City University of Hong Kong** (Hong Kong, 11/2018), **Intel Communications and Devices Group (iCDG) [Cellular Modem TechTalk]** (Santa Clara, CA, USA, 01/2016), **Nokia Research Center at Berkeley** (Berkeley, CA, USA, 08/2014), **Qualcomm Research Center** (San Diego, CA, USA, 02/2014)

- _Korea:_ **Korea Meteorological Administration** (Seoul), **SK Telecom (SKT)** (Seoul), **SK Hynix** (Icheon), **Naver Labs - Robotics Lab** (Pankyo), **ETRI** (Daejeon), **KT AI Tech Center** (Seoul), **LG Electronics** (Seoul), **Posco ICT** (Pankyo), **LG U+** (Seoul), **SK Broadband** (Seoul), **Korea Electronics Technology Institute (KETI)** (Pankyo), **Korea Electric Power Corporation (KEPCO) Research Institute** (Daejeon), **Samsung Electronics - Memory Business** (Hwasung)

■ **Prototyping at Industry Exhibitios**
- _Mobile Edge mmWave Backhaul and Access_; **Mobile World Congress (MWC) 2016** (Barcelona, Spain, 02/2016)
- _mmWave MAA Client Access & Backhaul Platform_; **Intel 360 degree 2016** (Anaheim, CA, 02/2016)
- _mmWave Modular Antenna Array Client Access & Backhaul Platform_; **Intel Asia Innovation Summit 2015** (Taipei, Taiwan, 10/2015)
- _Enabling 5G Densification_; **Intel Developer Forum (IDF) 2015** (San Francisco, CA, USA, 08/2015)
- _Enabling 5G Densification_; **Intel Design and Test Technology Conference (DTTC) 2015** (Portland, OR, USA, 08/2015)
- _Enabling 5G Densification_; **Mobile World Congress (MWC) 2015** (Barcelona, Spain, 03/2015)

■ **Demonstration at Academic Conferences**
- _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_), ICCC, WCSP, CyberneticsCom, ICEIC, MSN (Track 3: Security, Privacy, Trust, and Blockchain), ICNGC
- **2021:** GLOBECOM (Selected Areas in Communications – Machine Learning for Communications), GLOBECOM (IoTSN), ICC (Wireless Communications Symposium), ICCCN, MSN, COMNETSAT, ICTC, ICTC (_Workshop on Intelligent 6G Communication Systems_), ICTC (_Workshop on KU-AIER (Korea University, A.I. Engineering Research)_), WCNC, ICCC, IGESSC, ICAIIC, ICUFN, ICOIN, MASS, EuCAP, ICEIC, ICNGC, ITC-CSCC
- **2020:** GLOBECOM (Ad-hoc and Sensor Networks Symposium), ICTC, WCNC, WCNC (_Workshop on Aerial Communications in 5G and Beyond Networks_), IGESSC, ICUFN, ICOIN, Blockchain, ICCC, COMNETSAT
- **2019:** ICTC, ICCC, IGESSC, ICUFN, VTC-Spring, ICDCS (Distributed Green Computing & Energy Management), NAS (Network Track), Blockchain, MobiHoc, EuCAP, IE, WISA, SecureComm, ICPADS (Security & Dependable Computing)
- **2018:** ICTC, IGESSC, ICUFN, WCSP, APWCS, ICOIN, AsiaCCS (_Workshop on Security in Cloud Computing_), SigTelCom, ATC, IE
- **2017:** ICUFN, ICTC, IE
- **2016:** ICUFN, VTC-Spring
- **2015:** VTC-Spring, EuCAP
- **2014:** VTC-Fall
- **2012:** MASS (_Workshop on Internet of Things Technology and Architectures_)

References
- **Prof. Andreas F. Molisch** (_Fellow of the IEEE_), _Ph.D. Research and Dissertation Advisor_
  – Solomon Golomb – Andrew and Erna Viterbi Chair at the University of Southern California (Los Angeles, California, USA)

– Professor of Electrical and Computer Engineering at the University of Southern California (Los Angeles, California, USA)

– URL: https://wides.usc.edu/founder.html