

- Associate Professor**, Korea University – School of Electrical Engineering, Seoul, Republic of Korea  
– *Adjunct Professor*, Department of Communications Engineering; Department of Semiconductor Engineering; and Department of Future Science and Technology Business (Graduate School)  
– *Center Director (University ICT Research Center)*, Net-Zero CAFE Research Center  
– *Director (Star-Lab, Software Technology Advanced Research)*, Quantum AI Empowered Second-Life Platform Technology Lab  
• E-mail: joongheon@korea.ac.kr • WWW: <https://joongheon.github.io>
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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**, Thomas Lord Department of Computer Science (Advisor: *Prof. Andreas F. Molisch (Fellow of the IEEE)*, Ming Hsieh Department of Electrical and Computer Engineering Research Assistant, **Communications, Information, Learning, and Quantum (CILQ) Group**)
    - M.S. (05/2014) in **Computer Science** with specialization in **High Performance Computing and Simulations**
    - M.S. (05/2012) in **Electrical Engineering**
  - **Korea University – College of Informatics**, Seoul, Republic of Korea
    - M.S. (03/2004–02/2006) in **Computer Science and Engineering** (Advisor: *Prof. Wonjun Lee (Fellow of the IEEE)*, Department of Cyber Defense and Future Network Center)
    - B.S. (03/1999–02/2004) in **Computer Science and Engineering**
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## Positions

### R&D Positions

- **Korea University**, Seoul, Republic of Korea
  - *Associate Professor* (03/2021–Present), *Assistant Professor* (09/2019–02/2021), School of Electrical Engineering
  - *Adjunct Professor* (03/2023–02/2028 (Expected)), Department of Communications Engineering (with **Samsung Electronics**)
  - *Adjunct Professor* (11/2022–02/2028 (Expected)), Department of Future Science and Technology Business (Graduate School)
  - *Adjunct Professor* (03/2021–02/2026 (Expected)), Department of Semiconductor Engineering (with **SK Hynix**)
  - R&D POSITIONS AND LEADERSHIP
    - \* *Director* (07/2024–12/2031), **Quantum AI Empowered Second-Life Platform Technology Lab** SW Star-Lab (Software Technology Advanced Research), funded by IITP and the Ministry of Science and ICT
    - \* *Center Director* (07/2024–12/2031), **Net-Zero CAFE Research Center** University ICT Research Center (ITRC), funded by IITP and the Ministry of Science and ICT
  - ADMINISTRATIVE POSITIONS
    - \* *Steering Committee Member* (03/2023–Present), Department of Communications Engineering
    - \* *Deputy Vice President* (02/2022–08/2024), Office of Academic Affairs
    - \* *Dean* (06/2021–08/2023), Center for Teaching and Learning (CTL)
- **Chung-Ang University – College of Computer Science and Software**, Seoul, Republic of Korea
  - *Assistant Professor* (03/2016–08/2019), School of Computer Science and Engineering
- **Intel Corporation – Platform Engineering Group**, Silicon Valley (Santa Clara), California, USA
  - *Systems Engineer* (03/2015–02/2016), WiGig & mmWave Standards and Advanced Technology (SAT) Team
  - *Standards Scientist* (07/2014–03/2015), WiGig & mmWave SAT Team
  - *Wireless Standards Engineer Intern* (09/2013–07/2014), WiGig & mmWave SAT Team
- **University of Southern California (USC) – Viterbi School of Engineering**, Los Angeles, California, 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 (CSI) (Advised by Prof. Andreas F. Molisch) (CSI is now re-organized as **Communications, Information, Learning, and Quantum (CILQ) Group**)
  - *Teaching Assistant* (01/2012–05/2013), Computer Science and Electrical Engineering Departments (CSCI455x and EE579)
- **InterDigital**, San Diego, California, 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
- **Korea University – Department of Computer Science and Engineering**, Seoul, Republic of Korea
  - *M.S. Research/Teaching Assistant* (03/2004–02/2006), Network Research Laboratory (Advised by Prof. Wonjun Lee)

### Academia (Membership, Editorial Boards, and Services)

- **IEEE**
  - *Senior Member* (2018–), *Member* (2006–2017)
  - *Distinguished Lecturer* (2022–2023), **IEEE Communications Society**
  - *Editor* (2023–), **IEEE Internet of Things Journal**

- Associate Editor (2020–), **IEEE Transactions on Vehicular Technology** (Area: Vehicular Electronics and Systems)
- Guest Editor, **Journal of Communications and Networks** (S.I. on Quantum Technologies for Communication Systems)
- Guest Editor, **IEEE Communications Standards Magazine** (S.I. on Recent and Future Evolution of Wi-Fi)
- **IEEE Vehicular Technology Society (VTS) Seoul Chapter**
  - \* Chapter Assistant Administrator for Planning (2024–), Chapter Treasurer (2022–2023, 2020–2021)
  - \* **IEEE VTS APWCS Organizing Committee: Finance Co-Chair** (2023), Finance Chair (2022), Finance Co-Chair (2021)

## Awards and Honors

### Research and Academic Excellence (International)

- **IEEE VTS Seoul Chapter Award (2024)** – *IEEE Vehicular Technology Society* (w/ G.S. Kim, S. Jung, S. Park)  
"Quantum multi-agent reinforcement learning software design and visual simulations for multi-drone mobility control"
- **IEEE VTS Seoul Chapter Award (2024)** – *IEEE Vehicular Technology Society* (w/ J.Y. Shim)  
"Diffusion-based quantum error mitigation using stochastic differential equation"
- **IEEE VTS Seoul Chapter Award (2023)** – *IEEE Vehicular Technology Society* (w/ S. Park)  
"Quantum reinforcement learning for large-scale multi-agent decision-making in autonomous aerial networks"
- **IEEE Seoul Section Student Paper Contest, Bronze Paper Award (12/2023)** (w/ G.S. Kim, J. Chung, S.B. Son, H. Lee, H. Baek, S. Park)  
"Aircraft taxi routing using reinforcement learning at Hartsfield Jackson Atlanta international airport"
- **Best Editor Award (2023)** – *ICT Express (Elsevier)* (07/2023)
- **Finalist (Top 25), AAAI Student Abstract and Poster Session – Oral Presentation Contest (2023)** (w/ H. Baek, et al)  
"FV-Train: Quantum convolutional neural network training with a finite number of qubits by extracting diverse features"
- **IEEE ICTC Best Paper Award (2022)** – *IEEE Communications Society* (w/ J.-H. Lee, D.P. Selvam, A.F. Molisch)  
"Reinforcement learning empowered massive IoT access in LEO-based non-terrestrial networks"
- **IEEE VTS Seoul Chapter Award (2022)** – *IEEE Vehicular Technology Society* (w/ H. Lee, S. Jung, J.-H. Kim, et al)  
"DDPG-based deep reinforcement learning for loitering munition mobility control: Algorithm design and visualization"
- **Spotlight, Oral Presentation (2022)** – *ICML Workshop on Dynamic Neural Networks* (2022) (w/ S. Jung, J. Park, M. Bennis, et al)  
"Slimmable quantum federated learning"
- **IEEE MMTC Best Journal Paper Award (2021)** – *IEEE Communications Society*  
– M. Choi, A.F. Molisch, and J. Kim, "Joint Distributed Link Scheduling and Power Allocation for Content Delivery in Wireless Caching Networks," *IEEE Transactions on Wireless Communications*, 19(12):7810-7824, December 2020.
- **IEEE VTS Seoul Chapter Award (2021)** – *IEEE Vehicular Technology Society* (w/ S. Jung, J.-H. Kim, et al)  
"Quantum scheduling for millimeter-wave observation satellite constellation"
- **IEEE VTS Seoul Chapter Award (2021)** – *IEEE Vehicular Technology Society* (w/ S. Jung, et al)  
"Distributed and autonomous aerial data collection in smart city surveillance applications"
- **IEEE ICOIN Best Paper Award (2021)** – *IEEE Computer Society* (w/ S. Jung, J.-H. Kim, et al)  
"Infrastructure-assisted cooperative multi-UAV deep reinforcement energy trading learning for big-data processing"
- **IEEE MMTC Outstanding Young Researcher Award (2020)** – *IEEE Communications Society*
- **IEEE Systems Journal Best Paper Award (2020)** – *IEEE Systems Council*  
(Top 7 among 793 accepted papers in 2019 (Top 0.88%))  
– 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 Seoul Section Student Paper Contest, Bronze Paper Award (2020)** (w/ S. Park)  
"Reliable offloading target selection using deep reinforcement learning for large fire accident"
- **IEEE Seoul Section Student Paper Contest, Gold Paper Award (2019)** (w/ D. Kim, et al)  
"Stabilized super-resolution deep learning adaptation for UAV-assisted mobile edges: A Lyapunov optimization approach"
- **IEEE VTS Seoul Chapter Award (2019)** – *IEEE Vehicular Technology Society* (w/ S. Park, D. Kwon, M. Shin)  
"Joint offloading and streaming in mobile edges: A deep reinforcement learning approach"
- **Next Generation and Standards (NGS) Division Recognition Award (Q1/2005)** – *Intel Corporation*  
For developing a 3-dual sector mmWave backhaul link software stack with mesh, relay, and load balancing capability for modular antenna array (MAA) proof-of-concept (POC)
- **Annenberg Graduate Fellowship Award (2009)** – *University of Southern California*  
Awarded with Ph.D. Admission in Computer Science, Viterbi School of Engineering

### Research and Academic Excellence (Korea Regional)

- **HFR Paper Award (Area: Quantum Technologies and Quantum Communications) (11/2023)** – *KICS* (w/ S. Park, H. Baek)  
"Quantum multi-agent reinforcement learning for multi-metaverse adaptive streaming in hybrid quantum-classical networks"
- **Korea Electronics Technology Institute (KETI) President Award (06/2023)** – *2023 KICS Summer Conference* (w/ H. Lee, S. Park)  
"Grid environment design and grouping for optimal relay station placement"
- **Haedong Paper Award (02/2023)** – *KICS* (w/ S. Jung, J. Park, et al)  
"Dynamic quantum federated learning framework at satellites and ground stations using slimmable quantum neural networks"
- **Excellence Paper Award (02/2023)** – *2023 KICS Winter Conference* (w/ H. Lee, S. Jung, J.-H. Kim, et al)  
"Self-learning-based hybrid MAC for military UAV networks"
- **Insung Research Grant Award (01/2023)** – *Korea University*  
For recognizing Korea University professors in research excellence during the first 3 years at Korea University (Top 5%)

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

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

- **ICT Express Best Reviewer Award (12/2021)** – ICT Express (Elsevier) (awarded to Soohyun Park)

#### Teaching and Supervision Excellence

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

#### Academic and University Services

- **Outstanding Contribution Award (02/2023)** – KIISE Information Network Society
- **2022 Best Chapter Award, IEEE Vehicular Technology Society Chapter (12/2022)** – IEEE Seoul Section  
Awarded as a Treasure
- **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

### **R&D Projects (Totally, 16,359,784 USD ≈ 16,359,784,000 KRW)**

#### Industry-Funded Projects

- |                                                                                                                                                                                            |                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| • <b>Advancement Technology Development for Torpedo Deception Strategies in Submarines</b><br>Funded by LIG Nex1 [Grant: \$700,000; Primary-PI]                                            | 11/2022–11/2026 |
| • <b>Advancement Technology Development for Submarine Target Identification and Engagement Support Intelligence</b><br>Funded by LIG Nex1 [Grant: \$300,000; Primary-PI]                   | 11/2022–11/2026 |
| • <b>Mapping between Real World and Virtual Reality (VR) for End-Edged Cloud Real-Time VR Servers</b><br>Funded by Samsung Advanced Institute of Technology [Grant: \$325,000; Primary-PI] | 09/2020–09/2025 |
| • <b>Research on Learning-based Swarm Mission Planning Algorithms</b><br>Funded by LIG Nex1 [Grant: \$110,000; Primary-PI]                                                                 | 03/2024–02/2025 |



- **Quantum Machine Learning-based Objection Detection for Point Cloud and its Acceleration** 12/2022–04/2024  
Funded by *Hyundai Motors Group* [Grant: \$110,000; Primary-PI]
- **Routing Algorithms for LEO Satellite Networks** 12/2022–08/2023  
Funded by *Solvit System* [Grant: \$27,500; Primary-PI]
- **Optimal Positioning Algorithms for Wide-Area Relaying Networks** 12/2022–08/2023  
Funded by *Solvit System* [Grant: \$22,000; Primary-PI]
- **Distributed Learning Algorithms to Build AI Models with Multi-Center Clinical Data** 11/2022–02/2023  
Funded by *Cipherome* [Grant: \$12,000; Primary-PI]
- **Cellular/Wi-Fi Handover Technology Development** 02/2022–12/2022  
Funded by *LG Electronics CTO Division – Smart Mobility Lab., Advanced R&BD Center* [Grant: \$88,000; Primary-PI]
- **Research Trends in Digital Twin Applications to Autonomous Driving** 03/2022–04/2022  
Funded by *Hyundai NGV* [Grant: \$1,000; Primary-PI]
- **Distributed Learning System Design and Implementation for Clinical Applications** 02/2022–03/2022  
Funded by *Cipherome* [Grant: \$15,000; Primary-PI]
- **Super-Resolution Performance Optimization in Mobile Platforms** 05/2020–08/2020  
Funded by *Samsung SDS* [Grant: \$15,000; Primary-PI]
- **Deep Learning Algorithms for mVOC Concentration Analysis** 03/2020–06/2020  
Funded by *Samsung Electronics (C-Lab)* [Grant: \$12,000; Primary-PI]
- **Visual Recognition Software Implementation using Deep Learning Tools** 05/2019–11/2019  
Funded by *Hyundai Motors Company (Hyundai NGV)* [Grant: \$59,500; Primary-PI]
- **A Priori Techniques Research for Efficient Multi-Edge Computing** 06/2017–12/2017  
Funded by *Samsung Electronics (Software Center)* [Grant: \$80,000]

### University/Center-Level Projects

- **Net-Zero CAFE (Connectivity and Autonomy for Future Ecosystem) Research Center – ITRC** 07/2024–12/2031  
Funded by *Institute for ICT Promotion (IITP)* [IITP-2024-RS-2024-00436887, Grant: \$7,500,000], PI: Korea University (Korea)  
*Center Director*
- **Intelligent 6G Wireless Access System Research Center – 6G AI Research Center** 04/2021–12/2025  
Funded by *Institute for ICT Promotion (IITP)* [2021-0-00467, Grant: \$154,000 (2 yrs)], PI: Korea University (Korea)
- **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], 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], PI: Hanyang University (Korea)  
*Part Lead*
- **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], 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], PI: Kookmin University (Korea)

### Government-Funded Projects

- **Quantum AI Empowered Second-Life Platform Technology** 07/2024–12/2031  
Funded by *IITP – SW Star-Lab (Software Technology Advanced Research)* [RS-2024-00439803, Grant: \$1,500,000]
- **6GARROW: 6G AI-Native Integrated RAN-Core Networks** 09/2024–08/2027  
Funded by *Institute for ICT Promotion (IITP)* [xxx, Grant: \$330,000]
- **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]
- **Development of AI Learning Platform for Intelligent Excavators based on Expert Work Data** 04/2023–12/2026  
Funded by *Korea Evaluation Institute of Industrial Technology (KEIT)*  
(Primary-PI: Prof. Soyi Jung at Ajou University)
- **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]
- **Development of Integrated Development Framework that supports Automatic Neural Network Generation and Deployment optimized for Runtime Environment** 04/2021–12/2024  
Funded by *Institute for ICT Promotion (IITP)* [2018-0-00170, Grant: \$270,000]
- **Korea-Japan Joint Seminar Project for Generative and Multi-Modal AI Technologies** 10/2023–09/2024  
Funded by *National Research Foundation of Korea (International Research Collaboration)* [Grant: \$50,000; 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: \$251,000]
- **Integrated Perception Technology Developments for Public Safety Platforms** 06/2019–05/2023  
Funded by *National Research Foundation of Korea* [2019M3E3A1084054, Grant: \$400,000]
- **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]
- **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]
- **Distributed Secure Platform for Scalable Clinical OMOP CDM Models** 04/2019–12/2020  
Funded by *Ministry of Health and Welfare* [HI19C0572, Grant: \$90,000]
- **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]
- **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

- **Quantum Reinforcement Learning for Satellite Backhaul Routing in Disaster Networks** 05/2024–11/2024  
Funded by *Electronics and Telecommunications Research Institute* [Grant: \$40,000; Primary-PI]
- **Research on Quantum Multi-Agent Reinforcement Learning Stability** 09/2023–01/2024  
(Research on Multi-Agent Reinforcement Learning Exploration, Communication, Training Strategy)  
Funded by *Electronics and Telecommunications Research Institute*  
(Primary-PI: Prof. Soohyun Park at Sookmyung Women's University)
- **NOMA-based Resource Allocation Research in Space-Air-Ground Integrated Networks** 09/2023–11/2023  
Funded by *Electronics and Telecommunications Research Institute* [Grant: \$20,900; Primary-PI]
- **Autonomous Intelligent COA Search Methods for Cyber-Attacks** 12/2021–11/2022  
Funded by *Agency for Defense Development (ADD)* [UI210009XD, Grant: \$100,000; Primary-PI]
- **Fundamental Research on LEO Satellite Access Protocols in Non-Territorial Networks** 04/2021–11/2021  
Funded by *Electronics and Telecommunications Research Institute*  
(Primary-PI: Prof. Soyi Jung at Ajou University)
- **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]
- **Measurement and Analysis of Multi-Task GPU Scheduling Delays** 05/2019–10/2019  
(A Development of Driving Decision Engine for Autonomous Driving using Driving Experience Information)  
Funded by *Electronics and Telecommunications Research Institute* [19HS2720 (IITP 2017-0-00068), Grant: \$40,000; Primary-PI]
- **Probabilistic Decision Making and Econometric Methods for Micro-Grid** 05/2017–04/2019  
Funded by *Korea Electric Power Corporation (KEPCO) Research Institute* [R17XA05-41, Grant: \$143,128; Primary-PI]
- **GPU Scheduling Performance Analysis under Queueing Delay Considerations** 05/2018–10/2018  
(A Development of Driving Decision Engine for Autonomous Driving using Driving Experience Information)  
Funded by *Electronics and Telecommunications Research Institute* [18HS1420 (IITP 2017-0-00068), Grant: \$40,000; Primary-PI]
- **Improving Massive Deep Learning Training via Computation and Communication Acceleration** 04/2018–10/2018  
(Development of HPC System for Accelerating Large-Scale Deep Learning)  
Funded by *Electronics and Telecommunications Research Institute* [18HS1710 (IITP 2016-0-00087), Grant: \$30,000; Primary-PI]
- **Parsing Techniques for Artificial Neural Network (ANN) Data Processing** 09/2017–11/2017  
(A Development of Driving Decision Engine for Autonomous Driving using Driving Experience Information)  
Funded by *Electronics and Telecommunications Research Institute* [17HS2720 (IITP 2017-0-00068), Grant: \$40,000; Primary-PI]

#### Awards and Fellowship Funds

- **Insung Research Grant Award (2023) – Korea University** 03/2023–02/2024  
For recognizing Korea University professors in research excellence during the first 3 years at Korea University (Top 5%)  
Awarded Project Title: **Quantum Machine Learning for Autonomous Mobility Systems**  
Awarded Project Fund: \$20,000
- **Annenberg Graduate Fellowship Award (2009) – University of Southern California** 08/2009–06/2013  
Awarded with Ph.D. Admission in Computer Science, Viterbi School of Engineering  
Awarded Fund: 4 Year Full Scholarship (Tuition Waiver and \$120,000 Stipend (\$30,000/year for 4 years))

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

## • Video Aware Wireless Networks (VAWN) Research Program

Funded by Intel Labs, Verizon Wireless, and Cisco Systems; Under the guidance of Prof. Andreas F. Molisch (University of Southern California, USA) and Prof. Giuseppe Caire (Technische Universität Berlin, Germany)

## • 60 GHz Real-Time Wireless Video Broadcasting

Supported by a Gift from Disney Research Zürich; Under the guidance of Prof. Andreas F. Molisch (University of Southern California, USA), Prof. Yafei Tian (Beihang Univ, China), and Dr. Stefan Mangold (Disney Research Zürich, Switzerland)

## Selected Publications

- **8308+ Citations** (H-index: 43+, i10-index 186+), obtained from Google Scholar Profile (as of September 4, 2024)
- **149 journals and 13 top-tier conferences**, <https://sites.google.com/view/aimlab-kuee/publications>
  - **114** IEEE journals/magazines, among them, **81** publications are in **IEEE Magazines and ComSoc/VTSS/ITSS Journals**

## Dissertation, Books, and Book Chapters

### ■ Ph.D. Dissertation

- *Elements of Next-Generation Wireless Video Systems: Millimeter-Wave and Device-to-Device Algorithms*  
Ph.D. Dissertation (Computer Science), University of Southern California (Los Angeles, California, USA, August 2014)

### ■ Books and Book Editing

- *Fundamentals of 6G Communications and Networking*, Springer (2023). (Editors: X. Lin, J. Zhang, Y. Liu, [J. Kim](#))

### ■ Book Chapters

- *Fundamentals of 6G Communications and Networking*, Springer (2023).
  - Chapter 30. Network Security and Trustworthiness, (S. Jung, S. Park, S.B. Son, H. Lee, [J. Kim](#))
  - Chapter 29. Semantic Communications and Networking, (W.J. Yun, S. Park, R. Lee, J. Park, Y.-C. Ko, [J. Kim](#))
  - Chapter 28. Convergence of 6G and Wi-Fi Networks, (H. Lee, S. Park, M. Yoo, C. Park, H. Baek, [J. Kim](#))
  - Chapter 26. UAV Communications and Networks, (S. Park, J.-H. Lee, S. Jung, [J. Kim](#))
  - Chapter 22. AI-Native Network Algorithms and Architectures, (H. Lee, S. Park, H. Baek, C. Park, S. Son, J. Park, [J. Kim](#))
  - Chapter 21. AI-Native Communications, (H. Baek, H. Lee, S. Park, H. Lee, J. Park, [J. Kim](#))
  - Chapter 20. Network Disaggregation, (S. Park, C. Park, J.P. Kim, M. Choi, [J. Kim](#))
  - Chapter 1. Introduction to 6G Communications and Networking, (X. Lin, J. Zhang, Y. Liu, [J. Kim](#))
- *Advances and Applications in Deep Learning*, IntechOpen (2020).
  - Chapter 6. Dynamic Decision-Making for Stabilized Deep Learning Software Platforms, (S. Park, D. Kim, [J. Kim](#))
- *Towards 5G: Applications, Requirements and Candidate Technologies*, Wiley (2017).
  - Chapter 9. Device-to-Device Communications, (A.F. Molisch, M. Ji, [J. Kim](#), D. Burghal, A.S. Tehrani)
- *Opportunities in 5G Networks: A Research and Development Perspective*, CRC Press (2016).
  - Chapter 19. Millimeter-Wave (mmWave) Medium Access Control: A Survey, ([J. Kim](#))
  - Chapter 17. Millimeter-Wave (mmWave) Radio Propagation Characteristics, ([J. Kim](#))
- *Handbook on Mobile and Ubiquitous Computing: Status and Perspective*, CRC Press (2012).
  - Chapter 22. Weighted Localized Clustering: A Coverage-Aware Reader Collision Arbitration Protocol in RFID Networks, ([J. Kim](#), E. Kim, W. Lee, D. Kim, J. Choi, J. Jung, C.K. Shin)
- *Wireless Mesh Networking*, McGraw-Hill (2008).
  - Chapter 2.5.4.1. Coverage-Time Optimized Dynamic Clustering for Two-Tiered WM2Nets, ([J. Kim](#), W. Lee, E. Kim, T.K. Shih)

## Selected Papers

### ■ Conferences – Top-Tiers, Awarded/Honored, and Highly-Cited (Selected)

- [INFOCOM'25] (Notification: 06-Dec-2024) (Double Blind Review), **INFOCOM (2025)**. (C. Im, S. Park, W. Lee, [J. Kim](#))
- [INFOCOM'25] (Notification: 06-Dec-2024) (Double Blind Review), **INFOCOM (2025)**. (G.S. Kim, E.J. Roh, S. Park, [J. Kim](#))
- [NOMS'25] (Notification: 20-Dec-2024) Joint Multi-Agent Reinforcement Learning and Message-Passing for Distributed Multi-UAV Network Management using Conflict Graphs, **NOMS (2025)**. (Y. Cho, H. Lee, S. Park, [J. Kim](#))
- [AAAI'25] (Notification: 09-Dec-2024) (Double Blind Review), **AAAI (2025)**. (J.Y. Shim, X. Piao, [J. Kim](#), J.-K. Kim)
- [AAAI'25] (Notification: 09-Dec-2024) (Double Blind Review), **AAAI (2025)**. (G.S. Kim, E.J. Roh, S. Park, [J. Kim](#))
- [CIKM'24] Hands-On Introduction to Quantum Machine Learning (Tutorial), **CIKM (2024)**. (S. Y.-C. Chen, [J. Kim](#))
- [WiOpt'24] Advanced Taxiing Path Guidance using Multi-Agent Reinforcement Learning for Air Traffic Management, **WiOpt (2024)**. (S. Lee, G.S. Kim, S. Park, [J. Kim](#))
- [CIKM'23] Quantum Split Learning for Privacy-Preserving Information Management, **CIKM (2023)**. (S. Park, H. Baek, [J. Kim](#))
- [CIKM'23] Logarithmic Dimension Reduction for Quantum Neural Networks, **CIKM (2023)**. (H. Baek, S. Park, [J. Kim](#))
- [AAAI'23] Quantum Multi-Agent Meta Reinforcement Learning, **AAAI (2023)**. (W.J. Yun, J. Park, [J. Kim](#))
- [AAAI'23] FV-Train: Quantum Convolutional Neural Network Training with a Finite Number of Qubits by Extracting Diverse Features, **AAAI Student Abstract and Poster (2023)**. (H. Baek, W.J. Yun, [J. Kim](#)) (**Finalist, Oral Presentation Contest**)
- [CIKM'22] Hierarchical Reinforcement Learning using Gaussian Random Trajectory Generation in Autonomous Furniture Assembly, **CIKM (2022)**. (W.J. Yun, D. Mohaisen, S. Jung, J.-K. Kim, [J. Kim](#))
- [ICTC'22] Reinforcement Learning Empowered Massive IoT Access in LEO-based Non-Terrestrial Networks, **ICTC (2022)**. (J.-H. Lee, D.P. Selvam, A.F. Molisch, [J. Kim](#)) (**Best Paper Award**)
- [WiOpt'22] Cooperative Video Quality Adaptation for Delay-Sensitive Dynamic Streaming using Adaptive Super-Resolution, **WiOpt (2022)**. (M. Choi, W.J. Yun, [J. Kim](#))



- [ICML'22] Slimmable Quantum Federated Learning, **ICML Workshop on Dynamic Neural Networks (2022)**. (W.J. Yun, J.P. Kim, S. Jung, J. Park, M. Bennis, J. Kim) ([Spotlight, Oral Presentation](#))
- [INFOCOM'22] Joint Superposition Coding and Training for Federated Learning over Multi-Width Neural Networks, **INFOCOM (2022)**. (H. Baek, W.J. Yun, Y. Kwak, S. Jung, M. Ji, M. Bennis, J. Park, J. Kim)
- [ICOIN'21] Infrastructure-Assisted Cooperative Multi-UAV Deep Reinforcement Energy Trading Learning for Big-Data Processing, **ICOIN (2021)**. (S. Jung, W.J. Yun, J. Kim, J.-H. Kim) ([Best Paper Award](#))
- [ICTC'20] A Tutorial on Quantum Convolutional Neural Networks (QCNN), **ICTC (2020)**. (S. Oh, J. Choi, J. Kim) ([Citations: 100+](#))
- [ICDCS'20] Understanding the Potential Risks of Sharing Elevation Information on Fitness Applications, **ICDCS (2020)**. (Ü. Meteriz, N.F. Yildiran, J. Kim, D. Mohaisen)
- [ICML'20] XOR Mixup: Privacy-Preserving Data Augmentation for One-Shot Federated Learning, **ICML Workshop on Federated Learning for User Privacy and Data Confidentiality (2020)**. (M. Shin, C. Hwang, J. Kim, J. Park, M. Bennis, S.-L. Kim) ([Citations: 100+](#))
- [IJCAI'19] Randomized Adversarial Imitation Learning for Autonomous Driving, **IJCAI (2019)**. (M. Shin, J. Kim)
- [ICBC'19] Mempool Optimization for Defending Against DDoS Attacks in PoW-based Blockchain Systems, **ICBC (2019)**. (M. Saad, L. Njilla, C. Kamhoua, J. Kim, D. Nyang, A. Mohaisen) ([Citations: 100+](#))
- [ICDCS'18] ShmCaffe: A Distributed Deep Learning Platform with Shared Memory Buffer for HPC Architecture, **ICDCS (2018)**. (S. Ahn, J. Kim, E. Lim, W. Choi, A. Mohaisen, S. Kang)
- [MM'17] REQUEST: Seamless Dynamic Adaptive Streaming over HTTP for Multi-Homed Smartphone under Resource Constraints, **Multimedia (2017)**. (J. Koo, J. Yi, J. Kim, M.A. Hoque, S. Choi)
- [ITA'14] Joint Scheduling and Stochastic Streaming for Device-to-Device Video Delivery, **ITA Workshop (2014)**. (J. Kim, A. Turci, G. Caire, A.F. Molisch) ([ITA Graduation Day Talk](#))
- [MobiSys'10] Energy-Efficient Rate-Adaptive GPS-based Positioning for Smartphones, **MobiSys (2010)**. (J. Paek, J. Kim, R. Govindan) ([Citations: 600+](#))

## ■ Journals and Magazines

### ◀ Review ▶

- [JSAC.review] (Review since 30-Aug-2024) Joint Communication, Computing, and Control for Mission-Critical Multi-UAV Networks, **IEEE Journal on Selected Areas in Communications**. (G.S. Kim, S. Park, S. Jung, D. Mohaisen, J. Kim)
- [CIM.review] (Review since 25-Aug-2024) (Double Blind Review), **IEEE Computational Intelligence Magazine**. (J. Kim, E.J. Roh, C. Im, S. Park)
- [TVT.review] (Review since 20-Aug-2024) Learning-based Aircraft Taxi Routing: Empirical Evaluation Study for Hartsfield-Jackson Atlanta International Airport, **IEEE Transactions on Vehicular Technology**. (G.S. Kim, S. Lee, S. Park, J. Kim)
- [NM.review] (Review since 15-Aug-2024) Quantum Neural Networks for Mobility and Network Applications, **IEEE Network**. (H. Lee, G. S. Kim, E. J. Roh, S. Lee, S. Park, J. Kim)
- [TETC.review] (Review since 26-Jun-2024) Reliable Transpilation Control for Cloud-based Quantum Learning Systems, **IEEE Transactions on Emerging Topics in Computing**. (J. Y. Shim, X. Piao, S. Park, J. Kim, J.-K. Kim)
- [IOTJ.review] (Review since 24-Jun-2024) Privacy-Preserving Uncertainty Calibration using Perceptual Encryption in Cloud-Edge Collaborative Artificial Intelligence of Things, **IEEE Internet of Things Journal**. (I. Ahmad, J. Kim, S. Shin)
- [TETCI.review] (Review since 08-Jun-2024) (Double Blind Review), **IEEE Transactions on Emerging Topics in Computational Intelligence**. (C. Im, S. Park, J. Kim)
- [CM.review] (Review since 06-Jun-2024) Sustainable Quantum Multi-Agent Cooperative Learning: Algorithms and Software Methods, **IEEE Communications Magazine**. (S. Park, J. Kim)
- [TMC.review] (Review since 30-May-2024) Quantum Multi-Agent Reinforcement Learning for Cooperative Mobile Access in Space-Air-Ground Integrated Networks, **IEEE Transactions on Mobile Computing**. (G.S. Kim, Y. Cho, J. Chung, S. Park, S. Jung, Z. Han, J. Kim)
- [Neuro.review] (Review since 10-May-2024) Multi-Resolution 3D Quantum Convolutional Neural Networks, **Neurocomputing (Elsevier)**. (S. Park, E.J. Roh, C. Im, J. Kim)
- [IOTJ.review] (Review since 22-Apr-2024) Joint Quantum Reinforcement Learning and Neural Myerson Auction for High-Quality Digital-Twin Services in Multi-Tier Networks, **IEEE Internet of Things Journal**. (S. Park, G.S. Kim, J. Kim)
- [TNNLS.review] (Double Blind Review), **IEEE Transactions on Neural Networks and Learning Systems**. (H. Baek, J. Chung, S. Park, J. Kim)
- [TON.review] (Review since 05-Apr-2024) Slimmable Federated Reinforcement Learning for Energy-Efficient Proactive Caching, **IEEE/ACM Transactions on Networking**. (H. Baek, G.S. Kim, S. Park, A.F. Molisch, J. Kim)
- [MM.review] (Review since 25-Mar-2024) Quantum Jump to Virtual Worlds: High-Quality Multiple Virtual Meta-Space Realization in Metaverse, **IEEE Multimedia**. (S. Park, J. Kim)

### ◀ Revision ▶

- [TIV.revision] Quantum Multi-Agent Reinforcement Learning for Joint Cube-Satellites and High-Altitude Long-Endurance Aerial Vehicles in SAGIN, **IEEE Transactions on Intelligent Vehicles**. (G.S. Kim, Y. Cho, S. Park, S. Jung, J. Kim)
- [IOTJ.revision] Entanglement-Controlled Quantum Federated Learning, **IEEE Internet of Things Journal**. (S. Park, H. Lee, S. Jung, J. Park, M. Bennis, J. Kim)
- [TMC.revision] Joint Sustainable Control and Quantum Reinforcement Learning for Energy-Efficient Cube-Satellite Networks, **IEEE Transactions on Mobile Computing**. (S. Park, G.S. Kim, S. Jung, Z. Han, J. Kim)
- [CM.revision] Dynamic Software Testing for Run-Time Program Analysis in Quantum-based Autonomous Driving Applications, **IEEE Communications Magazine**. (S. Park, J. Kim)
- [CM.revision] Quantum Neural Network Software Testing, Analysis, and Code Optimization for Advanced IoT Systems: Design,

Implementation, and Visualization, *IEEE Communications Magazine*. (S. Park, J. Kim)

[NN.revision] Quantum Federated Learning with Pole-Angle Quantum Local Training and Trainable Measurement, *Neural Networks (Elsevier)*. (S. Park, H. Lee, S.B. Son, S. Jung, J. Kim)

[TNSM.revision] Intelligent Extra Resource Allocation for Cooperative Awareness Message Broadcasting in Cellular-V2X Networks, *IEEE Transactions on Network and Service Management*. (S. Jung, J.-H. Kim, J. Kim)

[TMC.revision] Fast Quantum Convolutional Neural Networks for Low-Complexity Object Detection in Autonomous Driving Applications, *IEEE Transactions on Mobile Computing*. (E.J. Roh, H. Baek, D. Kim, J. Kim)

[TIV.revision] Adaptive Quantum Federated Learning for Autonomous Surveillance Multi-Drone Networks, *IEEE Transactions on Intelligent Vehicles*. (S. Park, C. Park, S. Jung, J. Kim)

#### ◀ Accepted ▶

[CM.accepted] The Matrix: Quantum AI for Interacting Two Worlds in Prioritized Metaverse Spaces, *IEEE Communications Magazine*. (S. Park, H. Baek, J. Kim)

[TON.accepted] Spatio-Temporal Multi-Metaverse Dynamic Streaming for Hybrid Quantum-Classical Systems, *IEEE/ACM Transactions on Networking*. (S. Park, H. Baek, J. Kim)

[IOT].accepted] Markov Decision Policies for Distributed Angular Routing in LEO Mobile Satellite Constellation Networks, *IEEE Internet of Things Journal*. (S. Park, G.S. Kim, S. Jung, J. Kim)

[TVT.accepted] Dynamic Quantum Federated Learning for UAV-based Autonomous Surveillance, *IEEE Transactions on Vehicular Technology*. (S. Park, S.B. Son, S. Jung, J. Kim)

[TIV.accepted] Neural Myerson Auction for Truthful and Distributed Mobile Charging in UAV-Assisted Digital-Twin Networks, *IEEE Transactions on Intelligent Vehicles*. (S. Jung, H. Baek, J. Kim)

[TMC.accepted] Joint Quantum Reinforcement Learning and Stabilized Control for Spatio-Temporal Coordination in Metaverse, *IEEE Transactions on Mobile Computing*. (S. Park, J. Chung, C. Park, S. Jung, M. Choi, S. Cho, J. Kim)

#### ◀ 2024 ▶

[CM'24.10] Quantum Multi-Agent Reinforcement Learning is All You Need: Coordinated Global Access in Integrated TN/NTN Cube-Satellite Networks, *IEEE Communications Magazine*, 62(10):ppp-ppp (2024). (S. Park, G.S. Kim, Z. Han, J. Kim)

[FGCS'24.10] AQUA: Analytics-driven Quantum Neural Network (QNN) User Assistance for Software Validation, *Future Generation Computer Systems (Elsevier)*, 159:545-556 (2024). (S. Park, H. Baek, J.W. Yoon, Y.K. Lee, J. Kim)

[ETRI'24.10] Trends in Quantum Reinforcement Learning: State-of-the-Arts and the Road Ahead, *ETRI Journal (Wiley)*, 46(5):ppp-ppp (2024). (S. Park, J. Kim) (Invited Article)

[Access'24.09] Sensing-to-Sky Intermittent Connectivity Realization for LTE-Enabled Drone Platforms: Embedded Design, Measurement Study, and Positioning Applications, *IEEE Access (VTS Section)*, 12:ppp-ppp (2024). (J. Kim, S. Park, U. Jo, T. Kim, S. Jung, J. Kim)

[TNSM'24.08] Cooperative Multi-UAV Positioning for Aerial Internet Service Management: A Multi-Agent Deep Reinforcement Learning Approach, *IEEE Transactions on Network and Service Management*, 21(4):3797-3812 (2024). (J. Kim, S. Park, S. Jung, C. Cordeiro)

[Access'24.08] Enhancing Cost-Effective 5G Virtualized RAN Pooling Gain on Clouds: An Intelligent Auto-Scaling Approach, *IEEE Access*, 12:111322-111333 (2024). (K. Cho, J. Kim, S. Jung)

[TVT'24.07] Age-of-Information Aware Caching and Delivery for Infrastructure-Assisted Connected Vehicles, *IEEE Transactions on Vehicular Technology*, 73(7):10681-10696 (2024). (S. Park, C. Park, S. Jung, M. Choi, J. Kim)

[MTAP'24.07] Stabilized Performance Maximization for GAN-based Real-Time Authentication Image Generation over Internet, *Multimedia Tools and Applications (Springer)*, 83(22):62045-62059 (2024). (J.Y. Shim, S. Jung, J. Kim, J.-K. Kim)

[CM'24.06] Quantum Multi-Agent Reinforcement Learning for Autonomous Mobility Cooperation, *IEEE Communications Magazine*, 62(6):106-112 (2024). (S. Park, J.P. Kim, C. Park, S. Jung, J. Kim)

[TVT'24.04] Learning-Based Cooperative Mobility Control for Autonomous Drone-Delivery, *IEEE Transactions on Vehicular Technology*, 73(4):4870-4885 (2024). (S. Park, C. Park, J. Kim)

[Access'24.04] Dynamic Quantum Federated Learning for Satellite-Ground Integrated Systems using Slimmable Quantum Neural Networks, *IEEE Access (VTS Section)*, 12:58239-58247 (2024). (S. Park, S. Jung, J. Kim)

[Access'24.04] Quantum Reinforcement Learning for Spatio-Temporal Prioritization in Metaverse, *IEEE Access*, 12:54732-54744 (2024). (S. Park, H. Baek, J. Kim)

[TWC'24.03] Joint User Clustering, Beamforming, and Power Allocation for mmWave-NOMA with Imperfect SIC, *IEEE Transactions on Wireless Communications*, 23(3):2025-2038 (2024). (B. Lim, W.J. Yun, J. Kim, Y.-C. Ko)

[TGCN'24.03] Joint Delay-Sensitive and Power-Efficient Quality Control of Dynamic Video Streaming using Adaptive Super-Resolution, *IEEE Transactions on Green Communications and Networking*, 8(1):103-117 (2024). (M. Choi, W.J. Yun, S.B. Son, S. Park, J. Kim)

[TIV'24.02] Intelligent Caching for Seamless High-Quality Streaming in Vehicular Networks: A Multi-Agent Reinforcement Learning Approach, *IEEE Transactions on Intelligent Vehicles*, 9(2):3672-3686 (2024). (M. Choi, T. Xiang, J. Kim)

[TNNLS'24.02] Hierarchical Deep Reinforcement Learning-based Propofol Infusion Assistant Framework in Anesthesia, *IEEE Transactions on Neural Networks and Learning Systems*, 35(2):2510-2521 (2024). (W.J. Yun, M. Shin, D. Mohaisen, K. Lee, J. Kim)

[TMC'24.01] Learning Location from Shared Elevation Profiles in Fitness Apps: A Privacy Perspective, *IEEE Transactions on Mobile Computing*, 23(1):581-596 (2024). (U. Meteriz, N.F. Yildiran, J. Kim, D. Mohaisen)

#### ◀ 2023 ▶

[TON'23.12] SlimFL: Federated Learning with Superposition Coding over Slimmable Neural Networks, *IEEE/ACM Transactions on Networking*, 31(6):2499-2514 (2023). (W.J. Yun, Y. Kwak, H. Baek, S. Jung, M. Ji, M. Bennis, J. Park, J. Kim)

[IET'23.12] Two-Stage Architectural Fine-Tuning for Neural Architecture Search in Efficient Transfer Learning, *IET Electronics*



*Letters*, 59(24):e13066 (2023). (S. Park, S.B. Son, Y.K. Lee, S. Jung, J. Kim)

- [IOTI'23.11] Quantum Multiagent Actor–Critic Networks for Cooperative Mobile Access in Multi-UAV Systems, *IEEE Internet of Things Journal*, 10(22):20033–20048 (2023). (C. Park, W.J. Yun, J.P. Kim, S. Park, T.K. Rodrigues, S. Jung, J. Kim)
- [TVT'23.11] Two-Stage Self-Adaptive Task Outsourcing Decision Making for Edge-Assisted Multi-UAV Networks, *IEEE Transactions on Vehicular Technology*, 72(11):14889–14905 (2023). (S. Jung, C. Park, M. Levorato, J.-H. Kim, J. Kim)
- [ETRI'23.10] Joint Frame Rate Adaptation and Object Recognition Model Selection for Stabilized Unmanned Aerial Vehicle Surveillance, *ETRI Journal (Wiley)*, 45(5):811–821 (2023). (G.S. Kim, H. Lee, S. Park, J. Kim)
- [ETRI'23.10] Two Tales of Platoon Intelligence for Autonomous Mobility Control: Enabling Deep Learning Recipes, *ETRI Journal (Wiley)*, 45(5):735–745 (2023). (S. Park, H. Lee, C. Park, S. Jung, M. Choi, J. Kim) (Invited Article)
- [ETRI'23.10] Special Issue on Autonomous Unmanned Aerial/Ground Vehicles and their Applications, *ETRI Journal (Wiley)*, 45(5):731–734 (2023). (J. Kim, Y.-C. Lee, J.H. Lee, J.S. Choi)
- [IC'23.09-10] EQuaTE: Efficient Quantum Train Engine for Run-Time Dynamic Analysis and Visual Feedback in Autonomous Driving, *IEEE Internet Computing*, 27(5):24–31 (2023). (S. Park, H. Feng, C. Park, Y.K. Lee, S. Jung, J. Kim)
- [OJCS'23.09] Real-Time High-Quality Visualization for Volumetric Contents Rendering: A Lyapunov Optimization Framework, *IEEE Open Journal of the Computer Society*, 4:243–252 (2023). (H. Baek, R. Lee, S. Jung, J. Kim, S. Park)
- [TIV'23.08] Multi-Agent Reinforcement Learning for Cooperative Air Transportation Services in City-Wide Autonomous Urban Air Mobility, *IEEE Transactions on Intelligent Vehicles*, 8(8):4016–4030 (2023). (C. Park, G.S. Kim, S. Park, S. Jung, J. Kim)
- [NN'23.08] Stereoscopic Scalable Quantum Convolutional Neural Networks, *Neural Networks (Elsevier)*, 165:860–867 (2023). (H. Baek, W.J. Yun, S. Park, J. Kim)
- [IOTI'23.06] Quantum Multiagent Actor–Critic Neural Networks for Internet-Connected Multirobot Coordination in Smart Factory Management, *IEEE Internet of Things Journal*, 10(11):9942–9952 (2023). (W.J. Yun, J.P. Kim, S. Jung, J.-H. Kim, J. Kim)
- [ICTE'23.06] Quantum Distributed Deep Learning Architectures: Models, Discussions, and Applications, *ICT Express (Elsevier)*, 9(3):486–491 (2023). (Y. Kwak, W.J. Yun, J.P. Kim, H. Cho, J. Park, M. Choi, S. Jung, J. Kim)
- [Access'23.05] Entropy-Aware Similarity for Balanced Clustering: A Case Study with Melanoma Detection, *IEEE Access*, 11:46892–46902 (2023). (S.B. Son, S. Park, J. Kim)
- [ComNet'23.04] Self-Adaptive End-to-End Resource Management for Real-Time Monitoring in Cyber-Physical Systems, *Computer Networks (Elsevier)*, 225:109669 (2023). (H.-C. Jo, H.-W. Jin, J. Kim)
- [ComNet'23.04] Truthful and Performance-Optimal Computation Outsourcing for Aerial Surveillance Platforms via Learning-based Auction, *Computer Networks (Elsevier)*, 225:109651 (2023). (S. Jung, J.-H. Kim, D. Mohaisen, J. Kim)
- [CIBM'23.04] Deep Reinforcement Learning-based Propofol Infusion with a 3,000-subject Dataset in Anesthesia, *Computers in Biology and Medicine (Elsevier)*, 156:106739 (2023). (W.J. Yun, M. Shin, S. Jung, J. Ko, H.-C. Lee, J. Kim)
- [Access'23.03] Audio-to-Visual Cross-Modal Generation of Birds, *IEEE Access*, 11:27719–27729 (2023). (J.Y. Shim, J. Kim, J.-K. Kim)
- [Access'23.02] Workload-Aware Scheduling using Markov Decision Process for Infrastructure-Assisted Learning-Based Multi-UAV Surveillance Networks, *IEEE Access (VTS Section)*, 11:16533–16548 (2023). (S. Park, C. Park, S. Jung, J.-H. Kim, J. Kim)
- [TITS'23.01] Self-Configurable Stabilized Real-Time Detection Learning for Autonomous Driving Applications, *IEEE Transactions on Intelligent Transportation Systems*, 24(1):885–890 (2023). (W.J. Yun, S. Park, J. Kim, D. Mohaisen)
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- [JCN'22.12] Neural Myerson Auction for Truthful and Energy-Efficient Autonomous Aerial Data Delivery, *Journal of Communications and Networks*, 24(6):730–741 (2022). (H. Lee, S. Kwon, S. Jung, J. Kim)
- [JCN'22.12] Parallelized and Randomized Adversarial Imitation Learning for Safety-Critical Self-Driving Vehicles, *Journal of Communications and Networks*, 24(6):710–721 (2022). (W.J. Yun, M. Shin, S. Jung, S. Kwon, J. Kim)
- [TII'22.10] Cooperative Multi-Agent Deep Reinforcement Learning for Reliable Surveillance via Autonomous Multi-UAV Control, *IEEE Transactions on Industrial Informatics*, 18(10):7086–7096 (2022). (W.J. Yun, S. Park, J. Kim, M. Shin, S. Jung, D. Mohaisen, J.-H. Kim) (Citations: 100+)
- [ICTE'22.09] Trustworthy Handover in LEO Satellite Mobile Networks, *ICT Express (Elsevier)*, 8(3):432–437 (2022). (S. Jung, M.-S. Lee, J. Kim, M.-Y. Yun, J. Kim, J.-H. Kim)
- [TVT'22.07] Joint Pilot Design and Channel Estimation using Deep Residual Learning for Multi-Cell Massive MIMO under Hardware Impairments, *IEEE Transactions on Vehicular Technology*, 71(7):7599–7612 (2022). (B. Lim, W.J. Yun, J. Kim, Y.-C. Ko)
- [ITU'22.07] Dynamic Resource Scheduling for Real-Time Group Broadcasting in 6G Cellular Vehicular Networks, *ITU Journal on Future and Evolving Technologies*, 3(1):81–88 (2022). (S. Jung, M. Levorato, J. Kim)
- [ISJ'22.06] Securing Heterogeneous IoT with Intelligent DDoS Attack Behavior Learning, *IEEE Systems Journal*, 16(2):1974–1983 (2022). (N.-N. Dao, T. Phan, U. Sa'ad, J. Kim, T. Bauschert, D.-T. Do, S. Cho)
- [CSM'22.06] Recent and Future Evolution of Wi-Fi, *IEEE Communications Standards Magazine*, 6(2):8–11 (2022). (E. Au, L. Wilhelmsson, T. Baykas, J. Kim)
- [TMC'22.05] Supremo: Cloud-Assisted Low-Latency Super-Resolution in Mobile Devices, *IEEE Transactions on Mobile Computing*, 21(5):1847–1860 (2022). (J. Yi, S. Kim, J. Kim, S. Choi)
- [TVT'22.05] Stabilized Detection Accuracy Maximization using Adaptive SAR Image Processing in LEO Networks, *IEEE Transactions on Vehicular Technology*, 71(5):5661–5665 (2022). (K. Kim, J.-H. Lee, S. Jung, J. Kim, J.-H. Kim)
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- [TVT'22.02] Quality-Aware Deep Reinforcement Learning for Streaming in Infrastructure-Assisted Connected Vehicles, *IEEE Transactions on Vehicular Technology*, 71(2):2002–2017 (2022). (W.J. Yun, D. Kwon, M. Choi, J. Kim, G. Caire, A.F. Molisch)
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## ◀ 2021 ▶

- [JRTIP'21.10] Adaptive and Stabilized Real-Time Super-Resolution Control for UAV-Assisted Smart Harbor Surveillance Platforms, *Journal of Real-Time Image Processing (Springer)*, 18(5):1815–1825 (2021). (S. Jung, J. Kim)
- [ISJ'21.09] Intelligent Active Queue Management for Stabilized QoS Guarantees in 5G Mobile Networks, *IEEE Systems Journal*, 15(3):4293–4302 (2021). (S. Jung, J. Kim, J.-H. Kim)
- [Access'21.09] Spatio-Temporal Split Learning for Privacy-Preserving Medical Platforms: Case Studies with COVID-19 CT, X-Ray, and Cholesterol Data, *IEEE Access*, 9:121046–121059 (2021). (Y.J. Ha, M. Yoo, G. Lee, S. Jung, S. Choi, J. Kim, S. Yoo)
- [TVT'21.08] Infrastructure-Assisted On-Driving Experience Sharing for Millimeter-Wave Connected Vehicles, *IEEE Transactions on Vehicular Technology*, 70(8):7307–7321 (2021). (S. Jung, J. Kim, M. Levorato, C. Cordeiro, J.-H. Kim)
- [TMC'21.06] A Personalized Preference Learning Framework for Caching in Mobile Networks, *IEEE Transactions on Mobile Computing*, 20(6):2124–2139 (2021). (A. Malik, K.S. Kim, J. Kim, W.-Y. Shin)
- [TVT'21.06] Orchestrated Scheduling and Multi-Agent Deep Reinforcement Learning for Cloud-Assisted Multi-UAV Charging Systems, *IEEE Transactions on Vehicular Technology*, 70(6):5362–5377 (2021). (S. Jung, W.J. Yun, M. Shin, J. Kim, J.-H. Kim)
- [Access'21.06] Joint Mobile Charging and Coverage-Time Extension for Unmanned Aerial Vehicles, *IEEE Access*, 9:94053–94063 (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 (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 (2021). (J. Park, S. Samarakoon, A. Elgabli, J. Kim, M. Bennis, S.-L. Kim, M. Debbah) (Citations: 200+)
- [TWC'21.04] Probabilistic Caching and Dynamic Delivery Policies for Categorized Contents and Consecutive User Demands, *IEEE Transactions on Wireless Communications*, 20(4):2685–2699 (2021). (M. Choi, A.F. Molisch, D.-J. Han, D. Kim, J. Kim, J. Moon)
- [JCN'21.04] Stabilized Adaptive Sampling Control for Reliable Real-Time Learning-based Surveillance Systems, *Journal of Communications and Networks*, 23(2):129–137 (2021). (D. Kim, S. Park, J. Kim, J.-y. Bang, S. Jung)
- [JCN'21.04] Dynamic Video Delivery using Deep Reinforcement Learning for Device-to-Device Underlaid Cache-Enabled Internet-of-Vehicle Networks, *Journal of Communications and Networks*, 23(2):117–128 (2021). (M. Choi, M. Shin, J. Kim)
- [JNCA'21.04] Contra-\*. Mechanisms for Countering Spam Attacks on Blockchain's Memory Pools, *Journal of Network and Computer Applications (Elsevier)*, 179:102971 (2021). (M. Saad, J. Kim, D. Nyang, D. Mohaisen)
- [ISJ'21.03] Multiscale LSTM-Based Deep Learning for Very-Short-Term Photovoltaic Power Generation Forecasting in Smart City Energy Management, *IEEE Systems Journal*, 15(1):346–354 (2021). (D. Kim, D. Kwon, L. Park, J. Kim, S. Cho)
- [ICTE'21.03] Distributed Deep Reinforcement Learning for Autonomous Aerial eVTOL Mobility in Drone Taxi Applications, *ICT Express (Elsevier)*, 7(1):1–4 (2021). (W.J. Yun, S. Jung, J. Kim, J.-H. Kim)
- [IET'21.03] Empirically Comparing the Performance of Blockchain's Consensus Algorithms, *IET Blockchain*, 1(1):56–64 (2021). (A. Ahmad, A. Alabduljabbar, M. Saad, D. Nyang, J. Kim, D. Mohaisen)

## ◀ 2020 ▶

- [TWC'20.12] Joint Distributed Link Scheduling and Power Allocation for Content Delivery in Wireless Caching Networks, *IEEE Transactions on Wireless Communications*, 19(12):7810–7824 (2020). (M. Choi, A.F. Molisch, J. Kim) (IEEE ComSoc MMTC Best Journal Paper Award (2021))
- [IOTI'20.10] Multiagent DDPG-Based Deep Learning for Smart Ocean Federated Learning IoT Networks, *IEEE Internet of Things Journal*, 7(10):9895–9903 (2020). (D. Kwon, J. Jeon, S. Park, J. Kim, S. Cho) (Citations: 100+)
- [JCN'20.08] Self-Adaptive Power Control with Deep Reinforcement Learning for Millimeter-Wave Internet-of-Vehicles Video Caching, *Journal of Communications and Networks*, 22(4):326–337 (2020). (D. Kwon, J. Kim, D. Mohaisen, W. Lee)
- [Access'20.06] Blind Signal Classification Analysis and Impact on User Pairing and Power Allocation in Nonorthogonal Multiple Access, *IEEE Access*, 8:100916–100929 (2020). (M. Choi, J. Kim)
- [TII'20.05] Cooperative Management for PV/ESS-Enabled Electric-Vehicle Charging Stations: A Multiagent Deep Reinforcement Learning Approach, *IEEE Transactions on Industrial Informatics*, 16(5):3493–3503 (2020). (M. Shin, D. Choi, J. Kim) (Citations: 100+)
- [ETRI'20.04] Simulation and Measurement: Feasibility Study of Tactile Internet Applications for mmWave Virtual Reality, *ETRI Journal (Wiley)*, 42(2):163–174 (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 (2020). (M. Saad, J. Choi, D. Nyang, J. Kim, A. Mohaisen) (Citations: 100+) (IEEE Systems Journal Best Paper Award (2020))
- [JCN'20.02] Numerical Approximation of Millimeter-Wave Frequency Sharing between Cellular Systems and Fixed Service Systems, *Journal of Communications and Networks*, 22(1):37–45 (2020). (S. Han, J.-W. Choi, J. Kim)
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## ◀ 2019 ▶

- [TWC'19.12] Markov Decision Policies for Dynamic Video Delivery in Wireless Caching Networks, *IEEE Transactions on Wireless Communications*, 18(12):5705–5718 (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 (2019). (M. Choi, J. Kim, J. Moon)
- [IOTI'19.10] Two-Stage IoT Device Scheduling with Dynamic Programming for Energy Internet Systems, *IEEE Internet of Things Journal*, 6(5):8782–8791 (2019). (L. Park, C. Lee, J. Kim, A. Mohaisen, S. Cho)
- [TVT'19.10] Blind Signal Classification for Non-Orthogonal Multiple Access in Vehicular Networks, *IEEE Transactions on Vehicular*



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- [WPC'19.08] Semantic Hashtag Relation Classification Using Co-occurrence Word Information, *Wireless Personal Communications (Springer)*, 107(3):1355–1365 (2019). (S. Seo, J.-K. Kim, S.-I. Kim, J. Kim, J. Kim)
- [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 (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 (2019). (M. Shin, J. Kim, M. Levorato) (Citations: 100+)
- [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 (2019). (N. Dao, M. Park, J. Kim, J. Paek, S. Cho)
- [ETT'19.04] Thriving on Chaos: Proactive Detection of Command and Control Domains in Internet of Things-Scale Botnets using DRIFT, *Transactions on Emerging Telecommunications Technologies (Wiley)*, 30(4):e3505 (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 (2019). (L. Park, S. Jeong, D.S. Lakew, J. Kim, S. Cho)
- [TIE'19.02] Joint Geometric Unsupervised Learning and Truthful Auction for Local Energy Market, *IEEE Transactions on Industrial Electronics*, 66(2):1499–1508 (2019). (L. Park, S. Jeong, J. Kim, S. Cho)

◀ 2018 ▶

- [IOT'18.12] Internet of Things for Smart Manufacturing System: Trust Issues in Resource Allocation, *IEEE Internet of Things Journal*, 5(6):4418–4427 (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 (2018). (N.-N. Dao, D.-N. Vu, W. Na, J. Kim, S. Cho)
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- [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 (2018). (M. Choi, J. Kim, J. Moon)
- [IOT'18.02] Energy-Efficient Mobile Charging for Wireless Power Transfer in Internet of Things Networks, *IEEE Internet of Things Journal*, 5(1):79–92 (2018). (W. Na, J. Park, C. Lee, K. Park, J. Kim, S. Cho) (Citations: 100+)

◀ 2017 ▶

- [TII'17.12] Residential Demand Response for Renewable Energy Resources in Smart Grid Systems, *IEEE Transactions on Industrial Informatics*, 13(6):3165–3173 (2017). (L. Park, Y. Jang, S. Cho, J. Kim) (Citations: 100+)
- [IOT'17.10] Feasibility Study of 60 GHz Millimeter-Wave Technologies for Hyperconnected Fog Computing Applications, *IEEE Internet of Things Journal*, 4(5):1165–1173 (2017). (J. Kim, W. Lee)
- [Access'17.09] A Software-based Monitoring Framework for Time-Space Partitioned Avionics Systems, *IEEE Access*, 5:19132–19143 (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 (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 (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 (2017). (N.-N. Dao, J. Lee, D.-N. Vu, J. Paek, J. Kim, S. Cho, K. Chung, C. Keum)
- [VTM'17.03] The Useful Impact of Carrier Aggregation: A Measurement Study in South Korea for Commercial LTE-Advanced Networks, *IEEE Vehicular Technology Magazine*, 12(1):55–62 (2017). (S. Lee, S. Hyeon, J. Kim, H. Roh, W. Lee)

◀ 2016 ▶

- [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 (2016). (J. Kim, S. Kwon, G. Choi)
- [Access'16.12] Numerical Simulation Study for Frequency Sharing between Micro-Cellular Systems and Fixed Service Systems in Millimeter-Wave Bands, *IEEE Access*, 4:9847–9859 (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 (2016). (J. Kim, G. Caire, A.F. Molisch) (Citations: 200+) (Best Reading Papers in Device-to-Device Communications by IEEE Communications Society)
- [JRTIP'16.08] Stochastic Stable Buffer Control for Quality-Adaptive HEVC Video Transmission in Enterprise WLAN Architectures, *Journal of Real-Time Image Processing (Springer)*, 12(2):465–471 (2016). (J. Kim, E.-S. Ryu)

◀ 2007–2015 ▶

- [TII'15.12] Energy-Efficient Dynamic Packet Downloading for Medical IoT Platforms, *IEEE Transactions on Industrial Informatics*, 11(6):1653–1659 (2015). (J. Kim)
- [TSMC'15.11] Stochastic Decision Making for Adaptive Crowdsourcing in Medical Big-Data Platforms, *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, 45(11):1471–1476 (2015). (J. Kim, W. Lee)
- [MTAP'15.10] Interference Impacts on 60 GHz Real-Time Online Video Streaming in Wireless Smart TV Platforms, *Multimedia Tools and Applications (Springer)*, 74(19):8613–8629 (2015). (J. Kim, S.-N. Hong)



- [IJEC'15.07] Error Concealment Mode Signaling for Robust Mobile Video Transmission, *International Journal of Electronics and Communications (Elsevier)*, 69(7):1070-1073 (2015). (E.-S. Ryu, [J. Kim](#))
- [TS'15.05] Dynamic Two-Stage Beam Training for Energy-Efficient Millimeter-Wave 5G Cellular Systems, *Telecommunication Systems (Springer)*, 59(1):111-122 (2015). ([J. Kim](#), S.-N. Hong)
- [CAEE'15.04] Adaptive Buffer Control for Distributed Autonomous Robust Routing in Mobile Surveillance Robots, *Computers and Electrical Engineering (Elsevier)*, 43:306-316 (2015). ([J. Kim](#), S.-N. Hong)
- [JCN'14.10] Fast Millimeter-Wave Beam Training with Receive Beamforming, *Journal of Communications and Networks*, 16(5):512-522 (2014). ([J. Kim](#), A.F. Molisch) (**Citations: 100+**)
- [IET'14.10] Quality of Video Streaming in 38 GHz Millimetre-Wave Heterogeneous Cellular Networks, *IET Electronics Letters*, 50(21):1526-1528 (2014). ([J. Kim](#), E.-S. Ryu)
- [CL'14.09] Joint Coding and Stochastic Data Transmission for Uplink Cloud Radio Access Networks, *IEEE Communications Letters*, 18(9):1619-1622 (2014). (S.-N. Hong, [J. Kim](#))
- [CL'14.07] A Low-Complexity Algorithm for Neighbor Discovery in Wireless Networks, *IEEE Communications Letters*, 18(7):1119-1122 (2014). (S.-N. Hong, [J. Kim](#))
- [CL'14.03] Fast and Low-Power Link Setup for IEEE 802.15.3c Multi-Gigabit/s Wireless Sensor Networks, *IEEE Communications Letters*, 18(3):455-458 (2014). ([J. Kim](#), A. Mohaisen, J.-K. Kim)
- [TBC'13.09] Joint Scalable Coding and Routing for 60 GHz Real-Time Live HD Video Streaming Applications, *IEEE Transactions on Broadcasting*, 59(3):500-512 (2013). ([J. Kim](#), Y. Tian, S. Mangold, A.F. Molisch)
- [IET'13.02] Distributed Stochastic Buffering for Enterprise WLAN Architectures, *IET Electronics Letters*, 49(4):302-304 (2013). ([J. Kim](#), E.-S. Ryu)
- [TCE'07.11] Movement-Aware Vertical Handoff of WLAN and Mobile WiMAX for Seamless Ubiquitous Access, *IEEE Transactions on Consumer Electronics*, 53(4):1268-1275 (2007). (W. Lee, E. Kim, [J. Kim](#), I. Lee, C. Lee) (**Citations: 100+**)
- [TCE'07.05] Coverage-Time Optimized Dynamic Clustering of Networked Sensors for Pervasive Home Networking, *IEEE Transactions on Consumer Electronics*, 53(2):433-441 (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 (2007). ([J. Kim](#), W. Lee, E. Kim, D. Kim, K. Suh)

## Patents (Granted), totally, 71

- **21 US Patents:** (US 10637154), (US 9973364), (US 9887755), (US 9786985), (US 9167562), (US 8842640), (US 8761063), (US 8738068), (US 8619741), (US 8605634), (US 8599731), (US 8565200), (US 8547889), (US 8503317), (US 8493949), (US 8493948), (US 8483171), (US 8422372), (US 8416782), (US 8411644), (US 8379612)
- **26 Korean Patents:** (KR 102573880), (KR 102523056), (KR 102522930), (KR 102500352), (KR 102492736), (KR 102472809), (KR 102444449), (KR 102442891), (KR 102433897), (KR 102370599), (KR 102340895), (KR 102293287), (KR 102244380), (KR 102240442), (KR 102240425), (KR 102234007), (KR 102178895), (KR 102167344), (KR 102052835), (KR 102015429), (KR 101663613), (KR 101619964), (KR 101606951), (KR 101567829), (KR 101558017), (KR 100779165)
- **7 European Patents:** (EP 3255730), (EP 2441203), (EP 2422578), (EP 2343836), (EP 2282601), (EP 2262342), (EP 2260669)
- **11 Chinese Patents:** (CN 107634349), (CN 102461318), (CN 102461050), (CN 102388658), (CN 102349340), (CN 102342162), (CN 102318430), (CN 102318425), (CN 102204115), (CN 102132602), (CN 102057739)
- **6 Japanese Patents:** (JP 5584209), (JP 5584205), (JP 5580308), (JP 5508403), (JP 5368573), (JP 5364785)

## Research Supervision and Teaching Experience

### Research Supervision

#### ■ Ph.D. Students and Alumni (Korea University, Department of Electrical and Computer Engineering)

- Dr. Soohyun Park ('19.03-'23.08 (MS-PhD), '23.09-'24.02 (Postdoc)), *Professor at Sookmyung Women's University*, Seoul, Korea
- Dr. Hankyul Baek ('21.03-'24.02 (MS-PhD), '24.03-'25.08 (Postdoc)), *Active Member*
- Hyunsoo Lee ('21.03-), *Active Member*
- Seok Bin Son ('22.09-), *Active Member*
- Gyu Seon Kim ('23.03-), *Active Member*
- Sungjoon Lee ('24.03-), *Active Member*
- Emily Jimin Roh ('24.03-), *Active Member*

#### ■ M.S. Students and Alumni

- Kyeongseon Kim [Chung-Ang Univ., Computer Science and Engineering] ('17.09-'19.08), POSTECH (was with Upstage, LG AI Research)
- Dohyun Kwon [Chung-Ang Univ., Computer Science and Engineering] ('18.03-'20.02), Hyundai Motors Group
- Dohyun Kim [Chung-Ang Univ., Computer Science and Engineering] ('18.03-'20.02), Naver Webtoon
- MyungJae Shin [Chung-Ang Univ., Computer Science and Engineering] ('18.03-'20.02), Naver
- Jaeho Choi [Chung-Ang Univ., Computer Science and Engineering] ('19.03-'21.02), Korea Meteorological Administration
- Jaehyun Chung [Korea Univ., Electrical and Computer Engineering] ('23.09-), *Active*
- Yeryeong Cho [Korea Univ., Electrical and Computer Engineering] ('24.03-), *Active*
- Chaemoon Im [Korea Univ., Electrical and Computer Engineering] ('24.03-), *Active*

#### ■ Postdoctoral Scholars

- Dr. Minseok Choi ('18.09-'19.02, jointly with Prof. Andreas F. Molisch (USC)), *Professor at Kyung Hee University*, Yong-In, Korea
- Dr. Soyi Jung ('21.03-'21.08, jointly with Prof. Marco Levorato (UC-Irvine)), *Professor at Ajou University*, Suwon, Korea
- Dr. Ju-Hyung Lee ('22.03-'23.02, jointly with Prof. Andreas F. Molisch (USC)), *Principal Researcher at Nokia*, Sunnyvale, CA, USA
- Dr. Ijaz Ahmad (11/2023-, jointly with Prof. Seokjoo Shin (Chosun Univ.)), *Active Member*
- Dr. Joo Yong Shim (03/2024-, jointly with Prof. Jong-Kook Kim (Korea Univ.)), *Active Member*

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

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

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

- Dr. Minseok Choi, Ph.D. in EE from KAIST ('16.02-'16.07), now with **Kyung Hee University**, Korea
- Dr. Hidekazu Shimodaira, Ph.D. in EEE from Tokyo Institute of Technology ('15.07-'15.12), now with **NTT DOCOMO**, Japan

## ■ USC Viterbi School of Engineering (Los Angeles, California, USA), *Graduate Students*

- Feiyu Meng, M.S. in EE from USC (Summer 2013, Fall 2013), now with **Apple**, Silicon Valley, CA, USA
- Vivek Sankaravadivel, M.S. in EE from USC (Spring 2011, Fall 2011), now with **Uber**, Silicon Valley, CA, USA

## 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
- Sensor Networks (ECE662): Spring 2023
- Advanced Network Theory (ECE657): Fall 2022
- Smart Mobile Platform (ECE654): Fall 2023, Fall 2021, Fall 2020, Fall 2019
- Advanced Topics in Socialware IT (ECE545): Spring 2022
- Queueing Theory 1 (ECE527): Fall 2024
- Wireless and Mobile Networks (ECE522): Spring 2024, Spring 2020
- Wireless Network 2 (ITH525): Fall 2022
- Wireless Network 1 (ITH524): Spring 2021

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

- Introduction to Artificial Intelligence (IWC420): Winter 2023-2024, Winter 2022-2023, Winter 2021-2022
- Introduction to Computer Science (IWC293): Winter 2023-2024
- Data Communications (KECE316): Fall 2020
- Digital System Design and Laboratory (KECE210): Fall 2020
- Probability and Random Process (KECE209): Spring 2024, Spring 2023, Spring 2022 (*Best Teaching Award, Top 20%*), Spring 2021 (*Best Teaching Award, Top 20%*), Spring 2020
- Digital System (KECE207): Spring 2020
- Computer Language and Laboratory (EGRN151): Fall 2024, Fall 2023, Fall 2022, Fall 2021 (*Granite Tower Best Teaching Award, Top 5%*), Fall 2020 (*Best Teaching Award, Top 20%*), Fall 2019 (*Granite Tower Best Teaching Award, Top 5%*)
- Introduction to Communication/Computing (COMM105): Spring 2024, Spring 2023
- Object-Oriented Programming (SEMI104): Fall 2021 (*Best Teaching Award, Top 20%*)
- Introduction to Computers (SEMI103): Spring 2021 (*Granite Tower Best Teaching Award, Top 5%*)
- Future Mobility Technology (GEQR075): Spring 2023, Spring 2022 (*Granite Tower Best Teaching Award, Top 5%*)
- Data Science and Artificial Intelligence (GECT003): Fall 2024 (2 classes)
- SW Programming Basics (GECT002): Spring 2024 (3 classes)

### ■ Chung-Ang University – College of Computer Science and Software, *Faculty Member*

- Optimal Design Theory and Applications (Graduate): Spring 2019, Spring 2018, Spring 2017
- Topics in Computer Science and Engineering (Graduate): Fall 2018, Fall 2017, Fall 2016
- Numerical Analysis (Undergraduate): Spring 2019
- Compiler Design (Undergraduate): Spring 2019, Spring 2018, Spring 2017
- Principles of Programming Languages (Undergraduate): Fall 2018, Fall 2017, Fall 2016
- Algorithm Analysis (Undergraduate): Fall 2016
- Operating Systems (Undergraduate): Spring 2017, Spring 2016
- Calculus (Undergraduate): Spring 2017, Spring 2016
- Mobile Application Development (Undergraduate): Fall 2018, Fall 2017

### ■ University of Southern California – Viterbi School of Engineering, *Teaching Assistant*

- Wireless and Mobile Networks Design and Lab [EE579] (Spring 2013), Lectured by **Professor Murali Annavaram**  
Graduate Course dedicated to Android Mobile Platform Research and Programming
- Programming Systems Design [CSci455x] (Spring 2012, Fall 2012)  
Undergraduate Course dedicated to Object-Oriented Programming (Java and C++) and Advanced Data Structures

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## Professional Academic Activities

### Academic Conference, Workshop, Forum, Symposium Organization (Selected)

#### ■ Organizing Committee (OC) Activities

- IEEE WiOpt: 2024 (Workshop Chair), 2022 (Organizer, *Caching, Computing and Delivery in Wireless Networks Workshop*)
- IEEE GLOBECOM: 2015 (Organizer, *Workshop on Millimeter-Wave Backhaul and Access*)
- IEEE ICC: 2022 (Patronage Chair)
- IEEE VTS APWCS: 2023 (Finance Co-Chair), 2022 (Finance Chair), 2021 (Finance Co-Chair), 2017 (Publication Vice Chair)
- IEEE ICASSP: 2018 (Special Session Organizing Chair, *Special Session on Cybersecurity and Privacy*)
- IEEE APCC: 2022 (Local Arrangement Chair)
- ACM CoNEXT: 2019 (Poster Session Chair)
- IEEE ICTC: 2023 (Workshop Co-Chairs), 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: 2024 (Workshop Chair), 2023 (Workshop Chair), 2022 (Workshop Chair), 2021 (Workshop Chair), 2021 (Workshop Organizing Chair, *Artificial Intelligence Emerging Applications (AIEA) Workshop*)

- IEEE ICOIN: 2024 (Workshop Chair), 2023 (Workshop Co-Chair), 2023 (Workshop Organizing Chair, *Workshop on Artificial Intelligence and Mobility*), 2022 (Workshop Organizing Chair, *Workshop on Artificial Intelligence and Mobility*), 2022 (Finance Co-Chairs), 2021 (Workshop Organizing Chair, *Workshop on Artificial Intelligence and Mobility*), 2020 (Workshop Organizing Chair, *Workshop on Artificial Intelligence and Mobility*)
- IEEE ICEIC: 2021 (Local Arrangement Chair)
- IEEE ICAIIC: 2019 (Publication Chair)
- **Quantum Machine Learning**
  - IEEE ICASSP 2025: Organizer, *Workshop on Quantum Machine Learning in Signal Processing and Artificial Intelligence*
  - IEEE Quantum Week 2024: Organizer, *Workshop on Quantum Computing and Reinforcement Learning*
  - IJCAI 2024: Organizer, *Workshop on Quantum Algorithms, Optimization, and Artificial Intelligence*

## 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/ACM Conference Tutorials and Special Session Talks**
  - **ACM CIKM 2024 Tutorial**, *Hands-On Introduction to Quantum Machine Learning*, Joint Presentation with Dr. Samuel Yen-Chi Chen (Wells Fargo, New York, NY, USA)
  - **ICIT 2024 Tutorial**, *Quantum Reinforcement Learning: Concepts, Models, and Applications*
  - **IEEE ICUFN 2022 Tutorial**, *A Paradigm Shift in Future Networks with Quantum Deep Learning*
  - **IEEE ICOIN 2022 Tutorial**, *Advanced Deep Learning Methods for Autonomous Mobility*
  - **IEEE ICUFN 2021 Tutorial**, *Distributed and Split Deep Learning: Theory and Applications*
  - **IEEE ICAIIC 2021 Tutorial**, *Multi-Agent Deep Reinforcement Learning for Connected and Autonomous Vehicles*
  - **IEEE ICT 2019 Special Session Talk**, *Advanced Deep Learning Methods and Their Applications to Distributed and Network Platforms*
  - **IEEE ICOIN 2019 Tutorial**, *Distributed Platform Research for Emerging Deep Learning Applications*
  - **IEEE ICC 2018 Tutorial**, *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)
- **Industry Presentations (Selected)**
  - *International*: **Huawei Research Center (Text-Aware Image Understanding Workshop)** (Online, 11/2021), **Ericsson-LG (R&D Hackathon / AI Learning Challenge – Keynote Speech)** (Seoul, Korea, 05/2021), **Huawei Research Center (Deep Learning/Machine Learning for Computer Vision)** (Online, 09/2020), **Huawei Research Center (Fundamental and Applied Problems of Machine Learning)** (Nizhny Novgorod, Russia, 12/2019), **City University of Hong Kong** (Hong Kong, 11/2018), **Intel Communications and Devices Group (iCDG) [Cellular Modem TechTalk]** (Santa Clara, CA, USA, 01/2016), **Nokia Research Center at Berkeley** (Berkeley, CA, USA, 08/2014), **Qualcomm Research Center** (San Diego, CA, USA, 02/2014)
  - *Korea*: **LIG Nex1** (Pankyo), **Solvit System** (Seoul), **Korea Institute of Machinery & Materials** (Daejeon), **Korea Meteorological Administration** (Seoul), **Hyundai NGV** (Seoul), **SK Telecom (SKT)** (Seoul), **Agency for Defense Development (ADD)** (Seoul), **SK Hynix** (Icheon), **Naver Labs - Robotics Lab** (Pankyo), **ETRI** (Daejeon), **KT AI Tech Center** (Seoul), **LG Electronics** (Seoul), **Posco ICT** (Pankyo), **LG U+** (Seoul), **SK Broadband** (Seoul), **Korea Electronics Technology Institute (KETI)** (Pankyo), **Korea Electric Power Corporation (KEPCO)** Research Institute (Daejeon), **Samsung Electronics** (Hwasung)
- **Demonstration at Academic Conferences**
  - **IEEE ICDCS 2023** (Hong Kong, China), *EQuaTE: Efficient Quantum Train Engine Design and Demonstration for Dynamic Software Analysis*
  - **IEEE ICDCS 2023** (Hong Kong, China), *Multi-Site Clinical Federated Learning using NLP Models and NVFlare*
  - **IEEE ICDCS 2022** (Bologna, Italy), *Quantum Multi-Agent Reinforcement Learning via Variational Quantum Circuit Design*
  - **IEEE INFOCOM 2021** (Online), *Visualization of Deep Reinforcement Autonomous Aerial Mobility Learning Simulations*
  - **IEEE/CVF ICCV 2019** (Seoul, Korea), *Deep Multi-modal Unsupervised Pen Pressure Stylization*
  - **ACM MobiSys 2019** (Seoul, Korea), *Light-Weight Programming Language for Blockchain*
  - **IEEE GLOBECOM 2015 (Industry Demonstration ID-14)** (San Diego, CA, USA), *mmWave MAA Client Access & Backhaul Platform*
  - **IEEE GLOBECOM 2014 (Expo)** (Austin, TX, USA), *mmWave Modular Antenna Array for Next-Generation Wireless Networks*
  - **ACM MobiCom 2013** (Miami, FL, USA), *Adaptive Video Streaming for Device-to-Device Mobile Platforms*
- **Prototyping at Industry Exhibitions**
  - **Mobile World Congress (MWC) 2016** (Barcelona, Spain, 02/2016), *Mobile Edge mmWave Backhaul and Access*
  - **Intel 360 degree 2016** (Anaheim, CA, 02/2016), *mmWave MAA Client Access & Backhaul Platform*
  - **Intel Asia Innovation Summit 2015** (Taipei, Taiwan, 10/2015), *mmWave Modular Antenna Array Client Access & Backhaul Platform*
  - **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), *Enabling 5G Densification*

## Technical Program Committee (TPC)

- **Chair-Level Activities (Selected)**
  - **CCNC: 2022** (Track Chair, *T7 (Security, Privacy and Content Protection)*)
  - **NAS: 2019** (Track Co-Chair, *Network Track*)
  - **GLOBECOM: 2015** (TPC Chair, *Workshop on Millimeter-Wave Backhaul and Access*)
- **General Activities (Selected)**
  - **IEEE ICC: 2024** (Selected Areas in Communications – Integrated Sensing and Communication Track), 2024 (Selected Areas in Communications – Reconfigurable Intelligent Surfaces and Smart Environments Track), 2023 (Wireless Communications Symposium), 2023 (Selected Areas in Communications – Integrated Sensing and Communication Track), 2023 (Selected Areas in Communications – Reconfigurable Intelligent Surfaces and Smart Environments Track), 2022 (Wireless Communications Symposium), 2022, 2021 (Wireless Communications Symposium)



- **IEEE GLOBECOM:** 2022 (Selected Areas in Communications – Machine Learning for Communications), 2021 (Selected Areas in Communications – Machine Learning for Communications), 2021 (IoTSN), 2020 (Ad-hoc and Sensor Networks Symposium)
- **IEEE MASS:** 2024 (Algorithms and Theory Track), 2023, 2022, 2021, 2012 (Workshop on Internet of Things Technology and Architectures)
- **IEEE Quantum Week:** 2024 (Quantum Machine Learning Track)
- **ACM MobiHoc:** 2019
- **IEEE ICCCN:** 2021
- **IEEE WCNC:** 2023, 2022, 2021, 2020, 2020 (Workshop on Aerial Communications in 5G and Beyond Networks)
- **IEEE PIMRC:** 2024 (Track 1: PHY & Fundamentals), 2024 (Workshop on Secured, Intelligent, and Collaborative Cell-free Networking for 6G and Beyond)
- **IEEE ICDCS:** 2019 (Distributed Green Computing & Energy Management)
- **IEEE VTC:** 2022-Fall, 2019-Spring, 2016-Spring, 2015-Spring, 2014-Fall
- **IJCAI:** 2024 (Workshop on Quantum Algorithms, Optimization, and Artificial Intelligence)
- *Others:* 2025 (ICOIN, ICTC), 2024 (COMNETSAT, ICTC, GESS, ICOIN), 2022 (MSN (Track 3: Security, Privacy, Trust, and Blockchain), ICTC, ICCS, IPDPS (Heterogeneity in Computing Workshop), ICUFN, WCSP, COMNETSAT, CyberneticsCom, ICEIC, ICNGC), 2021 (MSN, ICTC, ICCS, ICUFN, EuCAP, COMNETSAT, ICAIIC, IGESSC, ICEIC, ICNGC, ITC-CSCC), 2020 (ICTC, ICUFN, ICCS, COMNETSAT, Blockchain, ICAIIC, IGESSC), 2019 (ICTC, ICUFN, ICCS, Blockchain, EuCAP, IGESSC, NAS (Network Track), ICPADS (Security & Dependable Computing), WISA, SecureComm, IE), 2018 (ICTC, ICUFN, IGESSC, APWCS, AsiaCCS (Workshop on Security in Cloud Computing), ATC, SigTelCom, WCSP, IE), 2017 (ICTC, ICUFN, IE), 2016 (ICUFN), 2015 (EuCAP)

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## References

- **Prof. Andreas F. Molisch** (*Fellow of the IEEE*), *Ph.D. Research and Dissertation Advisor*
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