Joongheon Kim

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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

- **144 Journals** (among them, **110 IEEE Journals**), https://sites.google.com/view/aimlab-kuee/publications/journals – **112** Published/Accepted (among them, **81 IEEE**), **16** Under-Revision, and **16** Under-Review Journals
- **7577+ Citations** (H-index: 41+, i10-index 176+), obtained from Google Scholar Profile (as of March 25, 2024)
- **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%)
- **10 Awards from IEEE Conferences and Contests**, i.e., *IEEE ICTC Best Paper Award (2022)*, *IEEE ICOIN Best Paper Award (2021)*, *3 IEEE Seoul Section Student Paper Contest Awards*, and *5 IEEE VTS Seoul Chapter Awards*
- **6 Tutorials at IEEE Conferences**, i.e., *ICUFN (2022)*, *ICOIN (2022)*, *ICUFN (2021)*, *ICAIIC (2021)*, *ICOIN (2019)*, and *ICC (2018)*
- **71+ Patents** are granted, and among them, **46 Granted Patents** are successfully adopted by 60 GHz Millimeter-Wave IEEE 802.11 Standards, i.e., IEEE 802.11ad and IEEE 802.11ay
- **Research Funds (since March 2016):** 6,800,784 USD ≈ 6,800,784,000 KRW (except University Internal Funds)

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

- **3 Tenure-Track Professors (formerly supervised by Prof. Joongheon Kim (Ph.D., M.S., Postdoctoral, Interns))**
  - *Ph.D. Alumni:* Soohyun Park (Sookmyung Women's Univ., Korea)
  - *Postdoctoral Scholars:* Minseok Choi (Kyung Hee Univ., Korea), Soyi Jung (Ajou Univ., 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 19+ 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 (2023–)**, *IEEE Internet of Things Journal* IEEE ComSoc, Computer Society, Sensors Council
- **Associate Editor (2020–)**, *IEEE Transactions on Vehicular Technology* IEEE VTS
- **Guest Editor (06/2022)**, *IEEE Communications Standards Magazine* (S.I. on Recent and Future Evolution of Wi-Fi) IEEE ComSoc
- **IEEE Vehicular Technology Society (VTS)**, Seoul Chapter Treasurer for 4 years (2020–2023) IEEE VTS
- **13+ Organizing Committee (OC)** and **41+ Technical Program Committee (TPC)** 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**, 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**

R&D Positions

Full-Time 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**)
  (*Steering Committee Member (03/2023–Present)*, Department of Communications Engineering)
  – *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
    * *Vice Director (10/2020–Present)*, Artificial Intelligence Engineering Research Center (KU-AIER)
  – Administrative Positions in Korea University Headquaters
    * *Deputy Vice President (02/2022–Present)*, **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

Visiting Positions (Short-Term)

- **California State University, Long Beach – College of Engineering**, Long Beach, California, USA
  Visiting Scholar (01/2020), Department of Electrical Engineering
- **University of California, Irvine – Donald Bren School of Information and Computer Sciences**, Irvine, California, USA
  Visiting Scholar (08/2018), Department of Computer Science

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 (03/2022)*, **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)*
- **Elsevier/Wiley**
  - *Editor (2021–)*, **ICT Express** (Area: AI for ICT Applications)
  - *Guest Editor (2022)*, **ETRI Journal** (S.I. on Autonomous Unmanned Aerial/Ground Vehicles and their Applications)
  - *Guest Editor (2022)*, **Computer Networks** (S.I. on ML and AI for the Internet of Things, 5G, and Beyond)
  - *Guest Editor (2022)*, **ICT Express** (S.I. on Artificial Intelligence and Machine Learning Approaches to Communication)
  - *Guest Editor (2021)*, **ICT Express** (S.I. on Mobile and Edge Computing Systems)

Awards and Honors

Research and Academic Excellence (International)

- **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 leaning 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

- **Best Presentation Award (12/2022)** – *A3 Foresight Program 2022 Workshop* (awarded to Soohyun Park)
- **ICT Express Best Reviewer Award (12/2021)** – *ICT Express (Elsevier)* (awarded to Soohyun Park)
- **Best Presentation Award (02/2021)** – *A3 Foresight Program 2021 Workshop* (awarded to Hankyul Baek)

Teaching and Supervision Excellence

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

Academic and University Services

- **Outstanding Contribution Award** – *KIISE Information Network Society* 02/2023
- **2022 Best Chapter Award, IEEE Vehicular Technology Society Chapter (12/2022)** – *IEEE Seoul Section*
  Awarded as a Treasure with Seung-Hoon Hwang, Byeonghyo Shim, Oh-Soon Shin, Junsu Kim
- **Outstanding Contribution Award (02/2022)** – *KIISE Information Network Society*
- **Outstanding Contribution Award (12/2021)** – *Open Standards and ICT Association (OSIA)*
- **Outstanding Contribution Award (11/2021)** – *KICS*
- **Appreciation Recognition (10/2021)** – *Daegu Gyeongbuk Institute of Science and Technology (DGIST)*
- **Outstanding Contribution Award (11/2019)** – *KICS*
- **Fellow Employee Recognition [#3081146] (12/2014)** – *Intel Corporation*
- **Certificate of Appreciation (09/2010)** – *Department of Computer Science, University of Southern California*

Highly-Cited Publications (IEEE Magazines, Journals, and Conferences)

- **Highly-Cited *(100+ citations)***, as of March 25, 2024

(MobiSys'10) [649+] *Energy-efficient rate-adaptive GPS-based positioning for smartphones*
(TON'16) [185+] *Quality-aware streaming and scheduling for device-to-device video delivery*
(PIEEE'21) [174+] *Communication-efficient and distributed learning over wireless networks: Principles and applications*
(ISJ'20) [165+] *Toward characterizing blockchain-based cryptocurrencies for highly accurate predictions*, **(Best Paper Award)**
(TII'20) [155+] *Cooperative management for PV/ESS-enabled electric vehicle charging stations*
(TVT'19) [133+] *Auction-based charging scheduling with deep learning framework for multi-drone networks*
(TII'17) [127+] *Residential demand response for renewable energy resources in smart grid systems*
(JCN'14) [116+] *Fast millimeter-wave beam training with receive beamforming*
(TCE'07) [115+] *Movement-aware vertical handoff of WLAN and mobile WiMAX for seamless ubiquitous access*
(IOTJ'18) [106+] *Energy-efficient mobile charging for wireless power transfer in Internet of Things networks*
(TII'22) [100+] *Cooperative multi-agent deep reinforcement learning for reliable surveillance via autonomous multi-UAV control*
(IOTJ'20) [100+] *Multiagent DDPG-based deep learning for smart ocean federated learning IoT networks*

R&D Projects (Totally, 6,800,784 USD ≈ 6,800,784,000 KRW)

Industry-Funded Projects

- **Advancement Technology Development for Torpedo Deception Strategies in Submarines** 11/2022–11/2026
  Funded by *LIG Nex1* [Grant: $700,000; Primary-PI]
- **Advancement Technology Development for Submarine Target Identification and Engagement Support Intelligence** 11/2022–11/2026
  Funded by *LIG Nex1* [Grant: $300,000; Primary-PI]
- **Mapping between Real World and Virtual Reality (VR) for End-Edged Cloud Real-Time VR Servers** 09/2020–08/2024
  Funded by *Samsung Advanced Institute of Technology* [Grant: $286,000; Primary-PI]
- **Quantum Machine Learning-based Objection Detection for Point Cloud and its Acceleration** 12/2022–04/2024
  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; 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]
- **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-PIs: Prof. Soyi Jung at Ajou University, Prof. Soohyun Park at Sookmyung Women's 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]
- **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; 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

- **Research on Quantum Multi-Agent Reinforcement Learning Stability (Research on Multi-Agent Reinforcement Learning Exploration, Communication, Training Strategy)** 09/2023–01/2024
  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; 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]

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

- **7577+ Citations** (H-index: 41+, i10-index 176+), obtained from Google Scholar Profile (as of March 25, 2024)
- **144** journals and **11** top-tier conferences, https://sites.google.com/view/aimlab-kuee/publications
  – **110** IEEE journals/magazines, among them, **79** publications are in **IEEE Magazines and ComSoc/VTS Journals**

Dissertation, Books, and Book Chapters

■ **Ph.D. Dissertation**

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

■ **Books and Book Editing**

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

■ **Book Chapters**

- Network Security and Trustworthiness, *Fundamentals of 6G Communications and Networking*, Springer (2023). *(S. Jung, S. Park, S.B. Son, H. Lee, J. Kim)*
- Semantic Communications and Networking, *Fundamentals of 6G Communications and Networking*, Springer (2023). *(W.J. Yun, S. Park, R. Lee, J. Park, Y.-C. Ko, J. Kim)*
- Convergence of 6G and Wi-Fi Networks, *Fundamentals of 6G Communications and Networking*, Springer (2023). *(H. Lee, S. Park, M. Yoo, C. Park, H. Baek, J. Kim)*
- UAV Communications and Networks, *Fundamentals of 6G Communications and Networking*, Springer (2023). *(S. Park, J.-H. Lee, S. Jung, J. Kim)*
- AI-Native Network Algorithms and Architectures, *Fundamentals of 6G Communications and Networking*, Springer (2023). *(H. Lee, S. Park,, H. Baek, C. Park, S. Son, J. Park, J. Kim)*
- AI-Native Communications, *Fundamentals of 6G Communications and Networking*, Springer (2023). *(H. Baek, H. Lee, S. Park, H. Lee, J. Park, J. Kim)*

- Network Disaggregation, *Fundamentals of 6G Communications and Networking*, Springer (2023). *(S. Park, C. Park, J.P. Kim, M. Choi, J. Kim)*
- Introduction to 6G Communications and Networking, *Fundamentals of 6G Communications and Networking*, Springer (2023). *(X. Lin, J. Zhang, Y. Liu, J. Kim)*
- Dynamic Decision-Making for Stabilized Deep Learning Software Platforms, *Advances and Applications in Deep Learning*, IntechOpen (2020). *(S. Park, D. Kim, J. Kim)*
- Device-to-Device Communications, *Towards 5G: Applications, Requirements and Candidate Technologies*, Wiley (2017). *(A.F. Molisch, M. Ji, J. Kim, D. Burghal, A.S. Tehrani)*
- Millimeter-Wave (mmWave) Medium Access Control: A Survey, *Opportunities in 5G Networks: A Research and Development Perspective*, CRC Press (2016). *(J. Kim)*
- Millimeter-Wave (mmWave) Radio Propagation Characteristics, *Opportunities in 5G Networks: A Research and Development Perspective*, CRC Press (2016). *(J. Kim)*
- Weighted Localized Clustering: A Coverage-Aware Reader Collision Arbitration Protocol in RFID Networks, *Handbook on Mobile and Ubiquitous Computing: Status and Perspective*, CRC Press (2012). *(J. Kim, E. Kim, W. Lee, D. Kim, J. Choi, J. Jung, C.K. Shin)*
- Coverage-Time Optimized Dynamic Clustering for Two-Tiered WM2Nets, *Wireless Mesh Networking*, McGraw-Hill (2008). *(J. Kim, W. Lee, E. Kim, T.K. Shih)*

Selected Papers

■ *Conferences* – Top-Tiers and Awarded/Honored

[IJCAI'24] *(Notification: 18-Mar-2024)* (Double-Blind Review), **IJCAI (2024)**. *(G.S. Kim, Y. Cho, H. Baek, S. Park, S. Jung, J. Kim)*
[IJCAI'24] *(Notification: 18-Mar-2024)* (Double-Blind Review), **IJCAI (2024)**. *(H. Baek, J.H. Chung, S. Park, J. Kim)*
[IJCAI'24] *(Notification: 18-Mar-2024)* (Double-Blind Review), **IJCAI (2024)**. *(S. Park, H. Baek, J. Park, M. Bennis, S. Jung, J. Kim)*
[IJCAI'24] *(Notification: 18-Mar-2024)* (Double-Blind Review), **IJCAI (2024)**. *(H. Baek, S. Park, J. Kim)*
[ICDCS'24] *(Notification: 12-Apr-2024)* (Double-Blind Review), **ICDCS (2024)**. *(S. Park, G.S. Kim, S. Jung, Z. Han, 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)*
[APWCS'23] Quantum Reinforcement Learning for Large-Scale Multi-Agent Decision-Making in Autonomous Aerial Networks, **APWCS (2023)**. *(S. Park, J. Kim)* **(IEEE VTS Seoul Chapter Award)**
[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)*
[APWCS'22] DDPG-based Deep Reinforcement Learning for Loitering Munition Mobility Control: Algorithm Design and Visualization, **APWCS (2022)**. *(H. Lee, W.J. Yun, S. Jung, J.-H. Kim, J. Kim)* **(IEEE VTS Seoul Chapter Award)**
[ICML'22] Slimmable Quantum Federated Learning, **ICML Workshop on Dynamic Neural Networks (2022)**. *(W.J. Yun, J.P. Kim, S. Jung, J. Park, M. Bennis, J. Kim)* **(Spotlight, Oral Presentation)**
[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)*
[APWCS'21] Quantum Scheduling for Millimeter-Wave Observation Satellite Constellation, **APWCS (2021)**. *(J. Kim, Y. Kwak, S. Jung, J.-H. Kim)* **(IEEE VTS Seoul Chapter Award)**
[APWCS'21] Distributed and Autonomous Aerial Data Collection in Smart City Surveillance Applications, **APWCS (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, **ICOIN (2021)**. *(S. Jung, W.J. Yun, J. Kim, J.-H. Kim)* **(Best Paper Award)**
[ICDCS'20] Understanding the Potential Risks of Sharing Elevation Information on Fitness Applications, **ICDCS (2020)**. *(Ü. Meteriz, N.F. Yildiran, J. Kim, D. Mohaisen)*
[APWCS'19] Joint Offloading and Streaming in Mobile Edges: A Deep Reinforcement Learning Approach, **APWCS (2019)**. *(S. Park, J. Kim, D. Kwon, M. Shin, J. Kim)* **(IEEE VTS Seoul Chapter Award)**
[IJCAI'19] Randomized Adversarial Imitation Learning for Autonomous Driving, **IJCAI (2019)**. *(M. Shin, J. Kim)*
[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)*

■ *Journals and Magazines*

◂ Review ▸
[ETRI.wip] Trends in Quantum Reinforcement Learning: State-of-the-Arts and the Road Ahead, *ETRI Journal (Wiley)*. *(S. Park, J. Kim)* **(Invited Article)**

[TMC.wip] Learning-based Dynamic Routing for Fault-Tolerant Robust LEO Satellite Networks, ***IEEE Transactions on Mobile Computing***. *(G.S. Kim, C. Im, 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)*

[CM.*review*] *(Review since 25-Mar-2024)* Dynamic Software Testing for Run-Time Program Analysis in Quantum-based Autonomous Driving Applications, *IEEE Communications Magazine*. *(S. Park, J. Kim)*

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

[TWC.*review*] *(WIP, Review since 13-Mar-2024)* Slimmable Federated Reinforcement Learning for Energy-Efficient Proactive Caching, ***IEEE Transactions on Wireless Communications***. *(H. Baek, G.S. Kim, S. Park, A.F. Molisch, J. Kim)*

[TIV.*review*] *(Review since 09-Mar-2024)* Learning-based Aircraft Taxi Routing: Empirical Evaluation Study for Hartsfield-Jackson Atlanta International Airport, *IEEE Transactions on Intelligent Vehicles*. *(G.S. Kim, S. Lee, S. Park, J. Kim)*

[CGA.*review*] *(Review since 20-Feb-2024)* Quantum Eyes: Scalable Quantum Convolutional Neural Networks for Low-Overhead Object Detection, *IEEE Computer Graphics and Applications*. *(H. Baek, C. Im, J. Kim)*

[JSAC.*review*] *(Review since 15-Feb-2024)* Quantum Multi-Agent Reinforcement Learning for Cooperative and Differentiated Mobile Access in Global SAGIN Systems, ***IEEE Journal on Selected Areas in Communications***. *(G.S. Kim, Y. Cho, J.H. Chung, S. Park, S. Jung, Z. Han, J. Kim)*

[TMC.*review*] *(Review since 10-Feb-2024)* Joint Control and Communications Framework for Mission-Critical Multi-UAV Networks, ***IEEE Transactions on Mobile Computing***. *(G.S. Kim, S. Park, S. Jung, D. Mohaisen, J. Kim)*

[ESA.*review*] *(Review since 29-Jan-2024)* Quantum Federated Learning with Pole-to-Angle Local Training and Trainable Measurement, *Expert Systems with Applications (Elsevier)*. *(S. Park, H. Baek, H. Lee, S.B. Son, S. Jung, J. Kim)*

[FGCS.*review*] *(Review since 28-Jan-2024)* AQUA: Analytics-driven Quantum Neural Network (QNN) User Assistance for Software Validation, *Future Generation Computer Systems (Elsevier)*. *(S. Park, H. Baek, J.W. Yoon, Y.K. Lee, J. Kim)*

[NM.*review*] *(Review since 24-Jan-2024)* Sustainable Learning for Quantum Multi-Agent Cooperation: Algorithms, Software Methods, and Open Discussions, *IEEE Network*. *(S. Park, J. Kim)*

[TPDS.*review*] *(Review since 19-Jan-2024)* Joint Quantum Reinforcement Learning and Neural Myerson Auction for High-Quality Digital-Twin Services in Multi-Tier Networks, *IEEE Transactions on Parallel and Distributed Systems*. *(S. Park, G.S. Kim, J. Kim)*

[Software.*review*] *(Review since 18-Jan-2024)* Analytics-driven User Assistance for Quantum Neural Network Software Validation, *IEEE Software*. *(S. Park, H. Baek, J.W. Yoon, Y.K. Lee, J. Kim)*

[JCN.*review*] *(Review since 29-Oct-2023)* Software Design and Visualization for Quantum Multi-Agent Reinforcement Learning in Multi-Drone Mobility Control, *Journal of Communications and Networks*. *(S. Park, S. Jung, J. Kim)*

◂ Revision ▸

[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)*

[TETCI.revision] *(Review since 14-Nov-2023)* Joint Scalable Quantum Convolutional Neural Network and Reverse-Fidelity Training for High-Accurate Recognition, *IEEE Transactions on Emerging Topics in Computational Intelligence*. *(H. Baek, S. Park, J. Kim)*

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

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

[IOTJ.revision] Intelligent Extra Resource Allocation for Cooperative Awareness Message Broadcasting in Cellular-V2X Networks, *IEEE Internet of Things Journal*. *(S. Jung, J.-H. Kim, J. Kim)*

[Access.revision] Dynamic Quantum Federated Learning for Satellite-Ground Integrated Systems using Slimmable Quantum Neural Networks, *IEEE Access (VTS Section)*. *(S. Park, S. Jung, J. Kim)*

[IOTJ.revision] 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)*

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

[Access.revision] Sensing-to-Sky Intermittent Connectivity Realization for LTE-Enabled Drone Platforms: Embedded Design, Measurement Study, and Positioning Applications, *IEEE Access (VTS Section)*. *(J. Kim, S. Park, U. Jo, T. Kim, S. Jung, J. Kim)*

[TIV.revision] 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)*

[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)*

[Access.revision] Quantum Reinforcement Learning for Spatio-Temporal Prioritization in Metaverse, *IEEE Access*. *(S. Park, H. Baek, J. Kim)*

[TMC.*revision*] 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)*

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

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

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

◂ Accepted ▸

[TVT.*accepted*] Age-of-Information Aware Caching and Delivery for Infrastructure-Assisted Connected Vehicles, *IEEE Transactions on Vehicular Technology*. *(S. Park, C. Park, S. Jung, M. Choi, J. Kim)*

[MTAP.*accepted*] 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)*

[CM.*accepted*] Quantum Multi-Agent Reinforcement Learning for Autonomous Mobility Cooperation, *IEEE Communications Magazine*. *(S. Park, J.P. Kim, C. Park, S. Jung, J. Kim)*

◂ 2024 ▸

[TVT'24.04] Learning-based Cooperative Mobility Control for Autonomous Drone-Delivery, *IEEE Transactions on Vehicular Technology*, 73(4):ppp–ppp (2024). *(S. Park, C. Park, 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):ppp–ppp (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)*

[IOTJ'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)*

[IOTJ'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)*

◂ 2022 ▸

[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)*

[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)*

[ISJ'22.03] LiteZKP: Lightening Zero-Knowledge Proof-based Blockchains for IoT and Edge Platforms, *IEEE Systems Journal*, 16(1):112–123 (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 (2022). *(W.J. Yun, D. Kwon, M. Choi, J. Kim, G. Caire, A.F. Molisch)*

[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 (2022). *(Y.J. Ha, G. Lee, M. Yoo, S. Jung, S. Yoo, J. Kim)*

◄ 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)*

[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))

[IOTJ'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)*

[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)*

[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)* **(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)*

[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 (2020). *(K.-H.N. Bui, S. Cho, J.J. Jung, J. Kim, O-J. Lee, W. Na)*

◄ 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)*

[TVT'19.10] Blind Signal Classification for Non-Orthogonal Multiple Access in Vehicular Networks, *IEEE Transactions on Vehicular Technology*, 68(10):9722–9734 (2019). *(M. Choi, D. Yoon, J. Kim)*

[IOTJ'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)*

[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 (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 (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)*

[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 ►

[IOTJ'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)*

[JSAC'18.06] Wireless Video Caching and Dynamic Streaming under Differentiated Quality Requirements, ***IEEE Journal on Selected Areas in Communications***, 36(6):1245–1257 (2018). *(M. Choi, J. Kim, J. Moon)*

[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 (2018). *(S. Ahn, J. Kim, E. Lim, S. Kang)*

[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)*

[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 (2018). *(W. Na, J. Park, C. Lee, K. Park, J. Kim, S. Cho)*

◄ 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)*

[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 (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)*
(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)*

[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)*

[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)*

■ *Conferences*

– https://sites.google.com/view/aimlab-kuee/publications/conferences

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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 Collaboration and Supervision

■ **Ph.D. Students and Alumni**

- **Dr. Soohyun Park** ('19.03–'23.08 (MS-PhD), '23.09–'24.02 (Postdoc)), *Professor* at ***Sookmyung Women's University***
  – Dissertation: *Advanced Learning for Time-Average Optimization and Software Analysis in Quantum-based Multi-Agent Systems*
- **Dr. Hankyul Baek** ('21.03–'24.02 (MS-PhD), '24.03–'25.08 (Postdoc)), *Active Member*
  – Dissertation: *Adaptive Deep Neural Network Optimization: Algorithmic and Architectural Frameworks*
- **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** ('17.09–'19.08, POSTECH), **Dohyun Kwon** ('18.03–'20.02, Hyundai Motors Group), **Dohyun Kim** ('18.03–'20.02, Naver), **MyungJae Shin** ('18.03–'20.02, Naver), **Jaeho Choi** ('19.03–'21.02, Korea Meteorological Administration), **JaeHyun Chung** ('23.09–, *Active*), **Yeryeong Cho** ('24.03–, *Active*), **Chaemoon Im** ('24.03–, *Active*)

■ **Postdoctoral Scholars**

- **Dr. Minseok Choi** ('18.09–'19.02), *Professor* at ***Kyung Hee University***
  Joint Postdoctoral Research with Prof. Andreas F. Molisch (University of Southern California, Los Angeles, CA, USA)
- **Dr. Soyi Jung** ('21.03–'21.08), *Professor* at ***Ajou University***
  Joint Postdoctoral Research with Prof. Marco Levorato (University of California at Irvine, Irvine, CA, USA)

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

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

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

- **Minseok Choi**, Ph.D. in EE from KAIST ('16.02–'16.07), now with **Kyung Hee University**, Korea
- **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
- **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 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%)*
- **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 in IEEE

- **IEEE WiOpt:** 2024 (Workshop Chair), 2024 (*Organizer*, Quantum Algorithms for Network Optimization Workshop (Quantum-NOW)), 2024 (*Organizer*, Caching, Computing and Delivery in Wireless Networks Workshop (CCDWN)), 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 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)

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 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)

■ 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

- *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 2023** (Hong Kong, China)
- *Quantum Multi-Agent Reinforcement Learning via Variational Quantum Circuit Design*; **IEEE ICDCS 2022** (Bologna, Italy)
- *Visualization of Deep Reinforcement Autonomous Aerial Mobility Learning Simulations*; **IEEE INFOCOM 2021** (Online)
- *Deep Multi-modal Unsupervised Pen Pressure Stylization*; **IEEE/CVF ICCV 2019** (Seoul, Korea)
- *Light-Weight Programming Language for Blockchain*; **ACM MobiSys 2019** (Seoul, Korea)
- *mmWave MAA Client Access & Backhaul Platform*; **IEEE GLOBECOM 2015 (Industry Demonstration ID-14)** (San Diego, CA, USA)
- *mmWave Modular Antenna Array for Next-Generation Wireless Networks*; **IEEE GLOBECOM 2014 (Expo)** (Austin, TX, USA)
- *Adaptive Video Streaming for Device-to-Device Mobile Platforms*; **ACM MobiCom 2013** (Miami, FL, USA)

■ Prototyping at Industry Exhibitions

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

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)

- **2024:** MASS (Algorithms and Theory Track), ICC (Selected Areas in Communications – Integrated Sensing and Communication Track), ICC (Selected Areas in Communications – Reconfigurable Intelligent Surfaces and Smart Environments Track), PIMRC (Track 1: PHY & Fundamentals), IJCAI Workshop (IJCAI Workshop on Spatio-Temporal Reasoning and Learning)
- **2023:** ICC (Wireless Communications Symposium), ICC (Selected Areas in Communications – Integrated Sensing and Communication Track), ICC (Selected Areas in Communications – Reconfigurable Intelligent Surfaces and Smart Environments Track), MASS, WCNC

- **2022:** GLOBECOM (Selected Areas in Communications – Machine Learning for Communications), MASS, ICC (Wireless Communications Symposium), WCNC, VTC-Fall, COMNETSAT, IPDPS (Heterogeneity in Computing Workshop), MSN (Track 3: Security, Privacy, Trust, and Blockchain)
- **2021:** GLOBECOM (Selected Areas in Communications – Machine Learning for Communications), GLOBECOM (IoTSN), ICC (Wireless Communications Symposium), MASS, ICCCN, MSN, COMNETSAT, WCNC, EuCAP
- **2020:** GLOBECOM (Ad-hoc and Sensor Networks Symposium), WCNC, WCNC (Workshop on Aerial Communications in 5G and Beyond Networks), COMNETSAT
- **2019:** VTC-Spring, ICDCS (Distributed Green Computing & Energy Management), NAS (Network Track), Blockchain, MobiHoc, EuCAP
- **2018:** APWCS, AsiaCCS (Workshop on Security in Cloud Computing), ATC
- **2016:** 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`