JUSEONG PARK

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EDUCATION

The University of Texas at Austin Aug. 2022 - present

- Ph.D. Candidate in Electrical and Computer Engineering
- Advisor: Prof. Jeffrey G. Andrews

Korea University Mar. 2019 - Aug. 2021

- M.E. in Electrical and Computer Engineering
- Advisor: Prof. Inkyu Lee

Korea University Mar. 2013 - Feb. 2019

- B.E. in Electrical Engineering

RESEARCH EXPERIENCE

Wireless R&D Group, Qualcomm, San Diego, CA May. 2025 - Aug. 2025

- Summer Research Intern
  - Internship Project: Data Augmentation for Channel State Feedback
    - Designed a low-complexity data augmentation method for CSI feedback with limited samples.
    - Drafted a patent regarding the project.

Standards Group, Nokia, Naperville, IL Jun. 2024 - Aug. 2024

- Summer Research Intern
  - Internship Project: Generative Models for Radio Channel Modeling
    - Developed a deep generative model-based ray-tracing simulator to improve simulation efficiency.
    - Published results in a conference paper accepted at Asilomar 2025.

Radio Systems Research Group, Nokia Bell Labs, Murray Hill, NJ Jun. 2023 - Aug. 2023

- Summer Research Intern
  - Internship Project: Effective CSI Feedback for Joint User Scheduling and Precoding
    - Developed a deep learning-based CSI feedback reduction method for MU-MIMO systems.
    - Results published in a conference paper at Asilomar 2024; extended version submitted to a journal (under review).

WNCG and 6G@UT, UT Austin Aug. 2022 - present

- Graduate Research Assistant
  - Project: End-to-End Deep Learning in 6G Mid-Band Cellular Networks (Collaboration with Nokia Bell Labs)
    - Developed a deep learning-based end-to-end framework for channel-adaptive pilot design, CSI acquisition, and precoding in TDD SU-MIMO and MU-MIMO systems.
    - Published the results in *IEEE Transactions on Wireless Communications*.
  - Project: Feedback Reduction for MU-MIMO Systems (Collaboration with Nokia Bell Labs)

    - Developed a deep learning-based UE-side method for decentralized feedback reduction in MU-MIMO systems.
    - Extended prior internship work into a conference paper and a journal paper on decentralized CSI feedback reduction.
  - Project: Flow Matching for Finite-Rate CSI Feedback in MU-MIMO Systems
    - Developed flow-matching generative decoders for geometry-aware CSI reconstruction from limited feedback bits in MU-MIMO systems.
    - Analyzed posterior channel geometry for MU-MIMO precoding and prepared a journal manuscript for submission.

Communication and Intelligent System Lab, Korea University Mar. 2019 - Aug. 2022

- Researcher Sep. 2021 - Aug. 2022
  - Project: Research on AP Coordination for IEEE 802.11be WLAN
    - Studied downlink OFDMA resource allocation methods.
    - Developed an intelligent resource allocation algorithm for overlapped BSS using deep reinforcement learning, resulting in a conference paper publication.
- Research Assistant Mar. 2019 - Aug. 2021
  - Project: Research on IEEE 802.11 Next Generation Wireless LAN System
    - Developed timing offset compensation for multi-AP cooperation.
    - Filed a patent with the Korea Intellectual Property Office.
  - Project: Research on Massive MIMO Transmitter Techniques
    - Studied beam tracking in cellular communications.
    - Developed beam tracking for massive MIMO systems and published a journal paper.

TEACHING EXPERIENCE

- Teaching Assistant, Digital Communications, Korea University Sep. 2020 - Dec. 2020
- Teaching Assistant, Communication Signal Processing, Korea University Mar. 2021 - Jul. 2021

PUBLICATIONS

Journal Publications

- J. Park, F. Sohrabi, J. Du, and J. G. Andrews, "Self-Nomination: Deep Learning for Decentralized CSI Feedback Reduction in MU-MIMO Systems," submitted to *IEEE Transactions on Wireless Communications*, vol. 25, pp. 10321-10336, 2026.
- T. Lee, J. Park, H. Kim, and J. G. Andrews, "Generating High Dimensional User-Specific Wireless Channels using Diffusion Models," in *IEEE Transactions on Wireless Communications*, vol. 25, pp. 2907-2921, 2026
- J. Park, F. Sohrabi, A. Ghosh, and J. G. Andrews, "End-to-End Deep Learning for TDD MIMO Systems in the 6G Upper Midbands," in *IEEE Transactions on Wireless Communications*, vol. 24, no. 3, pp. 2110-2125, March 2025.
- J. Park, H. Lee, S. Hwang, and I. Lee, "Deep Recurrent Q-Network Methods For Mmwave Beam Tracking Systems," in *IEEE Transactions on Vehicular Technology,* vol. 71, no. 12, pp. 13429-13434, December 2022.
- S. Hwang, H. Lee, J. Park, and I. Lee, "Decentralized Computation Offloading With Cooperative UAVs: A Multi-Agent Deep Reinforcement Learning Perspective," in *IEEE Wireless Communications*, vol. 29, no. 4, pp.2 4-31, August 2022.

- J. Park, S. Baek, J. Moon, and I. Lee, "Grid-Based Bayesian Beam Tracking With Multiple Observations for Millimeter Wave Channels," in *IEEE Transactions on Vehicular Technology,* vol. 70, no. 12, pp. 13413-13417, December 2021.

Conference

- J. Park, T. Lee, Y. Xing, J. Chen, A. Ghosh, and J. G. Andrews, "Learning Ray-Tracing for Radio Propagation via Cross-Attention-Based Diffusion Models," in *Proceedings of the* 59$^{\text{th}}$ *Asilomar Conference on Signals, Systems, and Computers*, pp. 1210-1214, November 2025.
- J. Park, F. Sohrabi, J. Du, and J. G. Andrews, "Self-Nomination Based Feedback Reduction for MU-MIMO," in *Proceedings of the* 58$^{\text{th}}$ *Asilomar Conference on Signals, Systems, and Computers*, pp. 776–780, November 2024.
- T. Lee, J. Park, H. Kim and J. G. Andrews, "High Dimensional User-Specific Channel Generation for CSI Compression Using Diffusion Models," in *Proceedings of the* 58$^{\text{th}}$ *Asilomar Conference on Signals, Systems, and Computers*, pp. 759-763, November 2024.
- S. Hwang, J. Park, H. Lee, M. Kim and I. Lee, "Deep Reinforcement Learning Approach for UAV-Assisted Mobile Edge Computing Networks," in *Proceedings of IEEE Global Communications Conference*, pp. 3839-3844, December 2022.

SKILLS

Areas of Expertise

- Wireless Communications, Signal Processing, Estimation Theory, Linear and Nonlinear Optimization, Machine Learning, Reinforcement Learning.

Deep Learning Techniques and Implementations

- Expertise in deep generative models and computer vision methods.
- Extensive experience with deep reinforcement learning frameworks, including DQN, DRQN, A3C, DDPG, and more.