JUNGMIN SUH

The University of Texas at Austin, Department of Electrical and Computer Engineering, Austin, TX, USA
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RESEARCH INTERESTS

I am highly interested in the **statistical modeling**, **performance analysis**, and **experimental validation** of **6G wireless systems**, with a specific focus on AI-native wireless communications. My research goal is to bridge the gap between theoretical models and real-world deployment by leveraging **AI-empowered RAN** and **ML-based PHY techniques**.

EDUCATION

The University of Texas at Austin, Austin, TX, USA — Aug 2026 — Present
Incoming Ph.D. Student in Electrical and Computer Engineering

Korea University, Seoul, Republic of Korea — Sep 2024 — Aug 2026
Master of Science in Electrical Engineering — GPA: 4.50/4.50

Korea University, Seoul, Republic of Korea — Mar 2017 — Feb 2021
Bachelor of Engineering in Electrical Engineering — GPA: 3.89/4.50

RESEARCH EXPERIENCE

Wireless Networking and Communications Group — The University of Texas at Austin — Austin, TX, USA
Graduate Research Assistant — Aug 2026 — Present
Advisor: Gustavo de Veciana

Communication System Lab — Korea University — Seoul, Republic of Korea
Graduate Research Assistant — Sep 2024 — Aug 2026
Advisor: Young-Chai Ko

- Topic 1. Radio Frequency (RF) LEO satellite Downlink Channel
  - Developed a two-snapshot analytical framework for time-correlated Shadowed Rician (SR) fading in LEO downlinks.
  - Derived a closed-form power correlation coefficient, series-based expressions for the joint PDF and CDF.
  - Analyzed the joint outage probability (JOP), sampling-based level crossing rate (LCR), and average fade duration (AFD) to quantify short-lag outage dependence and characterize outage occurrence, recovery, and persistence in time-correlated LEO satellite downlinks.
- Topic 2. Free-space optical (FSO) Inter-satellite Link (ISL)
  - Modeled transmitter–receiver pointing errors as Gaussian random variables and analyzed how their variance and mutual correlation respectively affect the pointing loss and the required transmit power in FSO ISLs.
  - Derived analytical pointing error distributions and incorporated them into the link budget to quantitatively evaluate how jitter magnitude affects transmit power requirements in realistic LEO ISL distances.

Communications & Information Systems Lab — Korea University — Seoul, Republic of Korea
Undergraduate Research Assistant — Sep 2019 — Sep 2020
PI: Jun Heo

- Implemented post-processing algorithms for Quantum Key Distribution (QKD) in C language, including Cascade error-correction and privacy-amplification modules, as part of senior thesis research.

Intelligent Media Lab — Korea University — Seoul, Republic of Korea
Undergraduate Research Assistant — Jul 2019 — Aug 2020
PI: Jong-Ok Kim

- Conducted CNN-based image classification using TensorFlow and Python.

TEACHING & MENTORING EXPERIENCE

Korea University, Seoul, Republic of Korea Apr 2026 — June 2026
Undergraduate Thesis Research Mentor

- Mentored undergraduate students on senior design research related to wireless communications and satellite communication systems.

PUBLICATIONS

International Journal

- **J. M. Suh**, H. Noh, K. Jung, Y. Heo, and Y.-C. Ko, "Geometry-Aware Joint Power Statistics and Outage Dynamics of Time-Correlated Shadowed Rician LEO Downlinks," under revision at *IEEE Transactions on Aerospace and Electronic Systems*

International Conference

- **J. M. Suh** and Y.-C. Ko, "Joint Statistics and Outage Analysis of Time-Correlated Shadowed Rician Channels in LEO Satellite Downlinks," in *Proc. IEEE Vehicular Technology Conference (VTC 2026-Spring)*, Nice, France, June 9-12, 2026.

Domestic Journal

- **J. M. Suh** and Y.-C. Ko, "Link Budget Analysis for Inter-Satellite FSO Links with Comprehensive Pointing-Error Models," *The Journal of Korean Institute of Communications and Information Sciences (JKICS)*, vol. 50, no. 12, Dec. 2025, doi: 10.7840/kics.2025.50.12.1872

Domestic Conference

- **J. M. Suh** and Y.-C. Ko, "Impact of Temporal Correlation on Consecutive Outage Probability in LEO Satellite Downlinks," in *Proc. Symp. Korean Institute of Communications and Information Sciences (KICS)*, Jeju, Korea, Jun. 2026. (in Korean)
- D. H. Park, **J. M. Suh**, and Y.-C. Ko, "Maximum Achievable Data Rate Analysis of LEO Satellite Downlinks under Average Fade Duration Constraints," in *Proc. Symp. Korean Institute of Communications and Information Sciences (KICS)*, Jeju, Korea, Jun. 2026. (in Korean)
- **J. M. Suh** and Y.-C. Ko, "Joint Outage Probability Analysis of Time-Correlated Shadowed Rician Channels," in *Proc. Symp. Korean Institute of Communications and Information Sciences (KICS)*, Gyeongju, Korea, Nov. 2025. (in Korean)
- **J. M. Suh** and Y.-C. Ko, "Analysis of the Impact of Transmitter-Receiver Pointing-Error Correlation on Link Budget in Free-Space Optical Inter-Satellite Links," in *Proc. Symp. Korean Institute of Communications and Information Sciences (KICS)*, Jeju, Korea, Jun. 2025. (in Korean)
- **J. M. Suh** and Y.-C. Ko, "Link Budget Analysis for Free Space Optical Inter-Satellite Link with Gaussian Pointing Error Modeling," in *Proc. Symp. Korean Institute of Communications and Information Sciences (KICS)*, Gangwon, Korea, Feb. 2025. (in Korean)

AWARDS & SCHOLARSHIPS

Cockrell School of Engineering and UT Austin Graduate School Fellowship Austin, TX, USA
The University of Texas at Austin, $6,000 per year for up to four years Jan 2026

Admission with Excellence Seoul, Republic of Korea
Half-tuition Scholarship for the first semester in graduate school, Korea University June 2024

Contribution Award Seoul, Republic of Korea
Ministry of National Defense, Defense Computing Information Agency Jan 2022
Recognized for the successful completion of a defense System Integration (SI) project.

Semester High Honors Seoul, Republic of Korea
Recognized for academic excellence based on semester GPA, Korea University Feb 2021, Aug 2020, Feb 2020