



Seunghwan Kim

UNDERGRADUATE RESEARCHER · CIRCUIT DESIGNER

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"Never put off today's work until tomorrow."

Education

KAIST (Korea Advanced Institute of Science and Technology)

B.S. IN ELECTRICAL ENGINEERING (MINOR IN COMPUTER SCIENCE)

- GPA: 4.10 / 4.30
- Honors Program
- Dean's List (Fall 2020, Fall 2024)

Daejeon, S.Korea

Mar. 2020 – Present (Expected Aug. 2026)

State University of New York at Stony Brook

EXCHANGE STUDENT PROGRAM

New York, U.S.

Aug. 2025 – Dec. 2025

Research Experience

Undergraduate Research : Low-Power Single-ended Simultaneous Bidirectional Communication Interface for Samsung AR Glass (Prof. Hyeon-Min Bae)

Daejeon, S.Korea

UNDERGRADUATE RESEARCHER

Feb. 2025 – Present

- Conducted research at the Nanoscale Advanced Integrated Systems (NAIS) Lab, KAIST, under the supervision of Prof. Hyeon-Min Bae.
- Co-developed with **Samsung Electronics** a low-power serial communication interface for next-generation AR Glass.
- Aimed to reduce power consumption by reducing the required data lanes from 4 to 1.
- Used Ground-Referenced Signaling (GRS) to implement Single-ended Simultaneous Bidirectional (SBD) communication.
- Currently focusing on implementing the Continuous-Time Linear Equalizer (CTLE) for GRS-based Single-ended SBD system.

Undergraduate Research : Split-stage CTLE Design (Prof. Hyeon-Min Bae)

Daejeon, S.Korea

UNDERGRADUATE RESEARCHER

Aug. 2024 – Feb. 2025

- Conducted research at the Nanoscale Advanced Integrated Systems (NAIS) Lab, KAIST, under the supervision of Prof. Hyeon-Min Bae.
- Implemented a CTLE by dividing it into a Base-band Amplifier and a Low-Noise Amplifier (LNA) for DC gain and high-frequency peaking.
- Overcame Base-band attenuation of conventional CTLE by summing two independent output voltages from both amplifiers.
- Gained a deep understanding of CTLE operation and serial communication systems.

Undergraduate Research : E-TUBE Simulation (Prof. Hyeon-Min Bae)

Daejeon, S.Korea

UNDERGRADUATE RESEARCHER

Jul. 2024 – Aug. 2024

- Conducted research at the Nanoscale Advanced Integrated Systems (NAIS) Lab, KAIST, under the supervision of Prof. Hyeon-Min Bae.
- Reviewed and Simulated a plastic waveguide known as *E-TUBE*, designed for 70GHz carrier transmission, using ANSYS HFSS.

Extracurricular Activity

THRUST (KAIST Student Rocketry Club)

Daejeon, S.Korea

AVIONICS TEAM MEMBER

Feb. 2024 – Feb. 2025

- Designed and implemented flight computer hardware and firmware using a Teensy 4.1 for a solid-fuel rocket.
- Defined sensor specifications and evaluated candidate devices for performance and cost.
- Integrated sensors (IMU, barometer, pressure) with the MCU and verified reliable data communication.
- Won first prize at 2024 NURA Rocket Launch Competition and third prize at 2024 NURA Rocket Conference.
- Deepened expertise in embedded systems and serial communication protocols (I²C, SPI, UART).

KAIST Winter Overseas Volunteer Corps

Cebu, Philippine

VOLUNTEER

Jan. 5-15 2024

- Planned and led educational volunteering for Cebu Technological University (CTU) students.
- Developed Arduino code for RC Car and designed RC car components by Inventor.
- Provided a lecture about Pulse Width Modulation (PWM) scheme used for motor control.
- Broadened cross-cultural communication and teaching skills.

Honors & Awards

2025.03	Dean's List • for academic excellence • Awarded by Korea Advanced Institute of Science and Technology (KAIST)	Daejeon, S.Korea
2024.11	IPESK Next-Generation Engineering Talent Program (1st Cohort) • for promising future engineers • Awarded by Institute for Promotion of Engineering and Science of Korea (IPESK)	Seoul, S. Korea
2024.09	Honors Program • Granted access to graduate-level courses for top-performing undergraduate student • Awarded by Korea Advanced Institute of Science and Technology (KAIST)	Daejeon, S.Korea
2024.08	First Prize, 2024 National Universities' Rocket Association (NURA) Rocket Launch Competition • Demonstrated outstanding performance at the launch competition hosted by the NURA • Awarded by the Administrator of the Korea Aerospace Administration (KASA)	Seoul, S.Korea
2024.07	Third Prize, 2024 National Universities' Rocket Association (NURA) Rocket Conference • Achieved excellent results at the academic symposium organized by NURA • Awarded by the Chairman of the Korea Foundation for Science and Creativity (KOSAC)	Seoul, S.Korea
2021.03	Dean's List • for academic excellence • Awarded by Korea Advanced Institute of Science and Technology (KAIST)	Daejeon, S.Korea

Scholarships

2025	Korea-U.S. Advanced Technology Exchange Scholarship • for promising exchange student to the U.S. • Given by Ministry of Trade, Industry & Energy	Seoul, S. Korea
2025	National Science and Engineering Scholarship • for high performance in academic achievement • Given by Korea Student Aid Foundation (KOSAF)	Seoul, S. Korea
2024	National Science and Engineering Scholarship • for high performance in academic achievement • Given by Korea Student Aid Foundation (KOSAF)	Seoul, S. Korea
2021	KAIST Support Scholarship(Merit-Based) • for high performance in academic achievement • Given by Korea Advanced Institute of Science and Technology (KAIST)	Daejeon, S.Korea
2020	KAIST Support Scholarship(Science & Engineering) • for high performance in academic achievement • Given by Korea Advanced Institute of Science and Technology (KAIST)	Daejeon, S.Korea

Skills

Programming	C (Proficient), Python, Java
Design Tools	Cadence Virtuoso, ANSYS HFSS, MATLAB, Autodesk Inventor