Heeseung Choi

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Education

Yonsei University, Seoul, South Korea 03/2020 - 02/2026
Bachelor of Engineering in Electrical and Electronic Engineering
GPA: 4.07/4.30

University of Georgia, GA, United States 08/2024 - 12/2024
Exchange Program
GPA: 4.00/4.00

Research Experience

Undergraduate Researcher Seoul, South Korea
Yonsei University — Advisor: Prof. Byung-Wook Min 01/2025 – Present

- Led an undergraduate capstone on a 1-bit Phase Shifting Switch Module for Reconfigurable Intelligent Surface, optimizing transistor sizing and matching networks to achieve low insertion loss and a stable 180° phase shift over a wide bandwidth.
- Awarded the IEEE AP-S Undergraduate Research Scholarship; presented at KIEES (2025).
- Now advancing to 1.5-/2-bit switch modules to cut quantization loss and improve beam control.

Conference

[1] **Heeseung Choi and Byung-Wook Min**, "1-bit Phase Shifting Switch Module for Reconfigurable Intelligent Surface," *The Korean Institute of Electromagnetic Engineering and Science (KIEES) Summer Conference*, Pyeongchang, South Korea, Aug. 2025. *(Poster Presentation)*

Awards & Scholarships

IEEE AP-S Undergraduate Summer Research Scholarship
IEEE Antennas and Propagation Society 06/2025 - 12/2025

- Selected among 102 applicants and awarded $3,000.
- Research topic: BLANK

Korea-U.S. Technology Fields Exchange Program Scholarship
Korea Institute for Advancement of Technology 03/2024 - 12/2024

- Awarded to 90 selected engineering students; $9,000 per semester.

Yonsei University Semiconductor Track Program Seoul, South Korea
Yonsei University

- Merit scholarship for top semiconductor students; ∼$1,000 per semester.

High Honors : Spring 2020, Spring & Fall 2023, Spring 2024, Spring 2025 Seoul, South Korea
Yonsei University

- Awarded to top 3% students each semester for outstanding achievement.

Skills

- **Tools:** Keysight ADS, HFSS, MATLAB, PSPICE/LTSPICE, VIVADO
- **Relevant Coursework:**
  - **Electromagnetism Track:** Electricity & Magnetism I/II, Microwave Engineering, Microwave Experiment, Antenna Engineering
  - **Communication Track:** Communication Theory, Communication Systems, Digital Signal Processing, Signals & Systems
  - **Microelectronics Track:** Electronic Circuits I/II, Physical Electronics

Project Experience

Infrared Sensor PCB Design Seoul, Korea
PCB Design

- Designed and fabricated an infrared sensor using Eagle CAD.
- Created custom libraries and layouts, completed schematic and board design, and assembled the prototype after generating Gerber files.

Audio Equalizer Design Seoul, Korea
Analog Circuit Design

- Built an audio equalizer using LPF, BPF, HPF, a summing amplifier, and a push-pull stage, simulating performance in PSPICE beforehand.
- Implemented the design on a breadboard and added a volume controller for gain tuning.

FPGA-Based Barnsley Fern Visualization Seoul, Korea
Digital System Design

- Implemented Barnsley Fern fractals on an LCD using the Pynq-Z2 and Verilog.
- Used FSM to adjust iteration count via buttons and rendered RGB pixel data by storing it in BRAM.

Samsung Shining Star Program Suwon, South Korea
Project Link — *Team Leader*

- Participated in the Samsung Shining Star Program, gaining knowledge of semiconductor technology through lectures and site visits.
- Led the team through tasks and interacted with professionals at Samsung Electronics.

Work Experience

Republic of Korea Army Sacheon, South Korea
Sergeant 05/2021 - 11/2022

- Served as a military driver and awarded Outstanding Driver.

Extracurricular Activities

Yonsei Yacht Research Association - Yonsei Sailing Team Seoul, South Korea
Administrative Officer 07/2023 - Present

- Collaborated with team members through sailing and training and managed club operations as Administrative Officer in the second year.