

KYOUNGMO KOO

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EDUCATION

University of Michigan, College of Engineering

Masters of Science in Electrical & Computer Engineering

Ann Arbor, MI

Aug 2023 – June 2025 (Expected)

- **Cumulative GPA:** 4.00/4.00
- **Relevant Coursework:** Power Electronics, Linear System Theory

Seoul National University, College of Engineering

Bachelor of Science in Electrical & Computer Engineering (2 years military leave of absence)

Seoul, KR

Mar 2017 – June 2023

- **Cumulative GPA:** 3.86/4.30 | **Major GPA:** 3.92/4.30
- **Relevant Coursework:** Introduction to Circuit Theory and Laboratory, Introduction to Electronic Circuits and Laboratory, Digital Integrated Circuits, Analog Integrated Circuits, Semiconductor Devices, Digital Logic Design and Lab, Signals and Systems, Introduction to Communications, Design Project for Electrical Devices & Systems

AREA OF INTERESTS

- Analog and Digital Integrated Circuits, Communication systems, Electrical Devices and Robotics, Power Electronics

RESEARCH EXPERIENCES

UMICH: Image-Guided Medical Robotics Lab

Research Intern (Advisor: Prof. Mark Draelos)

Ann Arbor, MI

Aug 2023 – Present

- Working on developing a digital interface for Galvanometer controller to enhance the quality of OCT(Optical Coherence Tomography) scan
- Designed a digital circuitry prototype with SAI and SPI compatibility for future communication with servo driver and enabled control via STM32L476RG
- Implemented DMA channels on an STM32 board for optimized UART communication with a servo driver, utilizing Pyserial libraries on a laptop for efficient user interaction.

SNU: Applied Superconductivity Lab

Research Intern (Advisor: Prof. Seungyong Hahn)

Seoul, KR

July 2021 – July 2023

- Designed internal circuitry of superconductivity-applied electromechanical devices using MATLAB, LTSPICE, and COMSOL Multiphysics
- Conducted simulation and experimental study of no-insulation high-temperature superconductor applied magnetohydrodynamic ship (World First 1st NI HTS MHD ship)
- Proposed the use of NI HTS applied 10kW scale wave energy converter design considering the nature of mechanical, thermal, and electromagnetic stability

MANUSCRIPT IN PROGRESS

[P1] Conceptual Design and Analysis of No-Insulation High- Temperature Superconductor Tubular Wave Energy Converter

Kyoungmo Koo, Wonseok Jang, Jeonghwan Park, Jaemyung Cha and Seungyong Hahn

ArXiv

[P2] Design, Construction, and Operation of Liquid Nitrogen Cooled MHD Miniature Ship with No-Insulation High Temperature Superconductor Magnet

Kyoungmo Koo, Chaemin Im, Geonyoung Kim, Jaemin Kim, Seungyong Hahn

IEEE Transactions on Transportation Electrification (Under Review)

[P3] 100MW class large-scale green hydrogen production plant construction project through high-temperature superconducting magnet-based large-capacity wave power generation

Wonseok Jang, **Kyoungmo Koo**, Jaeseok Bang

KHA (Korea Hydropower Industry Association) thesis competition 2021, 3rd place (Non-Archival)

PROFESSIONAL EXPERIENCES

Snek

Data Analyst Intern

Seoul, KR

Apr 2021 – June 2021

- Increased the paying user conversion rate by analyzing the spending patterns of monthly premium users using Python
- Proposed a targeted Google advertisement on interested potential customers and inactive users to create a user traffic
- Contributed to a milestone record of 160K+ total users and 100K+ MAU on the platform

Nrise

Data Analyst Intern, Project Manager

Seoul, KR

Jan 2021 – Feb 2021

- Optimized push message notifications by conducting user segmentation and customizing tailored messages
- Identified effective buzzwords on notifications by analyzing user click-rate using SQL and Python
- Led a group of 10+ project members and successfully communicated with the management team

Diveroid

Data Analyst Intern

Seoul, KR

Oct 2020 – Jan 2021

- Deployed a \$20K+ marketing account in over 50+ countries by executing targeted advertising on social media platforms
- Analyzed social media advertisements' click-through rates to find a pattern of non-organic users and assess the effectiveness of the marketing campaign
- Raised \$200K+ capital from Kickstarter by implementing a data-based growth marketing strategy

MILITARY & EXTRA-CURRICULAR ACTIVITIES

Michigan Autonomous Aerial Vehicles (MAAV)

Embedded System team

Ann Arbor, MI

Aug 2023 – Oct 2023

- Students-led organization specializing in the design and manufacturing of autonomous aerial vehicles, with participation in the International Aerial Robotics Competition (IARC) to showcase achievements
- Designed PCBs integrated with microprocessors and sensors using Altium and STM32 Cube IDE
- Acquired knowledge of pin functionalities in microprocessors and developed proficiency in communication protocols used in drone circuitry.

Republic of Korea Army (ROKA), Missile Strategic Command

Sergeant, Satellite Operation Specialist

Yang-Pyeong, KR

Aug 2018 – Mar 2020

- Connected the satellite communication systems between front-line missile battalions and ROK Joint Chiefs of Staff
- Awarded the excellence of leadership for leading 10+ squads to complete a battalion-wide combat training successfully

SNU: Growth Hackers

Fellowship Workshop Head, Public Relations Group Head

Seoul, KR

Sept 2020 – June 2021

- Educated 20+ selected underclassmen fellows on the basics of Python and data analysis for the entire academic semester
- Marketized Growth Hackers to external organizations through the usages of Youtube and LinkedIn

SNU: Student Venture

Proptech Industry Group Head

Seoul, KR

Mar 2020 – June 2020

- Collaborated with 20+ members and presented an analysis of startup business models during weekly meeting
- Spearheaded a partnership project with Prop Tech Forum Korea to conduct a university-wide hackathon

SNU: Silicon Valley Entrepreneurship Fellowship Team

Fellow

Stanford, CA

June 2018 – July 2018

- Selected out of 100+ competitive SNU applicant pools to participate in a 2 month entrepreneurial fellowship program
- Presented a business model with deep-learning based automated advertisement design to Stanford University professors

SKILLS

Languages : Korean(Native), English(Proficient), Chinese (Limited)

Circuit Design tools : Altium, KiCad, Verilog, LTSPICE, HSPICE, PLECS, LabVIEW

Simulation tools : LTSPICE, HSPICE, PLECS, Matlab, Simulink, Comsol Multiphysics

Programing languages : Python, C, C++, Java, MicroPython(Arduino), HTML/CSS/Javascript

Awards & Honors: ROKA Combat-Power Training Camp Best Trainee Award, ROKA Battalion Tactical Training Excellence Award, KSSC Oral Presentation 2022 (The Korean Society of Superconductivity and Cryogenics)

