JOON KIM

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EDUCATION

The Cooper Union, Albert Nerken School of Engineering

New York, NY

Class of 2028

Bachelor of Science in Mechanical Engineering

- **GPA:** 3.85/4.0 | Cooper Union Merit Scholar
- Relevant Coursework: System Dynamics, Design & Prototyping, Mechanics of Materials, Dynamics, Circuits, Thermodynamics, Modern Physics, Materials Science, Statics, Classical Mechanics, Principles of Design, Differential Equations

PROFESSIONAL EXPERIENCE

Hyundai Rotem and Republic of Korea Army

Seoul, South Korea

October 2024 – Present

Armored Vehicle Specialist

- Led a team of 5 in the maintenance and repair of over 35 armored vehicles, executing a wide scope of services from routine filter and tire changes to complex engine modifications and armor restorations.
- Oversaw fleet logistics by managing both the maintenance history database and a 50+ unique part physical inventory, ensuring data accuracy while optimizing stock levels to guarantee parts availability.
- Directed four inter-unit training sessions, guiding external teams and officers on specialized maintenance techniques and repair procedures for armored personnel vehicles.

Cooper Union Dynamics and Control Lab

New York, NY

Research Fellow

May 2024 - August 2024

- Secured \$7,000 in funding for research to develop interactive drone swarm simulations for dynamic systems.
- Developed intuitive hand-tracking control systems using OpenCV and Mediapipe and implemented real-time interactive simulations of complex mass-spring-damper and pendulum systems.
- Created an engaging educational platform to visualize abstract differential equation concepts, which was adopted by the lab for undergraduate student demonstrations and workshops.

Cheong-Gyo Biotech

Seoul, South Korea

Product Design and Prototyping Intern

June 2023 – July 2023

- Collaborated with cross-functional engineers and researchers to design and prototype innovative air purifier filter shells, contributing to the final design of the "Airwell 99" air purifier.
- Designed 10+ detailed 3D models of filter shells using Fusion 360 and produced high-fidelity prototypes utilizing 3D printers.
- Performed quality control and troubleshooting on prototypes, identifying and resolving 15+ design flaws to ensure optimal performance and design integrity.

LEADERSHIP & EXTRACURRICULAR ACTIVITIES

Cooper Union VIP Drone Swarm Control

New York, NY

Lead Student Researcher

December 2022 – May 2024

- Designed a real-time drone control system, implementing an innovative solution that translates webcam-based hand motion into precise drone swarm commands for intuitive and responsive control.
- Streamlined the data communication pipeline to resolve a significant 2-second command delay, increasing the system's operational stability and facilitating precise, real-time control.
- Presented the project at the annual Cooper Union VIP showcase event, securing additional research funding and receiving an invitation to present at subsequent project showcases.

Cooper Union VIP IGVC Autonomous Vehicles

New York, NY

Controls Team

November 2022 – December 2023

- Utilized 3D LiDAR data for real-time SLAM, object detection, and dynamic path planning to develop an autonomous navigation stack in ROS.
- Implemented and tuned PID algorithms to convert high-level navigation commands into precise vehicle steering and throttle control, reducing steering error by 30%.
- Introduced a novel LiDAR-based perception system, which was instrumental in securing the IGVC Innovation Award.

Cooper Union Cooper Consulting Group (CCG)

New York, NY

Consulting Development Lead

September 2023 – May 2024

- Presented data-driven business solutions with a team of eight students from diverse academic backgrounds for the Global Case Competition at Harvard (GCCH).
- Administered club logistics and coordination for over 20 club members, reducing administrative overhead and ensuring a prepared group for weekly meetings and competitions.
- Orchestrated workshops on key consulting skills like financial modeling and market analysis, which increased workshop attendance by 25% over one semester and enhanced the professional development of club members.

SKILLS & INTERESTS

- Skills: CAD Software (Fusion 360, Onshape, AutoCAD), Fabrication Skills (3D Printing, CNC Milling/Programming, Drill Press Operation, Woodworking), Microsoft Office Suite, Programming Languages (Python, C), Video Editing (Premiere Pro, Final Cut Pro, Davinci Resolve, Capcut)
- Languages: English (Native Fluent), Korean (Native Fluent), Spanish (Working Proficiency), Chinese (Working Proficiency)
- Interests: Robotics, Controls Systems, Product Design, Golfing, Freestyle Wrestling, Weightlifting, Music Composition