JOON KIM

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EDUCATION

The Cooper Union, Albert Nerken School of Engineering New York, NY
Bachelor of Science in Mechanical Engineering *Class of 2028*
- **GPA:** 3.85/4.0|Awarded Half-Tuition Scholarship (3 Years), Awarded Full-Tuition Scholarship (1 Year)
- **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, Republic of Korea Army Seoul, South Korea
Automobile Mechanic, Armored Vehicle Specialist *October 2024 – Present*
- Led a team of 5 to manage and maintain over 35 armored vehicles, optimizing maintenance schedules and executing complex repairs.
- Administered an online database for vehicle usage, maintenance history, and repair logs, ensuring data accuracy and accessibility.
- Facilitated communication as English-to-Korean translator for high-ranking officers during joint military exercises with the U.S. Military.

Cooper Union Dynamics and Control Lab New York, NY
Research Fellow *May 2024 – August 2024*
- Led an independent research initiative, securing $7,000 in funding, to develop interactive drone swarm simulations for dynamic systems.
- Developed intuitive hand-tracking control systems using OpenCV and Mediapipe and implemented real-time simulations of complex mass-spring-damper and pendulum systems.
- Created an engaging educational platform to visualize abstract differential equation concepts through hands-on drone interaction, documenting the project through a comprehensive video and detailed research paper.

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, now in batch production and available on the market.
- Developed detailed 3D models of filter shells using Fusion 360 and operated 3D printers to produce high-fidelity prototypes.
- Performed quality control and troubleshooting on prototypes, ensuring optimal performance and design integrity.

LEADERSHIP & EXTRACURRICULAR ACTIVITIES

Cooper Union VIP Drone Swarm Control New York, NY
Lead Student Researcher *December 2022 – May 2024*
- Developed motion tracking technology to provide intuitive and precise control over a swarm of flying drones, collaborating with a team of two students and two professors
- Designed and implemented algorithms for real-time motion recognition and advanced swarm drone navigation to enhance overall swarm drone usability and expand application potential.

Cooper Union VIP IGVC Autonomous Vehicles New York, NY
Controls Team *November 2022 – December 2023*
- Developed an autonomous navigation stack in ROS, using 3D LiDAR data for real-time SLAM, object detection, and dynamic path planning for the Cooper Union IGVC team.
- Implemented and tuned PID algorithms to convert high-level navigation commands into precise vehicle steering and throttle control.
- Contributed directly to winning the IGVC Innovation Award through key developments in the vehicle's novel, LiDAR-based perception system.

Cooper Union Cooper Consulting Group (CCG) New York, NY
Consulting Development Lead *September 2023 – May 2024*
- Developed and presented data-driven business solutions with a team of students from diverse academic backgrounds for the Global Case Competition at Harvard (GCCH).
- Managed team logistics and member coordination, serving as the primary point of contact for all team and club-related matters, to ensure a prepared and cohesive group for weekly meetings and the competition.
- Designed and presented workshops on key consulting skills, including financial modeling and market analysis, to enhance the professional development of club members.

SKILLS & INTERESTS

Skills: Multilingual (English (Fluent), Korean (Fluent), Spanish (CEFR B2), Chinese (HSK 5)), CAD Software (Fusion 360, Onshape, AutoCAD), Fabrication Skills (3D Printing, CNC Milling, CNC Programming, Drill Press Operation, Woodworking), Microsoft Office Suite, Programming Languages (Python, C), Video Editing (Premiere Pro, Final Cut Pro, Davinci Resolve, Capcut)

Interests: Robotics, Controls Systems, Product Design, Golfing, Freestyle Wrestling, Music Composition