# 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 | 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**
*Armored Vehicle Specialist*                                                          *October 2024 – Present*
- 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