Yunsoo Adrienne Yoon

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Personal Website

EDUCATION

Northwestern University | Evanston, Il — Sep 2025 – *Expected* Dec 2026
M.S. in Mechanical Engineering

Cornell University | Ithaca, NY — Sep 2021 – May 2025
B.S. in Mechanical and Aerospace Engineering, GPA: 3.79/4.0, *Magna Cum Laude*

PROFESSIONAL EXPERIENCE

Haptics Robot Lab, Cornell University | Ithaca, NY — Jun 2024 – May 2025
Undergraduate Researcher

- Developed a self-powered wearable system that harvests pneumatic energy from human gait and converts it into electrical power for embedded sensing and haptic feedback applications.
- Designed a compliant mechanism for the suit, focusing on efficient energy transmission through elastic materials.
- Optimized axial flux magnetic generator using a Halbach array for enhanced power density.

Undergraduate Teaching Assistant, Cornell University | Ithaca, NY — Aug – Dec 2024

- Prepared and lead lab sessions, office hours, and course discussion boards for MAE 3260: System Dynamics, enhancing student engagement and course comprehension.

BALA Consulting Engineers | New York, NY — Jun 2023 – Aug 2023
HVAC Mechanical Intern

- Ran equipment simulations using IES Virtual and validated them through hand calculations.
- Developed detailed demolition and renovation plans in AutoCAD, streamlining construction coordination.
- Created a document reflecting updated building codes improving design efficiency.

PROJECT EXPERIENCE

Fast Robots: High-Speed Autonomous Navigation, Cornell University | Ithaca, NY — Jan 2025 – May 2025

- Engineered a high-speed autonomous robot by integrating PID control, sensor fusion, and Bluetooth communication; soldered and assembled all components, debugged system, and optimized for navigation.
- Published project documentation, control algorithms, debugging step and performance analysis in portfolio.

Plantar Pressure Distribution Training Pad, Cornell University | Ithaca, NY — Jan 2025 – May 2025

- Developed a user-friendly software interface delivering real-time feedback on plantar pressure distribution to support at-home gait training for individuals with flat feet deformities.
- Designed an interactive hardware prototype integrated with the software, enabling intuitive use for training.

Smart Blood Pressure (BP) Measuring Device, Cornell University | Ithaca, NY — Feb 2024 – May 2024

- Co-developed a BP monitor transmitting data via Long Range Wide Area Network for rural healthcare delivery.
- Integrated a commercial Bluetooth blood pressure monitor with custom Arduino-based data transmission system.
- Featured in the *Cornell Chronicle* for innovative healthcare application using Internet of Things.

Cornell Electric Vehicles, Cornell University | Ithaca, NY — Sep 2021 – May 2025
Drivetrain and Manufacturing Lead

- Spearheaded drivetrain redesign from mechanical differential to direct dual shaft motor system, improving efficiency in torque transmission from ~26.3% to ~86%.
- Designed and prototyped drivetrain components including the differential, parking brake, and fixtures using CAD, lathe, mill, and 3D printing, optimizing parts for manufacturability, tolerance stack-up, durability, and assembly.
- Led manufacturing scheduling, machine shop training, and design verification proofreading shop drawings.
- Conducted comprehensive design reviews and authored detailed project for clear communication of progress.

AWARDS

Presidential Science Scholarship — 2020 - 2025

- $200,000 scholarship granted to 20 Korean students in STEM majors by the President of South Korea for outstanding academic excellence, leadership, and potential to contribute to advance scientific innovation.

Cornell University Engineering Learning Initiatives (ELI) Undergraduate Researcher Award — 2024

- $5,400 grant received for undergraduate research for demonstrating technical merit and real-world practicality.

SKILLS

Software: ROS, Linux, Python, C++, Arduino IDE, MATLAB, AutoCAD, Autodesk Inventor, Fusion 360, ANSYS
Engineering: Mill, Lathe, Engineering Drawings, CAM, 3D Printing, Rapid Prototyping, Soldering