Yunsoo Adrienne Yoon

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EDUCATION

Cornell University | Ithaca, NY — Sep 2021 – May 2025
B.S. in Mechanical and Aerospace Engineering
Cumulative GPA: 3.80/4.0, *Magna Cum Laude*
Relevant Courses: Fast Robots, System Dynamics, Mechatronics, Internet of Things, Orthopedic Tissue Mechanics

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.
- Awarded funding through Cornell ELI grant for materials and equipment for iterative design.

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.
- Updated AutoCAD plans for building renovations to reflect updated building codes, improving design efficiency.

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.

PROJECTS

Plantar Pressure Distribution Training Pad, Cornell University | Ithaca, NY — Feb 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.

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.

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.

AWARDS

Presidential Science Scholarship — 2020 - 2025

- $200,000 scholarship granted to 20 Korean students in STEM majors by the President of South Korea

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

- $5,400 grant for undergraduate research at Cornell University

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