Hanvit Cho

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EDUCATION

Stanford University | Stanford, California **September 2023 – June 2025 (Expected)**

- MS in Mechanical Engineering.

University at Buffalo - State University of New York (SUNY) | Buffalo, New York **August 2021 – May 2023**

- BS in Mechanical Engineering. GPA: 4.0/4.0

Work Experience

Robotics Internship **Centrillion Technology**

Full-time intern **June 2024 – Present**

- Enhanced bimanual robotic systems by integrating Trossen Robotics' Mobile ALOHA through advanced imitation learning techniques, improving manufacturing automation and robot behavior in real-world situations.
- Assembled custom test setups for motion analysis and integrated data acquisition systems for enhanced diagnostics and reliable performance, crucial for embedded environments.

Sun-Signs Engineering Internship **University at Buffalo**

Unpaid part-time intern **February 2022 – June 2022**

- Designed and assembled a solar-powered navigation device using SOLIDWORKS and utilized 3D printing to create a prototype.
- Conducted performance testing and failure analysis to refine prototype designs.

RESEARCH EXPERIENCE

Stanford Vision and Learning Lab **Stanford University**

Graduate researcher **June 2024 – Present**

- Developing an advanced brain-robot interface leveraging EEG signals to control robots, enhancing system intelligence for complex pick-place-pack tasks.
- Specialized in applying machine learning for vision system accuracy and efficiency, crucial for semi-structured robotic tasks in logistics.

Collaborative Haptics and Robotics in Medicine Lab **Stanford University**

Graduate researcher **March 2024 – June 2024**

- Led the redesign of the base station for a vine-like robot, focusing on achieving a reliable sealing mechanism to maintain high pressure (up to 15 PSI).
- Assembled and tested early-stage robotic prototypes with a focus on actuator performance and closed-loop control system development.

Salisbury Robotics Lab **Stanford University**

Graduate researcher **March 2024 – June 2024**

- Contributed to the development of robotic Emergency Medical Technician (rEMT) by using Kinova Gen 3, Bota force sensor, and Haply Inverse-3 haptic device.
- Created advanced motion control and haptic perception capabilities, enabling the rEMT to perform sensitive medical tasks, such as palpating tissues to assess stiffness, reflecting capabilities in simulation engines for fast iteration.

Stanford Biomechatronics Lab **Stanford University**
Graduate researcher **September 2023 – May 2024**

- Focused on the development of exoskeleton technology to assess and enhance human walking balance.
- Tested human-subjected gait data based on several balanced metrics and determining how to declare which gait is balanced.

Adaptive Design Algorithms, Models & Systems Lab **University at Buffalo**
Undergraduate researcher **February 2022 – May 2023**

- Programmed ground robots (e-puck2) and aerial robots (crazy-fly) using C++ and Python, focusing on real-time control algorithms for dynamic systems.
- Conducted experiments in the motion capture lab using Vicon Tracker to control swarm robots simultaneously, enhancing capabilities in closed-loop control systems and precision in object manipulation through coordinated movements.

HONORS AND AWARDS

Dean's List | University at Buffalo **Spring 2021 – Spring 2023**

International Scholarship | University at Buffalo **Fall 2020 – Spring 2023**

- $3,500 per semester in a row

Citation of the Commander | Defense Security Support Command **April 2019**

- Using C# and MySQL, developed a DB management program that detects threats related to computer security.

PUBLICATIONS

NOIR 2.0: Neural Signal Operated Intelligent Robots for Everyday Activities CoRoboLearn 2024
Kim, T., Wang, Y., **Cho, H.**, Hodges, A.

Fast Decision Support for Air Traffic Management at Urban Air Mobility Vertipo Learning IROS 2023
KrisshnaKumar, P., Witter, J., Paul, S., **Cho, H.**, Dantu, K., Chowdhury, S.

Framework for Analyzing Human Cognition in Operationally-Relevant Human Swarm Interaction ASME 2023
Distefano, J., **Cho, H.**, KrisshnaKumar, P., Esfahani, E., Chowdhury, S.

LAB SKILL

Motion Capture Lab (Vicon Tracker): calibrating, creating an object in the environment, tracking multiple objects, and accessing real-time Vicon data to control the objects.

COMPUTATIONAL SKILLS

Languages:	C (Expert), C++ (Expert), Python (Expert), Java (Intermediate), JavaScript (Intermediate)
Applications:	ROS (Expert), MATLAB (Expert), SOLIDWORKS (Expert), Adobe Inventor (Expert)
Engineering Skills:	Manual Machining, GD&T, CAD Fixture Design