

Anh Tung Ho

anhtung.ho@stonybrook.edu | (+1)516 493 8528 | Personal Website | Stony Brook, New York

Education

Stony Brook University

Doctor of Philosophy in Mechanical Engineering

Advisor: Prof. William Stewart and Prof. Shikui Chen

Stony Brook, New York, USA

Sep 2024 – Present

GPA: 4.0/4.0

Korea Advanced Institute of Science and Technology (KAIST)

Bachelor of Science in Mechanical Engineering (Cum Laude)

Concentration: Robotics and Control System

Award: Outstanding Academic Achievement Award in Spring Semester 2022

Selected coursework:

- Mechanical Component Design, Understand Material and Processing, Smart Factory and Manufacturing, Circuit Theory, Signal and Image Processing, Modeling and Control Dynamic System, Automatic Control, Robotics System Programming, Visual Intelligence, Basics of Artificial Intelligence

Daejeon, South Korea

Mar 2020 – Feb 2024

GPA: 3.7/4.0

Industrial Experience

LG Electronic

Robotic Engineer

- Led engineering team at Luxolis company and collaborated with LG engineers to develop an AI-empowered automated system for OLED screen defect inspection.
- Contributed to design components, setup and calibrate entire robot system (including gantry, manipulator, and vision systems).
- Designed digital twin model of robot system for simulation and monitoring.
- Developed visual-guided motion planning algorithm for gantry-manipulator system with integration of deep learning model.

Gyeonggi, South Korea

Apr 2024 – Aug 2024

Luxolis AI

Robotics Engineer

- Contributed to the development of a low-cost portable camera system for real-time 3D scene reconstruction.
- Researched and implemented the Visual-Inertial SLAM algorithm to meet product specifications and user experiences.
- Optimized the algorithm pipeline to achieve 5 times reduction in data storage requirement. The reconstruction time was 10 times faster than high-cost competing products.
- Proposed solution of using deep learning to refine depth image to improve quality of reconstruction.
- Successfully completed the initial prototype for the company.

Gyeonggi, South Korea

Feb 2024 – Aug 2024

Delta X Robotics

Robotic Engineer Intern

- Researched how to develop affordable and high-speed parallel delta robots for production lines.
- Designed Simulink models to analyze kinematic, dynamic, and motion planning of company's products, including industrial delta and quadrupedal robots.

Danang, Vietnam

Jun 2022 – Sep 2022

Research Experience

The Soft Flyers Laboratory

Research Assistant | Advisor: Prof. William Stewart

- Researched enhancing safety in human-UAV interactions.
- Applied Bayesian optimization to the hardware design of UAVs to minimize potential injury from collisions between UAVs and humans.
- Developed software to automate the design and validation process with various design parameters, eliminating manual intervention and significantly reducing engineering efforts.

Stony Brook, New York, USA

Sep 2024 – Present

Smart Manufacturing Systems Laboratory

Research Assistant | Advisor: Prof. Huitaek Yun

Daejeon, South Korea

Jun 2023 – Feb 2024

- Researched autonomous bin-picking systems and human-robot interaction in smart factory.
- Developed a comprehensive automatic bin-picking system with a 6-DOF manipulator, RGB-D Camera, and pneumatic gripper. Trained the YOLO model to detect pickable objects inside cluttered bins effectively.
- Proposed a novel multiple-view scan-matching method to leverage the performance of precise bin-picking tasks with a single low-cost RGB-D camera. The method can keep the error in pose estimation within 2 mm and boost the average picking success rate to 98%.

Robotic and Simulation Laboratory

Daejeon, South Korea

Research Intern | Advisor: Prof. Doo Yong Lee

Sep 2022 – Dec 2022

- Researched advancements of teleoperated surgical robots. Focusing on the application of control theories, such as Model-Mediated method and Input-to-State Stability conditions, to enhance the stability and fidelity of system in uncertain environments with the presence of communication delay.
- Designed and executed mock surgery experiments to validate the precision of the model-mediated method with the KUKA 7-DOF manipulator and Omega haptic device.
- Developed an optimized controller that decreases 50% error in rendering feedback force compared to methods published in prior research.

Innovation Design Optimization Laboratory

Daejeon, South Korea

Research Intern | Advisor: Prof. Ik Jin Lee

Dec 2021 – Mar 2022

- Conducted research on applying machine learning and Bayesian models to optimize the hardware design in uncertain conditions.
- Utilized Kriging-Gaussian interpolation to create surrogate model which optimizes the design for crashworthiness test of vehicle side impact. The design minimizes the deformation due to side impact while maintaining the required weight.

Publication

Anh Tung Ho, Pung Kyu Lee, & Huitaek Yun (2024-04-23). *Utilizing Multiple Point Cloud Scenes for Precise Robotic Bin-Picking Tasks*. The Korean Society of Mechanical Engineers Spring and Autumn Conference, Incheon.

Skills

Programming: C/C++, Python, MATLAB, ROS/ROS2

Techniques: Design Feedback Controller (PID, LQR, MPC), Model Dynamic Systems and Simulation(Simulink, Gazebo, LS-DYNA), Hardware Design (CAD), Topology Optimization, Embedded System (Arduino, Raspberry Pi, Jetson), 3D Data and Image Processing, Computer Vision, Apply Machine Learning and Deep Learning (Pytorch, Sklearn)

Languages: English(Advanced), Korean(Intermediate)