Anh Tung Ho

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Education

Stony Brook University — **Stony Brook, New York, USA**
Doctor of Philosophy in Mechanical Engineering — *Sep 2024 – Present*
Advisor: Prof. William Stewart — GPA: 4.0/4.0

Korea Advanced Institute of Science and Technology (KAIST) — **Daejeon, South Korea**
Bachelor of Science in Mechanical Engineering (Cum Laude) — *Mar 2020 – Feb 2024*
Concentration: Robotics and Control System — GPA: 3.7/4.0
Award: Outstanding Academic Achievement Award in Spring Semester 2022
Selected coursework:

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

Industrial Experience

LG Electronic — **Gyeonggi, South Korea**
Robotic Engineer — *Apr 2024 – Aug 2024*

- 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, setup and calibrate entire robot system (gantry, manipulator, and vision systems).
- Designed digital twin model of robot system for simulation and monitoring.
- Developed visual-guided motion planning algorithm with integration of YOLO model.

Luxolis AI — **Gyeonggi, South Korea**
Robotics Engineer — *Feb 2024 – Aug 2024*

- Contributed to the development of a low-cost portable camera system for real-time 3D scene reconstruction.
- Implemented 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.
- Successfully completed the initial prototype for the company.

Delta X Robotics — **Danang, Vietnam**
Robotic Engineer Intern — *Jun 2022 – Sep 2022*

- 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.

Research Experience

The Soft Flyers Laboratory — **Stony Brook, New York, USA**
Research Assistant | Advisor: Prof. William Stewart — *Sep 2024 – Present*

- 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, reducing engineering efforts for conventional design process.

Smart Manufacturing Systems Laboratory — **Daejeon, South Korea**
Research Assistant | Advisor: Prof. Huitaek Yun — *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)