

Chun-Wei Huang

EXPERIENCE

National Taiwan University *Research Assistant* Oct 2025 – Apr 2026
Sub-millimeter, low-force peg insertion

- Reached **98.6% success** at <0.05 mm clearance and under 15 gf mean contact force, with a policy trained end-to-end in NVIDIA Isaac Lab.
- Designed an Asymmetric Actor-Critic framework (privileged-state critic, sensor-only actor) so a policy trained only in simulation deploys directly on hardware.
- Built a sampling-based curriculum with lookahead factor sampling across parallel environments, widening exploration and removing the overfitting at curriculum boundaries.

OMRON SINIC X Corporation *Student Researcher* Jul 2024 – Sep 2025
Vision-proprioception-force sim-to-real insertion with a soft wrist

- Achieved **70% lower** translational state-estimation error than a proprioception-force baseline by fusing depth into the state encoder, and the resulting policy reached **72.7% success** on hardware across 10 unseen shapes.
- Traced the remaining generalization gap to the policy rather than perception. Better state estimation did not directly improve success on complex polygons.
- Built a multi-stage pipeline: an SAC policy trained on privileged state, then a ViT encoder that reconstructs that state from depth, proprioception and force-torque, with DAgger-inspired training to correct the resulting distribution shift.

9Dynamics Inc. *Backend Engineer* Jul 2020 – Jul 2021
Map-based social platform

- Built the backend with RESTful APIs for posts, messaging, friendships and search functions on a Node.js microservice architecture, deployed with Docker.

PUBLICATIONS

Object Insertion with a Soft Wrist Across Diverse Shapes: Vision-Proprioception-Force Zero-shot Sim-to-Real Transfer

C.-W. Huang, C. Beltran-Hernandez, M. Hamaya, C.-Y. Lee
IEEE Transactions on Robotics · under major revision

Reprojection Errors as Prompts for Efficient Scene Coordinate Regression

T.-R. Liu, H.-K. Yang, J.-M. Liu, C.-W. Huang, T.-C. Chiang, Q. Kong, N. Kobori, C.-Y. Lee
ECCV 2024 · arxiv.org/abs/2409.04178

Visual Forecasting as a Mid-level Representation for Avoidance

H.-K. Yang, T.-C. Chiang, T.-R. Liu, C.-W. Huang, J.-M. Liu, C.-Y. Lee
IROS 2024 · arxiv.org/abs/2310.07724

EDUCATION

National Tsing Hua University *M.S. Computer Science* Sep 2023 – Jan 2026
GPA 4.28 / 4.3 · ELSA Lab, advised by Prof. Chun-Yi Lee

National Tsing Hua University *B.S. Computer Science* Sep 2019 – Jun 2023
GPA 3.88 / 4.3

LEADERSHIP & AWARDS

Mei-Chu Hackathon *Lead Organizer* Oct 2020 – Oct 2021

- Led a 45-member team to run the 9th edition online for 250+ students, with challenge problems from LINE, Micron and Supermicro.

44th ICPC Asia Regional *Bronze Award* 2019

SKILLS

ML & Robotics	PyTorch, NVIDIA Isaac Lab, ROS, SAC / PPO, ViT
Engineering	Python, C++, JavaScript, Git, Docker, Linux
Languages	Chinese (native), English (TOEIC 965), Japanese (beginner)