HUNG-CHIEH WU

hungchieh@psu.edu LinkedIn hcwu7702.github.io

EDUCATION

The Pennsylvania State University (PSU) Fall 2022 – Present
Ph.D. Candidate in Electrical Engineering (Advisor: Prof. Donald Ebeigbe) Expected May 2027
GPA: 3.78/4.0
Research Focus: Energy-efficient quadruped gait control via Adversarial Imitation Learning (Unitree GO1)

National Chung Hsing University (NCHU), Taiwan Fall 2017 – Spring 2021
B.S. in Bio-Industrial Mechatronics Engineering (Advisor: Prof. Yao-Chuan Tsai)
Junior/Senior GPA: 4.13/4.3; Rank: 1/53

HIGHLIGHTED EXPERIENCE

Research Assistant, Control and Autonomous Robotics Lab, PSU Fall 2025 – Present
- Researching gait deployment and energy-efficient locomotion for quadruped robots.
- Designing reinforcement learning structures to address sim-to-real challenges and improve training efficiency.

Research Intern, AlphaZ Robotics Summer 2025
- Developed IsaacLab environments for RL-based obstacle avoidance and navigation.
- Deployed trained local planner policy on the Unitree Go2.
- Implemented Mamba-based temporal learning to enhance policy performance, contributing to an ICRA 2026 paper.

Teaching Assistant, Linear Control Systems, PSU Fall 2023 – Spring 2025
- Led MATLAB/SIMULINK lab sessions on linear control systems and feedback design.

Team Captain and Lead, Embedded Systems Team, PSU Mechnittany Fall 2024 – Present
- Led the embedded team, achieving Top 5 in the 2025 Robomaster Competition.
- Developing autonomous navigation and sensor fusion systems for the 2026 competition.

Research Intern, iChase Technology Co., Taiwan Spring 2022 – Summer 2022
Industry–academia collaboration with NCHU, focused on biosecurity in poultry houses.
- *AI-Based Bird Tracking and Laser-Driven Repelling System:* Developed a YOLO-based tracking pipeline integrated with laser deterrent for avian influenza prevention.

Research Assistant, Precision and Micro-Mechatronics Lab, NCHU Spring 2019 – Summer 2022
Advisor: Prof. Yao-Chuan Tsai
- Designed an autonomous greenhouse robot integrating RGB and thermal cameras for plant health monitoring.
- Led a 4-member robotics team in the Agricultural Robotics Competition, achieving 2nd (2019) and 3rd (2020).

TECHNICAL SKILLS

Programming: Python (Advanced), MATLAB (Intermediate), C++ (Basic; ROS development)
RL/NN Development: RSL-RL, SKRL, PyTorch, TensorRT, WandB
Software: Isaac-Sim, IsaacLab, ROS 2, Docker, Linux (Ubuntu)
Hardware: Unitree Go1/Go2, Jetson Nano/NX, Raspberry Pi, RGB/Depth Cameras
Control & Learning: Torque-based RL, Adversarial Imitation Learning, MPC, Kalman Filter
Languages: Mandarin (Native), English (Fluent)

PUBLICATION

1. **H.-C. Wu**, and D. Ebeigbe. "*AMP-Gait: Commandable Multi-Gait Unified Locomotion Network via Adversarial Motion Priors and Gait Classification*" in *IEEE ICRA*, May 2026. (Under Review)
2. **H.-C. Wu**, and the AlphaZ Robotics Team. "*TEMPO: Reinforcement Learning with Temporal Mamba-based Policy Optimization for LiDAR-Based Obstacle Avoidance*" in *IEEE ICRA*, May 2026. (Under Review)
3. K. Sinaei, **H.-C. Wu**, and D. Ebeigbe. "*Safety-Critical Position Control of Robots: A Model-Free Approach*" in *ACC*, Denver, CO, USA, July 2025.
4. **H.-C. Wu**, Z.-Y. Lei, P.-C. Huang, and Y.-C. Tsai. "*Integrating RGB and thermal imaging for plant water stress monitoring*" in *Bio-Mechatronics and Agricultural Machinery Eng. Conf.*, Taiwan, 2020.

AWARDS & HONORS

- Melvin P. Bloom Memorial Graduate Fellowship in Electrical Engineering, Penn State (2024)
- NCHU Golden Key Award – Top-performing student in the class (2021)
- Undergraduate Research Poster Competition Third Place Award, BIME Department (2021)