Li-Wei Yang

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EDUCATION

Carnegie Mellon University — Pittsburgh, PA
Master in Robotic Systems Development (expected) — May 2025

- Relevant Courses (in progress): Advanced Computer Vision, Robot Mobility, Manipulation, Estimation, & Control.

National Taiwan University — Taipei, Taiwan
Bachelor in Biomechatronics Engineering — Jun. 2022

- **Overall GPA: 3.99/4.30, Last 60 GPA: 4.14/4.30.**
- Relevant Courses: Data Structures and Algorithms, Machine Learning, Robotics, Intelligent Control, Automatic Control, Medical Mechatronics and Control, Digital Image Processing.

SKILLS

Programming: Python, C/C++, MATLAB, C#, Java, Kotlin.
Robotics: SLAM, Navigatoin, Control Theory, Computer Vision.
Software/Tools: ROS, Gazebo, MoveIt, Git, SolidWorks, 3D Slicer, Unity, Android Studio.

RESEARCH EXPERIENCE

Center for Artificial Intelligence and Advanced Robotics — Taipei, Taiwan
Research Assistant, topic: Companion Healthcare Aid Robot Manager, advisor: Li-Chen Fu — Feb. 2022 - Oct. 2022

- Connected ECG smartwatch to robot using BLE and utilized **SQLite** to synchronize multiple users' physiological data.
- Developed a voice-interactive module following and recognizing faces.
- Helped research pass Institutional Review Board by refining research proposal.

Robots and Medical Mechatronics Lab — Taipei, Taiwan
Undergraduate Researcher, topic: Remote Swabbing Robot, advisor: Ping-Lang Yen — Sept. 2020 - Mar. 2022

- Developed statistical morphing oral model in **3D Slicer** and simulated in **Gazebo**.
- Contained the RMS Error of landmarks below 4 mm.
- Won sponsorship from Taiwan's Ministry of Science and Technology (MOST).
- Designed torque produced by robot's counterbalance in **MATLAB**, broadening robot's workspace by 80%.

SELECTED PROJECTS

Mobile Lost and Found Robot — Taipei, Taiwan — Jan. 2022

- Led teammates to integrate an object-searching robot using depth camera and lidar.
- Implemented DWA navigation and AMCL localization methods.
- Applied BRISK and RANSAC algorithms in object searching.

Dynability5 — Taipei, Taiwan — Dec. 2021

- Built a 5-DOF manipulator to deliver water bottles for people with physical disabilities.
- Concatenated various frequency filters and amplifiers to collect clear EMG signals.
- Fine-tuned an SVM classifier to classify EMG patterns for control and achieved 90% accuracy.

PUBLICATIONS

Peer-reviewed Journal Articles
A Morphology Model for the Cyber-physical Operation of a Remote Swabbing Robot.

- **Yang, L. W.** & Yen, P. L., International Journal of iRobotics.

Domestic Conference
Analysis of RCM Mechanism and Counterbalance for a Swabbing Robot.

- Liu, L. C. & **Yang, L. W.**, Chinese Society of Mechanical Engineers Annual Conference.

AWARDS

Best Student Paper Contest (Conference on Advanced Robotics and Intelligent Systems) — Taipei, Taiwan — Aug. 2022

- First place.

Prof. Takasaka Memorial Scholarship — Taipei, Taiwan — Apr. 2022

- The scholarship was granted to top 3 students in Biomechatronics department.

Presidential Award — Taipei, Taiwan — Apr. 2021

- GPA ranked top 5% in a semester.

CERTIFICATES

Coursera

- Writing in the Sciences, Successful Negotiation: Essential Strategies and Skills, Python Data Structures, Mathematics for Machine Learning: Linear Algebra, Robotics (1).