YuJia Liang

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EDUCATION

National Taiwan Ocean University — Keelung, Taiwan
B.S. in Computer Science and Engineering - GPA: 3.5/4.0 — *Sep. 2022 – Present (EST. May 2026))*

Relevant Courses: Data Structures, Algorithms, Operating Systems, Computer Networks, Database Systems, Digital Logic, Computer Organization, Information Security, Introduction to AI, Web Programming, Java, Python, Verilog, SwiftUI, Graph Algorithms, Discrete Mathematics

RESEARCH & PROJECTS

Volleyball Line Judging System — Nov. 2024 – present
OpenCV, Python — Advisor: Prof. Pei-Yi, Ding — *NTOU CSE*
- Designed an automated in/out detection system for volleyball using OpenCV and image classification.
- Captured and processed real-time court imagery to identify ball boundaries and improve officiating accuracy.

Image Processing Project — 2025
Python, OpenCV, NumPy, scikit-image — *GitHub*
- Implemented comprehensive image processing algorithms including ISP (Image Signal Processing) pipeline and 3A (Auto Exposure, Auto Focus, Auto White Balance) algorithms.
- Developed computer vision features including edge detection, feature detection, image enhancement, noise reduction, and image segmentation.
- Created a modular architecture with efficient processing pipeline achieving sub-5-second average processing time per image.

ASL Hand Gesture Recognition App — Dec. 2024 – Feb. 2025
SwiftUI, CreateML
- Trained a custom machine learning model to classify 28 hand gestures (A-Z, Space, Delete) using CreateML.
- Integrated real-time camera input into a SwiftUI iOS app to enable sentence construction from gestures.
- Designed a user-friendly interface for accessibility in communication.
- WWDC2025 Submission

School Course Selection Web System — Dec. 2024 – Jan. 2025
PHP, MySQL — *Team size: 3*
- Developed a role-based course selection platform with secure login and selection validation.
- Implemented admin-side class management and backend database integration.

Japanese Learning Web App — Nov. 2023 – Jan. 2024
EJC, Javascript, CSS — *Team size: 2*
- Created an interactive language learning platform focused on Japanese vocabulary and kanji.
- Designed intuitive navigation and responsive layout to enhance learning experience.

TECHNICAL SKILLS

Programming Languages: C++, Java, Python, JavaScript, HTML, SQL, MATLAB, Verilog, SwiftUI, PHP
Tools: Git, VS Code, Jupyter Notebook, Firebase
Frameworks: React, Bootstrap
Languages: English (Fluent), Mandarin (Fluent), Japanese (JLPT N3)

EXTRACURRICULAR ACTIVITIES

National Taiwan Ocean University Tennis Team Member — 2022 - 2023
Keelung, Taiwan

Volleyball Department Team Member — 2022 - 2023
Keelung, Taiwan

Hackathon Participant — 2024