

# Shao Huang (Dennis) Hsu

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## EDUCATION

**Master of Science in Electrical and Computer Engineering**

Expected: Jun 2027

**Machine Learning and Data Science**

University of Southern California (USC), Los Angeles, CA

**Bachelor of Science in Electrical Engineering**

Jan 2024

National Taiwan Ocean University (NTOU), Keelung, Taiwan

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## SKILLS

- Programming Languages: C/C++, Python, Java, MATLAB, ADB (Android Debug Bridge), Unity (C#)
  - Web Development: HTML/CSS, JavaScript
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## WORK EXPERIENCE

**R&D Test Engineer: Intern**

HTC Corporation | New Taipei, Taiwan

Aug 2024–Apr 2025

- Built an automated testing framework using Python to conduct repeated tests and analyze the resulting data. This approach significantly improved team efficiency by reducing testing time by 30% and increasing accuracy by 25%.
  - Collaborated with the management on multiple projects, contributing to the successful completion of five projects ahead of schedule and receiving positive feedback from the team lead.
  - Utilized ADB to capture logs and analyze data from new products, identifying and documenting ten critical issues that improved product reliability by 20%.
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## RESEARCH EXPERIENCE

**Cross Exchange Trading Core**

JUL 2025–AUG 2025

- Modular cross-exchange trading engine: Efficiently fetches market data, manages orders, and tracks PnL across major centralized crypto exchanges.
- Scalable, plug-and-play architecture: Easily add new exchanges via connector modules; unified interfaces ensure consistent usage.
- Robust and well-documented: Includes strong error handling and clear documentation, making future upgrades and extension straightforward.

**Logo Tracking System**

Mar 2023–Sep 2023

- Collected and labeled a dataset of 500 custom photos and trained an object recognition model using YOLO (You Only Look Once) v5.
- Developed an application integrated with the Unity game engine to instantly identify targets and trigger video playback, with support for mobile deployment.
- Integrated image recognition with interactive media, demonstrating skills in machine learning deployment and real-time vision systems.

**Website Development**

Oct 2024–Dec 2024

HTML/CSS/JavaScript

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- Designed and developed a personal portfolio website featuring interactive elements and well-structured layouts to showcase skills, experience, education, and projects.
  - Created a visually engaging portfolio that effectively communicates qualifications and encourages engagement from potential employers.
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## PROJECT EXPERIENCE

### AI Image Recognition

Apr 2025

- Developed a real-time image recognition pipeline using MediaPipe and Python, capable of processing and analyzing live video streams with high accuracy and efficiency.
- Leveraged MediaPipe's processing modules to visualize, track, and compare differences in hand movements and body gestures.
- Applied the system in scenarios such as gesture-based control and sign language recognition, demonstrating strong integration of computer vision techniques with interactive applications.

### Python Arcade Shooter Game

Jan 2023

- Developed a classic 2D aircraft shooting game using Python and the Pygame library, integrating artificial intelligence for enhanced gameplay.
- Applied object-oriented programming (OOP) to manage game elements (player, enemies, projectiles), and modular design for scalability and future AI enhancements
- Introduced a basic AI enemy behavior system that adjusts difficulty based on player performance using simple reinforcement learning techniques

### Exchange Rate Calculator

Apr 2023

- Built a responsive and user-friendly currency conversion tool using HTML, JavaScript, and a real-time exchange rate API.
- Designed a clean and intuitive UI that allowed users to quickly query current exchange rates, perform accurate multi-currency conversions, and view real-time updates.
- Implemented error-handling and loading states to enhance user experience and ensure reliability under various network conditions.

### Aquarium Automation System

- Designed and built a microcontroller-based aquarium automation system using Arduino, enabling real-time temperature monitoring and adjustment to maintain optimal aquatic conditions
- Programmed sensors to measure water temperature and control a heater or fan module accordingly, ensuring a stable and healthy environment for aquatic life.
- Integrated LED indicators and buzzer alerts to provide immediate visual and audio notifications for abnormal conditions, improving the safety and intelligence of the system.

### Low-Pass Filter Design

Jan 2023

- Proposed and designed a low-pass filter to eliminate aliasing effects in circuits, ensuring stable circuit operation. (GitHub project: <https://github.com/DennisHsu716/project2.github.io>)
  - Successfully manufactured and tested the low-pass filter, confirming its effectiveness in eliminating aliasing effects and enabling smooth circuit operation.
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## CERTIFICATIONS

- **Google Analytics Certification** - Data Analytics Aug 2025
  - **LinkedIn Learning Certificate of Completion** – Data Science Aug 2025
  - **Datacom Software Development Job Simulation** - HTML/CSS/JavaScript/Database Jan 2025
  - **Wells Fargo Software Engineering Job Simulation** - Java/Java Persistence API/Java Spring/Git Jan 2025
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