Yu-Chang Shih

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EDUCATION

Northeastern University, San Jose, CA — September 2025 - April 2027
Master of Science in Artificial Intelligence

National Sun Yat-sen University, Kaohsiung, Taiwan — September 2015 - June 2019
Bachelor of Science in Computer Science and Engineering

- Capstone Project: Real-time System of Identifying Coins, an Android app that can recognize all coin types in the database from pictures with 98% accuracy, using a CNN model with a CapsNet structure
- Award: Excellent Student Award (2019)

EXPERIENCE

Apollo Medical Optics, Ltd., Taipei, Taiwan — May 2022 - August 2023
Algorithm Engineer

- Developed novel cell detection algorithms for OCT images in C++, including subtracting white and black Frangi values to reduce misidentification at collagen Y-shaped intersections
- Reimplemented MATLAB algorithms in C++ by analyzing academic papers to extract and apply underlying principles
- Improved and optimized algorithms to achieve the best balance between efficiency and accuracy, yielding high-quality data that contributed to three research publications
- Managed a 3D nucleus dense segmentation project using StarDist 3D CNN model, achieving 80% accuracy after improving performance by 3% through model tuning and 5% through post-processing rules
- Served as the clinical department contact, solving colleagues' daily problems by coding C# solutions, such as highlighting masked result differences between versions and automating data generation to save time on routine tasks
- Discovered illogical code in the image preprocessing procedure while writing specifications, and coded a program that automatically adjusts parameters to align with modifications, reducing the gap to 6% despite constraints of algorithm

Future Tech, Taipei, Taiwan
Backend Engineer — August 2021 - March 2022

- Developed four games integrated in the backend server with Lua, by implementing game logic and AI reactions, connecting the backend server to both the frontend and the website's backstage through RPC and API, computing game results, and saving them in the database
- Optimized server performance by distributing the usage of each database through a designated hash function designed for user ID patterns, ultimately increasing player capacity by 20%
- Updated server management tools by deploying and managing Nginx servers in a Docker environment, configuring server connection settings, and integrating Redis with MySQL to improve performance through asynchronous databases

Automated Testing Engineer — July 2020 - August 2021

- Developed a versatile automated testing library that detects game flows and plays games automatically using OpenCV and PyAutoGUI, identifies screen information through object detection to verify game logic and compare frontend data with the data scraped from our website's backstage, and generates test reports in HTML, ultimately identified a rare trigger issue that API testing could not detect
- Trained three partners in Python through generating questionnaires and examples, enabling them to independently utilize my library and handle their respective parts to extract additional information with machine learning
- Represented the main programmer for automated testing on a business trip to confirm that the online website was updated successfully, discuss the priorities for each test case with the project manager, and list the testing time of each game after introducing automated testing

TECHNICAL SKILLS

Programming Languages (order by proficiency): Python, C#, C++, Java, Lua, Go, JavaScript, HTML, MATLAB

- Leetcode Contest Rating 1953, global rank top 3.18%

Machine Learning / Computer Vision: TensorFlow, Keras, OpenCV, Scikit-Learn, Numpy, Pandas
Software Development Tools: Git, Docker, Android Studio, Redis, MySQL
Languages: Chinese, English