Ying-Chi Chen

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EDUCATION

UNIVERSITY OF MICHIGAN, ANN ARBOR

B.S.E. in Computer Science, GPA 3.886/4.0   **Expected August 2024**
Engineering Honors
Dean's List
Eta Kappa Nu Honor Society   2021 – present

WORK EXPERIENCE

SOFTWARE DEVELOPMENT ENGINEER INTERN

Amazon, Seattle, WA, USA   **2023/05 – 2023/08**

- Developed and integrated a **multi-threaded** metric collection plugin module for the Alexa Game Control (AGC) C++ SDK.
- Since its deployment in 2023, the module has collected metrics from 25,000+ players in North America.
- Utilized **synchronization mechanisms** like **locks** and **condition variables** to ensure the thread safety of the module and tracked down 10+ memory management and concurrency bugs within the C++ SDK.
- Utilized a **multi-threaded event-based scheduler** to periodically flush collected data asynchronously.
- Deployed a **Flask** web service on **AWS EC2** for receiving events and metric data in JSON format flushed from the metric module and computed meta metrics from the data using **server-less computing** on **AWS Lambda**.
- Simulated player actions by interacting with the **Alexa Voice Service (AVS) API**; collected metrics such as user perceived latency and AVS response duration to identify bottlenecks within the Alexa Game Control SDK.
- Implemented unit tests with **100% code coverage** to test the efficiency and thread-safety of the metrics module using the **Doctest** library, and integrated test cases into a **Jenkins CI/CD pipeline**.

SOFTWARE DEVELOPMENT ENGINEER INTERN

ASUS Intelligent Cloud Services, Taipei, Taiwan   **2022/05 – 2022/08**

- Developed a smart healthcare web application with **Django** and deployed on **Azure App service**, containerized with Docker; Implemented **CI/CD** with **Azure Pipelines**, and improved code quality with **Sonar Cloud.**
- Application currently in use by the National Taiwan University Hospital, serving thousands of patients per day.
- Underwent training in different **Azure services, Azure pipeline, Docker, Kubernetes, and Helm**.
- Stored API requests in **Azure SQL database**, optimized data retrieval performance with **Redis Cache**, and implemented security measures by storing and accessing database passwords as secrets on **Azure Key Vault**.
- Manipulated **PostgreSQL databases** with SQL and Python scripts using the **psycopg2** and **SQLAlchemy** libraries.

WEB DEVELOPER

University of Michigan, Ann Arbor, MI, USA   **2022/01 – present**

- Contributed to the design and maintenance of web pages across University of Michigan's various schools and colleges.
- Implemented front-end web interfaces with **HTML**, **CSS** and dynamic UI elements with **JavaScript** scripts.
- Engineered the **interest form** on the School of Public Health's website and wrote a **PHP** script to send data to the school's **MySQL database**, which was visited by **300+** interested students in 2023 alone.
- Wrote automated tests with **Selenium IDE** to imitate user actions in order to test website functionality (buttons, links, forms).
- Wrote detailed internal documentation for school web pages and served as a point of contact for users to answer questions.

UNDERGRADUATE RESEARCH ASSISTANT

Taiwan Veterans General Hospital, Taipei, Taiwan   **2021/05– 2022/06**

- Worked with faculty and students from the National Taiwan University (NTU) and the Department of Opthalmology at Taiwan Veterans General Hospital (TVGH) to research **deep-learning image recognition models** for classifying patients with glaucoma, resulting in a published paper on MDPI's Biomdicines Journal (Biomedicines 2022, 10(6), 1314;).
- Utilized Python libraries like **OpenCV**, **Scikit-Image**, and **NumPy** to preprocess **1000+** fundus images from different hospitals, including methods like **resizing**, **noise-reduction**, **contrast enhancement**, and **feature-extraction**.
- Fine-tuned an **EfficientNet-B3** convolutional neural network model to achieve **95% accuracy** on test dataset and improved classification accuracy on validation data from **80%** to **92.5%**.

SKILLS

Programming: Python, C++, C, Java, HTML & CSS, JavaScript, React, SQL, PHP, R
Technologies: Git, Microsoft Azure, AWS, Docker, Kubernetes, MongoDB, MySQL, PostgreSQL