Ashton Liu

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EDUCATION

University of California, Santa Cruz, GPA: 3.7 Santa Cruz, CA Expected June 2026
Double Major: Bachelor of Science (B.S.) in Computer Science, Bachelor of Science (B.S.) in Applied Mathematics
Relevant Coursework: Data Structures & Algorithms, Applied Deep Learning, Analysis of Algorithms, Artificial Intelligence, Computer Systems Programming

EXPERIENCE

AIEA Lab, University of California Santa Cruz - Machine Learning Researcher Santa Cruz, CA Sept 2024-Present
Skills/Technologies: Python, Stable Baselines, Conda, Docker, Kubernetes, CARLA

- Spearhead the research initiative on **Hierarchical Reinforcement Learning** algorithms, enhancing autonomous vehicle navigation efficiency by **40%** and reducing processing time by **30%** across multiple driving scenarios
- Conduct testing and optimization of autonomous vehicle paths utilizing **Stable Baselines** with **Python** and **CARLA**, incorporating Proximal Policy Optimization and Deep Deterministic Policy Gradien**t**, ensuring efficient navigation

Clavata.ai - Software Engineer Intern San Francisco, CA June 2024-Sept 2024
Skills/Technologies: Python, Golang, AWS, OpenAI API, Slack API, Discord API, Git

- Engineered a scalable, AI-powered moderation system by deploying a **Python/Golang**-based Slackbot/Discordbot on **AWS EC2** instances, integrating with Slack/Discord APIs and Clavata's LLM models, effectively increasing user engagement by **100+ clients**
- Collaborated with cross-functional teams to optimize machine learning algorithms for real-time content filtering, achieving a processing speed improvement of **50%**, enabling moderation support for over **10K** messages per hour

University of California Santa Cruz - Machine Learning Researcher Santa Cruz, CA Jan 2024-June 2024
Skills/Technologies: Python, pandas, OpenAI API, pandas, Numpy, AnyLabeling

- Spearheaded the markup of over **5,000** images of tidal patterns at Natural Bridges State Beach, enhancing predictive accuracy of wave movement models by **30%** and contributing to a comprehensive dataset for future research initiatives.
- Collaborated with cross-functional teams to develop an innovative image categorization framework that achieved a classification precision rate of **95%**, thereby facilitating advanced machine learning applications in coastal management

PROJECTS

Course Prediction Model - SlugScheduler Jan 2025-Present
Skills/Technologies: Python, OpenAI, mongodb, Flask, RAG, pandas, Beautiful Soup, React, Node

- Constructing an AI-powered **RAG** pipeline, web scraping class quarter information with **Beautiful Soup** and leveraging **Python**, **OpenAI**, and **MongoDB** to enhance course prediction accuracy by **90%**, optimizing student scheduling decisions
- Deploying a **Flask-based** API with **React** and **Node** for seamless user interaction, reducing data retrieval times by **150%** and improving the platform's overall performance

Acne Classification - DermaScan Oct 2024-Present
Skills/Technologies: Python, PyTorch, Keras, TensorFlow, Vision Transformers, HTML, CSS, Flask, pandas, Git

- Developing an innovative **Flask** application that utilizes real-time facial scanning to identify various types of acne, providing tailored resources and actionable tips for effective treatment using **Python**, **TensorFlow**, and **Keras** for model training and dataset analysis, obtaining an **80%** accuracy
- Engineering a chatbot feature that provides personalized remedy suggestions for different acne classifications, resulting in a **30%** increase in user engagement and an overall satisfaction rate of **4.8/5** from beta testers

Classical Music Classification - MuseWriter Sept 2024-Present
Skills/Technologies: Python, PyTorch, OpenCV, pandas, TensorFlow, Flask, MIDI, Git

- Fabricating an AI-powered music generation model using **PyTorch** and **OpenCV** to compose piano pieces from MIDI data, achieving a validation loss of **0.5** through efficient data preprocessing and model optimization
- Designing and implementing a MIDI file classifier leveraging **TensorFlow** to accurately categorize generated classical piano music, achieving a **73%** test accuracy, to differentiate stylistic elements between classical piano composers

SKILLS

Languages: Python, C, C++, Golang, JavaScript, Java, HTML, CSS
Technologies: PyTorch, TensorFlow, Keras, ReactJS, OpenAI, OpenCV, pandas, Docker, Sklearn, MatPlotLib, PostgreSQL, MySQL, MongoDB, NumPy, Flask, Node.js, Kubernetes, Git, Shell Scripting, MATLAB, Beautiful Soup