Brady Chan

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EDUCATION

University of California, Santa Cruz – Jack Baskin School of Engineering **GPA: 3.67**
Bachelor of Science in Computer Science *2023*
Dean's Honor List: Fall 2021, Winter 2021, Spring 2021, Spring 2022

EXPERIENCE

Software Engineer ***October 2023 - Present***
Nawcwd
- Implemented CUDA api to optimize the spectrogram construction from radar pulse, resulting in a 52% speedup. Enhanced throughput by interleaving GPU processing stages to expedite FFT execution. Delivered a robust deployment with comprehensive unit testing and end-to-end testing.
- Adopted noise detection algorithms to discern between tangible entities and false positives. This approach achieved a 36% reduction in false positives during post-preprocessing.
- Built portable messaging software to enable efficient inter-process communication, allowing seamless passing of messages and data between processes. Integrated this alongside existing flight systems to perform efficient serialization and processing of big data.

Software Engineer ***January 2023 – September 2023***
Osaka University
- Optimized libraries and data processing pipelines to accelerate the training process for PhD research in stable diffusion models, focusing on improving the ability to reconstruct images from brain scans. This included writing efficient SIMD C++ code to leverage GPU-accelerated calculations of complex computations.

Artificial Intelligence Researcher ***June 2022 – September 2022***
University of California
- Engineered an LSTM recurrent neural network based on seminal white papers to explore the efficiencies and trade-offs associated with writing custom implementations against PyTorch's prebuilt neural network frameworks on an Nvidia 1080, developing a model to play Super Smash Bros Melee.

PROJECTS

Barebones Intel i386 Operating System | *C, x86_Assembly, Qemu* **Present**
- Developed a ring 0 bare metal 32 bit operating system with a tiny kernel designed to run on Intel i386.
- Implemented a bootloader, Interrupt Descriptor Table, and Global Descriptor Table to boot and run the kernel in 32 bit protected mode from 16 bit real to operate on any x86 processor past i386.

Audio Visualizer | *C++, OpenGL, Windows Audio Session API, Qt* **May 2022**
- Led 4 developers as the project lead, to create an audio visualizer utilizing Windows Audio Session API.
- Final release created using full-cycle software development including system design, release plans, implementation, sprint reports, testing, and a final release.
- Developed a multithreaded design to copy and process data from the endpoint buffer while concurrently generating visuals.

Email System | *JavaScript, Node, Express, PostgreSQL, OpenAPI, Puppeteer, Jest* **November 2022**
- Designed a full stack web application to allow users to retrieve emails through a user interface implemented with React and Material Ui.
- Created asynchronous RESTful API to be retrieved by the frontend via Express.js and PostgreSQL.
- Full application testing of all components between frontend, backend, and end to end.

TECHNICAL SKILLS

- **Languages:** C, C++, Python, x86 Assembly, Bash, JavaScript, TypeScript, PostgreSQL
- **Technologies and Libraries:** CUDA, Cmake, Qemu, GDB, Conda, Jupyter Notebook, React, Docker, Git, Vim