Tiffany Chieu

Los Angeles, CA

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Education

University of California, Los Angeles *Los Angeles, CA*

B.S. in Computer Science and Engineering | Degree expected 2023 *Sep 2019 - Jun 2023*

- Cumulative GPA: 3.86
- **Relevant coursework:** Operating Systems, Algorithms, Programming Languages, Artificial Intelligence, Machine Learning, Formal Languages and Automata Theory, Computer Systems Architecture, Networking, Digital Signal Processing

(Expected) M.S. in Computer Science *Sep 2023 - Jun 2025*

Experience

NASA Jet Propulsion Laboratory *Pasadena, CA*

Software Engineering Intern | Small Scale Flight Software Group *Jun 2022 - Present*

- Developing C++ code generation (written in Scala) for a domain-specific modeling language (F Prime Prime) that supports F Prime, an open-source flight software framework for rapid development of small-scale spaceflight systems
  - Enables robust, high-level modeling of flight software applications with the capability to automatically generate C++ code that can be easily extended for project-specific behavior
- Expanded functional test coverage of generated C++ code to almost 100% and developed a series of reusable, type-parameterized test suites using the GoogleTest framework

NASA Jet Propulsion Laboratory *Pasadena, CA*

Software Engineering Intern | Electronic Design Validation and Test Group *Feb 2022 - Jun 2022*

- Developed software simulation models in C++ for touch-down sensor components on the Mars Sample Return Lander, including an analog input card and an isolated input and relay output card, as part of the lander interface card bench test equipment
- Documented verification and validation procedures for the camera interface card and camera FPGA simulation on the Mars Sample Return Lander

Bruin Spacecraft Group *UCLA*

Command and Data Handling Lead, Software Engineer *Oct 2020 - Jan 2023*

- Developed flight software in C++ for a CubeSat testing a miniature ion thruster, including receiving and interpreting commands sent from a ground station and dispatching them to the appropriate subsystem, monitoring and logging spacecraft health information, and operating an onboard camera
- Designed a PCB for peripheral sensors, including thermistors and a camera

DevX *UCLA*

Backend Developer *Apr 2020 - Sep 2020*

- Maintained the backend of BConnect, social media platform for UCLA alumni, written in Go with PostreSQL and hosted on Heroku
- Restructured database schema to utilize many-to-many relationships, facilitating easier data retrieval and removing a redundant database model
- Improved error handling and expanded test coverage

Projects

imgproc-rs *Dec 2020 - Present*

A open-source Rust image processing library

- Developed a flexible container for manipulating different image formats and channel data types
- Implemented color space conversions; gamma correction and histogram equalization; linear filtering through convolution; nonlinear filters including the median, bilateral, and alpha-trimmed mean filters; basic affine transformations; and morphological operations
- Improved performance via multithreading and SIMD intrinsics

space-invaders *Nov 2021 - Dec 2021*

A classic video game on an FPGA

- Developed a simplified version of Space Invaders written in Verilog on a Nexys3 Spartan-6 FPGA
- Implemented a basic VGA controller capable of drawing and animating sprites stored as bitmaps in memory, and detecting collisions between objects on the screen
- Implemented software button debouncing for user interaction

Technical Skills / Interests

Languages	C/C++, Rust, Go, Python, Java, Scala, Verilog, HTML/CSS, JavaScript/TypeScript
Other	Git, OpenCV, React
Interests	Programming languages and compilers, Linux kernel development, embedded software, artificial intelligence