Tiffany Chieu

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Education

University of California, Los Angeles — Los Angeles, CA
B.S. in Computer Science and Engineering — *Sep 2019 - Jun 2023*
- Cumulative GPA: 3.87
- **Relevant coursework**: Operating Systems, Algorithms, Programming Languages, Compiler Construction, Artificial Intelligence, Machine Learning, Data Science, Computer Security, Networking, Digital Signal Processing

Experience

Apple — San Diego, CA
Software Engineer | Audio & Video Conferencing — *Aug 2023 - Present*
- Developing real-time audio and video transport pipelines supporting FaceTime and phone calling
- Optimizing power usage across the entire FaceTime video pipeline to improve energy efficiency
- Directing routine power and performance regression testing and designing a suite of tools to streamline analysis and automate testing processes
- Enhanced data analytics capabilities by improving telemetry and refining performance and quality regression indicators

NASA Jet Propulsion Laboratory — Pasadena, CA
Software Engineering Intern | Small Scale Flight Software Group — *Jun 2022 - Aug 2023*
- Developed compiler tools 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
  - Created C++ code generation capabilities for the language, enabling robust, high-level modeling of flight software applications
- Expanded functional test coverage of generated C++ code to nearly 100% by developing reusable, type-parameterized test suites using the GoogleTest framework
- Built a CI/CD pipeline for the compiler tools suite with Github Actions

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
- Configured Jenkins project with pull request-triggered, architecture-specific (Xilinx Zynq, x86, m64 Linux) builds, integrated with existing Git repository and submodules

Projects

imgproc-rs — *Dec 2020 - Present*
A Rust image processing library
- Developed a flexible container for storing and 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++, Objective-C, Rust, Python, Java, Scala, Go, Verilog, JavaScript/TypeScript, HTML/CSS, shell scripting
Frameworks OpenCV, React, Node, GoogleTest
Tools, etc. Git, Github Actions, Jenkins, MongoDB, Postgres, UNIX/Linux
Interests Programming languages and compilers, embedded software, computer vision, machine learning