

RAYMOND J. WANG

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EDUCATION

University of California San Diego
B.S. Computer Engineering

September 2021 – June 2025
3.8 GPA

Relevant Coursework: Software Engineering, Data Structures & Algorithms, Operating Systems, Computer Networks, Embedded Systems, Computer Architecture, Computer Security, GPU Computing, AI & Machine Learning Algorithms

EXPERIENCE

Research Intern — *Python, MATLAB, NumPy*

June 2024 – August 2024

Integrated Photonics Laboratory, University of Tokyo

- Collaborated with UTokyo researchers to develop a Python metasurface optimizer (shifted angular spectrum + Adam) by porting MATLAB simulation code to NumPy, creating an ML-ready pipeline used in published research.

Web Developer & Executive Student Assistant — *Git, Bash, Linux, TypeScript*

December 2022 – June 2024

UC San Diego Transportation Services

- Maintained and authored transportation.ucsd.edu, consisting of 80+ pages and forms, to ensure content accuracy, legal compliance, and UI/UX consistency.
 - Built a Git-based website monitoring infrastructure using wget, Bash, and cron on GCP Compute Engine.
 - Reverse-engineered ParkMobile mobile API to build a TypeScript web app for batched parking zone queries.
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PROJECTS

DocsAfterDark (180K+ users, 300 GitHub stars) — *JavaScript, CSS, HTML, Node.js*

January 2022 – Present

Open-source browser extension for Google Docs customization | docsafterdark.com

- Designed modular, theme-able CSS supporting dark and light modes with customizable accent colors.
- Implemented cross-browser scripts to inject stylesheets and asset replacements into the DOM.
- Utilized browser APIs for messaging flows, persistent user settings, update notifications, and theme previews.
- Automated multi-browser packaging and manifest overrides with a custom TypeScript CLI tool.

Music Streaming Service (Frontend) — *TypeScript, Next.js, CSS, PostgreSQL*

January 2025 – Present

- Implemented modular Next.js frontend with React Context providers for global state management.
- Designed responsive UI with component-level CSS modules and global CSS variables for consistent styling.
- Modularized common type definitions with backend via Git submodules, added DTO helpers for safe API parsing, and enforced code quality and style with Prettier, ESLint, and Stylelint in CI (GitHub Actions).

Real-Time Embedded Project — *C, Assembly, Linux, Raspberry Pi 5, GCC*

January 2025 – March 2025

- Cross-compiled and deployed a custom Linux kernel for a Raspberry Pi 5 (ARM64).
- Developed a C-based kernel module to enable the ARM processor's PMU for profiling user-space applications
- Designed and implemented a single-core Earliest Deadline First real-time scheduler; optimized energy efficiency by implementing dynamic frequency scaling.

Software Router & Transport Protocols — *C, Mininet, WireShark*

September 2024 – December 2024

- Implemented selective-retransmission sliding window transport with cumulative ACKs.
- Implemented TCP-style congestion control (AIMD) with Slow Start, Fast Recovery, and Fast Retransmit
- Built forwarding logic in software router to process raw Ethernet frames, ARP request/reply handling with ARP cache, ICMP message generation, and longest-prefix-match matching for packet forwarding.

3D Rendering Engine — *C++, OpenGL, Jolt Physics*

October 2024 – March 2025

- Implemented forward renderer and GLSL shader pipeline using application/manager singleton architecture.
 - Integrated support for texture mapping, shadow mapping, gLTF assets, skeletal animation, mesh skinning, vertex blending, and rigid body physics (via Jolt Physics).
 - Built developer tooling (ImGui panels, entity tree, real-time profiler) to expose timing and draw call counts.
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SKILLS

Languages

C++, Python, TypeScript, JavaScript, HTML/CSS, C, SQL, GLSL, Java, SystemVerilog

Libraries & APIs

React, Next.js, PostgreSQL, MongoDB, PyTorch, OpenGL, OpenCL, SwiftUI, Metal, JavaFX

Technologies

Linux (Ubuntu, Arch), GCP, CI/CD (GitHub Actions, Cloud Build, Docker), Android, Git