

# An Nguyen Tran

antran@caltech.edu • (346)-932-3542 • in/an-tran-ct • antran.io • US Citizen

## EDUCATION

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### California Institute of Technology (Caltech)

October 2019 – June 2023

B.S. in Computer Science – 4.2 GPA

Pasadena, CA

- *Relevant Coursework:* Operating Systems, Computing Systems, Software Engineering, Cryptography, Machine Learning, Algorithms, Data Structures, Data Mining, Graphics Laboratory, Complexity Theory

## EXPERIENCE

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### Green Hills Software

June 2022 – August 2022

Software Engineer Intern

Santa Barbara, CA

- Worked with secure laptop group to improve reliability and security of hypervisor's USB stacks.
- Created embedded mass storage testing device driver using USB3380 controller.
- Developed non-compliant SCSI implementations to test USB implementation robustness.
- Wrote hypervisor XHCi tests for USB mass storage devices on non-compliant SCSI implementations.

### SprintRay Incorporated

January 2021 – August 2021

Software Engineer Intern

Los Angeles, CA

- Developed data exporting tool for the administrative portal of Rayware Cloud's web frontend.
- Implemented a cloud 3D print-to-hardware prototype, allowing users to upload and instantly print models.
- Deployed plane cutting and mesh repair algorithms on AWS Lambda to 10000+ dental professionals.
- Improved developer operations for the embedded operating system on the enterprise 3D dental printer.

### Caltech: CMS Department

March 2021 – Present

Head Teaching Assistant

Pasadena, CA

- Head teaching assistant for CS24 (Computing Systems, Fall 2021 + 2022).
- Held office hours and lecture assistance on the C language, systems architecture, and programming.
- Developed ARM64 BASIC compiler assignment for the systems course.
- Teaching assistant for CS3 (Software Design, Spring 2021 + 2022).

### Caltech: Powell-Booth Lab for Computational Science

June 2020 – August 2020

Summer Undergraduate Research Fellow

Pasadena, CA

- Co-designed a new full-stack WebSocket protocol to replace the group's previous prototype.
- Created a new backend for the group's prototype of a remote educational platform with documentation.
- Developed a multiplatform TS/React web frontend and Rust backend, deployed on AWS + private cluster.

## PROJECTS

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### COVID-19 Policy Prediction

March 2021 – June 2021

CS156b Learning Systems

- Analyzed data from the CDC, CDPH, and KFF to extrapolate COVID-19 county and state level policies, demographics, and infection.
- Developed a light gradient boosting model to investigate the effects of government regulations of businesses on pandemic transmission rates, mortality rates, and hospitalization.

### Octave for Discord

September 2016 – August 2019

- Wrote an open-source Discord music bot in Java and Kotlin, serving over 100,000+ Discord servers.
- Handled and streamed OPUS sound packets from 5 video platforms to Discord voice channels to deliver a premium music experience.

## SKILLS

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**Languages:** C, C++, C#, Rust, Python, Java, Kotlin, OCaml, JavaScript, TypeScript, HTML, CSS

**Tools & Frameworks:** Node.js, Qt, PyTorch, TensorFlow, PostgreSQL, numpy, pandas, AWS Lambda, Docker

**Hardware:** Abel HDL, x86\_64 + ARM64 Assembly, Raspberry Pi, USB 3380