An Nguyen Tran

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EDUCATION

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

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 stacsk.
- 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 course.
- Teaching assistant for CS3 (Software Design, Spring 2021 + 2022).
  - Assisted students create a deliverable in the C language over the course of 10 weeks.

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

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

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