An Nguyen Tran

Houston, TX
antran@caltech.edu
346-932-3542
Avarel
in/an-tran-ct
antran.io

EDUCATION

California Institute of Technology (Caltech)
Bachelor of Science in Computer Science • Class of 2023 • GPA 4.15 / 4.00

Data Structures	Decidability and Tractability	Probability and Statistics
Software Engineering	Functional Programming	Discrete Mathematics
Computing Systems	Algorithms	Analytical Linear Algebra
Learning Systems	Data Mining	Intro Graphics Laboratory

SKILLS

Programming Languages
C, C++, C#, Rust, Python, Java, Kotlin, OCaml, Assembly

Front-End Development
Node.JS, JavaScript/TypeScript, HTML, SCSS

Tools & Frameworks
PyTorch, TensorFlow, Webpack, ReactJS, AWS, PostgreSQL, Pandas, NumPy, Qt

EXPERIENCE

Software Engineer Intern
SprintRay Incorporated **January 2021 – August 2021**
• Developed usability improvements and functionalities additions to the Rayware Cloud's web frontend.
• Implemented a proof-of-concept for a cloud 3D printing pipeline, allowing users to upload and instantly print multiple models.
• Migrated native plane cutting and mesh repair algorithms from the C++/Qt desktop application and deployed on AWS Lambda.
• Improved developer velocity for the embedded operating system PrintOS on the enterprise 3D dental printer.

Head Teaching Assistant
Caltech: Department of Computing and Mathematical Sciences **March 2021 – Present**
• Served as teaching assistant for CS3 (Intro to Software Design, Spring 2021) and CS24 (Computing Systems, Fall 2021).
• Teaching assistant for computer science courses focused on the C language, software architecture, and systems programming.
• Responsibilities include developing assignments, grading, code reviews, and holding weekly office hours.

Summer Undergraduate Research Fellow
Caltech: Powell-Booth Laboratory for Computational Science **June 2020 – August 2020**
• Co-designed a new full-stack WebSocket protocol to replace the group's previous prototype, achieving performance increases.
• Created a new backend for the group's prototype of a remote educational platform with documentation, ensuring future maintainability.
• Developed a multiplatform TS/React web frontend and Rust/Actix backend, deployed on AWS and a private cluster.

PROJECTS

COVID-19 Policy Projection
CS156b Learning Systems **March – June 2021**
• Aggregated COVID-19 county and state level policies, demographics, and infection data from the CDC, CDPH, and KFF.
• Developed a light gradient boosting model to investigate the effects of government regulations of businesses on pandemic transmission rates, mortality rates, and hospitalization.

Celltomata
Hacktech Hackathon **March 2020**
• Implemented the backend for a multiplayer combination of Conway's Game of Life and .io games.
• Created and developed the WebSocket backend and game logic in Rust, and frontend interface with Node.JS and HTML/CSS/JS.

Lovecraft-LSTM
github.com/Avarel/Lovecraft-LSTM **January 2020**
• Developed an LSTM model using Python and TensorFlow to learn and generate texts from 18 Lovecraft sample texts.
• Computed, trained, and used the model online using 60 TPU/GPU cloud hours of Google Collaboratory.

Octave (Formerly Gnar)
github.com/Stardust-Discord/Octave **September 2016 – August 2019**
• Wrote an open-source Discord bot in Java and Kotlin, using JDA and Lavaplayer, 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.