David Tran

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Education

University of California San Diego *Sept. 2021 - June 2024*

B.S. Computer Science *3.91 GPA, Provost Honors*

- **Relevant Coursework**: Data Structures, Software Tools, Systems Programming, Algorithms, Software Engineering, Digital Design, Computer Architecture, Discrete Mathematics, Recommender Systems, Linear Algebra, Multivariable Calculus, Statistical Methods

Skills

Languages Java, JavaScript, Python, C, ARMasm, C++, R, MATLAB, SystemVerilog

Tools/Frameworks React, Node.js, Django, Express.js, MongoDB, PostgreSQL, GraphQL Git, HTML, CSS

Experience

UC San Diego, Department of Computer Science and Engineering *San Diego, CA*

Instructional Assistant *Sept. 2022 - present*

- Part-time undergraduate tutor for CSE 103 - Introduction to Probability and Stats for CS.
- Assist graduate teaching assistants in delivering section material, host bi-weekly office hours to review class material and address student queries. Grade and proctor exams for 70+ students.

Center for Applied Internet Data Analysis (CAIDA) *San Diego, CA*

REU / Web Programmer Intern *Dec. 2021 - present*

- Assist in internet measurement and infrastructure research. Develop Python scripts for cleaning BGP paths data, inferring and classifying customer-provider relationships between autonomous systems.
- Write and review technical recipes. Provide documentation, scripts, and visualizations for existing CAIDA software and APIs.
- Contributed to new frontend features for resource catalog web application to organize papers, recipes, and datasets.
- Generated structured data (for Google search optimization) for over 3900 resource catalog pages with Symfony and Javascript. Used GraphQL to make structured queries to existing catalog API.

Triton Unmanned Aerial Systems *San Diego, CA*

Software Developer *Sept. 2021 - present*

- Involved in software development for unmanned aerial systems team for AUVSI SUAS competition, placed 5th out of 60+ universities.
- Refactored REST API written in Go to handle requests involving image data from SUAS interoperability server.
- Add manual operator feature to React frontend for modifying and querying images and other data submitted during competition.

Projects

9-bit Microprocessor Design

- Wrote hardware description in SystemVerilog and assembly scripts for specialized, 9-bit reduced instruction set CPU capable of linear feedback shift register (LFSR) based encryption and decryption of 50-character message.
- Designed custom assembly language optimized for LFSR encryption and decryption operations, built assembler in Python

Map Marker

github.com/Obarquinho/neatnatcher

- Coordinated with a teammate in implementing a full-stack map marker web app. Developed REST API using Django framework with endpoints with control over a SQL database.
- Developed dynamic user interface using React and Leaflet.js to display user's posts and data, connected with REST API endpoints.

Parking Ticket Database

- Developed an in-memory database in C and ARM assembly, operated via command line. Parsed CSV files containing parking ticket information, and perform basic CRUD operations. Utilized hash table and linked lists to store/operate on over 400,000 tickets.

Stock Prediction Game

github.com/acmucsd-projects/stock-game

- Untraditional stock game web app written in Javascript, with MongoDB, Express, React, and Node
- Wrote 3+ API routes to handle authentication, posting players' predictions to the database, and calculating scores.
- Developed responsive frontend components in React to allow players to make stock predictions and check global leaderboard.