

Tommy Vo Tran

U.S. Citizen | Los Angeles, CA

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Education

University of California, Los Angeles (UCLA)

Los Angeles, CA

M.S. in Computer Science with Concentration in Machine Learning, GPA: 3.8

Sept 2023 - Dec 2024

B.S. in Computer Science

Sept 2019 - June 2023

- Teaching Assistant for Data Management Systems (Databases), Web Applications
- Graduate Coursework: GPUs, Parallel & Adv Computer Architecture, Deep Learning, Reinforcement Learning, Computer Security, High-Level Synthesis and Deep Learning to Create Accelerators on FPGAs
- Undergraduate Coursework: Data Structures and Algorithms, Operating Systems, Databases, Computer Networks

Experience

Sandia National Laboratories

Albuquerque, NM

Graduate Research Scientist

June 2024 - September 2024

- Integrate machine learning / artificial intelligence explainability with differential privacy. Investigation of recommender systems. Work is mostly classified under the National Nuclear Security Administration.
- **(C++)** Wrote a program that can carbon copy any file, even process-locked ones, with consistent state by leveraging the Windows Volume Shadow Copy Service API to coordinate processes on the Microsoft Windows 11 operating system.

Akuna Capital

Chicago, IL

Software Engineer Intern @ Crypto Division

June 2023 - Aug 2023

- **(Python/C++) Implemented low-latency strategy emission in the market-making application with asynchronous coroutines, lazy state-building, and a novel snapshot + diffs mechanism. This affected all (~95) instances of the market-making application globally**, allowing developers and traders across the firm to analyze the live and historical strategy data to make more profitable trading decisions.
- **(Python)** Built a general-use library to consume the strategy emissions and aggregate the snapshot + diffs into the current market-making strategy state. **The library takes advantage of the minimal payload sizes to avoid having to conflate the messages, which means the preservation of information resolution and enabling the consumption of millions of messages per hour without loss.**

Optiver

Chicago, IL

Software Engineer Intern @ Automated Trading Systems, Pricing Division

June 2022 - Aug 2022

- **(C#)** Created leading/lagging filters for events affecting the volatilities of underlyings in a pricing manager used by all (~100) traders.
- **(C#)** Automated options volatility interpolation with respect to movements in the forward price. **Eliminates race conditions involving the reference price and volatility points in the system, saving the firm tens of thousands of dollars daily.**

Capital One

San Francisco, CA

Software Engineer Intern @ Enterprise Data and Machine Learning Division

June 2021 - Aug 2021

- **(Python)** Created an **AWS Lambda** script to fetch metadata from and infer the schemas of **AWS DynamoDB** instances. Data is sanitized and batch-published to an internal aggregate data lake.
- **(Scala)** Built an **Apache Spark distributed systems** pipeline to then push data of selected tiers to an **AWS Aurora Global DB (PostgreSQL)**. The pipeline is run on **AWS Elastic MapReduce**, taking advantage of data parallelism across many compute instances to **process dataframes with thousands of rows in minutes instead of hours.**

Research

VAST Lab

Los Angeles, CA

Researcher | Advisor: Professor Jason Cong

Jan 2023 - Present

- **(PyTorch)** Machine learning methods to improve the performance of kernels synthesized on FPGAs. Graph neural networks to learn efficient, separate embeddings of the program code and the pragma transformations. Developing a novel search algorithm to explore candidate solutions for kernel optimizations. Work may be translated to automated drug discovery.

Skills

Languages C++, C, Python, C#, Java, Scala, Bash, HTML/CSS

Tech PyTorch, NumPy, Protobuf, SQL, MongoDB, DynamoDB, Redis, git, cmake, Apache Spark, OpenMP, UNIX