Tyler Vergho

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2 years of software engineering experience. A highly motivated self-starter and team player. Pursuing a M.S. to focus on AI research.

Education

Dartmouth College — Hanover, NH

Master of Science - Computer Science (AI concentration) — *2024 (expected)*

Bachelor of Arts - Computer Science — *2023 GPA: 3.83 (cum laude)*

Relevant Coursework: Full-Stack Web Development, Smartphone Programming, Discrete Mathematics, Software Design & Implementation, Algorithms, Computer Architecture, Machine Learning, Artificial Intelligence, Music & AI, Digital Electronics

Experience

CivicBell — Mountain View, CA

Software Engineer — *Nov. 2022 – Present*

Developing features for a civic engagement platform using React/React Native, Express, Node, and Postgres, deployed on AWS.

- Lead a team of 4 developers. Coordinated major UI revamps and redesigned APIs for user registration, push notifications, and local news, increasing customer conversion by 30%. Trained and onboarded one new developer to the team.
- Identified and optimized SQL query inefficiencies, reducing initial load time by 80%.
- Spearheaded backend integration testing using Jest to increase test coverage by 30% on critical user-facing features.

Amazon Web Services — Seattle, WA

Software Engineering Intern — *June 2022 – Sep. 2022*

Intern on the AWS DynamoDB Streams team.

- Developed a system in Python to automate load balancer management for network application traffic, reducing cumulative team developer time expenditure by approx. 5 days each month.
- Collaborated with senior engineers to deploy changes to production infrastructure handling over 10 million requests/second.

Canopy — San Francisco, CA

Software Engineering Intern — *Apr. 2022 – June 2022*

Worked alongside senior engineers at a Series A startup developing an SPV investment management platform.

- Revamped integration with Plaid and Modern Treasury APIs to simplify user experience on over $1 million in payment flows/month. Implemented new features in React and NestJS.
- Engineered a new frontend customer onboarding form in collaboration with legal for the launch of a VC funds product.
- Streamlined package dependencies to cut bundle size and reduce First Contentful Paint load time by 30%.

Dartmouth DALI Lab — Hanover, NH

Software Engineer — *Aug. 2020 – June 2023*

Collaborated in teams to develop full-stack applications within an on-campus development lab at Dartmouth.

- Oversaw growth of the lab from 25 to 40+ developers as **software engineering lead**, facilitating workshops, organizing mentorship programs, and expanding technical resources.
- Developed a Ruby on Rails course management platform over 9 months, launched to 4,000+ students. Architected an anti-phishing contest platform (GoPhish) managing 1,800+ participants and $10,000 in prizes.
- Mentored and led development of a full-stack React Native live game show app integrating Firebase, PayPal, and AWS.

Trout Insights — Remote (Contract)

Software Engineer — *Dec. 2020 – May 2023*

- Developed and maintained a React.js full-stack mapping application that supports more than 5,000 active users/month.
- Architected a custom backend API integrating third-party services such as Firebase, Mapbox.js, Stripe, and MailChimp.

Research & Projects

Completed

NeurIPS LLM Efficiency Competition: Achieved 5th in the 4090 track for training LLMs on a single GPU. [Code]
Sentence Transformers Rust: Port of Sentence Transformers for text embeddings to Rust using the Burn ML framework. [Code]
Logos: Search engine for intercollegiate policy debate evidence. Built using React and vector-based semantic search. [Code]
Deepfake Detection: Evaluating CNNs as universal deepfake detectors. [Results]
AI Evidence Production: Automating debate evidence production with GPT-4. Built with Python and OpenAI APIs. [Code]
Generative AI Audio: Experimenting with audio generation using deep neural networks (diffusion models and GANs). [Code]

Ongoing

Personality Detection and Recommendation Models: Integration of personality models into neural recommendation systems, with the Minds, Machines, and Society Group at Dartmouth.
GPT-4 and Misinformation Detection: Collaboration with McGill to assess GPT-4's capacity to detect misinformation.
AI Safety Whitepaper: Drafting a report on AI alignment strategies, both technical & policy, with Berkeley's SPAR.
Art to Music: Leading a human-computer interaction project translating user drawings into music using generative music models.

Skills & Interests

Languages: Python, TypeScript/JavaScript, HTML/CSS, SQL, Java, Rust, C++
Frameworks: React/React Native, Express, Node.js, Flask, Ruby on Rails, Jest, PyTorch, Tensorflow, GGML
Tools: AWS, Google Cloud, Docker, PostgreSQL, MongoDB, Git, CUDA, Linux

Awards: Winner of the 2021 & 2022 National Debate Tournaments and Rex Copeland Award for intercollegiate debate