

Michael Vaden

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EDUCATION

GEORGIA INSTITUTE OF TECHNOLOGY, COLLEGE OF COMPUTING

Atlanta, GA

B.S. Computer Science

Expected: May 2026

GPA: 3.54/4.0

- **Concentrations:** Intelligence/Systems and Architecture
- **Coursework:** Machine Learning, Applied Combinatorics, Automata and Complexity, Perception and Robotics, Design and Analysis of Algorithms, Systems and Networks, Probability and Statistics

SKILLS

Languages: Rust, Go, C++, C, Python, JavaScript, TypeScript, SQL, Java

Libraries/Frameworks: NumPy, TensorFlow, React.js, Next.js, FastAPI, Django, LLVM, Node.js, Fiber, Selenium, OpenGL, WebGL

Technologies/Tools: Git, UI, Unix, Make/CMake, Blender, Microsoft Power Suite, Adobe Creative Suite, Tableau, Teradata

Cloud/DevOps: AWS (Bedrock, S3, Lambda, Glue, Lake Formation, Athena, Redshift), GCP (Cloud Functions, Firestore), Docker

EXPERIENCE

Delta

Atlanta, GA

Data Co-Op, Tools and Technology

September 2023 – May 2025

- Architected AWS-based data pipelines integrating S3, Athena, Lambda, Glue, and Lake Formation aligned with the Airport Customer Service division's data lake initiatives enabling ingestion, transformation, and querying of multi-terabyte datasets
- Developed standardized ETL procedures with Teradata, SAS, and Athena, increasing data accuracy by over 50%
- Designed and deployed a validation and loading pipeline with Lambda and Athena to process vendor-provided denied boarding compensation data, detecting duplicate records and flagging discrepancies in exchange rates before invoice confirmation
- Created and deployed analytical dashboards to deliver real-time business intelligence for cross-departmental stakeholders

Georgia Tech IFC

Atlanta, GA

Web Developer

September 2024 – November 2024

- Designed and developed a modern, mobile-responsive website for the Georgia Tech Interfraternity Council with Next.js
- Deployed and maintained the site via custom NGINX configuration on a Digital Ocean Droplet

University of Georgia

Athens, GA

Software Engineering Intern

January 2022 – December 2022

- Implemented a Django-based web application for researchers to manage research groups and provision resources on the university's HPC cluster, Sapelo2
- Integrated CAS authentication for SSO login via the university's security procedures
- Integrated role-based access control to streamline user management across multiple research projects
- Developed automated provisioning workflows with Slurm job scheduler API, reducing allocation time and improving ease-of-use in resource provisioning
- Implemented email notification system for notifications and account verification via SMTP
- Collaborated with HPC administrators to optimize cluster onboarding and improve documentation for researchers

Black Dog Customs

Madison, GA

Electrical/Fabrication Specialist

May 2019 – May 2021

- Designed and manufactured custom automotive electrical systems, including wiring harnesses, switch panels, dashboards, audio systems, and control modules for restoration vehicles
- Developed CAD models for plasma-cut components, ensuring precise fit and durability under performance-crucial conditions
- Implemented manufacturing processes installation procedures for various electrical, reducing manufacturing and installation time by 30%
- Managed electrical component procurement and inventory, optimizing for manufacture costs

PROJECTS

Graph of Experts Model

Atlanta, GA

Research

September 2025 – Ongoing

- Proposed modular mixture-of-experts architecture with expert traversal modeled as a trainable graph
- Implemented modality-agnostic encoder, graph router, expert bank, and decoder with TensorFlow
- Authoring working paper formalizing model math and training objectives
- Implemented fast parallelized data download and processing scripts via thread pool executors

Blam

Atlanta, GA

Software Developer

May 2025 – Ongoing

- Experimental programming language combining Python-like ergonomics with Rust-style safety
- Authored formal EBNF grammar, tokenizer, and semantic analyzer, and implemented core language features (first-class functions, dynamic typing, 'Bloop' package manager)
- Implemented minimal IR code generation via LLVM
- Designed standard project layout and documentation
- Roadmap includes bootstrapper completion and richer code generation

Personal Website

Atlanta, GA

Web Developer

December 2024 – February 2025

- Developed modern responsive site via Next.js, Tailwind, and Framer for my personal portfolio and information
- Modeled 3D objects with Blender, using Three.js for responsive animations, and implemented Perlin background via WebGL
- Deployed and maintained with custom NGINX configuration on Digital Ocean Droplet

Djinn Code Generation CLI

Atlanta, GA

Software Developer

November 2024 – January 2025

- Rust-based CLI for automatic code generation with flexible API for natural language conversion via templating
- Implemented orchestration layer that compiles actions from natural language output