

Vinayak Maharaj

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EDUCATION

University of Toronto

Toronto, Canada

B.Sc. in Computer Science and Statistics with Math Minor

Sep 2021 – May 2025

Relevant coursework: Software Engineering, Algorithms & Data Structures, Systems Programming, Machine Learning, Software Design

WORK EXPERIENCE

Maritime Financial Group

Remote

Software Engineer (Contract)

September 2025 – April 2026

- Built an end-to-end firewall and VPN anomaly detection pipeline processing 100k+ log events weekly, reducing manual analysis time by 70%+ through automated risk scoring
- Developed a hybrid anomaly detection system (rules + Isolation Forest + autoencoder) over 5-minute windows to detect login bursts and multi-region access patterns with explainable scoring
- Designed a Next.js dashboard with grouped alerts, drill-down views, and trend analytics, reducing average analyst investigation time per incident by 40% and cutting repeated false positive escalations

Intelligent Adaptive Interventions Lab

Toronto, Canada

Software Engineer Intern

September 2023 – December 2023

- Engineered interactive data visualization components (bar chart, pie chart, scatter plot) using Recharts on a Next.js frontend for a UofT research lab's adaptive experimentation platform, enabling researchers to analyze multi-variable study outcomes
- Implemented a plugin-based visualization architecture with dynamic frontend loading and Flask backend analysis endpoints, designed for extensibility across future research contributors

Amnevar Ltd.

Remote

Software Engineer Intern

May 2023 – August 2023

- Replaced manual paper-based bookkeeping by deploying a full-stack finance dashboard (React/TypeScript, Node.js/MongoDB) on Vercel and Fly.io, enabling real-time KPI tracking for the first time
- Implemented a linear regression revenue forecasting model and Redux Toolkit Query, enabling next-year revenue projections from historical data and reducing redundant API requests

PROJECTS

AI Mock Interview Platform | [GitHub](#)

- Built an on-demand AI mock interview platform where a Vapi voice agent conducts real interviews, generates role-specific questions via Google Gemini, and delivers structured feedback across 5 criteria, validated across 100+ sessions with Firebase Auth and Firestore persistence

Inbox Copilot | [GitHub](#)

- Built a production AI email client with RAG-powered reply drafting grounded in real Gmail/Outlook history using Next.js, LangChain, and Pinecone, with real-time sync via Aurinko webhooks and multi-account support
- Shipped as a full SaaS with Stripe subscription billing, free/pro feature gating, and tRPC type-safe APIs

AI Developer Collaboration Platform | [GitHub](#)

- Built a RAG platform that ingests GitHub repositories via the GitHub API, indexes source files and commits into pgvector, and answers natural-language questions about any codebase with references to the exact source files used
- Implemented multi-user access control, AssemblyAI meeting transcription indexed alongside code context, and a credit-based SaaS model with Stripe, deployed on Fly.io via Docker

Bayesian Analysis of NBA Shooting Patterns | [GitHub](#)

- Analyzed the "Hot Hand Fallacy" across 15 NBA players using Bayesian regression in PyMC, comparing Multivariate Normal, Horseshoe, and Spike-and-Slab priors to reduce model divergences by 20% through Metropolis-Hastings tuning
- Presented findings to class and the UofT Statistics department head, covering model selection rationale, posterior diagnostics, and practical implications for sports analytics

SKILLS

Languages: Python, JavaScript, TypeScript, Java, R, SQL, HTML, CSS

AI/ML: LangChain, LLM APIs (OpenAI / Gemini), PyTorch, Hugging Face Transformers, scikit-learn

Frameworks: React.js, Next.js, Express.js, Node.js, Pandas, NumPy, GraphQL

Tools & Technologies: Git, Docker, PostgreSQL, pgvector, MongoDB, Firebase (Auth, Firestore), AWS, Stripe, Prisma, Pinecone, tRPC, Vapi, pytest, JUnit, CI/CD