Johan Lakshmanan

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Education

University of Massachusetts, Amherst — Amherst, MA

Bachelor of Science in Computer Science — 3.75 — *Aug. 2023 – May 2027*

- Relevant Coursework: Data Structures, Algorithms, Software Engineering, Machine Learning, Search Engines

Experience

Fidelity Investments — Jun. 2025 – Present

Software Engineering Intern (Quantitative) — *Boston, MA*

- Scaled trading capacity by **30%** by piloting a model-driven trade-routing system for hedge fund clients through Fidelity Service Bureau, saving **$5M+ across 300+ clients**.
- Developed and integrated backend **machine learning** models in **Python** and **Kdb+/Q** to optimize routing for **25M+** trades, improving selection accuracy by **20%** and reducing decision latency below **10 ms**.
- Constructed automated model-training pipelines in **MLflow** to standardize feature tuning and cut model retraining time by **40%**, deployed to **AWS EKS** for reproducible delivery.
- Self-taught Kdb+/Q in **under two weeks** to support live trading system integration.

Waters Corporation — May 2024 – Aug. 2024

Software Engineering Intern — *Milford, MA*

- Engineered a full-stack automated renewal quote system using **Python**, **RESTful APIs**, and a responsive UI, reducing manual workload by **100+ hours monthly**, streamlining sales operations.
- Integrated AI automation with **C#** in UiPath, optimizing invoice processing in **SAP S/4HANA** workflows, leading to **25%** faster processing visualized in **Power BI** and **Tableau** dashboards.
- Utilized **Agile** practices and **JIRA** in bi-weekly sprints to develop algorithms through efficient **CI/CD** processes.
- Built **SharePoint–Intune** integration with **JavaScript APIs**, saving 15 hours weekly in client data processing.

Build UMass — Feb. 2024 – Present

Software Engineer — *Amherst, MA*

- Led full-stack development of a consulting platform using **MERN stack**, deployed on **Dockerized AWS EC2** with **Nginx load balancing** and **GitHub Actions CI/CD** for production scalability.
- Rebuilt **RESTful APIs** with pagination, **Redis caching**, and profiling, increasing data throughput by **30%**.
- Partnered with designers to optimize UI responsiveness and reduce load times by **20% for 200+** concurrent users.

MIT Lincoln Laboratory — May 2021 – Aug. 2022

Embedded Systems Researcher — *Cambridge, MA*

- Built a secure bootloader for Stellaris microcontrollers **(C/Assembly)** and designed penetration testing frameworks **(Python/SQL)**, patching **16+ vulnerabilities** and earning **1st place** in the MITLL Cybersecurity Challenge.
- Deployed a static website using Hugo on AWS, leveraging a VPC to improve uptime by **15%**.

Projects

GenAI Transportation ChatBot | *Python - LangChain, FAISS, Streamlit, Pandas* — Aug. 2025 – Present

- Developed a **GenAI RAG** pipeline using **LangChain + FAISS** to ground **LLM (GPT-4)** responses on transit and census data, achieving **20%** higher factual accuracy through optimized retrieval and prompt engineering.
- Deployed a containerized **Streamlit** microservice with modular ingestion pipelines for real-time inference.

Dusty | *Python - OpenCV, Keras, Scikit* — Sep. 2022 – Jan. 2023

- Built **CNN** plant disease detector **(20K images)** with **82% accuracy** and F1=81% using **Keras/OpenCV**.

Team Unlimited Robotics | *Java - FTC SDK, Android Studio, REV Robotics* — Apr. 2020 – Sep. 2023

- Led **15-member** robotics team to **MA State Championship**, securing **Schneider Electric** sponsorship.

Skills

Languages: Python, Java, C/C++, JavaScript, SQL (PostgreSQL), Kdb+/Q
Frameworks: React, Node, Express, Django, FastAPI, JUnit, Pandas, Material-UI
Technologies: Git, Docker, Kubernetes, Jenkins, Google Cloud, Terraform, Argo CD, Linux, CI/CD, GraphQL
AI/ML: Contextual Bandits, CNNs, RAG, LangChain, FAISS, Transformers, Keras/TensorFlow, LLMs