

Pavithran Gnanasekaran

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EDUCATION

State University of New York at Buffalo

M.S. in Computer Science

Buffalo, New York

Aug 2024 - Dec 2025

- **Concentrations:** Artificial Intelligence and Machine Learning **GPA:** 3.82/4.00
- **Related Coursework:** Data Structures & Algorithms, Machine Learning, Reinforcement Learning, Deep Learning, Data Science, Database Systems, Distributed Systems, Operating Systems, Computer Vision, Natural Language Processing

RESEARCH PAPER - IEEE CogMI 2025

Self-Supervised MRI Representation Learning for Cross-Domain Brain Disorder Classification

Pittsburgh, Pennsylvania

First-Author

May 2025 - Nov 2025

EXPERIENCE & INTERNSHIPS

University at Buffalo

Buffalo, New York

Research Assistant

May 2025 - Present

- Built Scalable **MRI AI pipelines** on HPC cloud & MLflow for **Explainable Medical AI** achieving **90%** classification accuracy.
- Deployed **real-time AI app** via FastAPI, Streamlit & Hugging Face with Docker & Kubernetes, cutting latency by **35%**.
- Designed **GraphRAG reasoning engine** with LangChain, LangGraph & Neo4j, improving **retrieval** precision by **22%**.

Alvora AI

Dover, Delaware

Software Developer Intern – Artificial Intelligence

Aug 2025 - Dec 2025

- Developed a **RAG-based chatbot LLM** for Alvora AI, improving answer accuracy by **42%** and reducing query time by **30%**.
- Optimized prompt inputs and output parsing, leveraging AWS S3 & GCP Cloud reducing model response latency by **28%**.
- Operated **Django debugging tools** and auto-docs, Docker+K8s containerized, improving maintenance speed by **40%**.

UB-Office of Academic Affairs

Buffalo, New York

Software Engineer- Data & AI Platforms

Mar 2025 - May 2025

- Designed & implemented **data pipelines** using Apache Spark, Kafka and Airflow boosting speed and reliability by **20%**.
- Engineered **agentic AI workflows** to query databases enrich leads and automate LinkedIn and email outreach at scale.
- Optimized PostgreSQL & MySQL queries, improving data **accuracy** by **15%** and resolving performance bottleneck.
- Assessed **microservices** on Kubernetes with Docker & AWS EKS, ensuring **99% uptime** seamless **cross-system scaling**.

PROJECTS

Real-Time HDD Failure Detection using LSTM Autoencoders

Buffalo, New York

Team Member

June 2025 - Aug 2025

- Designed an LSTM autoencoder for HDD **anomaly detection** on **3.1M+** SMART records, achieving **~98%** failure recall.
- Modeled **anomalies** via reconstruction error thresholds and detected **1578/1580** drive failures before crash events.
- Optimized preprocessing of **90+ SMART features** using PCA, improving model & and runtime compute efficiency.

LLM-Based Text Summarization NLP Models with BART

Buffalo, New York

Individual Project

Mar 2025 - May 2025

- Built **BART+RAG summarizer** handling **4K** words, generating concise **100–200** words outputs with contextual retrieval.
- Trained with PyTorch AMP & Hugging Face, reducing **GPU memory** by **35%** and accelerating convergence time by **1/3**.
- Deployed FastAPI backend on AWS EC2 with Docker, Nginx and MongoDB with **200ms** latency for **100+** request.

Cloud-Native Automotive Database & Analytics Platform

Buffalo, New York

Team Member

Feb 2025 - Apr 2025

- Architected AWS RDS Postgres SQL schema with complex trigger SQL queries, **automating workflows** for **30k+** record.
- Built **ingestion pipeline** using BeautifulSoup + AWS S3 + Lambda, enabling **scalable scraping** & structured **100k+** data.
- Deployed Streamlit **dashboard** on Kubernetes with Docker, CI/CD, Grafana, improving insight delivery by **35%**.

SKILLS

Languages/Databases: Python, C/C++, Java, Ruby, JavaScript, C#, Typescript, Dart, MySQL, MongoDB, Firebase, GraphQL

Web/ App Development: HTML/CSS, Flask, Django, Angular, React, Node.js, TailwindCSS, Express, FastAPI, Ruby, Flutter

AI/Cloud Technologies: PyTorch, TensorFlow, GenAI, RAG, AWS, Azure, GCP, Kafka, Terraform, Docker, Kubernetes, GitHub

Other: GDB, Tableau, Git, Swift, iOS, Xcode, Linux, Jira, Go, System Design, Software development life cycle, Bash, Snowflake.