Pavithran Gnanasekaran

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EDUCATION

State University of New York at Buffalo   **Buffalo, New York**
M.S. in Computer Science   *Expected Graduation, Dec 2025*
- **Concentrations:** Artificial Intelligence and Machine Learning   **GPA:** 3.79/4.00
- **Related Coursework:** Data Structures & Algorithms, Machine Learning, Reinforcement Learning, Deep Learning, Big Data processing, Computer Security, Database Systems, Operating Systems, Software Engineering, Computer Vision

EXPERIENCE & INTERNSHIPS

UB-Office of Academic Affairs   **Buffalo, New York**
Software Analyst- Data   *Mar 2025 – Present*
- Built PyTorch data pipelines to process large-scale logs, improving observability and runtime efficiency by 40%.
- Automated context dataset collection and labeling across teams to improve data quality & ML pipeline performance.
- Designed telemetry APIs and dashboards to reduce mean-time-to-detect and debug latency by over 30%.
- Improved test infrastructure and deployment monitoring, cutting regression bugs and drift issues by 15%.

Rail Wheel Factory, Indian Railways   **Bangalore, India**
Software Engineer Intern   *Aug 2023 – Sept 2023*
- Developed secure Flask-based portal and MySQL backend to manage 1K+ records, reducing data errors by 25% overall.
- Integrated authentication with user roles to enforce secure access and meet compliance protocols for internal system.
- Monitored uptime and validated logs using custom telemetry scripts, improving fault detection and recovery by 20%.

Team Inferno, SMVIT   **Bangalore, India**
Team Engineer   *Feb 2023 – Sept 2023*
- Engineered Arduino firmware in C to optimize battery logic and reduce energy loss across telemetry nodes.
- Resolved sensor data dropouts and CAN bus failures, cutting subsystem errors by nearly 40% overall.
- Mentored junior engineers, leading hardware-firmware integration for next-gen electric vehicle pods.

PROJECTS

LLM-Based Text Summarization with BART   **Buffalo, New York**
Individual Project   *Mar 2025 – May 2025*
- Designed a BART-based summarizer handling 4k words, successfully generating concise 100-200 word outputs.
- Expedited training BART using mixed precision in PyTorch, reducing memory use and convergence time by 35%.
- Developed a FastAPI backend with <200ms latency, capable of handling 100+ concurrent summarization requests.

Pintos Operating System Project   **Buffalo, New York**
Team Member   *Feb 2025 -May 2025*
- Built a fully functional Pintos OS in C, optimized for fast syscall handling, interrupt response, and thread scheduling.
- Implemented syscall handling and priority donation in C, passing 90% of evaluation tests in key scheduling scenarios.
- Conducted GDB and syscall traces to debug race conditions, improving scheduler reliability & performance over 15%.

Comprehensive Automotive Database for Enhanced Analytics   **Buffalo, New York**
Team Member   *Feb 2025 – Apr 2025*
- Pioneered a PostgreSQL schema with ingestion pipeline and Streamlit frontend for 5K+ records on Azure.
- Automated telemetry, logging, and CI/CD using Docker and GitHub Actions to reduce ops cost by 60%.

RESEARCH

Self-Supervised Learning for Cross Domain Specific Classification (IEEE CogMI 2025 – Paper 7461)   **Buffalo, New York**
Team Member   *Feb 2025 – May 2025*
- Trained SimCLR, BYOL, and MoCo v3 using mixed precision, achieving 96% accuracy across 3 brain Diseases.
- Nonlinear Optimization GPU training with efficient batching and augmented input pipelines for 40% faster runs.

SKILLS

Programming Languages: Python, C/C++, Java, JavaScript, C#, Bash, Linux, HTML/CSS **| Cloud/DevOps**: AWS, Azure, GCP, Docker, Kubernetes, GitHub Actions **| Frameworks:** FastAPI, Flask, ReactJS, Node.js, Django **| Systems:** Operating Systems, Memory Management, Debugging, Networking, Hardware Integration **| AI/ML Tools:** PyTorch, TensorFlow, Hugging Face, OpenAI, LangChain, GenAI, Bedrock, Mathematics **| Systems & Tools:** GDB, Tableau, Telemetry Logs, VS Code, Jira, Git