Kaushik Chaturvedula

224-678-1562 | kaushikchaturvedula@gmail.com | Portfolio | LinkedIn | GitHub

Summary

Software Engineer with strong foundations in algorithms and scalable software, skilled in machine learning and AI, with experience building and deploying high-performance backend, full-stack, and intelligent systems in cloud environments.

Education

Purdue University – M.S. Computer Science (Jan 2024 – May 2025) | GPA: 4.0/4.0
NIT Warangal – B.Tech Mechanical Engineering (Aug 2018 - May 2022) | Top 0.8% JEE Mains - Rank 9,227/1.2 million

Work Experience

Medical Informatics Engineering – Software Engineer (Fort Wayne, Indiana, U.S.) | Jan 2025 – Present

- Built production-grade healthcare software systems to enhance clinical workflows and enable intelligent access to medical and EHR data using Agentic AI, Model-Context Protocol (MCP), and Retrieval-Augmented Generation (RAG) engines, enabling real-time querying, document ingestion, contextual understanding, large-scale information retrieval.
- Architected full-stack pipelines with Node.js/Fastify, FastAPI, and Next.js, integrating MongoDB, MariaDB, and OpenSearch to handle high-throughput ingestion and low-latency retrieval with strict reliability guarantees.
- Developed C components for WebChart, MIE's enterprise EHR platform, to sustain real-time interactions and ensure reliable clinical performance. Contributed key features to BlueHive, one of MIE's core products, using Fastify, Meteor, and TypeScript/JavaScript, and integrated agentic AI–powered enhancements into Ozwell to extend backend functionality with LLM-powered dynamic planning and intelligent workflow automation.

Wibmo (a PayU company) – Associate Software Engineer (Bengaluru, India) | Jul 2022 – Apr 2023

- Engineered backend services for a Risk-Based Authentication Engine powering secure payment gateway systems, strengthening fraud detection against money laundering and BIN attacks.
- Developed robust database migration scripts to ensure seamless data transition from CouchbaseDB to MariaDB.
- Designed and implemented scalable, asynchronous microservices using Spring Boot, Node.js, Kafka, RabbitMQ, and MySQL/Couchbase, resulting in a 20% reduction in transaction latency and increased system reliability.

Freecharge – Full Stack Developer Intern (Mumbai, India) | May 2021 - Jul 2021

- Developed backend services for financial transaction systems, leveraging Node.js and MongoDB to optimize microservice architectures and improve system performance and reliability.

SKILLS

ML/AI: Deep Learning, NLP, Transformers (LLMs, ViTs, VLMs), Generative & Diffusion Models, Retrieval-Augmented Generation, Agentic AI, Reinforcement Learning (MDP, PPO, RLHF, deep RL, etc.), Recommender Systems, MCP
Frameworks: PyTorch, TensorFlow, Hugging Face, LangChain, scikit-learn, NumPy, pandas, Matplotlib, ONNX, Chart.js
Cloud & Databases: AWS, Azure, GCP, PostgreSQL, MySQL, MariaDB, MongoDB, Couchbase, OpenSearch, Redis, Docker
Backend & Dev: Python (FastAPI), C++, Java (Spring Boot), JavaScript/TypeScript (Node.js, Fastify, Express.js, Next.js, React)

PROJECTS

- **Humanoid Balance and Locomotion via Deep Reinforcement Learning (Ongoing):** Developing a simulated humanoid control system using PPO and MDP frameworks to achieve dynamic balance and adaptive gait learning in physics-based environments. Designed reward shaping and policy optimization for stable, intelligent locomotion.
- **Object Detection and Semantic + Instance Segmentation (Ongoing):** Building advanced architectures like Mask R-CNN, FC-DenseNet, and Mask2Former using transfer learning and fine-tuning to improve mAP accuracy, boundary precision, and pixel-level segmentation performance.
- **Cancer Classification using CNN:** Designed and trained DenseNet-based U-Net architectures for cancer image classification, achieving improved diagnostic accuracy and interpretability.
- **UAV Telemetry Assistant (Volunteer Project with ArenaAI)**: Designed and developed a multi-agent LangGraph system enabling natural-language questions on any flight detail with both short and long-term memory, capable of reasoning over MAVLink log data to explain flight events and provide real-time insights.
- **SwiftNet**: High-performance C++ networking library using io_uring, kqueue, and coroutines, optimized for CPU efficiency and high throughput.