PRANAV DESHPANDE

https://www.linkedin.com/in/pranavhd/ | 346-254-9931 | pranavhd@gmail.com | https://github.com/Pranavhd

Senior Software Engineer | 9+ years building distributed systems and AI/ML platforms at scale. Currently leading Walmart's agentic generative AI initiative for fashion design.

Skills

Languages: Python, Java, TypeScript, JavaScript, C++, C
AI/ML: LangChain, LangGraph, NLP, scikit-learn, Milvus, Vector Databases
Databases: PostgreSQL, CosmosDB, MongoDB, MSSQL, ElasticSearch, Oracle
Cloud & Infra: Kubernetes, Docker, AWS, Azure, CI/CD, Kafka, Hadoop, HashiCorp Vault, Akeyless
Frameworks: FastAPI, React, Node.js, Express, GraphQL
Observability: Prometheus, Grafana, Splunk, Dynatrace, OpenTelemetry
Architecture: Microservices, Distributed Systems, Event-Driven Pipelines

Experience

Senior Software Engineer | Walmart | March 2022 – Present

Gen-AI / LLM Initiative — Trend to Product (TTP)

- Led the end-to-end architecture of Walmart's **generative AI** platform for product development — Compressing the design-to-shelf cycle from 47 to 8 weeks (83% reduction), delivering the AI-first designed products to store shelves, and driving 15K+ units sold in 3 week period (**best seller**)
- Owned the **trend intelligence** NLP pipeline ingesting 50K+ fashion signals weekly from Instagram, TikTok, WGSN, and Brandwatch using scikit-learn topic modeling and LangChain RAG with Milvus vector search - surfacing top 100+ actionable trends per design cycle into the AI workflow
- Architected a **multi-model LLM** orchestration layer using LangGraph with multi-pass tool selection, a React/TypeScript micro-frontend, and microservices deployed on Kubernetes, enabling fully automated product design from trend signal to shelf-ready output without manual handoffs
- Established the **AI evaluation** framework using LLM-as-Judge and VLM-as-Judge patterns with contextual drift detection — defining quality gates that enabled the platform to scale from proof-of-concept to production with >90% accuracy targets
- *Technologies: Python, LangChain, LangGraph, FastAPI, React, TypeScript, Milvus, PostgreSQL, Kubernetes, Azure OpenAI, Google Gemini, Airflow, Brandwatch, Trendalytics*

Sam's Club — Membership & Payments Platform

- Spearheaded migration of call center payment platform in **PCI-compliant** environment serving Sam's Club members nationwide
- Drove point-of-sale parity initiative for **$22.5M/year** in membership sign-ups ($750K per club), involving authentication layer, location-based club data aggregation, and membership upgrade/downgrade workflows
- Owned the **tax exemption** platform for business owners — automated multi-state compliance workflows, deployed across Sam's Club locations, and delivered 7 days ahead of schedule
- *Technologies: Node.js, Azure Authentication, Grafana, GSLB, GraphQL, Kubernetes, PingFed*

Sam's Club — Scan and Go

- Designed **monitoring platform** for mobile logs across [30+] Sam's Club locations and [5000+] devices, proactively identifying failure scenarios
- Eliminated secret exposure risk by migrating 150+ credentials from source control to HashiCorp Vault, strengthening PCI compliance posture across the payment platform
- **Scaled** the event pipeline to 1.5 billion messages across 672 Kafka partitions, processing 7 GB of data every 2 hours
- *Technologies: Kafka, HashiCorp Vault, Akeyless, Kubernetes, External Data Pipelines*

Software Engineer 3 | Walmart | June 2019 – March 2022

Scan and Go — Platform Engineering

- Designed and implemented orchestrator components in a massively scalable, multi-tenant platform on Node.js and Oracle, handling high-throughput transaction processing
- Spearheaded production **migration of platform**, cache, and Kafka infrastructure from one cloud environment to another, integrating dual-cloud architecture and reducing data leaks and security threats
- Redesigned automated logging library, achieving 15% log volume compression across the platform
- Led **CCPA** privacy compliance implementation across [35+] California Sam's Club locations, protecting millions of member records and shipping ahead of regulatory deadline
- Migrated membership services to cloud, improving platform availability and reducing response time by 25%
- Implemented machine learning image recognition for Innovation Club (NOW Club), enabling checkout via image recognition across 4 pilot clubs
- *Technologies: Node.js, Oracle, MeghaCache, Kafka, Machine Learning, Custom Node.js Libraries*

Machine Learning Intern | Ekryp | January 2019 – April 2019

- Developed failure prediction model across 3,700 products from 12 customers for proactive maintenance
- Built **AI-NLP** based problem identification system for technicians, reducing expert engineer escalations by [~25%]

Data Engineering Intern | CYR3CON | January 2018 – August 2018

- Built end-to-end **data leakage detection system** ensuring 100% data integrity across pipelines
- Developed attack pattern prediction system analyzing 31,000+ CVEs to expose potential security threats
- Spearheaded data mapping across MongoDB and 18 API interfaces, alerting development team to inconsistencies
- Targeted 40 data scrapers/crawlers on dark net websites using Python and Selenium
- Maintained 92% **crawler** uptime as part of DevOps team via Airflow orchestration

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Software Engineer | **Fidelity Investments** | July 2016 – July 2017

- Expanded service base by integrating 7 new data source locations in Java, acquiring potential customers
- Doubled unit test coverage (14% to 31%) across 171 of 807 services by replacing legacy test systems with Mockito and EasyMock

Publications

A Novel Machine Learning Approach for Bug Prediction | 2016

Comparison of OpenCL and CUDA frameworks on Heterogeneous Systems | 2015

Education

Masters in Computer Science **– Arizona State University |** 2017 – 2019

Bachelors in Computer Science **– National Institute of Technology, Karnataka |** 2012 – 2016

Misc

Ranked in the top **0.001%** at National level entrance examination**.** National Rated **Chess** Player**. Problem solver.**