


Rishab Vempati

925-854-8943 | rishabvempati.2004@gmail.com | [linkedin.com/in/rvempat](https://www.linkedin.com/in/rvempat) |  | [rishabvempati.com](https://www.rishabvempati.com)

EDUCATION

Purdue University

B.S. in Computer Science & Artificial Intelligence, GPA: 3.83/4.00

West Lafayette, IN

Aug. 2023 – May 2027

- **Coursework:** Analysis of Algorithms, Data Structures, Operating Systems, Computer Architecture, Database Systems, Introduction to AI, Probability & Statistics, Linear Algebra, Multivariable Calculus, Discrete Math, OOP

EXPERIENCE

Software Engineer - Part Time

Aug. 2025 – Feb. 2026

Ekai

Remote

- Built a RAG pipeline using Pinecone to index and retrieve context from 10,000+ docs with 92% retrieval accuracy.
- Developed an AI assistant for Microsoft Teams with Flask, enabling natural language querying of knowledge bases.
- Deployed the retrieval system as an MCP Server, enabling interoperability across multiple AI agent clients.
- Integrated SQL retrieval and response caching, cutting P95 latency from 8.2s to 1.8s for 50+ concurrent users.

Software Engineering Intern

Jun. 2025 – Aug. 2025

AssetMark

San Francisco, CA

- Migrated legacy .NET/C# communication service to event-driven microservices using Azure Service Bus.
- Implemented dead-letter queues and exponential backoff retry, reducing message failure rate from 0.8% to 0.12%.
- Decoupled 5 service dependencies into independently deployable microservices with API gateways.
- Enabled autoscaling that handled 1M+ quarterly emails with 99.7% delivery success rate during traffic spikes.

Software Engineering Intern

May 2024 – Aug. 2024

Accelera Payments

San Francisco, CA

- Implemented Kafka streaming pipeline for ISO 20022 payment processing, load-tested to 50K+ daily transactions.
- Containerized 4 microservices with Docker multi-stage builds in GitLab CI/CD, cutting deploy time by 80%.
- Developed a comprehensive integration test suite to validate pipeline reliability and data integrity.
- Built Grafana dashboards to monitor system health, tracking 850 msg/sec throughput and 120ms P99 latency.

Undergraduate Researcher

Jan. 2024 – May 2024

Cisco

West Lafayette, IN

- Built demand forecasting models with Random Forest and XGBoost, improving MAPE by 18% over ARIMA.
- Optimized ETL pipeline with Apache Spark for distributed processing, cutting runtime from 45 to 18 minutes.
- Developed Bayesian inference models to simulate supply chain disruption scenarios and quantify stockout risk.

PROJECTS

Parking Lot Detection & Mapping | Python, PyTorch, OpenCV, Docker, AWS |

- Led a 5-person team building a U-Net segmentation model for satellite imagery, achieving 84% IoU accuracy.
- Built automated pipeline ingesting 50GB+ of Bing Maps imagery; containerized training workflow with Docker.
- Contributed 5,000+ validated parking lot annotations to OpenStreetMap for open-source urban mapping.

YourPingMe – Intelligent Notification Scheduler | Python, React, Redis, Celery, PostgreSQL |

- Built a unified API wrapper aggregating OpenAI, Anthropic, and Gemini into a single model-switching interface.
- Implemented scheduling engine with Redis and Celery for recurring LLM API calls with configurable retry logic.
- Designed event-driven notification system delivering async SMS/email alerts upon task completion.

Crux – AI Video Speed Optimizer | Python, FastAPI, Gemini API, JavaScript, Chrome Manifest V3 |

- Built a Chrome Extension using the Gemini API to analyze video content density and auto-adjust playback speed.
- Designed FastAPI backend for real-time content analysis, enabling dynamic speed control across YouTube videos.

TECHNICAL SKILLS

Languages: Python, Java, C++, C, C#, SQL, JavaScript, TypeScript, Bash, R, HTML/CSS, Assembly

Technologies: FastAPI, Flask, Node.js, .NET, Docker, Kubernetes, Apache Kafka, Redis, CI/CD, Linux, Azure, AWS

AI/ML: PyTorch, TensorFlow, JAX, OpenCV, Pinecone, LangChain, Elasticsearch, LangGraph, MCP, Spark

Certifications: AWS Certified Cloud Practitioner, Microsoft Azure Fundamentals (AZ-900)