

Nikhitha Sivaprakasam

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Senior Backend & AI Engineer | Python • FastAPI • PostgreSQL • AWS • Docker • Distributed Systems • MLOps

PROFESSIONAL SUMMARY

Senior Backend & AI Engineer with 3+ years of experience building **scalable microservices, distributed APIs, and AI-driven systems** using **Python (FastAPI), PostgreSQL, and AWS**. Skilled in **LLM integration, CI/CD, infrastructure automation, and observability** with **Docker, Terraform, Prometheus, and Grafana**. Proven track record delivering solutions in Agile/Scrum environments with strong collaboration and problem-solving skills.

PROFESSIONAL EXPERIENCE

Graduate Assistant — Data and Software Engineering

May 2025 – Present

University at Buffalo

Buffalo, NY

- Architected and automated **data ingestion and reporting pipelines** using Python, SQL, and JavaScript, reducing manual workflows by 50% and **empowering leadership with real-time, reliable insights efficiently delivered**.
- Built and maintained **ETL frameworks and backend services** in MySQL and PostgreSQL to consolidate data.
- Developed **interactive executive dashboards (Tableau, Excel)** powered by automated transformations, accelerating strategic decisions and cutting reporting latency by 40%, significantly improving operational efficiency.

Software Development Analyst

May 2023 – Jul 2024

Roche (Accenture)

Chennai, India

- Owned and developed the patient and drug data pipeline module for a clinical data management platform, and architected secure REST APIs using FastAPI and PostgreSQL with role-based access control and audit logging.
- Implemented CI/CD pipelines and automated deployments using **Docker, Terraform, and AWS**, cutting release time by 60% and ensuring zero-downtime rollouts, thereby achieving 90% improvement in **accuracy and reliability**.
- Collaborated with cross-functional teams in Agile sprints to define KPIs, design data models, and establish operational monitoring using Prometheus and Grafana. Mentored junior developers on clean architecture and REST design.

Software Development Associate

May 2021 – May 2023

Accenture

Chennai, India

- Developed and improved backend services and APIs for web applications, achieving 75% faster response times and 80% higher user engagement while enabling scalable growth and optimized system performance across client projects.
- Designed and normalized relational data models in PostgreSQL/MySQL with advanced indexing and caching, scaling throughput for 4× data growth without latency increase, ensuring query efficiency and reliability.
- Engineered 25+ integrations that automated workflows and significantly reduced manual processes while implementing an observability stack with Prometheus and Grafana for comprehensive system monitoring.

PROJECTS

Enterprise SaaS Boilerplate | *FastAPI, PostgreSQL, Stripe, Docker, AWS*

- Architected and delivered a **multi-tenant SaaS platform** with built-in billing, authentication, and role-based access control, reducing development time for startups by 6+ months. Integrated **Stripe API for subscription billing**.
- Deployed secure, production-grade infrastructure on AWS with Docker and Terraform, achieving with auto-scaling.
- Implemented **OWASP-compliant security**, JWT authentication, and data isolation for multi-tenant environments.

AI-Powered Code Reviewer | *FastAPI, Redis, Celery, PostgreSQL, OpenAI API, LangChain, Docker, AWS*

- Built an AI-driven code review engine providing real-time feedback and insights, reducing manual review effort by 60%.
- Developed asynchronous backend workflows with **FastAPI, Redis, and Celery** handling concurrent analyses daily.
- Integrated **OpenAI and LangChain APIs** for intelligent code explanations and personalized learning suggestions.
- Containerized and deployed infrastructure with **Docker, Terraform, and AWS (EC2, RDS, S3)**, with continuous deployment via GitHub Actions and **Prometheus-based monitoring**.

TECHNICAL SKILLS

Languages: Python, SQL, JavaScript, Go

Frameworks: FastAPI, Flask, SQLAlchemy, Celery, Redis, LangChain

Databases: PostgreSQL, MySQL, MongoDB, Pinecone

Cloud & DevOps: AWS (ECS, RDS, S3, Lambda, SageMaker), Docker, Terraform, CI/CD

AI & ML: OpenAI API, PyTorch, TensorFlow, scikit-learn, MLflow

Monitoring: Prometheus, Grafana, OpenTelemetry

Architecture: Microservices, Event-driven Design, RAG Systems, Infrastructure as Code, Asynchronous APIs

Version Control & Collaboration: Git, GitHub, GitHub Actions, GitLab, Bitbucket, Pull Requests, Code Review

Certifications: AWS Certified Solutions Architect – Associate (*In Progress, Expected Nov 2025*)

EDUCATION

University at Buffalo - SUNY

Buffalo, NY

Master of Science in Computer Science and Engineering — GPA: 3.74/4.0

Aug 2024 – Dec 2025

Anna University

Chennai, India

Bachelor of Engineering in Computer Science and Engineering

Aug 2016 – May 2020