

# Abhinav Nair

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## SUMMARY

Senior Backend Engineer with 3 years of experience building high-throughput distributed systems in **Python** and **Rust**, serving **500k+ users** across production microservice environments on **AWS**. Specialized in event-driven architectures, real-time communication systems, and **Generative AI** integrations using **OpenAI Whisper** and **Realtime APIs**. Proven track record of shipping at scale and leading engineering teams end-to-end.

**Core Strengths:** Distributed Systems · Event-Driven Architecture · Real-Time & Conversational AI · High-Throughput APIs · Messaging Systems (RabbitMQ, NATS) · Microservices · Observability & Performance

## EXPERIENCE

### Affinsys.ai

Senior Software Engineer (Backend)

July 2025 – Present

- Lead backend architecture for **5 distributed microservices** in **Python (FastAPI, Django)** and **Rust (Axum)**, deployed on **AWS EKS** with **PostgreSQL** and **Redis** as primary data stores.
- Built a high-performance **Webhook Event Service** in **Rust/Axum** capable of processing **20,000+ concurrent events/sec**, replacing a bottlenecked Python-based solution.
- Scaled real-time **IVR infrastructure** using **Kamailio SIPS** and **RTPEngine** on **AWS EKS**; engineered a custom **Python autoscaling worker** that reduced idle instance cost by **25%** and handled peak load of **250+ concurrent calls**.
- Improved system reliability by building **CI/CD pipelines** with **GitHub Actions**, integrating **OpenTelemetry** observability, and enforcing test coverage via **pytest** — reducing production incident rate by **40%**.
- Led a cross-functional team of **7–8 engineers** across sprint planning, architecture reviews, code reviews, and production deployments — shipping **10+ major features** over **3 months** on schedule.

Software Engineer (Backend)

July 2023 – July 2025

- Engineered a **Campaign Manager** platform (Django REST Framework, PostgreSQL/OracleDB, Redis, RabbitMQ) from ground up, cutting campaign setup time from **10-20 mins to under 2 minutes** and scaling to **500k+ active users** on **AWS**.
- Designed and built a generalized **Task Scheduler** using **Redis event streams** to automate time-based operations across **5+ services**, eliminating manual cron dependencies and reducing scheduling latency by **300ms**.
- Authored cross-language **pub/sub libraries** for **RabbitMQ** and **NATS** using **Rust + pyO3**, enabling seamless Python/Rust interoperability and adopted across **15+ internal services**.
- Built a production **LLM-powered IVR and live calling** system integrating **OpenAI Whisper** and **Realtime API** via a **FastAPI/SQLAlchemy** backend, achieving end-to-end voice response latency of **150-200ms**.
- Authored **70+ unit, integration, and functional tests** (pytest/unittest) with full **GitHub Actions** automation, achieving **95%** code coverage across core services.

Software Engineer Intern

October 2022 – July 2023

- Contributed to the **Campaign Manager** backend (Django REST Framework), building personalization features powered by LLMs that reduced marketing team workload by **65%** and boosted user conversion per campaign by **30–42%**.
- Executed a full **NoSQL to SQL migration** from **MongoDB** to **PostgreSQL/OracleDB**, improving query performance and enabling relational analytics across campaign data.

## SKILLS

**Languages:** Python, Rust, C++, C, Java

**AI / LLM:** OpenAI APIs, Whisper, Realtime API, LangChain, Conversational AI, Prompt Engineering

**Backend & Frameworks:** FastAPI, Django, Django REST Framework, SQLAlchemy, Axum, Tokio

**Distributed Systems & Messaging:** RabbitMQ, NATS, Redis Streams, Event-Driven Architecture, Microservices

**Databases:** PostgreSQL, OracleDB, Redis

**Cloud & DevOps:** AWS (EKS, EC2), Azure, Docker, Kubernetes, GitHub Actions, Nginx

**Observability & Testing:** OpenTelemetry, pytest, unittest, k6, Locust, CI/CD

**Tools:** Postman, DBeaver, Git/GitHub, Asterisk, Kamailio, RTPEngine

## EDUCATION

Computer Science and Engineering, specialization in CPS

June 2019 – 2023

Vellore Institute of Technology

CGPA: 8.63

PCM with Computer Science, CBSE Board

June 2017 – 2019

Bal Bharati Public School, Noida

Percentage: 95.4%