BALAMURUGAN RAMACHANDRAN

Python Engineer | SDKs | API Design | PostgreSQL | Developer Tools
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PROFESSIONAL SUMMARY

Python engineer with 3+ years of software engineering experience building production backend services, REST APIs, data pipelines, and AI-enabled applications. Experienced in FastAPI, PostgreSQL, SQL query optimization, distributed processing, and service integration. Familiar with synchronous and asynchronous APIs, asyncio, async/await, automated testing, and Python packaging concepts. Develops reusable Model Context Protocol (MCP) servers and integrations for AI agent frameworks. Focused on API design, correctness, maintainability, security, reliable interfaces, technical documentation, and developer experience across application environments.

TECHNICAL SKILLS

- **Languages:** Python, SQL, Golang
- **Backend and SDK Engineering:** FastAPI, Flask, REST APIs, API design, SDK concepts, synchronous APIs, asynchronous APIs, asyncio, async/await, database client libraries
- **Typing, Testing and Quality:** TypedDict, pytest, automated testing, static analysis, test-driven debugging, correctness and validation
- **Databases and Distributed Systems:** PostgreSQL, MariaDB, Redis, SQL optimization, indexes, read replicas, OLTP/OLAP, background workers, distributed processing
- **Packaging and Versioning:** Python packaging, pyproject.toml, wheels, semantic versioning, version management, version bumps, release preparation
- **Development and Collaboration:** GitHub repositories, pull requests (PRs), PR reviews, CI/CD, automation, technical documentation, RFCs, release notes, distributed teams
- **Realtime and Platform APIs:** WebSockets, realtime subscriptions, reconnection handling, OAuth 2.0, JWT, authentication and authorization, object/file storage APIs, serverless APIs
- **AI and Developer Tools:** LangChain, LangGraph, LangSmith, Microsoft Agent Framework, Model Context Protocol (MCP), reusable MCP servers, developer tooling, design tools
- **Infrastructure and Observability:** Docker, Kubernetes, Helm, Prometheus, Grafana, Loki, Microsoft Azure, Google Cloud Platform, AWS exposure

PROFESSIONAL EXPERIENCE

Ernst & Young GDS LLP Jun 2026 – Present
Senior Analyst – AI & Data

- Develop Python FastAPI backend APIs for earnings-call transcript processing, integrating application services with AI workflows and automation while emphasizing API design, correctness, and maintainability.
- Build AI agent workflows using LangChain and Microsoft Agent Framework, developing reusable tool-based capabilities that support agent autonomy and integration across application environments.
- Create reusable Model Context Protocol (MCP) servers that expose shared tools across AI agents, improving developer tooling and enabling consistent integration patterns across projects.
- Configure Azure Container Apps, Azure Front Door, and Private Endpoints for application deployment, strengthening security and reliable service connectivity.
- Collaborate with engineering teams to triage integration issues, evaluate technical trade-offs, and maintain reliable application services with clear ownership and responsibility boundaries.

Techfinite Systems Pvt. Ltd. Jun 2023 – May 2026
System Engineer

- Led 6 engineers delivering ClaimGenie, a healthcare revenue cycle management platform processing 1,000+ transactions daily; contributed to implementation, testing, production support, technical writing, and operational reports.
- Developed Python backend capabilities and AI agent functionality to help users understand healthcare payment reconciliation outcomes, ensuring explanations were truthful and aligned with source data.
- Resolved memory exhaustion and gateway timeouts using Redis-backed background workers and WebSocket notifications for long-running tasks, improving responsiveness and communication of processing status.
- Configured MariaDB read replicas and separated OLTP and OLAP workloads; optimized queries using indexes, views, CTEs, and performance analysis to improve query efficiency and reduce regressions.
- Built and maintained a bare-metal Kubernetes cluster with 2 control-plane nodes and 12+ worker nodes, supporting containerized deployments across distributed infrastructure environments.
- Implemented observability using Prometheus, Grafana, and Loki to support incident triage, production debugging, and investigation of service failures.
- Developed data pipelines to migrate over 1 million Australian patient records from JSON APIs into customer-required XML formats, including transformation, validation, and error handling.

EDUCATION

B.Tech in Information Technology 2019 – 2023
University College of Engineering, BIT Campus, Anna University, Tiruchirappalli CGPA: 8.12/10

CERTIFICATIONS

Google Cloud Professional Cloud Architect
Microsoft Certified: Azure Solutions Architect Expert
Microsoft Certified: Azure Administrator Associate