

BHADRINATHAN A

Backend Engineer | AI Systems | Technical Lead

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SUMMARY

Backend engineer with 4 years of professional experience, 3+ of them building production Python systems — FastAPI, PostgreSQL, Redis, Docker — currently Technical Lead on an edtech marketplace at BloomSkillTech. Author of fastapi-querybuilder, an open-source package with 18,000+ PyPI downloads. Currently working in AI engineering: retrieval pipelines over pgvector, agent orchestration with LangGraph, and MCP servers that expose real tools to LLM clients.

TECHNICAL SKILLS

- **Core:** Python, FastAPI, PostgreSQL, SQLAlchemy, Redis, Docker, REST & SSE APIs, Linux
- **AI Engineering:** RAG (pgvector), LangChain, LangGraph, MCP servers, OpenAI API
- **Also ship with:** TypeScript, React, Rust, Celery, GitHub Actions, Nginx/Traefik, Pytest
- **Practices:** System design (HLD/LLD), code review, automated testing, CI/CD, phased delivery

EXPERIENCE

BloomSkillTech — Salem, Tamil Nadu (Hybrid)

Technical Lead – EdTech Platform

Jan 2025 – Present

- Led the end-to-end build of a two-sided edtech marketplace connecting trainers with institutions — from system architecture and data modelling through production launch.
- Directed engineering across the React/Next.js frontend, FastAPI/PostgreSQL backend, and cloud infrastructure.
- Established team engineering process: CI/CD pipelines, automated testing, code review, and phased delivery.
- Owned the technical roadmap, balancing delivery speed, infrastructure cost, and long-term scalability.

Software Developer

May 2023 – Dec 2024

- Built a cloud labs platform that provisions isolated, browser-accessible development environments on demand, removing all local setup for users.
- Designed and implemented a secure WireGuard VPN layer giving each session private, isolated network access to its lab environment.
- Built the orchestration layer that provisions, scales, and tears down containerized environments automatically, cutting idle cloud spend.

Cyber Crime Police Station — Salem, Tamil Nadu

Software Engineer Intern

Aug 2022 – Mar 2023

- Sole developer of a complete CRM that digitized crime records with end-to-end case timeline tracking, enabling officers to log, search, and monitor investigations.
- Built with a React frontend, Go backend APIs, and PostgreSQL; containerized and deployed with Docker.

OPEN SOURCE & PROJECTS

- [fastapi-querybuilder](#) — filtering, sorting and search for FastAPI + SQLAlchemy: 14 operators, nested relationship joins, pagination, soft-delete — generated into SQLAlchemy, never string-built. 18,000+ PyPI downloads, 15 tagged releases, MIT.
- [ZeroCode](#) — sandboxed execution of untrusted code across 20 languages behind 8 independent isolation layers (namespaces, pivot_root, cgroup v2, Landlock, seccomp BPF, full capability drop); hardened against 130+ adversarial tests. 7-crate Rust/Axum workspace.
- [fastapi_sse_events](#) — published PyPI library for Server-Sent Events in FastAPI, backed by Redis pub/sub so streams survive more than one server.
- [ZeroVPN](#) — self-hosted WireGuard manager: a Rust (Axum) backend and React frontend sharing one wire schema by compiling a Rust crate to WASM and speaking MessagePack.
- [NullVeil](#) — read-only forensics tooling in Rust: filesystem parsers that physically cannot write to the disk they read.

EDUCATION

B.E. Electronics and Communication Engineering, Muthayammal Engineering College

2019 – 2023