

Mangesh Raut

Software Development Engineer | AI/ML & Full-Stack

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Professional Summary

Software Development Engineer with an M.S. in Computer Science and 5 years of experience spanning software engineering, database systems, and network automation. Builds Java and Python microservices and TypeScript AI products using Spring Boot, FastAPI, React, Next.js, and AWS. Delivered 30% faster APIs, 15% higher sprint throughput, and production agentic AI systems using RAG evaluation, multimodal workflows, real-time streaming, and CI/CD.

Technical Skills

Languages: Python, Java, TypeScript, JavaScript, SQL

AI/ML: Agentic AI, Multimodal AI, Retrieval-Augmented Generation (RAG), MCP/WebMCP

ML/Evaluation: Large Language Model (LLM) Evaluation, Vector Search, Speech VAD, BM25, NumPy, scikit-learn

Developer Tools: Git, Jira, Agile/Scrum, OpenAI Codex, Claude Code, Cursor, VS Code

Core Engineering: System Design, Data Structures & Algorithms, Distributed Systems, OOP, SOLID

Frontend: HTML5, CSS3, Next.js, React 19, Vite, Tailwind CSS

Backend: Spring Boot, FastAPI, Node.js, REST APIs, Microservices, WebSockets, OpenAPI

Cloud/DevOps: AWS, AWS RDS, Docker, Terraform, GitHub Actions, Jenkins, Vercel, Cloudflare Workers, CI/CD

Databases/Caching: PostgreSQL, MySQL, MongoDB, Supabase, Redis

Testing/Security: pytest, JUnit/Mockito, Vitest, Playwright, Zod/Pydantic, CSP, Rate Limiting

Professional Experience

IoasiZ

Piscataway, NJ

Software Engineer

Jul 2023 -- Jul 2026

- Refactored a legacy Java monolith into modular Spring services, cutting code redundancy by 20% through SOLID design.
- Collaborated with developers and QA to resolve 50+ microservice defects and expand JUnit/Mockito coverage, increasing sprint throughput by 15%.
- Owned Redis caching and inventory API query optimization, improving response time by 30%.

Aramark

Philadelphia, PA

Database Administrator Intern

Jun 2022 -- Jun 2023

- Automated AWS inventory workflows with Python, lowering manual errors by 25% across 200+ events.
- Migrated 3+ legacy databases to AWS RDS, improving scalability for high-traffic event analytics.
- Tuned SQL queries and indexes, accelerating report execution by 30%.

Harshwardhan Enterprises

Pune, India

Network Engineer

Jun 2020 -- Jun 2021

- Provisioned Cisco ASR 9000 routers and configured OSPF/BGP, decreasing enterprise WAN latency by 35%.
- Diagnosed 500+ connectivity incidents through Wireshark analysis while maintaining 90% SLA compliance.
- Developed Python monitoring scripts that halved manual diagnostic effort.

Projects

Agentic Full-Stack Portfolio (Python 3.12, FastAPI, OpenRouter, WebMCP, Cloudflare Workers)

- Architected an agentic portfolio with NDJSON streaming, 10 WebMCP browser tools, edge/serverless delivery, and health monitoring.
- Enforced CI gates across 104 Vitest tests, 156 pytest tests, and 16 Playwright projects; achieved perfect Lighthouse targets.

Applied AI/ML Portfolio (Python, NumPy, WebRTC VAD, BM25, LLM/RAG Evaluation)

- Engineered a monorepo for real-time speech VAD, offline LLM/RAG evaluation, and NumPy-based ML algorithms.
- Achieved 0.9569 F1 and 19 ms p95 latency; benchmarked retrieval using Recall@k, MRR, nDCG, faithfulness, latency, and cost.

HindAI (Next.js 15.5, React 19.2, TypeScript 5.9, OpenRouter, RAG)

- Led end-to-end development of a RAG learning platform with cited answers, vector search, and multimodal Sanskrit analysis.
- Implemented Sanskrit tools and personalized study across 66 routes, secured with Zod, CSP, and rate limiting.

AssistMe Virtual Assistant (React, Vite, FastAPI, Pydantic, WebSockets)

- Created a multimodal AI workspace with voice interaction, cited research, image generation, and network diagnostics.
- Designed a React/FastAPI REST and WebSocket architecture supporting multiple LLMs and 22+ Indian languages.

Education

Drexel University

Philadelphia, PA

Master of Science in Computer Science (GPA: 3.3)

Sep 2021 -- Jun 2023

Savitribai Phule Pune University

Pune, India

Bachelor of Engineering in Computer Engineering (GPA: 3.6)

Jun 2017 -- Jun 2020

Certifications & Training

- Google: Prompt Design in Vertex AI Skill Badge
- IBM: Cybersecurity Fundamentals; Data Fundamentals (SQL/NoSQL); Emerging Technology (AI)
- Cisco: Networking Basics (OSPF/BGP); CCNP (Routing & Switching)
- Microsoft: JavaScript Programming