

# SHUBHAM DHAKAD

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Senior Software Engineer with 5+ years of experience in designing scalable backend systems, building AI-powered applications, and deploying cloud-native solutions. Skilled in Python, Django, FastAPI, and RESTful APIs with hands-on expertise in LLMs, Gen AI, NLP, and prompt engineering. Proven ability to lead microservices architecture, manage CI/CD pipelines, and optimize cloud deployments using AWS, Docker, and Jenkins. Strong collaborator with a track record of delivering production-grade solutions across EdTech and Retail domains.

## EDUCATION

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### AMITY UNIVERSITY

B.TECH Computer Science

Gwalior, M.P

2019

## WORK EXPERIENCE

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### VECTED TECHNOLOGIES

SR. Software Engineer

Jul 2024 – Present

- Led the development of an **enterprise-grade LLM integration framework**, enabling cross-team adoption of **Gen AI** for internal knowledge retrieval, email drafting, and report generation.
- Designed and deployed custom **NLP pipelines** for text classification, entity extraction, and sentiment analysis, improving user behavior insights across digital platforms.
- Implemented advanced **prompt chaining techniques** and fallback strategies to stabilize LLM outputs in dynamic customer-facing applications.
- Architected and maintained a **multi-cloud deployment pipeline** using **Docker, Jenkins, and CI/CD**, reducing deployment time by 60% across staging and production.
- Set up scalable **RAG pipelines** combining **PostgreSQL** for structured data and **MongoDB** for document retrieval, delivering context-aware LLM responses in real time.
- Automated resource provisioning and monitoring in **AWS (EC2, S3, IAM, VPC, CloudWatch)** for AI workloads, achieving 99.98% uptime and cost-efficient scaling.
- Built a multi-node **microservices environment** for processing high-frequency API traffic, utilizing **FastAPI** and Python async features for performance gains.
- Developed an internal **LLM prompt-testing dashboard** using **QuickSight** and AWS Lambda to track model behavior, latency, and user engagement across features.
- Created and optimized **shell-based cron jobs** for daily data sync, health checks, and alert generation, ensuring smooth backend operations on Linux servers.

### TUCHWARE SERVICES

Software Engineer

Sep 2019 – Jun 2024

- Built smart backend systems using **Python, Django, and FastAPI** to handle user actions, store data, and connect with AI models.
- Worked with **Large Language Models (LLMs)** and **Generative AI (Gen AI)** to build tools that could answer questions, summarize documents, and understand natural language.
- Used **NLP (Natural Language Processing)** techniques to help the system read and process human language from chats, emails, and documents.

- Fine-tuned LLMs and adjusted responses using **prompt engineering**, improving the accuracy and tone of AI replies for real-world use cases.
- Connected AI models to company data using **RAG (Retrieval-Augmented Generation) pipelines**, so users could get factual and relevant answers instantly.
- Managed different types of databases like **MySQL, PostgreSQL, and MongoDB** to safely store customer data, system logs, and AI outputs.
- Deployed applications on **AWS** using services like **EC2 (servers), S3 (file storage), CloudWatch (monitoring), SQS/SNS (alerts & automation)**, and controlled access with **IAM** and **VPC**.
- Used **Docker** and **Jenkins** to automate testing and deployment, making sure updates went live smoothly without errors through **CI/CD pipelines**.
- Wrote **Shell scripts** on **Linux servers** to automate tasks like backups, system cleanups, and running batch jobs.
- Worked with teams using **Git, GitHub, and GitLab**, following Agile practices and helping deliver reliable software on time.

## PROJECTS

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### Scalable Learning Management System (LMS)

Duration: Jul 2024 - Jan 2025

- Designed and delivered a cloud-native Learning Management System (LMS) to support thousands of concurrent learners with real-time progress tracking and automated insights.
- Developed a **modular backend** architecture using **Python, Django, FastAPI, and RESTful APIs**, enabling scalable access to learning modules, user data, and progress metrics.
- Built out the frontend with React.js and TypeScript (interface work not primary), while focusing on backend **system design** and microservices-based service orchestration.
- Managed and optimized data workflows with **MySQL (DBA tasks)** for relational data and integrated with **AWS DynamoDB** for scalable, NoSQL-based content retrieval.
- Designed **CI/CD pipelines** using **Docker** and **Jenkins**, enabling versioned deployments and rollback-safe releases for new features and hotfixes.
- Deployed the platform on **AWS** infrastructure using **EC2, S3, IAM, and VPC**, with real-time performance tracking and alerting via **CloudWatch**.
- Created insightful **AWS QuickSight dashboards** for instructors and admins to monitor student activity, course engagement, and completion rates.
- Followed **Agile SDLC** practices, managed Git workflows using **GitHub**, and contributed to infrastructure automation scripts on **Unix/Linux** systems.

**Technologies used** - Python, Django, FastAPI, MySQL, DynamoDB, AWS (EC2, S3, IAM, VPC, CloudWatch, QuickSight), Docker, Jenkins, Shell Scripting, GitHub, CI/CD, System Design, SDLC.

### AI-Powered Inventory Management System

Duration: Sep 2019 - Jun 2024

- Engineered a **microservices-based backend** with **FastAPI and Django**, exposing secure **RESTful APIs** for real-time inventory updates and alerts.
- Built and fine-tuned **AI/ML models** using **TensorFlow** to predict inventory demand patterns, reduce overstocking, and improve replenishment timing.
- Integrated **prompt-engineering logic** with a custom LLM-based assistant to help warehouse managers get actionable insights through natural language queries.

- Used **MongoDB** and **MySQL** for storing transactional data and product metadata, optimizing query performance for high-volume analytics.
- Enabled end-to-end CI/CD deployment pipelines using **Docker**, **Jenkins**, and GitLab, supporting test automation and blue-green deployments.
- Monitored system activity using **AWS CloudWatch** and enforced security best practices through **IAM policies** and **VPC configurations**.
- Coordinated with cross-functional teams and clients, ensuring the solution met business SLAs and supported multi-location scalability.
- Developed an intelligent inventory management system that leveraged **AI/ML models** for demand forecasting and real-time stock optimization across multiple warehouses.

**Technologies used** - Python, Django, FastAPI, TensorFlow, LLM Integration, Prompt Engineering, MySQL, MongoDB, AWS (EC2, S3, IAM, VPC, CloudWatch), Docker, Jenkins, GitLab, Microservices, REST APIs, CI/CD, System Monitoring, Agile SDLC.

## ADDITIONAL

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**Technical Skills:** Python, Django, FastAPI, REST APIs, LLMs, Gen AI, Prompt Engineering, NLP, RAG Pipelines, Microservices, System Design, AWS (EC2, S3, IAM, VPC, CloudWatch, QuickSight, SNS, SQS), Docker, Jenkins, CI/CD, DevOps, MySQL, PostgreSQL, MongoDB, Unix/Linux, Shell Scripting, Git, GitHub, GitLab, Agile, SDLC.

**Languages:** Fluent in English and Hindi, both.