

# Shubham Chougale

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## Executive Summary

I'm currently working as an AIML Engineer at 64 Squares LLC with hands-on experience in building intelligent, scalable systems for property management using Deepgram, OpenAI, and Langchain. Currently developing a vision-based defect detection system using CoreML. Proven expertise in **LLMs**, **computer vision**, **NLP**, and **data engineering**, with a strong foundation in tools like **YOLOv8**, **Capacitor**, **Swift**, and **AWS**. Certified in **SnowPro Core**, with a track record of delivering robust ML pipelines, end-to-end app integrations, and generative AI solutions. Hands-on with PyTorch, TensorFlow for analytical model development. Skilled in translating business needs into deployable ML solutions.

## Experience

- **AIML Engineer**

- 64-Squares LLC, Pune | 09/2024 - present | Live App/Web: - ViziSmart

1. Built a voice assistant using Deepgram (speech-to-text), OpenAI (response generation), and TTS in a Django-based system for property management
2. Integrated Langchain and RAG using OpenAI & vector DBs to retain context in conversations.
3. Developed a YOLO-based defect detection model (92% accuracy) to identify issues like wall cracks and pipe damage from video feeds.
4. Developed a vision-based defect detection feature for IOS using **Capacitor** and a **CoreML** model (defect\_detect.mlpackage), enabling on-device inference for identifying defects in video frames.
5. Designed scalable workflows for LLMs to solve real-world business problems.

- **Jr. Data Engineer Trainee**

- 64-Squares LLC, Pune | 03/2024 - 09/2024

1. Engineered and optimized ETL pipelines using Python and SQL, ensuring efficient data extraction, transformation, and loading from multiple sources into relational databases for analytical workflows.
2. Improved generative AI workflows for 1,000+ daily users in real estate and finance domains.
3. Worked on end-to-end integration between the backend (APIs) and frontend to provide real-time solutions for property management.

- **DevOps Intern**

- Tata Consultancy Services, Pune (Remote) | 05/2023 – 07/2023

1. Designed and implemented CI/CD pipelines using Jenkins to automate integration and deployment processes.
2. Configured and monitored Jenkins jobs to ensure efficient builds, testing, and deployment cycles.

## Education

- MIT ADT University

Pune, Maharashtra

**Master of Computer Applications (Data Science)** [08/2021 - 08/2023]

08/2021 -

07/2023 Major in AI, ML, DS, DA; Minors in Mathematics and Statistics

CGPA: - 8.56/10

– Shivaji University

Kolhapur, Maharashtra

**Bachelor of Science (CS)**

07/2018 – 08/2021

Major in Computer Science; Minors in Mathematics, Statistics and ML

CGPA: - 8.86/10

## **Skills**

- **Programming Languages:** Python, SQL, Terraform, TypeScript.
- **Data Science & Artificial Intelligence:** TensorFlow, PyTorch, YOLO, Scikit-learn, Pandas, Numpy, Matplotlib, Deep Learning, Data Visualization, AI-Agents, ML, LLM, Statistics, NLP, Langchain, RAG, Deepgram, Whisper, OpenAI API, TTS, CNN.
- **Computer Vision:** Object Detection, Image Classification, YOLOv8, Video Processing, Real time detection, CoreML, AVFoundation, Capacitor, OpenCV.
- **Tools & Technologies:** Snowflake, MySQL, FastAPI, Flask, Django, Power BI, Xcode, Colab.
- **Cloud Platforms:** AWS(S3, EFS, EC2, Lambda, Cloud watch, Secrete Manager), Jenkins, Docker.
- **Version Control:** Git.
- **General Skills:** Requirements Analysis, Results Presentation, Complex Issue Simplification, Problem-solving, Creative Solutions.

## **Projects**

- ❖ **ViziSmart (Property Management app/web)**
  - Integrated Langchain with RAG (Retrieval Augmented Generation) using OpenAI and vector databases to maintain long-term conversational context.
  - Collaborated with frontend and backend teams to ensure smooth API integration and fast, natural interactions.
  - Created a custom Capacitor plugin (VisionDetectionPlugin) in Swift, processing video frames at 3 FPS using AVFoundation and running CoreML inference on-device.
  - Built a detection pipeline with thresholds (confidence  $\geq 0.4$ , IoU = 0.5) to identify cracks, water damage, and structural issues in property videos.
  - Containerized ML services using Docker for consistent deployment across environments.
- ❖ **Automatic Diagnosis of Pneumonia through Chest X-ray Images Using Machine Learning**
  - Trained machine learning models using TensorFlow and Scikit-learn to detect pneumonia from chest X-ray images.
  - Achieved high diagnostic accuracy using image preprocessing, feature extraction, and fine-tuned CNN architectures.
  - Performed data cleaning, augmentation, and cross-validation to ensure model generalization and robustness.
- ❖ **Online Dance Studio Platform – V&N Entertainment**
  - Built a Django-based web application with MySQL integration for user registration, class bookings, and admin control.
  - Designed a responsive frontend UI for easy navigation, ensuring mobile and desktop compatibility.
  - Implemented user roles and scheduling features to automate class registrations and reminders.
- ❖ **Turf-Town - Online Turf Booking**
  - Developed a Django web application for turf booking with MySQL backend, allowing users to browse, book, and pay for slots.
  - Integrated user authentication, real-time availability tracking, and booking history features.
  - Designed database schema to handle complex user and event relationships.

❖ **Housing in Mexico & Apartment Prices in Buenos Aires**

- Built ML models using Pandas and Scikit-learn to predict property and apartment prices based on historical and geographical data.
- Performed feature engineering, outlier handling, and data normalization to improve prediction accuracy.

❖ **Continuous Integration (CI) and Deployment - using Jenkins Plugins**

- Researched and implemented CI/CD pipelines using Jenkins plugins for automated code build and deployment.
- Independently managed Jenkins infrastructure, resolving failures and optimizing pipeline speed.

**Certificate**

1. SnowPro Core Certification - Professional Certificate
2. Artificial Intelligence For Real World Application – TCS
3. Hands-On Essentials: Data Warehousing Workshop (Snowflake)
4. Hands-On Essentials: Collaboration, Marketplace & Cost Estimation (Snowflake)
5. Python for Data Science - IBM
6. Data Analytics Essential
7. Data Science with AIML - AMZ