

# OJAS SINGH

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## Education

### VIT Bhopal University

*Integrated M.Tech - Computational and Data Science (CGPA:- 8.42)*

**Oct. 2022 – Apr. 2027**

*Bhopal, Madhya Pradesh*

### Kendriya Vidyalaya G.C.F. No. 1

*Senior Secondary (Percentage:- 88%)*

**May. 2021 – Apr. 2022**

*Jabalpur, Madhya Pradesh*

## Projects

### Diabetic Retinopathy Detection System | *Python, TensorFlow, OpenCV, Scikit-learn, XGBoost*

**July 2025**

- Developed an ensemble detection system with **CNN, RF, and XGB**, preprocessing **2750 retinal images**, achieving **75.27% accuracy**.
- Resolved imbalanced data with **weights** and optimized **memory usage** for efficient processing.
- Addressed imbalanced data with class weights, resolved **overfitting** using **Dropout layers** and early stopping during **100-epoch training**.

### Zomato EDA and Regression Analysis | *Python, Pandas, Matplotlib, Seaborn, Scikit-learn*

**May 2025**

- Conducted in-depth **EDA** on Zomato's restaurant data to identify factors influencing ratings, cleaning 20+ features including location, cuisines, and cost with **missing and inconsistent values** resolved using mapping and imputation.
- Engineered features and trained **XGBoost and Linear Regression models**, achieving an **R<sup>2</sup> score of 86.4%**, enabling robust prediction of restaurant ratings based on food, service, and cost parameters.
- Tackled **multicollinearity** by performing **correlation analysis** and **feature selection**, significantly reducing model complexity while maintaining high prediction accuracy.

### Algerian Forest Fire Prediction System | *Python, Pandas, Scikit-learn, Flask, NumPy, Matplotlib*

**April 2025**

- Engineered & cleaned **Algerian Fire Weather Index dataset (FFMC, DMC, DC, ISI, BUI, FWI)**, creating lag/interaction features and boosting cross-validated performance (**Accuracy 93% / R<sup>2</sup> 0.88 vs 0.62 baseline**).
- Tuned ensemble pipeline (**XGBoost + Random Forest**) with **stratified K-fold** and permutation importance, **reducing MAE 27%** and lifting **minority fire-event recall to 0.91**.
- Deployed Flask API ( **less than 120 ms inference**) with serialized scaler/model and interpretability (**feature importance**), **cutting false alarms nearly 18%** and enabling actionable early risk alerts.

## Experience

### Database Analyst Intern

**Oct 2025 – Dec. 2025**

### University Management System | *SQL, SQLite, Python, SQLAlchemy*

- Designed and managed a **relational database** for academic workflows using **SQL** and **SQLAlchemy**.
- Implemented secure **CRUD operations, joins**, and role-based data access for students, faculty, courses, exams, and grades.
- Ensured **data integrity, normalization, and transactional consistency** across multiple academic modules.

## Technical Skills

**Languages:** Python, Java, SQL

**Developer Tools:** Tableau, Google Colab, VSCode, Git, GitHub

**Database:** SQLite, RDBMS

**Technologies/Frameworks:** Flask, Numpy, Pandas, Scikit-learn, Matplotlib, Seaborn, TensorFlow, OpenCV, SQLAlchemy(ORM)

**Soft Skills:** Communication, Teamwork, Problem Solving

## Certifications

- **Applied Machine Learning in Python** by University of Michigan (Coursera)
- **Introduction to Machine Learning (NPTEL)**