

# PRATIKRAJ MUGADE

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## SKILLS

**Programming & Query Languages:** Python (Pandas, NumPy, Scikit-learn, GeoPandas, PyTorch), SQL, R.

**Machine Learning & Computer Vision:** CNN, YOLO, OpenCV, Feature Engineering, Model Evaluation, Clustering, Transfer Learning, Model Optimisation.

**Data Engineering:** Snowflake, dbt, Airflow, ETL Pipelines, Data Modelling, Star Schema, Data Warehousing.

**ML Deployment & APIs:** FastAPI, Flask APIs, Streamlit, Docker, Model Inference, REST APIs

**Cloud & Development Tools:** AWS (AWS S3, Amazon EC2), Git, GitHub, Jupyter Notebook, Google Colab.

**Analytics:** Exploratory Data Analysis (EDA), Statistical Analysis, Data Cleaning, Data Validation, Plotly, Tableau, Power BI

## EXPERIENCE

**Research Assistant - Pollinatework Sensibee™ Project | Kingston University** (contract) Mar 2025 – Aug 2025

### Role- *Machine Learning Engineer*

- Designed and deployed YOLOv11n insect detection system integrated with IoT cameras and AWS Lambda, achieving **95% mAP@50**.
- Optimised model performance via **hyperparameter tuning** and **false-positive suppression**, meeting commercial deployment thresholds.
- Built scalable CV pipelines using **PyTorch, AWS S3, and Git**, contributing to **28% revenue growth** through improved device performance

**Data Science Intern – Healthcare & Cybersecurity Analytics | Netsoft Technologies, India** May 2023 – Dec 2023

- Built ML classifiers achieving **97% and 99.91% accuracy** for healthcare and intrusion detection
- Improved ML pipeline efficiency by **30%**, enabling faster deployment
- Automated ML workflows using **Python and Streamlit**, reducing manual effort by **40%**

## PROJECTS

**Information Retrieval Chatbot — LangChain, FAISS, Python** Aug 2025

- Developed PDF-based chatbot enabling document-aware semantic search and question answering
- Implemented vector embeddings using **FAISS and LangChain**

**YOLOv11 Insect Detection & Tracking — PyTorch, Computer Vision** Mar 2025

- Built cascaded YOLO detectors with targeted augmentations to reduce false positives in field conditions
- Improved detection robustness for **real-world ecological monitoring** deployment

**Deep Learning Insect Classification System — CNN, FastAPI, PyTorch** Jan 2025

- Developed CNN and transfer-learning models for insect classification, achieving **98.73% accuracy**, and curated a **10K+ image dataset**, reducing training time by **40%**
- Deployed real-time inference service using **FastAPI**, enabling image-based predictions; recognised with **Best MSc Project Award**

## EDUCATION

**Masters (Msc) Data Science, Kingston University (Distinction)** Graduated : 2025

**Bachelors - Major in Mechanical Engineering & Minor in Computer Science Engineering** Graduated: 2023  
*Shivaji University, India (Distinction)*

## ACHIEVEMENTS

- Best MSc Project Award (Joint Winner), Kingston University, 2025** — recognised for outstanding deep learning research and analytics dashboard reporting
- Co-author, peer-reviewed publication — BMC Proceedings, 2025** — BeSafeBeeHoney: Exploring Beekeeping Innovations and Science (DOI: 10.1186/s12919-025-00347-z)
- Certifications: AWS Certified Cloud Practitioner; DeepLearning.AI CNN Certification; Tableau and Power BI**
- BAJA SAE India — All-India Rank 4 (M-BAJA) and Rank 16 (E-BAJA)** — led engineering design and performance optimisation in national competition with 200+ teams.