

Rahul Sandip Deshmukh

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EDUCATION

M.S. Computer Science

Arizona State University, Tempe AZ

Graduating in May 2025

3.83 GPA

B.Tech. Information Technology

K.J. Somaiya Institute of Information Technology, University of Mumbai, India

Graduated May 2023

9.62/10 CGPA

Relevant Courses: Data Structures and Algorithms, Statistical Machine Learning, Planning Learning methods in AI, Data-Intensive Systems for Machine Learning, Frontier Topics in GenAI, Computing for Data-Driven Optimization, Big Data Analytics, Database Management, DataMining and Business Intelligence.

TECHNICAL SKILLS

Databases: MySQL, MongoDB, SQL Server Management Studio (SSMS), DBeaver

Programming Languages: C, C++, Python, Java, JavaScript, R, Julia

Tools & Software: Git, AWS, Docker, CUDA, Tableau, Alteryx, Microsoft Office, Unix/Linux

Libraries: Pytorch, Torch vision, BoTorch, Stable-Baselines3, OpenCV, Tensorflow, Keras, Numpy, Pandas, scikit-learn, matplotlib, NLTK, spacy, seaborn

PROFESSIONAL EXPERIENCE

Strategic Insights Student Assistant, ASU Enterprise Partners

Jan, 2024 – Present

- Developed and presented a **K-means clustering model** using **R** with **Mahalanobis distance** to segment alumni into 5 affinity groups and profile the clusters. Delivered detailed reports to key stakeholders that enhanced engagement strategies.
- Built and optimized a **predictive model for donor propensity** using **Bayesian optimization**, increasing accuracy by approximately **10%**. Shared insights with stakeholders to drive more effective fundraising strategies.
- Performed **data extraction, transformation, and loading (ETL)** processes for large datasets and conducted **exploratory data analysis (EDA)** using python libraries to produce actionable insights that informed strategic decision-making.

IOT Intern, KJSIT (IT Department)

Dec, 2021 – Jan, 2022

- Prepared a prototype for an **Air Quality Monitoring System** that included an automatic toilet flushing mechanism triggered by high water turbidity levels.
- Implemented a gas sensor integration to monitor ammonia and air quality, with **C++** on **Arduino microcontroller** and displayed real-time data on an Android application, enabling tracking and alert notifications.

ACADEMIC PROJECTS

Harnessing Deep Reinforcement Learning for Autonomous Driving in CARLA | [Github](#)

Fall 2023

- Designed an adaptive autonomous driving agent using Deep Reinforcement Learning in CARLA simulation environment.
- Employed a **Variational Autoencoder (VAE)** for feature extraction and **Proximal Policy Optimization (PPO)** for decision-making, achieving a **mean reward of 92.3%**.
- Optimized model performance by refining reward functions and hyperparameters, demonstrating effective lane-keeping, obstacle avoidance, and precise navigation in diverse driving scenarios.

Identification and Classification of Plant Leaf Diseases | [Github](#)

Spring 2023

- Implemented **Generative Adversarial Networks (GANs)** to augment the plant leaf dataset, enhancing model performance by increasing data diversity. Used **Labelimg** for precise annotation of the dataset, ensuring accurate model training.
- Developed a **YOLO v4-tiny** object detection model for real-time detection of diseased leaves, achieving a **77.0% Mean Average precision (mAP)**. Enabled mobile-based detection made in **Java** to help farmers identify diseases and apply timely remedies.

HDAC6 Compounds Activity Prediction (Drug Discovery) | [Github](#)

Fall 2022

- Preprocessed a dataset of structures and biological activities for human HDAC6 (Histone Deacetylases).
- Extracted **molecular fingerprints** (structural features) using **RDKit** (a library for cheminformatics) and **molecular descriptors** (chemical features) with **PaDEL** (a tool for generating chemical descriptors).
- Utilized automated model selection techniques to identify and fine-tune the top 5 regression models. Predicted IC50 values for HDAC6 compounds and selected the **top 250 compounds** based on efficacy.

CERTIFICATIONS & PUBLICATIONS

- Deshmukh, R., Mayekar, V., Patel, S., & Rathod, M. (2023). Identification and Classification of Plant Leaf Diseases using YOLOv4-tiny Algorithm. 2023 6th International Conference on Advances in Science and Technology (ICAST), 352–357.
- Certifications: **Fundamentals of Deep Learning (NVIDIA)**, **Improving Deep Neural Networks: Hyperparameter Tuning, Regularization, and Optimization (DeepLearning.AI)**.