

Umesh Raval

(281)857-0876 | ubraval@uh.edu | [LinkedIn](#) | [GitHub](#)

Education

University of Houston | *Masters in Data Science*

Class of 2026

Coursework: Natural Language Processing, Data Mining, Machine Learning, Probability and Statistics

GPA: 4.0

University of Mumbai | *Bachelors in Computer Engineering*

Class of 2024

Honors in Data Science and Analytics

GPA: 3.77

Work Experience

Data Scientist

MysticLabs AI

Jan 2024 - Jun 2024

- Developed LSTM neural network for music generation achieving 84% indistinguishability in musician evaluations.
- Built Python pipeline to preprocess 10,000+ audio files and created dashboards to track processing metrics, reducing processing time through data-driven optimizations.
- Improved model accuracy through hyperparameter tuning, using 3-layer bidirectional architecture to predict pitch, timing, duration, velocity, with 93.6% melody coherence, trained on 220 hours MAESTRO dataset.

Research Assistant, GIS and Satellite Imagery Data Analysis

University of Mumbai, KJSCE

Jan 2022 - Jan 2024

- Analyzed satellite imagery with a focus on vegetation classification; processed over 1,537 images from NASA Landsat and Copernicus Sentinel-2 datasets to develop comprehensive reports and visualizations supporting research initiatives.
- Developed Resnet and Densenet models to classify vegetation, improving classification accuracy by 31% compared to traditional methods.
- Developed automated data pipeline using SQL and Python, creating cross-functional dashboards that tracked 5 key performance metrics and reduced processing time.

Future Ready Talent Intern

Microsoft Azure AI

Mar 2023 - May 2023

- Developed an AI-powered application deployed on cloud for computer vision tasks, in the domain of license plate recognition, targeting the detection of vehicles violating traffic regulations, achieving a precision of 97.4%.

Research Projects

Emotipy: Emotion-Based Music Recommendation Chatbot

Python, TensorFlow, Flask

- Built emotion-based music recommendation system using natural language processing (Distilled BERT).
- Identifies emotions from user responses with a machine learning model with 94% validation accuracy.

Reinforcement Learning Control for HVAC Systems

Python

- Developed RL-based HVAC control system that reduced energy consumption by 29% while maintaining target temperature within $\pm 2^{\circ}\text{C}$. The RL agent was trained on parameters like occupancy, temperature, and humidity.
- Controls air conditioning, heating, and ventilation in 3 modes: eco, balanced and high performance.

The Maze Escape, A procedurally generated 3D maze game

Unreal Engine 5

- Developed a 3D maze escape game with procedurally generated mazes, guaranteeing a distinctive experience for every playthrough.
- Implemented AI enemy behavior using UE5 behavior trees with 4 distinct states and 15 terrifying voice lines.
- Designed procedural challenge system generating 10 types of obstacles and infinitely different puzzle combinations.

Skills

- Software** - Databases: SQL, BigQuery, MongoDB; Data Visualization: Tableau, Power BI; Programming Languages: Python, R, Java, C, C++ Cloud & DevOps: Microsoft Azure, Google Cloud Platform, Firebase; Game Development: Unreal Engine 5; Knowledge in software engineering and Information Security; GIS Tools: ArcGIS
- Machine Learning & Data Science** - Deep Learning: Time Series Analysis, Natural Language Processing, GANs; Machine Learning: Regression, SVM, Reinforcement Learning; Statistical Analysis: Design of Experiments, Statistical Inference; Data Visualization & Analysis
- Professional Skills** - Project Management: Agile methodology; Collaboration: Team leadership, Cross-functional collaboration; Problem Solving: Critical thinking, User-centric design