Mariam Qaisar Abidi

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Education

Rochester Institute of Technology Expected December 2025
Master of Science in Computer Science *Rochester, New York, USA*
Relevant Coursework - Computational Problem Solving (Python), Big Data (MySQL, MongoDB), Foundations of Artificial Intelligence, Foundations of Algorithms, Introduction to Machine Learning, Foundations of Computer Vision, Neural Networks and Machine Learning.

St. Francis Institute of Technology, University of Mumbai May 2023
Bachelor of Science in Information Technology *Mumbai, Maharashtra, India*

Skills

Languages: Python, C++, Java, SQL (MySQL & PostgreSQL), NoSQL (MongoDB)
ML & Data Science: PyTorch, TensorFlow, Scikit-learn, NumPy, Pandas, Matplotlib, OpenCV, MediaPipe
Data & Systems: Linux, Docker, Git, AWS, Redis, Kafka

Projects

Physics-Informed Neural Network for Automotive Flow Prediction

- Engineered PINNs in PyTorch to model 3D aerodynamic velocity fields around automotive geometries, integrating Navier–Stokes PDE constraints for physics-consistent predictions.
- Combined autoencoder-based dimensionality reduction with KMeans clustering (PyTorch, scikit-learn), enabling unsupervised discovery of aerodynamic flow regions.
- Reduced CFD input dimensionality by 80%, improving clustering speed and interpretability of model outputs.

ML-based Distributed DDoS Detection and Mitigation System

- Built a real-time distributed DDoS detection system using Random Forest (scikit-learn, Python) with feature selection and SMOTE to boost detection accuracy and reduce false positives.
- Deployed containerized ML models using Docker Compose across 3+ nodes, achieving scalable and consistent real-time inference with automated blocklist updates.
- Reached 90%+ detection accuracy with system response latency under 500ms in live simulation.

Gesture-Controlled Interface System using Computer Vision

- Designed a gesture recognition system using OpenCV and MediaPipe, enabling real-time, touchless mouse control via hand gestures.
- Enhanced detection and tracking by 20–25% through optimized color space transformations, geometric calibration, and CNN-based feature extraction.
- Achieved 94% gesture classification accuracy with sub-200ms latency, ensuring a responsive and user-friendly interface.

Experience

HomeFlic Wegrow — *Intern Data Analyst* May 2021 – July 2021

- Built predictive models (logistic regression & decision trees) on user engagement data, uncovering behavioral patterns that improved campaign targeting and lifted conversion rates by 12%.
- Designed and optimized ETL pipelines in Python (Pandas, NumPy), improving large-scale data processing efficiency by 30%.
- Performed A/B testing and statistical analysis on email/social campaigns, generating insights that reduced churn by 8%.

Certifications & Achievements

- Earned an **Advanced Certificate in Artificial Intelligence** from Rochester Institute of Technology.
- Completed the **Neural Networks and Deep Learning** course on Coursera by **Andrew Ng.**
- Received a 40% **scholarship** from RIT for academic excellence.