

# Mohammed Zuhaib Damudi

+1 (617) 749-7598    damudi.m@northeastern.edu    zuhaibdamudi    zuhaibdamudi    Portfolio Website

## Education

### Northeastern University

Master of Science in Computer Science

Sep 2025 – May 2027

Boston, MA

- **Coursework:** Database Management Systems, Programming Design Paradigm

### Manipal Institute of Technology

Bachelor of Technology in Computer Science & Engineering, Minor Specialization in Big Data Analytics

Jul 2019 - Jul 2023

Manipal, India

- **Thesis:** "Single-Step Sampling Approach for Unsupervised Anomaly Detection of Brain MRI Using Denoising Diffusion Models" - *International Journal of Biomedical Imaging*, Vol 2024, Issue 1; DOI: [10.1155/ijbi/2352602](https://doi.org/10.1155/ijbi/2352602)

## Experience

### Shell

Software QA Engineer

Aug 2023 – Aug 2025

Bengaluru, India

- Led performance engineering initiatives for 10+ high-impact projects, simulating up to 200 requests per second and 3,000 concurrent users, to help identify system bottlenecks and improve performance.
- Collaborated closely with cross-functional teams to deliver solutions across domains including Finance, Workforce Management, and Identity & Access Management (IAM), supporting critical business functions within Shell.
- Conducted in-depth performance analysis to enhance system reliability and scalability, using tools such as LoadRunner Enterprise, Apache JMeter, and Azure Load Testing to script and execute load tests.
- Contributed to a patent filing for an AI-powered Code Converter Tool, powered by GPT-4o, automating up to 80% of manual programming efforts, significantly improving developer productivity.

### Questt

Data Engineer Intern

May 2022 – Jul 2022

Bengaluru, India

- Designed and implemented an ETL pipeline in Apache Airflow to extract and flatten over 1 million documents in MongoDB, converting unstructured and heavily nested data into a structured relational schema.
- Built an automated system that collects, manages, and converts raw JSON into a structured format while dynamically adapting to changes in schema, allowing analysts to query and report twice as fast.
- Architected a data warehouse in Google BigQuery, serving as a core internal tool for conducting analysis and generating valuable business insights.

## Projects

### Anomaly Detection in Brain MRI using Denoising Diffusion Models | PyTorch

Jan 2023 - Jul 2023

- Developed a novel sampling approach for brain tumor detection, improving inference speeds by up to 200 times.
- Introduced a partial diffusion technique using Denoising Diffusion Probabilistic Models (DDPMs) to generate healthy brain MRI samples, accurately identifying the presence of anomalous regions about 80% of the time.
- Achieved up to 66% improvement in key segmentation metrics such as IoU, Precision, Recall, and AUC, enabling faster and more accurate detection of anomalies.

### Web Automation and Data Analysis - TypeRacer | Selenium, NumPy, Pandas, Matplotlib

Oct 2022 - Nov 2022

- Employed web scraping techniques to automate the extraction and analysis of historical TypeRacer data.
- Transformed and organized data for analysis using NumPy and Pandas for efficient data manipulation.
- Created 10+ data plots with Matplotlib to track and visualize users' long-term typing speed progress.

### Habitual - Mobile Application | Flutter, SQLite

Jan 2022 - Mar 2022

- Developed an interactive habit tracker application in Flutter to store user data and provide comprehensive statistics on habit trends, with 100+ downloads on the Google Play Store.
- Implemented persistent data storage for in-app data using SharedPreferences and SQLite for local database.
- Adopted state management techniques utilizing the Provider package to enhance application performance.

## Technical Skills

**Languages:** Python, C, C++, Java, JavaScript, Dart

**Technologies:** NumPy, Pandas, OpenCV, PyTorch, MongoDB, MySQL, Git, Docker, Flutter, Selenium, Google BigQuery, Apache Airflow, Apache JMeter, LoadRunner Enterprise, Postman

**Concepts:** Data Engineering, Data Science, Big Data Analytics, Computer Vision, Generative AI, ETL Pipelines, Android Development, Automation, Performance Engineering