

# MOHAMMED ASIM

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## EDUCATION

### University of California Davis

September 2022 - January 2025

Master of Science in Computer Science

### Jamia Millia Islamia

August 2018 - June 2022

Bachelor of Technology in Computer Science and Engineering

## WORK EXPERIENCE

### Graduate Student Researcher

July 2023 - October 2024

Alzheimer's Disease Research Center, UC Davis Health

Davis, CA

- Spearheaded the development of a high-performance **Convolutional Neural Network (CNN)** for segmenting the brain from whole-head MRI scans, achieving a Dice Similarity Score of **0.988**, reducing manual segmentation time by **70%**.
- Designed and implemented data preprocessing pipelines for a dataset of over **20,000** MRI scans, improving segmentation performance across varied head orientations by **25%**.

### Big Data and Machine Learning Teaching Assistant

March 2023 - June 2023

Graduate School of Management, University of California, Davis

Davis, CA

- Facilitated hands-on learning experiences for **70+** students in the **Big Data Analytics** and **Machine Learning** course, boosting average engagement and comprehension scores by **20%**.
- Graded and provided feedback on **150+** assignments to ensure students achieved an understanding of advanced **data analysis** and **machine learning** concepts.

### Software Engineering Intern

June 2021 - July 2021

Airports Authority of India, New Delhi

New Delhi, India

- Developed a web-based application to streamline inventory management, reducing reliance on paperwork and improving data accuracy by **30%** across **4** departments.
- Delivered weekly progress reports and conducted system functionality training sessions for **15+** stakeholders, enhancing cross-departmental communication efficiency by **20%**.

## PUBLICATIONS

- "Predicting Next-Day Rainfall Using Machine Learning Techniques", Springer, 2024. [Link](#)
- "Prediction of concrete compressive strength using deep neural networks", Taylor & Francis, 2023. [Link](#)
- "Scour modeling using deep neural networks based on hyperparameter optimization", Elsevier, 2022. [Link](#)

## PROJECTS

### Real-Time Chat Application | Node.js, Redis, Kafka, PostgreSQL, Next.js, Tailwind CSS, TypeScript

[Github Link](#)

- Designed and developed a scalable chat app using **Node.js**, **Redis (Pub/Sub)**, **Kafka**, **PostgreSQL**, and **Socket.IO** for real-time communication.
- Built an interactive frontend with **Next.js**, **Tailwind CSS**, and **TypeScript**, integrating **Google Authentication** for secure user login.
- Streamlined real-time message processing and scaling across multiple servers using **Kafka** and **Redis**.

### Expense Tracker Application | React.js, Node.js, MongoDB, Express.js, JWT, Heroku, Postman

[Github Link](#)

- Built a full-stack web application using **React.js**, **Node.js**, and **MongoDB** to manage and monitor financial transactions.
- Implemented user authentication with **JWT** and created a dynamic dashboard with data visualization for spending insights.
- Deployed the application on **Heroku**, ensuring scalability and accessibility with seamless performance.

### End-to-end Object Detection and Tracking System | Python, TensorFlow, OpenCV, CUDA

[Github Link](#)

- Built a real-time object detection and tracking system using **deep learning** algorithms, deployed on cameras mounted on autonomous vehicles, processing **100+** frames per second (FPS).
- Utilized **YOLO** and **SSD** architectures and trained the model on the **80,000**-image Microsoft COCO dataset, optimizing for real-time performance and precision, achieving an accuracy of **98%**.

## SKILLS

- Programming:** C, C++, Python, Java, JavaScript, React.js, Angular, SQL, TypeScript, Go, MATLAB, R
- Web Technologies:** Node.js, Django, FastAPI, REST APIs, GraphQL, React.js, Redux, Spring Boot, HTML5, CSS3, SASS, Spring Boot
- Tools & Cloud:** Docker, Kubernetes, GitHub, AWS (S3, Lambda, EC2), Azure, Terraform, Kafka, Jenkins, Airflow
- Databases:** MySQL, MongoDB, PostgreSQL, Redis, DynamoDB, Cassandra
- Others:** Machine Learning, Deep Learning, Artificial Intelligence, Computer Vision, NLP, Statistics, Data Science, TensorFlow, PyTorch, Scikit-learn, MS Excel, Data Structures & Algorithms