

Mohsin Shah

mohsinposts.com | mohsinposts@gmail.com | (508) 292-1312 | [LinkedIn](#)

Education

University of Massachusetts Amherst

GPA 3.96

Expected Graduation: Dec 2024

- B.S. in Computer Science (Artificial Intelligence Track)
- B.S. in Mathematics (Concentration: Data Science & Statistics) | Dual Degree

Experience

ML & NLP Research Assistant

May 2023 – Present

Professor Jaime J. Dávila | University of Massachusetts Amherst | [Github Code](#)

- Compared various transformer based multimodal models such as BLIP, GIT, and our custom model built with BERT encodings, EfficientNet, and LSTMs with Pytorch to generate prompts given AI generated images.
- Created a custom dataset using Python & Selenium, scraping 1,000+ AI generated images and the prompts used to create them.

AI Research Assistant

Feb 2023 – Present

Professor Edward A. Rietman | Biologically Inspired Neural and Dynamical Systems Lab

- Developed simulations to study the applications and dynamics of reservoir computers built from oscillatory neural nets in Julia.
- Designed tau modulation algorithms, resolving the ongoing challenge of recurrent neural network oversaturation.
- Visualized results by generating raster plots, difference of lattice output graphs, and video heatmaps, efficiently showing the evolution and saturation histories of lattices.

Computer Science + Residential & Academic Peer Mentor

Sep 2022 – Present

University of Massachusetts Amherst

- Devised tailored academic success strategies for 200+ students in their transition to college through academic success mentoring.
- Collaborated with campus organizations to plan and execute events to foster a sense of community and boost engagement by 75%.

AP Computer Science Principles Teaching Assistant

Sep 2019 – June 2020

Blackstone-Millville Regional

- Facilitated the understanding of core computer science concepts for 30+ students through effective communication and assistance.
- Ensured students' understanding of JavaScript by providing guidance in the development of apps and games via Code.org's App Lab.

Projects

Hack(H)er413 Hackathon Winner: Sign Language AI | signdecoder.com | (Python, OpenCV, Tensorflow, Teachable Machine)

- Awarded "Best Use of AI" by travelers.com for developing an American Sign Language translator using ML & computer vision.
- Led the creation of a custom dataset of 10,000+ images using computer vision algorithms to track and capture our hand gestures.
- Generated an AI model and then used it to classify various signs with over 87% accuracy.

ShareSpace: Roommate Finder Web App | [Github Code](#) | (JavaScript, React, Node, Express, MySQL, AWS (RDS, S3), MUI, Tailwind)

- Collaborated with a team of 10 to develop a full-stack web app that matches roommates based on their preferences, allowing matched users to chat and customize their profiles.
- Incorporated AWS RDS & AWS S3 to integrate a MySQL database and store user images to enhance data management security.
- Designed efficient routes and queries for frontend and backend to seamlessly interact with the database.
- Deployed the web app & enhanced the UI/UX by adding engaging animations, creating a dynamic and captivating platform.

eBay: Machine Learning & Name Entity Recognition (NER) Competition | (Python, spaCy, Pandas, NumPy)

- Developed a 94% accurate NER model using 10 million raw eBay listings in German; effectively classifying each word.
- Enhanced the data quality and searchability of listings by analyzing and extracting key features with spaCy.
- Analyzed and preprocessed the raw, non-english dataset with Pandas; ultimately streamlining feature extraction and performance.

Deep Learning Flappy Bird AI with NEAT | [Github Demo](#) | (Python, NEAT, PyGame)

- Created Flappy Bird from scratch by applying OOP whilst simulating physics and collisions with Python and PyGame.
- Implemented the NeuroEvolution of Augmenting Topologies (NEAT) genetic algorithm with evolving artificial neural networks.
- Trained AI birds to be unbeatable by the 11th generation with only 3 inputs states from the environment.

Skills

Programming Languages: Python, Java, JavaScript, Julia, C, C#, MySQL, HTML, CSS

Frameworks: React, Pytorch, Tensorflow, Keras, Next.js, Node, Express, Sequelize, Scikit-learn, Pandas, NumPy, Bootstrap, Tailwind

Technologies: AWS (RDS, S3), Git, Hugging Face, spaCy, Unity, PyGame,

Courses: Artificial Intelligence, Software Engineering, Data Structures and Algorithms, Computer Systems, Statistics, Linear Algebra, Discrete Math, Multivariable Calc, Ethics & Social Issues in Computing, Software Engineering Project Management

Languages: English, Urdu, Pashto, Hindi

Activities

Vice President of the UMass Brazilian Jiu Jitsu Club

Sep 2021 – Present

Member of the UMass Machine Learning Club

Jan 2023 – Present

Member of the UMass Wrestling Club

Nov 2022 – Present

Member of the UMass Cyber Security Club

Sep 2023 – Present