

# Mohsin Shah

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**Programming Languages:** Python, Java, JavaScript, TypeScript, Julia, C, SQL, R, Splunk SPL, HTML, CSS, XML

**Frameworks:** React, PyTorch, Tensorflow, spaCy, Keras, Next.js, Node.js, Express.js, Sequelize, Scikit-learn, Pandas, NumPy, Scipy, Bootstrap

**Tools:** Git, AWS (S3, RDS, Lex), Hugging Face, Snowflake, Splunk, Jira, Jupyter, Linux, Excel, Agile, Scrum

## Education

**University of Massachusetts Amherst**

**GPA 3.97**

**Expected Graduation: Dec 2024**

• **BS Computer Science and BS Mathematics** - Artificial Intelligence, Data Science, and Statistics concentrations

## Experience

**Fidelity Investments**

**June 2024 – Aug 2024**

*Data Engineering Intern*

Smithfield, RI

- Created chatbot for single sign-on service with Amazon Lex, tracked via Jira; aiding efficiency and projected to reduce inquiries by 40%.
- Designed Splunk dashboards for Password Resets & User Registration, identifying friction and abandonment points for millions of users.
- Applied Snowflake SQL tables & AWS S3 to migrate client-facing cybersecurity data, raising data security for 5000+ annual presentations.

**Microsoft**

**Jan 2024 – Feb 2024**

*Data Science Intern*

Cambridge, MA

- Extended Azure ML's Responsible AI Toolbox & Interpret Text for LLMs like GPT-4 & Llama, aiding 200,000+ users in model evaluation.
- Implemented LIME explainers, customizable benchmarking metrics, and error analysis modules in the comprehensive UI dashboard.
- Developed 5 tutorial notebooks showcasing model analysis with HuggingFace (GPT-Neo, RoBERTa) and OpenAI API (GPT-4, 3.5, 3).

**ML & NLP Research Intern**

**May 2023 – Sep 2023**

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

Amherst, MA

- Analyzed multimodal transformer models: BLIP, GIT, CLIP, and custom vision language model (VLM) with BERT (LLM) encodings, EfficientNet (CNN), and LSTMs with PyTorch (CUDA) to generate prompts of AI generated images, achieving a BLEU score of 63%.
- Created training and validation datasets for R&D using Python & Selenium, web scraping 1000+ AI generated images and prompts.

**AI & RNN Research Intern**

**Feb 2023 – Dec 2023**

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

Amherst, MA

- Built simulations in Julia to study the applications and dynamics of oscillatory neural networks; made computation 10x faster.
- Designed algorithms to solve the ongoing challenge of recurrent neural network oversaturation; potentially applicable in robotics.
- Enhanced data visualization with 1000+ raster plots and video heatmaps, integrating clustering algorithms for data segmentation.

**Computer Science, Residential, & Academic Peer Mentor**

**Sep 2022 – Present**

*University of Massachusetts Amherst*

Amherst, MA

- 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%.

## Projects

**Travelers Insurance “Best Use of AI” Award Winner | [signdecoder.com](#) | Python, OpenCV, Tensorflow, Google Teachable Machine**

- Developed an ASL translator using supervised learning and computer vision at Hack(H)er413, optimized to 83% classification accuracy.
- Led the creation of a custom dataset of 10,000+ images using computer vision algorithms to track and capture our hand gestures.

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

- Created a 94% accurate NER model using 10 million raw eBay listings in German; effectively classifying each word.
- Enhanced quality and searchability of listings using data processing, data analytics, and natural language processing with spaCy.
- Conducted data analysis & data cleaning on raw, non-English dataset; streamlining feature extraction & validity for a F1 score of 87%.

**Roommate Finder Full-Stack Web App | [GitHub Code](#) | JavaScript, React, Node, Express, MySQL, AWS cloud (RDS, S3), MUI, Tailwind**

- Developed & deployed full stack product architecture for users to get matched, go chat, and customize profiles; enhanced UI/UX via 30+ animations and implemented software testing to make 45+ routes & queries for frontend, backend, and database interaction.
- Incorporated Amazon web services to store 1000+ images & MySQL database; optimizing data management & security.

**Automated Social Media Video Content Creation App (Windows & macOS) | Python, FastAPI, FFmpeg, MoviePy, SoX, PyInstaller, Vercel**

- Built & distributed app and custom API for licensed users to select a book segment & narrator voice; grew 5000+ social media followers.
- Retrieved background video clips from 4 APIs & synchronized on-screen text with narration, fully automating the video creation process.

**Deep Learning & Reinforcement Learning Flappy Bird AI Game | [GitHub Demo](#) | Python, NEAT, PyGame**

- Created Flappy Bird (60 FPS) via OOP, simulated physics and collisions, and trained AI birds to be unbeatable by the 11th generation.
- Implemented the NEAT genetic algorithm with an evolving artificial neural network design, resulting AI outperforms 99% of humans.

## Leadership, Communication, & Courses

- Activities: Vice President of UMass Brazilian Jiu Jitsu club; Member of UMass Machine Learning Club and UMass Wrestling Club.
- Languages: English, Urdu, Pashto, Hindi
- Courses: Machine Learning, Artificial Intelligence, Software Engineering, Data Structures and Algorithms, Computer Systems, Statistics, Linear Algebra, Discrete Math, Multivariable Calculus, Differential Equations, Ethics & Social Issues in Computing, Software Developer Project Management (Scrum Master)
- Coursera: Stanford University - Machine Learning Specialization by Andrew Ng