Uzma Hamid

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Education

Texas A &M University College Station, TX
Bachelor of Science in Computer Science *Dec 2025*
GPA: 4.0

Relevant Coursework: Object-Oriented Programming, Data Structures & Algorithms, Database Design, Software Engineering, Computer Architect, Artificial Intelligence, Machine Learning, Cloud Computing, Statistics, Linear Algebra, Cyber Security Risk, Computer & Network Security

Experience

ML Intern May 2025 – Aug 2025
EnaS Lab *Remote*

- Implemented federated clustering algorithms (IFCA, FedLC, FedClust) in PyTorch, vs FedAvg on non-IID data.
- Ran experiments on FEMNIST under various non-IID scenarios, reducing convergence rounds by 25% and communication costs by 18%.
- Analyzed clustering performance using ARI, AMI, and Silhouette Score evaluated trade-offs between cluster granularity, accuracy, and efficiency.

AI/ML Research Internship Jun 2024 – Aug 2024
Stanford University LINXS *Stanford, CA*

- Researched robustness in deep learning models for domain generalization; identified a 40% out-of-domain accuracy gap and proposed novel mitigation techniques
- Designed a ViT-CNN hybrid architecture and ran experiments on 10+ diverse real-world datasets (including healthcare), training 30+ model variants
- Used Python, PyTorch, TensorFlow, Scikit-learn; focused on improving cross-domain generalization in computer vision and transfer learning tasks

Student Software Engineer Aug 2024 – Present
Texas A&M University - College of Nursing *College Station, TX*

- Integrating RAG using OliviaHealth as knowledge base, enhancing iCHILD's response accuracy and latency
- Implementing vectorization pipelines, vector search algorithms, leveraging NLP and LLMs to deliver health info.

Computer Vision Research Assistant Jan 2022 – Jan 2023
Drake University *Des Moines, IA*

- Led research on advanced computer vision techniques for object detection and image analysis.
- Developed a Python-based annotation tool incorporating algorithms for contour detection, polygon approximation, and image manipulation.
- Achieved an 85% success rate in object detection tasks and improved annotation efficiency by 30%. Presented findings at the Consortium for Computing Science Conference, showcasing significant contributions to the field

Computer Technician Jan 2023 – Present
Texas A&M University *College Station, TX*

- Responsible for maintaining and troubleshooting campus computer systems
- Maintain upkeep of computer, deliver on-call support, effectively responding to technical issues

Project Manager Aug. 2023 – Nov. 2023
Aggie Coding Club *College Station, TX*

- Led a team of **10+** students in building a sophisticated book recommendation generator **web application**.
- Trained students on utilizing the Django framework for backend and implementing frontend design principles.
- Coordinated project **timelines**, tasks, and resources to ensure timely delivery of the web application.

Teaching Assistant Jan 2024 – May 2024
Texas A&M University *College Station, TX*

- Assisted in delivering high-quality instruction in C++ programming.Mentored 300+ students through interactive lab sessions and provided hands-on support with programming assignments.
- Achieved a 90% passing rate among students, with a 30% increase in average assignment scores, reflecting a significant improvement in student understanding and performance.

Undergraduate Researcher Sep 2021 – Dec 2022

Drake University *Des Moines, IA*

- Conducted research on spacecraft configurations and magnetic fields for radiation protection
- Developed and optimized a Monte Carlo simulation method to test various magnetic field configurations. Refined simulation techniques to reduce processing time and explore multiple scenarios efficiently
- Reduced simulation time by 40% and improved the accuracy of magnetic field configuration predictions. Enhanced understanding of radiation shielding requirements, leading to more effective spacecraft design recommendations.

Projects

Finance Analyzer & ML Categorization | GitHub | *Python, Django, React, Tailwind CSS, SQLite, Scikit-learn, pandas*

- Build a financial dashboard, featuring CSV upload, transaction management, and data visualization with Recharts
- Integrated an ML-based categorization system to automatically classify financial transactions, enhancing user efficiency and data consistency.

YEMBERZAL | GitHub | *Python, Django, React, WebScapping, Heroku, Git, OpenAI API*

- Built a web search engine to help users discover and explore Kashmiri fashion trends and styles
- Currently integrating AI-powered outfit recommendation models based on user preferences

TeamUp - Cleo | GitHub | *Ruby on Rails, React, CI/CD, SimpleCov, Rubocop*

- Built an application and implemented a recommendation algorithm, reducing course selection time by 40% and improving on-time graduation rates by 25% through optimized degree planning based on user preferences
- Developed a scalable backend serving 1,000+ users with 99.9% uptime, ensuring FERPA compliance and secure authentication

eVe AI Support | GitHub | *React, TypeScript, GeminiAPI*

- Engineered real-time message processing, integrated Google Generative AI for dynamic responses
- Created an intuitive user interface with optimized image handling, ensuring a seamless experience for managing and interacting with AI-generated content

Revs | GitHub | *Python, Django, Jira, PostgreSQL, JavaScript, HTML/CSS, Agile, Figma*

- Developed a customized point-of-sale application for Rev's Grill using Django
- Incorporating client-requested features like OAuth authentication, Open Weather API and manager reports, to enhance order placement and operational efficiency

Find Earth | GitHub | *Java, Node js, OpenAI API, News API, Git*

- Developed a web application during HackHarvard, providing one-click access to climate change news by location
- Implemented an AI-powered news feature using OpenAI-API and News APIs to enhance content relevance

Chip Visualization | GitHub | *Python, PIL, Numpy, Glob, Scipy*

- Developed a Python program to identify image similarity identification
- Utilized deep neural networking and the **Euclidean distance matrix** to achieve an accuracy rate above **90%**
- Employed **VGG** and **ResNet50** datasets to increase the accuracy of image similarity calculations

Tabletop Segmentation | GitHub | *Python, PIL, Numpy, Matplotlib, Tensorflow*

- Led research in image segmentation of table-top objects using Graph Neural Networks.
- Developed and implemented a deep learning-based object grasping model, resulting in a 30% improvement in successful grasps by robotic systems.
- Successfully tested and trained OCID and OSD datasets, enhancing model robustness and contributing to a reduction in false positives during object recognition

Publications & Presentations

A Lightweight Benchmark for Clustered Federated Learning on Fashion-MNIST

- Manuscript under review at *IEEE International Conference on Machine Learning* (IEEE-ICML).

Predictive Performance Under Dataset Shift: Accuracy on the Negative Line

- Presented at the Stanford LINXS Research Conference.

Pixel-Wise Annotation Tool for Semantic Segmentation

- Presented at the Consortium for Computing Sciences in Colleges (CCSC), 2022.

Leadership

Web Developer - CodePath
Donald V Adams Leadership Institute
NASA Space Grant
APSTEM Technology Ambassador
International Student Association
National Science Congress

Technical Skills

Languages: Python, Java, SQL (PostgreSQL, MySQL), NoSQL (MongoDB), JavaScript, R, SAS, HTML5, CSS3

Developer Tools: VS Code, Git, GitHub, GitLab, Docker, Jupyter, Redis, AWS, GCP, Azure, Google Colab

Frameworks/Libraries: React, Django, Ruby on Rails, PyTorch, Scikit-Learn, Tensorflow, Node.js, Keras, Numpy, Pandas, RESTful APIs, OAuth

Other Technologies: CI/CD pipelines, Webpack, Tailwind CSS, Bootstrap, Figma, Jira, Heroku, RAG, LangChain, LLMs, SDLC, Agile