

Atif Abedeen

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EDUCATION

University of Massachusetts Amherst

Sep 2023 - May 2025

Master in Computer Science (Data Science), Bay State Fellow (100% Scholarship)

GPA: 3.8/4.0

University of Massachusetts Amherst

Sep 2019 - May 2023

Bachelor of Science in Computer Science and minor in Mathematics, magna cum laude

GPA: 3.93/4.0

SKILLS

Languages: Python, Java, JavaScript/TypeScript, C/C++, C#, HTML, CSS, R

Frameworks: PyTorch, TensorFlow with Keras, React, Angular, Node.js, Next.js, Flask

Technologies: MLFlow, Dagshub, Tableau, PowerBI, Git, Jira, Scrum/Agile, PostgreSQL, MongoDB, Postman

Cloud Computing: AWS Certified Cloud Practitioner, AWS Sagemaker, AWS Bedrock, AWS Amplify, AWS Lambda

EXPERIENCE

Software Engineering Intern | Rizz Policy

Jun 2024 - Present

- Developing and deploying scalable web applications using React JS in an AWS cloud environment, leveraging services such as AWS Amplify, AWS Lambda, AWS DynamoDB, and Amazon S3.
- Designing a machine learning model with AWS Bedrock to recommend the best insurance policy based on user-entered information and current policies, enhancing user satisfaction and conversion rates.
- Fine-tuning pre-trained models on AWS Bedrock to improve prediction accuracy, and applying custom embeddings for specific insurance policy datasets.
- Integrating Amazon Comprehend for advanced natural language processing to interpret user inputs, improving recommendation precision.
- Working with cross-functional teams to design product strategies and build solutions to address critical business challenges.

Machine Learning Student Researcher | Katz Lab, UMass Amherst

May 2024 - Present

- Spearheading the design and implementation of an advanced U-Net++ model with ResNet-152 encoder for 3D volume Electron Microscopy (EM) image analysis, achieving 95% accuracy in cell identification for connectome reconstruction.
- Architecting and optimizing high-performance end-to-end pipelines using Gunpowder and PyTorch, efficiently processing datasets exceeding 20 TB, and enhancing segmentation efficiency by over 80%.
- Optimizing code to fully utilize GPU resources, performing distributed training on a GPU cluster, reducing training time by enhancing parallelism and memory management.
- Conducting extensive hyperparameter tuning and model validation, utilizing sophisticated cross-validation techniques to deliver consistent and substantial improvements in model performance.

Software Engineering Apprentice | ISO New England & UMass Amherst

Jul 2022 - Dec 2022

- Engineered a dashboard to summarize and visualize client's time series electric grid data using ReactJS, MongoDB, and Highcharts library enhancing user experience and operational efficiency for 50+ department employees.
- Developed a Graphical User interface (GUI) that facilitates comparison, modeling, and analysis of electric grid data for 100+ nodes in the electric power grid across New England using ReactJS, NodeJS, MongoDB, a RESTful API, and Prisma.
- Liaised with the Product Manager and ISO's Market Development Team to analyze requirements, propose a cost and time-optimized Minimum Viable Product (MVP), brainstorm use cases, draft user stories, and propose an efficient solution.

PROJECTS

FlexGen-High Throughput on Single GPU | Pytorch, Tensorflow, CUDA Streams

Jan 2024 - May 2024

- Reduced I/O costs by 30% and minimized GPU memory access to slower storage through layer-wise loading for large language models while inferencing.
- Improved processing efficiency by 25% with a hybrid CPU-GPU system, delegating tensor generation of attention layers to the CPU and activation tasks to the GPU.
- Increased GPU utilization and throughput by 45% using dynamic batch sizing and efficient data reuse techniques.

Kidney-CT-Scan-Classifer | Tensorflow, Keras, Flask, Dagshub, Docker, DVC, AWS

Dec 2023 - Feb 2024

- Implemented an end-to-end image classifier using VGG16 deep learning model with Tensorflow and Keras.
- Kept track of pipeline using DVC and fine-tuned the model by performing experiments on MLFlow, achieving 93% accuracy on the dataset.
- Implemented friendly UI using Flask which allowed users to upload images of kidney CT scan images for prediction.
- Used Docker to load up the project files and dependencies on an AWS EC2 instance with the help of AWS ECR for cloud deployment.