Md Abrar Al Zabir

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Education

The University of Texas at Dallas Richardson, TX

Bachelor of Science in Computer Science *Expected May 2028*

- Awarded the academic excellence scholarship (AES) renewable for 4 years for outstanding academic performance.

Skills

Languages & Technologies: Python, C++, JavaScript (Core & ES6+), HTML, CSS, ML (DL & NLP)
Frameworks & Libraries: React.js, Express.js, Node.js, Three.js, Tailwind CSS, NumPy, Pandas, Matplotlib, OpenCV, TensorFlow, Keras, RAG, LangChain
Databases & Tools: MySQL, MongoDB, RESTful APIs, AWS, Git, GitHub, Firebase, Fast API, Flask

Experience

Software Engineer | Machine Learning Feb 2025 – Present

AIS UTD *Richardson, TX*

- Developed an AI-powered eye health assistant capable of classifying diseases from different eye scans, and delivering personalized eye care suggestions.
- Trained and finetuned an InceptionV3 deep learning model using TensorFlow and Keras, preprocessing dataset using NumPy, Pandas, and OpenCV, and data augmentation via Scikit-learn, achieving 96.43% test accuracy.
- Built a context-aware chatbot using LangChain with a RAG pipeline on Mistral-7B LLM, on a domain-specific knowledge base.
- Utilized React.js and Tailwind for a fully responive frontend, and implemented RESTful APIs to support backend model inferences.

Software Engineer | Full-Stack Developer Dec. 2024 – Feb 2025

Himmels Zenith *Dhaka, Bangladesh*

- Led the development utilizing React.js and Tailwind CSS to develop a fully responsive frontend, employing Context API for global state management.
- Built a robust backend with Node.js, Express, and MongoDB Atlas to support dynamic data management and API integration.
- Designed and implemented RESTful APIs to enable CRUD operations, ensuring efficient data handling and scalability.
- Integrated various payment methods including Stripe and bKash and used Axios for seamless communication between frontend and backend.

Projects

OpthoLlama | *Unsloth, PyTorch, Python, Large Language Models (LLM)* April 2025 – April 2025

- Fine-tuned the LLaMA-3 8B transformer model on the EyeQA dataset to improve ophthalmology QA performance.
- Used Unsloth and PEFT for efficient, low-resource adaptation of transformer-based architectures.
- Built the training pipeline using PyTorch, achieving a validation loss of 0.565, for seamless inferences.

Potato Disease Classification | *Python, NumPy, Matplotlib, TensorFlow, Keras* Feb 2025 – Feb 2025

- Utilized TensorFlow to train a CNN for a machine learning (deep learning) model capable of detecting diseases on images of potato leaves.
- Implemented Keras and NumPy for preprocessing datasets from Kaggle, and Matplotlib for visualizing insights.
- Achieved up to 99.87% test accuracy in classifying potato leaves as healthy or diseased (early or late blight).

Sustainify | *React.js, Tailwind CSS, PostgreSQL, Pandas, Scikit-learn, Flask* Nov. 2024 – Nov. 2024

- Developed an AI-powered web app for HackUTD 2024 in a team of 4, enabling property managers optimize energy usage and sustainability.
- Built a responsive frontend with ReactJS and Tailwind CSS, and a backend with Flask and PostgreSQL for efficient data storage.
- Utilized libraries such Pandas, Scikit-learn, and Chart.js with SambaNova's LLM to deliver tailored insights.