Md Abrar Al Zabir

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Education

University of Texas at Dallas **Expected May 2028**
Bachelor of Science in Computer Science *Richardson, TX*

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

Skills

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

Experience

Machine Learning Engineer **Feb 2025 – May 2025**
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 AI chatbot using LangChain with a RAG pipeline on Mistral-7B LLM, on a domain-specific knowledge base.
- Utilized React.js and Tailwind for frontend, and implemented RESTful APIs to support backend and model inferences.

Full-Stack Software Developer **Dec. 2024 – Feb 2025**
Himmels Zenith *Dhaka, Bangladesh*

- Developed a fully responsive React.js and Tailwind CSS frontend, utilizing Context API for global state management.
- Built a robust backend with Node.js, Express, and MongoDB to support data management and API integration.
- Designed and implemented RESTful APIs to enable CRUD operations, ensuring efficient data handling and scalability.
- Integrated payment methods such as bKash and used Axios for seamless communication between frontend and backend.

Projects

OpthoLlama | *Unsloth, PyTorch, Python, Large Language Models* | GitHub **April 2025 – Present**

- 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.

ProdDash | *React.js, Tailwind CSS, Express.js, Node.js, MongoDB, JWT* | GitHub **Dec. 2024 – Jan 2025**

- Built a product management dashboard utilizing React.js and Tailwind CSS for a fully responsive frontend.
- Implemented RESTful APIs to enable CRUD operations and utilized MongoDB for dynamic product data management.
- Utilized React Router DOM for seamless navigation, and React-Toastify for live action alerts, enhancing experience.

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

- Developed an AI-powered application to optimize property sustainability at HackUTD 2024 in a team of 4.
- Built a responsive frontend with React and Tailwind, and backend with Flask and PostgreSQL for efficient data storage.
- Utilized Pandas, Scikit-learn, and Chart.js to visualize SambaNova LLM's tailored insights for optimizing sustainability.

AI Assistant Mouse | *Python, OpenCV, MediaPipe, PyAutoGUI* | GitHub **June 2024 – June 2024**

- Developed a hands-free virtual mouse using computer vision for real-time hand gesture recognition via webcam.
- Leveraged OpenCV for video capture and MediaPipe for accurate hand landmark detection and gesture tracking.
- Utilized PyAutoGUI to map gestures to system-level mouse actions, enabling movement and left click functionality.

Organizations

Association of Computing Machinery (ACM UTD) **Sep. 2024 – Present**
General Member

- Attend technical workshops, info sessions, and industry talks to stay up to date with latest technology news and trends.
- Engaged in networking events and group activities to build professional connections and strengthen soft skills.