

Fardeen Hasib Mozumder

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EDUCATION

MS in Computer Engineering (Software Development and AI track)
TEXAS A&M UNIVERSITY, CGPA: 4.00/4.00, GRADUATE TEACHING ASSISTANT

College Station, TX | Dec 2023

BS in Electrical & Electronic Engineering
ISLAMIC UNIVERSITY OF TECHNOLOGY, CGPA: 3.98/4.00, SILVER MEDALIST

Dhaka, Bangladesh | Dec 2017

WORK EXPERIENCE

SCALE AI | SOFTWARE ENGINEER (AI CONSULTANT)

Remote | Feb 2024 - Present

- Tech: RHLF, NLP, Prompt Engineering, Web Development, Software Engineering, Python, JavaScript, C++, JAVA
- Utilized **Reinforcement Learning Human Feedback (RLHF)** principles to enhance next-generation LLM models by detecting deviations across various dimensions, including **functionality, performance, completeness, and safety**.
- Engineered complex prompts spanning multiple domains such as **web development, data analytics, and data structures and algorithms** to evaluate model responses and provide expert human feedback.
- Collaborated with multidisciplinary teams to iterate and improve model performance, contributing to the advancement of cutting-edge technology in the field of natural language processing and artificial intelligence.

BIOMLSP LAB, TAMU | RESEARCH ASSISTANT

College Station, TX | Aug 2022 - Dec 2023

- Tech: Python, PyTorch, Scikit-Learn, Deep Learning, Parallel Computing, VAE, Generative AI, LaTeX, Research
- Published a thesis manuscript titled "**Synthesizable and Optimized Molecular Design with Constrained Dataset and Deep Generative Model (VAE)**" focusing on ways to find synthesizable novel drugs with desired properties.
- Developed a novel approach that is able to optimize QED and logP properties of the candidate molecules and **improve synthesizability by 15%** than the benchmark models.

AKW VENTURES | SOFTWARE DEVELOPER INTERN

Remote | June 2023 - Aug 2023

- Tech: Python, Flask, ReactJS, LangChain, NLP, Pandas, OpenAI API, Vector Database, PineCone, Azure
- Developed an LLM-powered app using **Langchain** that helps geologists **estimate surface tops with 90% accuracy** to facilitate optimized well-planning, **reducing operational cost by 15%**.
- Enhanced app **response time by 30%** by updating the front end with **ReactJS**, resulting in a faster UX.
- Deployed the SAAS app on the **Azure** platform, **achieving 99.99% uptime and a 30% increase in application scalability**, allowing seamless accommodation of growing user loads without compromising performance.

TAMU ZLP | WEB DEVELOPER

College Station, TX | Oct 2021 - Dec 2021

- Tech: Ruby on Rails, HTML, CSS, Bootstrap, PostgreSQL, AWS, Heroku, Git
- Developed a website for Texas A&M Zachry Leadership Program to automate the scheduling of meeting times for 3 different cohorts, utilizing **Ruby on Rails framework, HTML5, CSS, and PostgreSQL Database**.
- Wrote BDD and unit tests to **increase the testing coverage from 59.3% to 82.1%** and fixed critical bugs.
- **Implemented robust authentication system** ensuring seamless user access control through the integration of industry-standard authentication protocols and encryption mechanisms.

ISLAMIC UNIVERSITY OF TECHNOLOGY | FULL STACK DEVELOPER

Bangladesh | Jan 2018 - Aug 2021

- Tech: NodeJS, ReactJS, JavaScript, HTML, CSS, MySQL
- **Achieved a 30% improvement in the university's website performance** by optimizing frontend code, reducing load times, and enhancing user experience, resulting in increased user engagement and satisfaction.
- **Implemented a real-time notification system using WebSockets, resulting in a 25% increase in student engagement** with academic events, news, and campus updates.
- **Streamlined database queries, reducing query execution times by 40%**, and improving the system's response time, enabling staff to access student records and administrative data more efficiently.
- **Led the development of a modular and scalable architecture** that facilitated the rapid deployment of new features and **reduced development time by 20%**, enhancing the university's ability to adapt to changing educational needs.

- Tech: Pandas, PySpark, SQL, Python
- **Built an ETL pipeline** for data ingestion from a web app with 5 million daily active users, **saving \$50,000 annually**.
- **Utilized Spark** in Python to distribute data processing on large streaming datasets, **improving ingestion by 25%**.

PROJECTS

NATURAL LANGUAGE INFERENCE FOR CLINICAL TRIAL DATA | Report NLP, HUGGINGFACE, PYTORCH

- **Implemented BERT-based classifiers** to predict if a medical hypothesis is an entailment/contradiction of a CTR.
- Infused disease knowledge on the models to **increase the accuracy by around 3%** on average from the base models.

TRAFFIC OPTIMIZATION USING DEEP LEARNING | Report REINFORCEMENT LEARNING, COMPUTER VISION

- Developed an automated traffic scheduler using the **DQN model** and **Yolov7 object detection technique**.
- Simulated the model on the Cityflow environment, which showed a **reduction of traffic congestion by 40%**.

COVID-19 DETECTION USING 3D CNN | Report

PYTHON, TENSORFLOW, NUMPY

- Developed a Covid-19 detection model from Chest CT scans by implementing the **Bidirectional U-net Segmentation technique** and **3D CNN architecture using TensorFlow**. Achieved an **accuracy of 84%**.

COURSEWORK & CERTIFICATIONS

- The Complete Full Stack Web Development Bootcamp, issued by Udemy, June 2023
- LangChain- Develop LLM-powered applications with LangChain, issued by Udemy, June 2023
- Cloud Hadoop: Scaling Apache Spark, issued by LinkedIn, August 2023
- Software Engineering, Natural Language Processing, Data Mining & Analysis, Machine Learning, Distributed System & Cloud Computing, Parallel Computing, Reinforcement Learning, TCP/IP Modelling, Database Design