

S M Azizul Hakim

SOFTWARE ENGINEER · MACHINE LEARNING ENGINEER

Grand Rapids, MI, USA

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Work Experience

Grand Valley State University

Grand Rapids, MI, USA

Graduate Assistant

Jan 2023 - Present

- Automating software test generation, resulting in a 5x reduction in test generation time, leveraging state-of-the-art NLP models and knowledge graphs.
- Conducted experiments with zero-shot and few-shot prompt engineering techniques on Llama2 models to create an unstructured to structured requirements converter.
- Developed a multi-panel visualization tool utilizing Flask and React to convert semi-structured requirements into structured formats using Large Language Models (LLMs).

Reea Digital

Dhaka, Bangladesh

Machine Learning Engineer

Nov 2022 - Dec 2023

- Evaluated the performance of diverse machine learning models for automatic data preprocessing and annotation.
- Fine-tuned an Electra-QA model to annotate watch features from raw descriptions.
- Achieved over a 10-fold reduction in data annotation costs and time by leveraging large language models for data annotation.

AIMS Lab

Dhaka, Bangladesh

Research Engineer

Mar 2022 - Sep 2023

- Designed and developed an AI Smart Receptionist web application, encompassing front-end and back-end components, featuring speaker identification, face recognition, and a conversational module.
- Deployed the application using Docker and Nginx.

Gigalogy

Dhaka, Bangladesh

Software Engineer, Machine Learning

Mar 2020 - Oct 2021

- Collaborated directly with the CEO to create an NLU engine based on Rasa, enabling integration into existing chatbots.
- Demonstrated strong analytical and problem-solving skills by crafting a complex JSON parser.
- Developed an AI voice assistant based on the NLU engine.
- Evaluated various deep learning based object detection algorithms for improved inference time and memory usage on AWS EC2.
- Created computer vision APIs using OpenCV and TensorFlow for object detection, age-gender prediction, and emotion recognition from both images and videos.
- Enhanced deep learning based object detection inference time by over 50%, resolved CUDA GPU memory leaks in Darknet, and containerized for production.
- Implemented the periodic upload of detection results to AWS S3 using Celery and Redis.
- Created a product search engine using Elasticsearch with text and categorical filters.
- Expanded the existing recommendation engine with an image recommendation feature.
- Implemented a machine learning-based budget prediction feature for online ad campaigns through historical campaign metadata clustering.

Skills

Programming Python, R, C/C++, JavaScript.

Development Flask, Fast API | React, React Native | AWS S3 / EC2, Docker, Git / GitHub, Bash | SQL / MySQL, PostgreSQL.

Machine Learning Tensorflow, PyTorch, Keras, NumPy, Pandas, scikit-learn, OpenCV, Darknet, HuggingFace, LLMs, ChatGPT, Prompt engineering.

Education

Grand Valley State University

Grand Rapids, MI, USA

Masters in Applied Computer Science

Jan. 2023 - Present

Chittagong University of Engineering & Technology

Chattogram, Bangladesh

B.S. in Computer Science and Engineering

Mar. 2014 - Dec. 2018

Publications

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|------|--|-------------------------|
| 2021 | R. B. Rafiq, S. M. A. Hakim and T. Tabashum,
"Real-time Vision-based Bangla Sign Language Detection using Convolutional Neural Network". ICACC 2021 | Kochi, India |
| 2019 | S M Azizul Hakim and Asaduzzaman,
"Handwritten Bangla Numeral and Basic Character Recognition Using Deep Convolutional Neural Network". ECCE 2019 | Cox's Bazar, Bangladesh |