

# 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

- Built a multi-panel visualization tool with Flask and React that converts semi-structured requirements into structured ones using LLMs.
- Experimented with zero-shot and few-shot prompt engineering techniques on Llama2 models to build an unstructured to structured requirements converter
- Automating software test generation to reduce test generation time by 10x using state-of-the-art NLP models and knowledge graphs.

### Reea Digital

Dhaka, Bangladesh

Machine Learning Engineer

Nov 2022 - Dec 2023

- analyzed the performance of various machine learning models for automatic data preprocessing and annotation.
- Fine-tuned an Electra-QA model to annotate watch features from the raw description.
- Reduced data annotation cost and time by at least 10-fold by using large language models for data annotation.

### AIMS Lab

Dhaka, Bangladesh

Research Engineer

Mar 2022 - Sep 2023

- Engineered an AI Smart Receptionist web application (front-end and back-end) featuring speaker identification, face recognition & a conversational module.
- deployed the app using Docker and Nginx.

### Gigalogy

Dhaka, Bangladesh

Software Engineer, Machine Learning

Mar 2020 - Oct 2021

- Collaborated directly with the CEO to build an NLU engine based on Rasa, which can be integrated into any existing chatbot
- Demonstrated analytical and problem-solving skills by writing a complex JSON parser.
- Developed an AI voice assistant based on the NLU engine.
- Analyzed various deep learning based object detection algorithms for better inference time and memory usage.
- Built computer vision APIs for object detection, age-gender prediction, and emotion recognition from both image and video.
- Improved the deep learning based object-detection inference time by over 50%, resolved GPU memory leak issue, and containerized for production.
- Implemented a product search engine using Elasticsearch involving text and other categorical filters.
- Expanded the existing recommendation engine by adding an image recommendation feature.
- Implemented a machine learning based budget prediction feature for online ad campaigns by clustering historical campaign metadata.

## Skills

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

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

**Miscellaneous** ElasticSearch, Redis, Celery, Scrappy.

**Machine Learning** Tensorflow, Pytorch, Keras, NumPy, Pandas, OpenCV, Darknet, Huggingface, LLMs, 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

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