Azizul Hakim

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Tech Skills: Python, R, C/C++, JavaScript. | Flask, Fast API | React, React Native | AWS S3 / EC2, Docker, Git / GitHub, Bash | SQL / MySQL, MongoDB | Tensorflow, PyTorch, Keras, NumPy, Pandas, scikit-learn, OpenCV, Prompt engineering, MLFlow.

WORK EXPERIENCE

Grand Valley State University *Jan. 2023 - Present*
Graduate Assistant *Grand Rapids, MI*

- Developed a multi-panel visualization tool utilizing Flask and React to convert semi-structured requirements into structured formats.
- Built an active learning pipeline to facilitate the continuous training and testing of the CodeT5 model, enhancing its ability to structure software test requirements.
- Conducted experiments with zero-shot and few-shot prompt engineering techniques initially on ChatGPT, then on open-source Large Language Models (LLMs) like Llama2 to create an unstructured to structured requirements converter.

Reea Digital *Nov. 2022 - Dec. 2022*
Machine Learning Engineer *Dhaka, Bangladesh*

- Evaluated the performance of BERT variants like ALBERT, RoBERTa, and DistilBERT for automatic data preprocessing and annotation using state-of-the-art Natural Language Processing (NLP) models at the research and development phase.
- 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.

United International University *Mar. 2022 - Sep. 2022*
Research Engineer *Dhaka, Bangladesh*

- Designed and developed a Smart Receptionist web application featuring speaker identification, face recognition an artificial intelligence based conversation module and deployed the microservices using Docker and Nginx on a Linux server.

Gigalogy *Mar. 2020 - Oct. 2021*
Machine Learning Engineer *Dhaka, Bangladesh*

- Built Rasa based NLU REST API engine, enabling integration into existing chatbots and prioritizing optimal user experience.
- 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 inference 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 scheduled batch upload of detection results to AWS S3 using Celery and Redis.
- Created a product search engine using Elasticsearch with text and categorical filters.
- Added image recommendations to the existing recommendation engine through image processing and feature vectorization.
- Implemented a machine learning based budget prediction feature for online ad campaigns through feature engineering and clustering.

PROJECTS

- **rag-chatapp:** Built a financial assistant chatbot powered by Retrieval Augmented Generation (RAG) with LlamaIndex and ChatGPT which scrapes the latest information and indexes it to answer. github
- **pyvis:** Added graphical edit functionality to the pyvis module. github

EDUCATION

Grand Valley State University *Jan. 2023 - Present*
Master's in Applied Computer Science *Grand Rapids, MI*
Chittagong University of Engineering & Technology *Mar. 2014 - dec. 2018*
Bachelor in Computer Science & Engineering *Chattogram, Bangladesh*

PUBLICATIONS

- Real-time Vision-based Bangla Sign Language Detection using Convolutional Neural Network, ICACC 2021.
- Handwritten Bangla Numeral and Basic Character Recognition Using Deep Convolutional Neural Network, ECCE 2019.