MD SAIFUL ISLAM

AI Researcher And Developer
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WORK INTERESTS

Deep Learning, Machine Learning, Natural Language Processing, Speech and Data Science

WORK EXPERIENCE

Next Solution Lab, Dhaka, Bangladesh   *March, 2020 - Present*

AI Teach Lead(Associate)

- Lead an AI team to research and develop the highest potential model for the product.
- Design the AI product architecture pipeline for development and deployment.
- Developed Machine learning-based OCR/ICR solution according to the business requirements.
- Research Bangla Speech Recognition as well as speech translation.
- Developed API endpoint AI solution and containerized the solutions for the infrastructure team.
- Research and implement state-of-the-art models for business requirement purposes.

AI Engineer   *May, 2021 - August, 2022*

- Developed document sequence classification model for document entity extraction and Entity linking.
- Worked with multiple lingual OCR-based solutions.
- Research and develop transformers-based developed Non-English Language model for fine-tuning text classification, question answering, text summarizing, and topic modeling.

AI Engineer(Associate)   *March, 2020 - May, 2021*

- Developed data augmentation pipeline to improve document understanding model performance.
- Developed Screen text detection model for document text detection.
- Research and implement state-of-the-art models for entity extraction and text classifications.
- Developed automatic data processing, the data conversion method.
- Developed machine learning-based text classification solutions according to business requirements.
- Conduct different R&D for Computer Vision and NLP-based paper implementation and product feature improvements.

Semantics Lab, Rangpur, Bangladesh   *May, 2018 - February, 2020*

AI Research and Developer

- Developed data augmentation pipeline to improve document understanding model performance.
- Developed Screen text detection model for document text detection.
- Research and implement state-of-the-art models for entity extraction and text classifications.

- Developed automatic data processing, the data conversion method.

- Developed machine learning-based text classification solutions according to business requirements.

- Conduct different R&D for Computer Vision and NLP-based paper implementation and product feature improvements.

AI Researcher Developer Intern   *April, 2017 - February, 2018*

- Continual learning of Computer Vision and natural language processing(NLP) using deep learning.

- Understanding Vision and NLP-based research paper, implement using advanced deep learning-based technology. and tools.

EDUCATION

Begum Rokeya University,Rangpur.   *January 2012 - June 2016*

Department of Computer Science and Engineering   *B.Sc(Eng.), CGPA: 3.18*

- Thesis: Textual Semantic Similarity Between two sentences or text using Bi-LSTM Neural Network.

SKILLS

Operating System	Ubuntu, Windows
Languages	Python(expert), Java, C/C++, PHP, Javascript, MySQL, NoSQL, LaTex
ML/DL Framework	Tensorflow, Keras, Pytorch, Spacy, Transformer, Scikit-learn
ML/DL Tools	OpenCV, NLTK, Glov, Gensim, Json, Numpy, Scipy, Pandas, Matplotlib, Seaborn
Devops	Docker, EC2, AWS Lambda
Scraping Tools	Selenium, Beautifulsoup
PDF Parser Tools	PyPDF2, PyMuPDF, PDFplumber, PikePDF
Web development	Django, Flask, Core PHP, WordPress

PROJECTS

Bangla Text Recognition

Bangla Text Recognition model is a four-stage STR framework, that most existing STR models fit into. The contribution of the project is Bangla compound character recognition and get high performance.

Github Link: https://github.com/saiful9379/Bangli$_Text_recognition$

Tech Stack: Python, Pytorch, OpenCV, BiLSTM, NLTK

Bangla Roberta Question and Answer

This Bangla Question Answering model architecture is the BERR-based Roberta Model, which is currently trained on human-annotated Bangla QA data. For training this model, the Bangla QA data is converted into the SQuAD v2 format.

Github Link : https://github.com/saiful9379/Bangla$_Roberta_Question_and_Answer$

Tech Stack: Python, Pytorch, Transformer, BPE Tokenizer

Bangla Translation

Bangla Translation is a transformer-based model. It has been trained using an encoder-decoder with an attention mechanism to translate Bangla to English sentences.

Github Link: https://github.com/saiful9379/Bangla$_T$ranslation

Tech Stack: Python, Pytorch, Transformer, Sentencepice

Layout Understanding

Layout understanding project is a non-disclosable project. Here is a short description of the project. this project's main purpose is the detection of the layout class, this is spatial understanding and other approaches to understanding the layout using the spatial features as well as textual features.

Tech Stack: Python, Tensorflow, Pytorch, OpenCV, BERT, Object Detection algorithm

BD Vehicles Detection

The vehicles Detection project for Bangladesh uses vehicle detection model. For the project, we selected the yolov7 model architecture due to its faster and SOTA performance. For the project, we compare more object detection algorithms like MRCNN, Yolov5, efficientdet, DETR.

Github Link: https://github.com/saiful9379/BD$_Vehicles_Detection$

Tech Stack: Python, Pytorch, object detection algorithm

Text Detection

Text detection is the common functionality for an OCR. So there are a lot of approaches to detect text that is already used and measure their performance. Following state-of-the-art Text, detection approaches to detect text for custom datasets and get high performance.

Github link : https://github.com/saiful9379/Text-Detection

Tech Stack: Python, Tensorflow, Pytorch, OpenCV, BERT, Object Detection algorithm

Vision Transformer

Vision Transformer (ViT) is a type of neural network transformer architecture that has been introduced to address the problem of image classification.

Github Link: https://github.com/saiful9379/Vision$_Transformer$

Tech Stack: Python, Pytorch, OpenCV

Semantics-Textual-Similarity

Textual similarity refers to the extent to which two or more pieces of text share similar meanings.

Github Link: https://github.com/saiful9379/Semantics-Textual-Similarity

Tech Stack: Python, Tensorflow, Pytorch, OpenCV, BERT, Object Detection algorithm

Human Eye Deceases Detection

This model detects anomalies in human retina images using Generative Adversarial Network.

Tech Stack: Python, Tensorflow, Generative algorithm

Human Action Recognition

This project detects human action using spatial and Temporal fusion neural networks.

Tech Stack: Python, Tensorflow, OpenCV

STRENGTH

Quick Learner, Team Leader, Stress Tolerance, Good Communication Skills

LANGUAGE

English (Fluent), Bangla (Native)