Amzad Hossain Rafi

Machine Learning Engineer

📱 +88-01728118376 | ✉ amzad.rafi@northsouth.edu | 🐙 github.com/AmzadHossainrafis | 🔗 linkedin.com/in/amzadhossain880/

A motivated and results-driven machine learning engineer with 2+ years of hands-on experience in developing and implementing cutting-edge computer vision models. Adept at image processing, maintaining accurate training pipelines and proficiency in version control using Git, Keras, and PyTorch Lightning. Proven expertise in classification, segmentation, image resolution improvement, and denoising encoder, including proficiency in benchmarking and evaluating them to achieve optimal results. A constant learner who is eager to stay up-to-date with the latest advancements in the field and to take on new challenges.

Work Experience (2.6 years)

Canada Syantax
Albarta , Canada

Jr.Machine Learning Engineer (remote)
Apr 2020 - Jun 2022

- Developed a model that can do a time series analysis of land deformation from InSAR satellite image and predict affected areas that may suffer the deformation in future .
- Semantic Segmentation of areal InSAR satellite images to find out the flood-affected sites and developed modified unet model structure to improve its Segmentation **mean IOU +20%**.
- Optimized space complexity up to **22%** of training by implementing Jit compiler and mixed precision
- **keys ideas :Image Classification ,Semantic segmentation,GAN,Transfer Learning .**
- **Technical Skills: Python, Numpy, keras, PyTorch Lightning, Git, Matplotlib, Rest-API, LaTeX.**
- **Soft Skills:Teamwork, Time Management, Communication, Presentation skills, Data pre-processing.**

Kabir Securities Limited
Dhaka , Bangladesh

Data analyst
Feb 2023 - June 2023

- Gain knowledge about stock and trading.
- Gain practical knowledge on stock data pre-processing. .
- Train various ML algorithms and deep learning models to analyse the stock market of Bangladesh.
- Train Bengali news classification BERT model to identify stock market-related company news achieved **91% accuracy.**
- Sentiment analysis of comments in social media related to the stock market .
- **keys ideas :Stock price prediction , People sentiment analysis , Stock market news classification .**
- **Technical Skills: Python,TensorFlow's,Pandas,Numpy, keras, Git, Matplotlib,**

Education

North South University
Dhaka, Bangladesh

B.Sc in Computer Science & Engineering
Sep 2016 - Feb 2021

- CGPA : 2.94/4
- achieved best final year project

Projects

Personal Protective Gear Detection Surveillance System
Dhaka, Bangladesh

North South University
Oct 2021 - Dec 2021

- Surveillance system train on YELOv4 object detetection, that tack people are the wear mask,face-shield hand gloves and ppe
- Live object tracking is achieved by Deep Sort's object tracking algorithm.
- Track and capture a snap if anyone don't have a mask
- Achieved more then **80% tracking accuracy** with deep sort and achieved **avg accuracy of 68%**

Semantic Segmentation of areal SAR satellite images to find out the flood affected site
Dhaka, Bangladesh

Canada Syntax
Apr 2020 - Jun 2022

- Pixel wise classification of areal SAR satellite images to find out the flood-affected site.
- Developed modified Unet model structure to improved its Segmentation mean **IOU +20%**.
- Deployed the model believe this project **will save millions of life in near future .**

Land deformation detection from SAR satellite images.
Dhaka, Bangladesh

Canada Syntax
Apr 2020 - Jun 2022

- Developed a model that can do a time series analysis of land deformation from InSAR satellite image and predict affected areas that may suffer the deformation in future.

Photo-Realistic Single Image Super-Resolution(SRGAN)
Dhaka, Bangladesh

Canada Syntax
Apr 2020 - Jun 2022

- Used SRGAN enhance the resolution of an image .

Residual Learning of Deep CNN for Image Denoising (DNcnn) *Dhaka, Bangladesh*

Canada Syntax *Apr 2020 - Jun 2022*

- Deep learning model that remove Gaussian noise from image . Used it for restore noisy SAR image

Learning Enriched Features for Real Image Restoration and Enhancement(MIRNet v1) *Dhaka, Bangladesh*

Canada Syntax *Apr 2020 - Jun 2022*

- low light image enhancement model .Used to enhance the night time SAR image

Image classification with Vision Transformer *Dhaka, Bangladesh*

Personal project

- implemented Vit model from scratch to classify between cats and dogs .

Video Next-Frames Prediction *Dhaka, Bangladesh*

Personal project

- Time series analysis from video using adaptable LSTM and RNN.
- Sequence analysis of images and predict the next position of the object **dice score 70.**

Fake face generator with DCGAN *Dhaka, Bangladesh*

Personal project

- Generated fake face from latent vector(noise).

Skills

Programming/Framework	Python, Pandas, SciKit-Learn,TensorFlow,NumPy, Matplotlib,Keras, OpenCV,PIL,Flask,Heraku,CSS,Html
Additional	Overleaf, Microsoft Office,Git,CI/CD(Github Action) ,Linux.
Soft Skills	Time Management,Teamwork,,Presentation, Collaboration, Multitask,Problems-solving , Self-motivated .

Publication (Total citations 20)

- ▶▶ A. A. Protik,. H. Rafi and S. Siddique,, **"Real-time Personal Protective Equipment (PPE) Detection Using YOLOv4 and TensorFlow,**" 2021 IEEE Region 10 Symposium (TENSYMP), 2021, pp. 1-6, doi: 10.1109/TENSYMP52854 .2021.9550808. https://ieeexplore.ieee.org/document/9550808

- ▶▶ Haque, M. et al. (2021). **Data Mining Techniques to Categorize Single Paragraph-Formed Self-narrated Stories.** engineering benchmark,Deep learning In audio: Fong, S., Dey, N., Joshi, A. (eds) ICT Analysis and Applications. Lecture Notes in Networks and Systems, vol 154. **Springer, Singapore.** https://doi.org/10.1007/978-981-15-8354-4_70

Award

ICT AI for Bangla 2.0 (finalist) team name: BanglaAI   BanglaQuAD: A Bengali Open-domain Question Answering Dataset

Certification

ICT AI for Bangla 2.0	ICT department Bangladesh GOVT
Neural Networks and Deep Learning	Deeplearning.AI
Convolutional Neural Networks	Deeplearning.AI
Basics of Artificial Intelligence	10 minute school
Improving Deep Neural Networks: Hyperparameter Tuning	Deeplearning.AI
Mathematics	365 data science
SQL	Hackerrank