

Rafat Ashraf Joy

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RESEARCH INTERESTS

Intepretable Machine Learning, Reinforcement Learning, Time Series Forecasting, Generative Models

EDUCATION

Shahjalal University of Science and Technology

Bachelor of Computer Science and Engineering; GPA: 3.54/4.00

Sylhet, Bangladesh

Jan 2018 - Nov 2022

STANDARDIZED TEST SCORES

Graduate Records Examination (GRE) :

Total	Quantitative	Verbal	Analytical
328	169	159	4.5

International English Language Testing System (IELTS) :

Total	Listening	Reading	Writing	Speaking
8	9	8	7.5	7

EXPERIENCE

Pioneer Alpha

Software Engineer ML

Dhaka, Bangladesh

July 2020 - Sep 2020

- Deployed ML models to productions utilizing Flask web framework.
- Got hands on experience with PyTorch framework.

PUBLICATIONS

1. **Fine Tuning the Prediction of the Compressive Strength of Concrete : A Bayesian Optimization Based Approach**, in IEEE Xplore. doi:10.1109/INISTA52262.2021.9548593

2. **An Interpretable Catboost Model to Predict the Power of Combined Cycle Power Plants**, in IEEE Xplore. doi:10.1109/ICIT52682.2021.9491700

PROJECTS

- **OSDGM**: A pip package which lets developers oversample class imbalanced binary data by using deep generative models. It offers two APIs, they are: WGAN-GP and Variational Auto Encoder
- **Super Resolution GAN for precipitation downscaling**: A super resolution GAN based approach for converting low res precipitation data(for south asia region) to its high res equivalent. The low res data is 16*16 and the high res data is 64*64. For evaluating the performance of the SRGAN model, PSNR and SSIM were used.
- **Snap the Leaf**: This web-app lets the users diagnose the disease of plants just by uploading the image of an infected leaf. Four deep learning model runs in the backend of this web app, which will perform the prediction task. One model is Baseline CNN and other 3 models are Transfer learning based (DenseNet, ResNet, ImageNet). The deep learning models were trained using Keras API on Tensorflow Backend.
- **Battery Voltage Predictor**: A desktop GUI application to predict battery voltage from six features. 2 machine learning model runs under the hood of the application to make inferences. The machine learning models were trained on DFT calculated voltage data. In addition, the predictions are explained by SHAP, which is a machine learning interpretability library.

PROGRAMMING SKILLS

Languages: Python, Javascript, Scala, C++, SQL, Java

Frameworks: Flask, React JS, Express JS, Node JS

Libraries: PyTorch, Tensorflow, Scikit-learn, Numpy, Pandas

Others: Git, Linux, Latex