Rafat Ashraf Joy

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Education

Shahjalal University of Science and Technology — Sylhet, Bangladesh
Bachelor of Computer Science and Engineering; GPA: 3.54/4.00 — *Jan 2018 - Dec 2022*

Experience

Pioneer Alpha — Dhaka, Bangladesh
Software Engineer ML — *July 2020 - Sep 2020*

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

Projects

- **osman**: A pip package which lets data scientists/developers oversample class imbalanced tabular data by using deep generative models. It offers two APIs, they are: WGAN-GP and Variational Auto Encoder.
- **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 learaning models were trained using Keras API on Tensorflow Backend.
- **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.
- **Carted**: An E-commerce website implemented by micro-services architecture. It has two different interfaces - for clients and suppliers. The transactions are settled by a separate banking API.
- **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.
- **Customer Churn Prediction REST API**: A multi-layer perceptron classifier model runs in the backend of this Flask API to predict customer churn in context of the telecom industry. The model makes predictions with 96% accuracy.

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

Programming Skills

Languages: Python, Javascript, C++, Java

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

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

Others: Git, Linux, Latex