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Research Interest Software Engineering, Microservices, Computer Vision, Deep Learning

PROJECTS

Obhai Cashless Ride-Sharing Platform: I have made significant contributions to the development and implementation of a sophisticated, enterprise-level ride-sharing software solution, characterized by entirely digitised transactions, providing a seamless user experience while ensuring a high level of robustness and reliability.

Taxi Fare Prediction: I have developed a regression ML model which takes estimated taxi fare based on distance and travel time of any place in Bangladesh as input and output a range of fare with a prediction score denoting the customer's probability to take the ride with that fare. The model is trained with 10 million data points of Obhai customer's historical journey and behavioural data

Crop Land Classification: Computer Vision and Deep Learning project. I have utilised a deep single Magnificence model and trained it with cropland satellite imagery from USDA's CDL (Cropland Data Layer) and NAIP (National Agriculture Imagery from the USGS Earth Explorer of Kansas, U.S.A. The model can classify 6 croplands from the region .

Thesis: Detection of Acute Lymphocyte Leukemia (ALL) AND Its Type By Image Processing and Machine Learning.

Drowsy Driver Detection: A Computer Vision and Deep Learning project utilising the Dlib's facial landmark detection algorithm to detect drowsiness through studying eye aspect ratio.

Current Research **Deep Multi Magnification Network for Multi-Class Breast Cancer Tissue Segmentation:**Currently, I am studying a Deep Multi Magnification Network architecture which takes input image patches of multi magnification level and outputs the classification and segmentation of the tissues. Currently, the model can segment 6 classes of tissues. My objective is to retrain the network with publicly available datasets and to include more class predictions to increase the accuracy of the pathological examination of breast cancer.

SKILLS

- **Languages:** JavaScript, Python, MATLAB, SQL, NoSQL, Java
- **Libraries:** jQuery, NumPy, SciPy, Pandas, Scikit-Learn, Matplotlib, Keras, Tensorflow, PyTorch

- **Paradigms:** Algorithms, System Architecture, Code Versioning, Statistical Analysis, Data Cleaning, Data Visualization, Data Modeling, Deep Learning, Machine Learning, Database Design, Cloud Engineering
- **Problem-Solving:** Solved about 60 problems on online judges.

EDUCATION

Bachelor of Science, Computer Science and Engineering — Sep 2014 - Mar 2019
BRAC University
CGPA: 3.26/4.00 (Major CGPA: 3.50)

EXPERIENCE

Engineering Manager *MGH Logistics Ltd. MGH Group* — Jan 2023 - Present

- Engineered tailored adaptation and integration of Infor Nexus for MGH freight forwarding, catering to unique business workflows.
- Established technical partnerships with Levi's, Carrefour, and Inditex, implementing robust Electronic Data Transfer systems to streamline and automate communications among buyers, shippers, and suppliers.

Senior Software Engineer *OBHAI Solutions Limited* — Jan 2021 - Dec 2022

- Led the system scaling of OBHAI, the leading ride-hailing platform in the country, to provide daily services to one million customers.
- Introduced a cashless payment system within the application, enabling customers to make direct payments from their digital wallets and ensuring immediate distribution of earnings to riders' digital accounts.
- Supervised incorporating a machine learning-powered fare engine into the platform, which lead to a rise in the number of rides by 13

Software Engineer *OBHAI Solutions Limited* — April 2019 - Dec 2020

- Implemented a supply-demand driver dynamic fare engine for the ride-sharing platform.
- Developed Financial Administrative modules such as Ride Payment Disbursement, Rider Payable Calculation and BI reports to monitor and maintain the cash flow inside the organisation
- Designed a commission module for ride service providers and developed dynamic performance- based and schedule-based modules to meet requirements. This model is now being embraced by other ride-hailing platforms.

MOOC AND CERTIFICATION

- *Machine Learning (Stanford Online)*
  - Linear Regression and Logistic Regression
  - Hand Written Digit Recognition using Neural Network
  - Implementation of Regularization and Bias-Variance trade-off
  - Spam Classification using Support Vector Machine
  - Image Compression using K-means
  - Dimensionality Reduction using Principal Component Analysis
  - Anomaly Detection and Recommender System

- *Deep Learning Specialization (deeplearning.ai)*
  - Implementing efficient (vectorized) neural networks

- Improving Neural Networks using initialization, L2 and dropout regularization, Batch normalization, gradient checking, mini-batch gradient descent, Momentum, RMSprop and Adam.
- Applying convolutional networks to visual detection and recognition tasks.
- Applying Recurrent Neural Networks (RNN), and commonly-used variants such as GRU and LSTM.