Himadri Chowdhury

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Personal Website ⌴

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

Current Research **Voice Disorder Analysis with Transformer Architectures:** Currently working on speech disorder classification using transformer-based audio models. Training on publicly available datasets to detect pathological voice patterns and build a diagnostic tool for both pathologists and patients.

PROJECTS **Breast Cancer Segmentation using Connected UNet:** Developed a Connected UNet model with Attention Gates for breast cancer segmentation using the BUSI ultrasound dataset. Achieved 89Currently building an inference pipeline for real-world validation and future app integration. ⌴

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 ⌴

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. ⌴

SKILLS
- **Languages:** JavaScript, Python, MATLAB, SQL, NoSQL, Java
- **Libraries:** jQuery, NumPy, SciPy, Pandas, Scikit-Learn, Matplotlib, Keras, Tensorflow, PyTorch
- **Paradigms:** Algorithms, System Design, Code Versioning, Statistical Analysis, Data Cleaning, Data Visualisation, Data Modelling, ML/AI Model Training, Database Design, Cloud Engineering
- **Problem-Solving:** Solved about 60 problems on online judges.

EDUCATION

Master of Science, Computer Science   Jan 2025 - Current
Georgia Southern University
CGPA: 4.00/4.00 (Ongoing)

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.