

Yusuf Ahmed

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ACADEMIC CREDENTIALS

American International University-Bangladesh (AIUB), January 2020

Bachelor of Science in Electrical and Electronic Engineering

CGPA: 3.38/4.00

WES Course-by-Course Evaluation GPA: 3.46/4.00

Coursework: Programming Language (C, C++), Statistics & Probability, Differential Calculus & Analytic Geometry, Integral Calculus & Differential Equations, Math-3 (Complex Variable, Laplace Transforms & Z-Transforms), Mathematical Methods of Engineering.

RESEARCH INTEREST

Machine Learning, Computer Vision

Data-driven modelling and optimization, Predictive Modeling, Medical Imaging, Object Detection, Activity Recognition, Object Recognition, Anomaly Detection.

RESEARCH EXPERIENCE & PUBLICATIONS

Bachelor Final Year Research, American International University-Bangladesh

Paper: Y. Ahmed, M. N. Uddin, S. M. Masud and M. H. Imam, "Design of an Arrhythmia Detection System Using Wearable PPG Sensor," 2019 IEEE International Conference on Biomedical Engineering, Computer and Information Technology for Health (BECITHCON), Dhaka, Bangladesh, 2019, pp. 73-76

- The proposed arrhythmia detection system, utilizing the low-cost PPG sensor MAX30102 for continuous heart rate monitoring and GSM notifications for abnormalities, was validated against the FDA-approved KardiaMobile ECG device, confirming its accuracy and cost-effectiveness.

Collaborative Research Works

Title: Anomaly Detection in Credit Transactions (manuscript in preparation)

- It is an AI driven approach to detect anomaly in bank transactions. In this research work I conducted data preprocessing. We have achieved precision, recall and F1 metrics score respectively 0.9962, 1, and 0.9981.

PROJECTS

Object Detection on PASCAL VOC 2012 Dataset

- I implemented data augmentation techniques (flips, brightness/contrast) and trained a Faster R-CNN (ResNet-50 backbone) with a custom head for Pascal VOC object detection. Visualization of predictions on ImageNet validation data was included.

Semantic Segmentation on Oxford-IIIT Pet Dataset

- I initiated a Fully Connected Neural Network model using a VGG-16 backbone with pre-trained weights. I truncated the dense layers and replaced the final convolutional layers with additional convolutional and transposed convolutional layers.

Image classification on CIFAR-10 dataset

- Defined custom Convolutional Neural Networks model using Keras functional API. The model consists of convolutional layers (Conv2D), batch normalization, max-pooling, dropout, and fully connected layers (Dense).

WORK EXPERIENCES

Robi Axiata Limited, Sr. Team Member - Operation

January 2022 – July 2022

Gulshan-1, Dhaka

- Managed Robi's access control, bioinformatic data analysis, safety device troubleshooting, and online UPS maintenance for seamless operations.

CERTIFICATIONS

Python — kaggle

- This course includes Functions and Getting Help, Booleans and Conditionals, Lists, Loops and List Comprehensions, Strings and Dictionaries, Working with External Libraries.

Intermediate Machine Learning — kaggle

- The course includes Supervised Learning (classification and regression algorithms e.g. Linear Regression, Logistic Regression, Support Vector Machine (SVM), Neural Networks), and Unsupervised Learning (clustering algorithms e.g. k-means, Principal Component Analysis (PCA), Anomaly Detection).

Data Visualization — kaggle

- This course includes Intro to Seaborn, Line Charts, Bar Charts and Heatmaps, Scatter Plots, Distributions, Choosing Plot Types and Custom Styles.

TECHNICAL SKILLS

Programming Languages: Python, Java, C, C++, LaTeX;

Libraries and Frameworks: Numpy, Pandas, Scikit-learn, OpenCV, Streamlit, TensorFlow, PyTorch;

Development Tools: PyCharm, Jupyter Notebook, Google Colab, Visual Studio Code, CodeBlocks;

Version Control: Git;

Database: MySQL

LINGUISTIC PROFICIENCY

- **Bengali:** Mother Tongue
- **English:** Fluent Working Proficiency

EXTRA CURRICULAR ACTIVITIES

December 2016 – Present: Sandhani Donor Club, Volunteer, Gaibandha

- Engaged as a volunteer and donor in multiple blood donation campaigns.

December 2020 - Present: Canteen Aid, Co-founder, Gaibandha

- Co-founded an organization dedicated to aiding underprivileged children, orchestrating initiatives encompassing the provision of sustenance, attire, and facilitating access to education and healthcare.

August 2018 – August 2019: Engineering Students' Association of Bangladesh (ESAB), Member

- Actively participated in various academic events and seminars throughout my undergraduate tenure.

January 2017 – August 2019: IEEE AIUB Student Branch, Member

- Attended a multitude of seminars and workshops endorsed by IEEE.