Muttaki I. Bismoy

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Summary

- **Machine Learning Engineer** with 3 years of experience creating machine learning models with high accuracy (Sign Language: 99.85%, Oak Wilt: 98.37%)
- Implemented a VueJS and Flask based web application via cloud platforms (GCP) for Michigan DNR
- Proficient in deep learning, transformer model integration and feature extraction for Emotion Interpretation
- Agile practitioner with experience managing interns, leading projects, and achieving notable ROI in media planning

Education

Grand Valley State University – MS in Applied Computer Science, Major in Software Engineering

- **Current GPA**: 3.87 [Completed 30 out of 33 Credit hours]
- Expected Graduation: Winter 2025
- Relevant Coursework: Software Design Methodologies, Data Engineering, Knowledge Discovery & Data Mining, Information Visualization, Software Testing, Requirements Specification, Computer Networking, Data Engineering, Software Design Methodologies

BRAC University – BSc in Computer Science and Engineering

- **CGPA**: 3.74 in a scale of 4.0; 3.89 in Major
- Completed: June 2022

Skills

- **Programming Languages**: Python, Java, Dart, JavaScript, R
- **Machine Learning**: CNN, YoloV4, EfficientNetB1, DenseNet201, ResNet50, MobileNet, VGG16, RNN
- **Libraries and Tools**: OpenCV, Pandas, Scikit-image, TensorFlow, Keras, PyTorch, PyQt5, Streamlit, VueJS, Flask, Deepface, Speechbrain, Seaborn, Torchvision, Numpy, Matplotlib, python transformers
- **Web Development**: VueJS, Flask, ESLint (Prettier) for code analysis
- **Software Testing**: PyUnit, JUnit, Selenium, Mutation Testing, Code coverage, Boundary value testing
- **Other**: Google Cloud Platform, GitHub, Google Colab, Electron, Overleaf (LaTex), MS Office, VS Code, Docker

Work Experience

Graduate Research Assistant

Grand Valley State University, Applied Computing Institute
Aug 2023 – Present

- Developed an oak wilt detection model with 98.37% accuracy, integrated into a VueJS & Flask web app for Michigan DNR
- Implemented DeepFace, Speechbrain, Wav2Vac2Processor and DistilRoBERTa-base for emotion recognition in a PRTS-funded project
- Converted a VueJS web app to an Electron-based desktop application; Streamlit based web app for data visualization
- Translated Sign Language to Written Text in real time, using Sequential CNN & achieved 99.85% accuracy on 36 Alphabets
- Published research proposals and grant writings, such as for the 67th Forest Pest Management Forum

Television Media Executive (TV Data Analyst)

GroupM Bangladesh
Aug 2022 – Aug 2023

- Managed and analyzed 37 campaigns monthly for Marico Bangladesh, achieving an average of 41% ROI
- Provided data-driven insights to Banglalink, securing a three-year telecom contract
- Conducted experiments in ad positioning, resulting in a 21% increase in customer engagement

Academic Projects

Machine Learning	1. Bangladeshi Sign Language Detection 2. Sermon Interpretation 3. Oak Wilt Detection 4. Human emotion Detection 5. Gesture Detection using CNN
Others	6. Horoscope from Birthday 7. Locate image on Google Maps 8. Monthly Spend Tracker Software 9. Games – Catch the ball, Pacman Lite

Publications

1. *Image Translation of Bangla and English Sign Language to Written Language using Convolutional Neural Network* – published in IEEE Xplore
2. *Early Detection of Oak Wilt Using Machine Learning and Unmanned Aerial Vehicles (UAVs)* – Under Peer-review (not yet selected)
3. *Real-Time Recognition of Bangladeshi Sign Language Using State-of-the-Art Deep Learning Architectures* – Under Peer-review (not yet selected)