YEAMIN HOSSAIN SHIHAB

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Dhaka, Bangladesh | +8801521331128 | yeaminhs11@gmail.com | Portfolio | linkedin.com/in/yeaminhs

Academic Credentials

BRAC University, Dhaka, Bangladesh
BSc in Computer Science & Engineering   Feb 2021 – May 2025
CGPA: 3.86 / 4.00

Metropolitan School & College, Dhaka, Bangladesh
Higher Secondary Certificate   Mar 2018 – April 2020
GPA: 4.67 / 5.00

Technical Skills

Programming & Scripting Languages: Python, JavaScript, C, R, SQL, Shell Scripting, Assembly (MIPS), Google Apps Script.

Frameworks & Libraries: Pandas, NumPy, Scikit-learn, TensorFlow, PyTorch, FastAPI, Django, Node.js, Express.js, React.js, TensorFlow.js.

Database: MySQL, MongoDB.

Data Analytics & Visualization: Power BI, Microsoft Excel (Pivot Tables, Advanced Formulas), Google Sheets (Automation with Apps Script), Statistical Analysis, Dashboard Design, Data Cleaning.

Machine Learning & AI: Regression, Classification and Clustering Models. Ensemble Methods (Random Forest, XGBoost, LightGBM) . Deep Learning (CNN, R-CNN, Faster R-CNN, YOLO) . DL Backbones (Inception V3, VGG-16, MobileNet, DenseNet). Model Deployment, Evaluation & Optimization.

LLM & Generative AI Technologies: Flowise, OpenAI API (GPT-4/4o), Hugging Face Transformers, Prompt Engineering, Retrieval-Augmented Generation (RAG), Embedding Models.

Cloud & DevOps: Docker, GitHub Actions, CI/CD Pipelines.

Mathematical & Analytical Tools: Mathematica, Excel Solver, Python Manim, Descriptive & Inferential Statistics, Data Modeling.

Hardware & Embedded Systems (Additional Experience): Arduino, STM32, Raspberry Pi, Circuit Simulation (LTSpice, Quartus).

Projects

Smart Medicine Assistant with AI Insights – Academic Project   Oct 2024 – Dec 2024

- Integrated Gemini 1.5 and a custom NLP model to create an AI chatbot that predicts diseases based on user symptoms, offering intelligent, real-time health insights.
- Users can locate nearby 24/7 pharmacies, check medicine availability, and receive emergency support with GPS-based search and area-wise filtering.
- Designed a full-stack system with RBAC for Admins, Pharmacists, Doctors, and Users—featuring online prescriptions, health history tracking, medicine requests, and follow-up reminders.
- Enabled home delivery with payment, real-time order tracking, feedback/rating features, and a personalized dashboard experience across all roles.

University Club Monitoring System – Academic Project   Oct 2024 – Dec 2024

- Custom authentication with multi-role access (Admin, Club, OCA), ensuring precise control over functionalities and data visibility.
- Real-time room availability, conflict-free scheduling, and dynamic booking management — optimized for campus clubs and events.
- Unified platform to manage event creation, scheduling, and digital notice circulation — reducing overhead and boosting engagement.
- Built a personalized dashboard which is clean, user-focused and providing instant access to bookings, events, and actionable updates for every user role.

A simple CGPA Calculator with Django framework

- Developed a web application using Django, Tailwind CSS, and JavaScript, where students can input completed courses and grades to dynamically calculate and display their CGPA with an interactive UI.
- Implemented user-friendly features such as a responsive form and animated popup with background blur, improving usability and providing a modern experience.

Signboard Detection using YOlOV5 – Academic Project   Apr 2024

- Built a Real-Time Signboard Detection System using YOLOv5n and PyTorch, capable of identifying signboards from various angles with strong recall (0.86), ideal for smart city and navigation use cases.
- Engineered a Custom Annotated Dataset of 3,616 diverse signboard images collected from real-world sources and Google Maps, ensuring robust model generalization.
- Achieved High Detection Accuracy by optimizing hyperparameters (Batch Size: 60, Epoch: 100) and utilizing GPU (Google Colab T4) to train the model efficiently.
- Led End-to-End Deep Learning Pipeline covering data preprocessing, training, validation, and testing with clear performance metrics across all stages (recall up to 0.86).

Parking Space Detection System with Faster-RCNN and Custom Model – Personal Project   Mar 2024

- Developed a Parking Space Detection System using Faster R-CNN and a custom deep learning model with TensorFlow, achieving up to 99.2 % validation accuracy on real-world images.
- Engineered a Weather-Diverse Dataset with 12,416 annotated images across sunny, rainy, and cloudy conditions boosting model robustness for real life deployment.
- Built and Trained a Custom Neural Network using Dropout, Batch Normalization, and Early Stopping to optimize generalization and prevent overfitting on parking lot imagery.
- Explored Multi-Architecture Strategy by implementing and comparing RCNN, Faster R-CNN, and custom CNN models demonstrating flexibility and depth in computer vision expertise.

Stress Level Classification Using Machine Learning – Personal Project   Dec 2023

- Built a supervised ML system to predict human stress levels (Normal, Slightly High, High) from physiological and behavioral data.
- Handled missing data with imputation, applied feature scaling, and visualized feature correlations and class distribution.
- Trained and evaluated models including **Logistic Regression, K-Nearest Neighbors, Naive Bayes**, and **Random Forest**, with Random Forest achieving highest accuracy.
- Demonstrated end-to-end ML pipeline development and model benchmarking for real-world mental health prediction use cases.

Graphical Representation of Digital Line Encoding Schemes – Personal Project   Oct 2023

- Created a versatile Python line-coding toolkit that implements four key physical-layer schemes—NRZ-I, NRZ-L, Manchester, and Differential Manchester—demonstrating hands-on expertise in digital communications protocols.
- Automated high clarity waveform visualizations with Matplotlib step plots that label every bit boundary, turning any user-entered bit stream into publication-ready signal diagrams in real time.
- Built an interactive CLI encoder where users can input arbitrary binary data and instantly switch between encoding methods, highlighting user-centric design and rapid prototyping skills.
- Structured for performance and reuse by wrapping each encoder in clean, modular functions and leveraging vectorized NumPy operations, making the code easy to extend or integrate into larger communication-system simulators.

Work Experience

Undergraduate Teaching Assistant – BRAC University(MNS)   Jan 2024 – Jan 2025

- Served as an Undergraduate Teaching Assistant at Mathmatical and Natural Science Department while supporting instruction, grading, and student engagement for Introduction to Statistics, Complex Variables & Laplace Transformations, and Principles of Physics through tutorials, academic assistance, and collaboration with faculty.

Undergraduate Teaching Assistant – BRAC University(CSE)   Feb 2025 – May 2025

- Served as an Undergraduate Teaching Assistant in the Computer Science and Engineering Department, supporting instruction, grading, and student engagement in Discrete Mathematics through tutorials and collaboration with faculty.

Thesis

Leveraging Deep Learning Techniques for Pothole Detection
Supervisor: Dewan Ziaul Karim   Feb 2024 – Feb 2025

- We developed an AI-powered system for automatic pothole detection using deep learning and computer vision. Leveraging various model like YOLOv5,v8,v12,RCNN,and our custom CNN model where our model achieved high accuracy in identifying road surface damage from real-world images. We curated and annotated our own custom dataset to enhance model precision under varied lighting and weather conditions.

    It has been accepted for presentation at the 28th International Conference on Computer and Information Technology (28th ICCIT 2025).

Extracurricular Activities

- Director,Human Resources,BRAC University Computer Club   Oct 2023 – Dec 2024
- Member, Organizing Committee, INTRAHACTIVE1.0   Nov 2024
- Senior Executive, Robotics Club of BRAC University   feb 2022– Feb 2023

Referees

Dewan Ziaul Karim
Senior Lecturer
Department of Computer Science and Engineering
BRAC University
Email: ziaul.karim@bracu.ac.bd

Afia Mubassira Islam
Graduate Research Associate
Department of Electrical & Computer Engineering
The Ohio State University, USA
Lecturer (Study leave)
Department of Computer Science & Engineering
BRAC University
Email: afia.islam@bracu.ac.bd