Md. Mohiuddin Khan

Software Engineer | AI, Machine Learning & Data Science
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GitHub | Portfolio | LinkedIn

Profile

Computer Science and Engineering graduate (CGPA 3.82/4.00) and Software Engineer with experience building production mobile applications and integrating AI models into software. First author of an IEEE conference paper on YOLOv5-based vehicle fitness detection, which reported 97.3% mAP. Applied machine-learning projects include historical traffic-speed estimation and bilingual English–Bangla text classification; professional work also includes model integration using TensorFlow Lite and FastAPI. Seeking a Master's program in artificial intelligence, machine learning, or data science to strengthen expertise in data-driven systems and their real-world applications.

Education

B.Sc. in Computer Science and Engineering Spring 2020 – Mar 2023
Daffodil International University *CGPA: 3.82/4.00*

Mathematics: Differential and Integral Calculus (A) · Linear Algebra and Coordinate Geometry (A+)
Discrete Mathematics (A+) · Statistics (A−) · Numerical Methods (A+) · Ordinary and Partial Differential Equations (A)

Computing: Algorithms (A) · Artificial Intelligence (A+) · Artificial Intelligence Lab (A) · Database Management System (A) · Computer Graphics (A+)

Final-Year Project: Real-Time Vehicle Fitness Detection Using YOLOv5 (published at IEEE ICCCNT 2023; see Research Publication).

Diploma in Computer Technology Sep 2015 – Oct 2019
Barisal Polytechnic Institute *CGPA: 3.53/4.00*

Research Publication

Real-Time Vehicle Fitness Detection Using YOLOv5 2023

- **Citation: Md. Mohiuddin Khan**, Dewan Mamun Raza, and Md. Aynul Hasan Nahid. 14th IEEE ICCCNT, 2023, pp. 1–7. **DOI:** https://doi.org/10.1109/ICCCNT56998.2023.10307679.
- First-authored computer-vision study framing bus fitness assessment as two-class object detection (fit/unfit) to support road-safety monitoring in Bangladesh.
- Applied YOLOv5s with PyTorch to a custom annotated dataset; the workflow included preprocessing, augmentation, a 70/20/10 train/validation/test split, and testing on held-out images and real-time daytime footage.
- Compared YOLOv5 with YOLOv7: YOLOv5 achieved 94% precision, 92.9% recall, 94% F1, and 97.3% mAP, versus 82.7% mAP for YOLOv7.
- **Ongoing extension:** Collecting and annotating vehicle images across additional classes to expand the dataset, and evaluating YOLO26 against the published YOLOv5 baseline on a held-out test set; results are pending.

Professional Experience

Software Engineer Jul 2023 – Present
The SOFTKING Limited

- Built RouteIQ, a historical traffic-speed estimation and route-simulation prototype using METR-LA sensor data.
- Integrate trained AI models into software using TensorFlow Lite and FastAPI, and work with LangChain and MCP (Model Context Protocol) on AI-enabled integrations.
- Integrate REST and GraphQL services, Firebase, Google Maps, real-time messaging, payment flows, and KYC features; collaborate with backend, design, and QA teams through release.
- Develop cross-platform Android and iOS applications for fintech, ride-sharing, booking, and SaaS products.
- Contributed to mobile applications that achieved **1,300+ sales** on Envato Market and attracted global clients for large-scale customization projects.

Image and Text Data Labeler Mar 2023 – Jun 2023
Clipping World

- Labeled and segmented image and text data to build structured datasets for machine-learning model training.
- Trained machine-learning models and generated reports summarizing training outcomes and model results.

Network Administration and Security Intern Jul 2019 – Sep 2019
Diploma Program – Final-Semester Internship

- Completed a dedicated three-month final-semester internship focused on network administration and security, gaining hands-on exposure to network operations and security practices.

AI and Machine Learning Projects

Bilingual Political Attitude Classification (English & Bangla) GitHub

- Built a reproducible NLP pipeline to classify political social-media text as negative, neutral, or positive, with language-aware preprocessing for English and Bangla.
- Implemented a model-comparison pipeline covering TF–IDF with Logistic Regression and SVM, BiLSTM with additive attention, and multilingual transformers; the codebase includes public-dataset loaders and a synthetic data generator.
- On the held-out synthetic test set, TF–IDF baselines achieved 0.921 accuracy and macro-F1; ROC-AUC was 0.951 for Logistic Regression and 0.948 for SVM.
- Implemented fairness-analysis modules across language, topic, and party labels, LIME/SHAP and attention-based explanations, and a demo served with FastAPI and Streamlit.

RouteIQ | Historical Speed Estimation and Route Simulation GitHub

- Built a Linear Regression baseline to estimate historical sensor speeds from METR-LA using sensor ID, hour, and weekday; evaluated it with chronological holdout windows and training-only preprocessing.
- Compared the model with sensor-level and sensor/hour/weekday mean baselines, and integrated speed estimates with a Dijkstra-based route simulation over a sensor graph.
- Connected ML inference and route simulation through FastAPI and Flask services.

Technical Skills

Machine Learning: CNN, RNN/BiLSTM, SVM, Linear Regression, Transformers, YOLOv5
Libraries: PyTorch, TensorFlow, TensorFlow Lite (TFLite), Hugging Face Transformers, OpenCV, NumPy, Pandas, scikit-learn
AI Practice: NLP text classification, object detection, data annotation and augmentation (Roboflow), feature engineering, model evaluation, explainability (LIME/SHAP), fairness analysis; familiar with RAG workflows and vector databases
Programming: Python, Dart, Java, Kotlin, C, C++
AI Integration and Backend: LangChain, MCP, FastAPI, Flask, PostgreSQL, REST APIs, microservices, LRU caching
Software Systems: Flutter, Android, iOS, GraphQL, Firebase, SQLite, Hive
Tools and Methods: Google Colab, Git/GitHub, widget testing, performance debugging, Agile, CI/CD

Published Applications

Kothay – Sales tracking SaaS; improved performance by **20%+** and enhanced offline sync. **Links:** Google Play

XCash – Digital wallet with **50,000+** downloads; rearchitected the app and integrated airtime recharge and 2FA.
Links: Google Play

Semup – Ride-sharing app; developed driver trip management, live updates, and navigation.
Links: Google Play | App Store

Advanced One – Field-service app; developed technician job tracking and integrated GraphQL services.
Links: Google Play | App Store

Awards and Academic Activities

- IDEA Hackathon Champion – 1st place, Daffodil International University.
- Member of the Daffodil Computer & Programming Club; served as President of its Research Wing (Jan 2021 – Feb 2023).
- NGPC Programming Contest – Volunteering Award for contributions to contest organization.
- Employee of the Month – three-time recipient at The SOFTKING Limited.
- NASA Space Apps Challenge – selected speaker for a Mobile App Development session.

Languages

Bangla (Native) | English (B.Sc. taught in English) | Hindi (Conversational) | German (A1; currently learning)