


MD MAHIR UDDIN

Machine Learning Engineer

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 Dhaka, Bangladesh



ABOUT ME

I am a Machine Learning Engineer with strong foundations in Mathematics, Statistical Modeling, Deep Learning and Computer Vision. Driven by a long-standing love for Mathematics and problem-solving, I transitioned into the field of Data Science by pursuing an MSc in CSE (Data Science). Currently working on an ADB-funded project that uses AI and IoT to increase right first time shade in bulk dyeing and reduce resource usage in textile dyeing factories. Worked on image classification, LLM fine-tuning, and RAG, with ongoing research in developing a density-based clustering algorithm and modification of ADAM optimizer for reduced oscillation and faster convergence.

SKILLS

- **Machine Learning & AI:** Machine Learning, Deep Learning, Computer Vision, Generative AI
- **Programming Languages:** Python, SQL, C, C++, JavaScript
- **Libraries & Frameworks:** NumPy, Pandas, Matplotlib, Seaborn, Scikit-Learn, TensorFlow, PyTorch, LangChain
- **Deployment/MLOps:** FastAPI, Docker
- **Others:** Git, Linux, HTML, CSS, MS Excel, LaTeX
- **Additional Knowledge:** Big Data, Cloud Computing, Data Engineering

PROJECTS

LLM Fine-Tuning with RAG for Investment Guidance

LLM, LangChain, Vector DB, RAG



- Fine-tuned a domain-specific LLM and integrated Retrieval-Augmented Generation to deliver context-aware investment insights.
- Combined model fine-tuning with dynamic retrieval from books, annual reports, and financial articles from the web.

Portrait Image to Sketch Translation with Pix2Pix GAN

TensorFlow, Pix2Pix GAN, U-Net, PatchGAN



- Developed a Pix2Pix conditional GAN with U-Net generator and PatchGAN discriminator for photo-to-sketch translation on FS2K dataset.
- Generated high-fidelity, structurally accurate sketches using adversarial and L1 loss for paired image-to-image translation.

Smart EV Charging Scheduler for Self-driving Vehicles

MiniZinc, Constraint Programming, Optimization



- Designed a constraint-based scheduler to optimize EV charging assignments under real-world operational constraints.
- Minimizes total travel distance while producing conflict-free charging schedules for real-time EV fleet operations.

Stock Market Trend Prediction using ANFIS

ANFIS, PyTorch, Scikit-learn



- Implemented an Adaptive Neuro-Fuzzy Inference System (ANFIS) to automatically learn indicator patterns that signal stock price uptrends.
- Achieved 76.8% accuracy in predicting price trend of the next day.

More projects: mahiruddin.vercel.app/projects

ACHIEVEMENTS

- Codeforces max rating **1274**; ranked **773rd** among **20,449** Bangladeshi coders (**Top 3.8%**).
- International Youth Math Challenge (IYMC) 2025 Gold Medalist.
- Ranked **14th nationwide** in BUTEX A Unit 2018 admission exam among **13,000+** candidates.
- Ranked **9th nationwide** in Jahangirnagar University H Unit 2018 admission exam among **34,000+** candidates.

RESEARCH

Research works completed as part of coursework and independent study (unpublished; publishable work not included).

Automated Density-Based Splitting of Merged Clusters

Clustering, Unsupervised Learning [Paper](#) 

- Proposed a clustering refinement framework to detect and split incorrectly merged clusters using density analysis
- Designed a recursive splitting mechanism to dynamically adjust cluster structure without pre-defined k .

Fabric Defect Detection Using Histogram Equalization and CNN

Computer Vision, CNN

[Paper](#) 

- Developed a vision-based textile defect detection system combining contrast enhancement with CNNs.
- Improved defect visibility and classification robustness under varying fabric textures and lighting conditions.

Intelligent Irrigation Decision Support System Using IoT and Weather Data

IoT, Data Analytics

[Paper](#) 

- Built a data-driven decision support system integrating IoT sensor data with weather information.
- Optimized irrigation planning to reduce water consumption and enhance resource efficiency, with motor operation time and duration controlled via IoT microcontrollers.

EDUCATION

M.Sc. in Computer Science & Engineering

United International University

Nov 2024–May 2026 (Expected) Dhaka, Bangladesh

- Major: Data Science
- CGPA: 3.78

B.Sc. in Textile Engineering

Bangladesh University of Textiles (BUTEX)

Jan 2018–Oct 2023 Dhaka, Bangladesh

- Specialization: Wet Processing Engineering
- CGPA: 3.34

Higher Secondary Certificate (HSC), Science

B.A.F. Shaheen College

2017 Chattogram, Bangladesh

- Science
- GPA: 4.75

Secondary School Certificate (SSC), Science

Govt. Muslim High School

2015 Chattogram, Bangladesh

- Science
- GPA: 5.00

REFERENCES

Dr. Ohidujjaman

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United International University

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EXPERIENCE

Research Engineer (AI/ML) (Part-time)

ADB-Funded AI & IoT Project

Jan 2026 – Present

Dhaka, Bangladesh

Executive (Full-time)

Epyllion Group

May 2024 – Jul 2024 (3 months)

Gazipur, Bangladesh

Management Trainee Officer (Full-time)

Epyllion Group

Nov 2023 – Apr 2024 (6 months)

Gazipur, Bangladesh

Mathematics & Physics Lecturer

(Part-time)

Sunrise Coaching Centre

Aug 2018 – Sep 2022 (4 yrs 2 months)

Dhaka, Bangladesh

Mathematics Lecturer (Seasonal)

UCC (University Coaching Center)

Apr 2019 – Aug 2022 (3 yrs 5 months)

Dhaka, Bangladesh

CERTIFICATIONS

- Machine Learning Specialization
Stanford · Coursera [Credentials](#)
- Deep Learning Specialization
DeepLearning.AI · Coursera [Credentials](#)
- IBM Generative AI Engineering Professional Certificate
IBM · Coursera [Credentials](#)
- Mathematics for Machine Learning and Data Science
DeepLearning.AI · Coursera [Credentials](#)