Kamruzzaman Mithu

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EDUCATION

Y Combinator Startup School **2025**

Entrepreneurship / Entrepreneurial Studies *SF, CA, USA*

Focused on startup development, fundraising, product-market fit, and growth strategy — applying Y Combinator principles to build AI-powered healthcare solutions.

United International University **2024**

Master of Engineering in Computer Science and Engineering, Result: First Class *Dhaka, BD*

Coursework: Machine Learning, Data Analytics, Computational Intelligence, Natural Language Processing, Internet of Things (IoT), Research Methodologies and Technical Writing

SKILLS

Programming Languages: Well-versed in Python, among others(JavaScript, Java, C++, C#)
Libraries: Well-versed in TensorFlow, among others (NumPy, Pandas, Scikit-learn, PyTorch, TensorFlow, OpenCV, Matplotlib, Seaborn)
Frameworks: Well-versed in Django, among others (Hugging Face, FastAPI, Flask, Streamlit, ASP.NET Core)
Database: MSSQL, MySQL, Vector Databases (Chroma, FAISS)
Tools: Git, Docker, Windows, Linux, VIM, VS Code, Jupyter, Google Colab, MLflow, LaTeX, Mendeley (reference/ citation manager)
Domains: Machine learning, Deep Learning, Computer Vision, NLP, LLMs, GenAI, RAG, MLOps

EXPERIENCE

CMED Health Ltd. **Aug 2024 – Sep 2025**

AI Engineer (DS) *Dhaka, BD*

- AI-Reception: An Artificial Intelligence-based Human- Robot Interaction System to automate reception
- PVDoctor: Telemonitoring Parkinson's disease using machine learning by combining tremor and voice analysis
- Working on a research project, tentative title - HCNN-LSTM: Hybrid CNN-LSTM Model for Imbalanced News Text Classification

ENTERTECH BD **Jun 2022 – Jul 2024**

Software Engineering *Dhaka, BD*

- Designed and developed a comprehensive ERP solution for a hospital management system utilizing Microsoft technologies, including ASP.NET MVC and MSSQL. The system features customized user access controls and integrates modules for appointments, prescriptions, inpatient and outpatient management, pharmacy operations, and laboratory services, ensuring streamlined workflows and enhanced healthcare delivery.
- Designed and developed a comprehensive Human Resource Management System (HRMS) with Microsoft technologies, including ASP.NET MVC and MSSQL, to streamline HR processes and enhance organizational efficiency.

TRAINING

i. Advanced Certificate for Management Professionals (ACMP), IBA-DU, ICT Division, Bangladesh **2025**

ii. Research Methodology and Biostatistics, IBN Sina Medical College, Bangladesh **2025**

iii. Training For Employability Skills, Wadhwani Foundation **2024**

iv. Training For Mobile Application Developer (Android), ICT Division, Bangladesh **2018**

v. Training For Web Design, BASIS Institute of Technology & Management Limited (BITM)

ICT Division, Bangladesh **2017**

PROJECTS

IDAA247: AI-Powered Doctor Appointment Assistant | *LangChain, FastAPI, RAG, OpenAI API, SQLAlchemy* **Ongoing**

* Developing an AI-powered virtual assistant to help doctors streamline appointment scheduling, patient communication, and experience management. Integrates LangChain, RAG, and conversational memory for intelligent query handling and personalized responses.
* Implemented scalable backend architecture using FastAPI, Qdrant for vector search, and SQLAlchemy for data management; designed custom tool integrations for real-time interaction and data retrieval. GitHub

DocInsight : Smart Doc Analyzer | *FastAPI, scikit-learn, YOLOv12, OpenCV, sqlalchemy* **Ongoing**

* Developed a Smart Document Analyzer web app combining OCR, computer vision, and NLP to extract text, classify document types, and retrieve key information from images/PDFs. Built with FastAPI, YOLOv8, OpenCV, Hugging Face Transformers, spaCy, and React, and deployed using Docker and cloud services. GitHub

YOLOv12 Bangladeshi Food Detection | *FastAPI, YOLOv12, OpenCV* **2025**

* Trained YOLOv12m (19.6M params) on 3988-image, 3-class dataset (peyaju, singara, beguni). Achieved 87.7% mAP@0.5, 151 FPS inference, and 82.7% F1 Score. GitHub

EHR-MIS : Hospital Record Management System | *ASP.NET Core, MSSQL* **2024**

* Developing a comprehensive hospital management system with modules for Pharmacy, Patient Appointment (Reception), Diagnostics (Invoice), Laboratory (Setup & Report), Accounts, and Indoor patient management. Implemented using ASP.NET Core with MSSQL as the database backend, focusing on seamless data flow and user-friendly interfaces. GitHub

e-Commerce | *Django 3.2, MySQL* **2023**

* Developed a responsive and user-friendly e-commerce platform with features like product management, secure checkout, multiple payment options, order tracking, and customer accounts. Built using Django (Python) for the backend, HTML, CSS, JavaScript for the frontend, MySQL for the database, and tested using Selenium. GitHub

AquaHealth | *Arduino IDE, Flask 3.0, MySQL* **2022**

* Developed an IoT-based aquaculture health prediction system using ESP8266, multiple water-quality sensors, and a machine learning model to predict fish farm health. Data is stored in a database and visualized via a web dashboard.

PUBLICATIONS

Title: Systematic Literature Review on Sentiment Analysis in Airline Industry **2024**

* This study presents a Systematic Literature Review (SLR) of 60 papers on sentiment analysis and topic modeling in the airline industry, highlighting key methods, datasets, and models used for understanding passenger opinions. It identifies research gaps, strengths, and weaknesses to guide improvements in airline services and future research directions. https://link.springer.com/article/10.1007/s42979-024-03567-w

Title: Infertility in Women with Polycystic Ovary Syndrome — A Management Dilemma **2023**

* This cross-sectional study on 150 PCOS patients (July 2021–June 2022) found that most were aged 25–30 years, with high rates of early marriage and underweight status. Clomiphene citrate and letrozole were the most common first-line treatments, showing a 72% success rate, while ovarian drilling had a 65% success rate. The study highlights the need for comprehensive infertility evaluation and individualized PCOS management. https://www.bdjournals.org/index.php/insight/article/view/361

Title: COVID-19 Prediction based on Infected Cases and Deaths of BD using Deep Transfer Learning **2022**

* This study proposes a deep transfer learning model (encoder-decoder CNN-LSTM with pretrained CNNs like ResNet-50, DenseNet-201, MobileNet-V2, Inception-ResNet-V2) to forecast COVID-19 cases and deaths in Bangladesh using time series data. The model achieved the best performance with ResNet-50 based on MAPE, MAE, and RMSE metrics. https://ieeexplore.ieee.org/abstract/document/9817160

Title: Imbalanced Data Classification Using Hybrid Under-Sampling with Cost-Sensitive Learning Method **2022**

* This study proposes HUSCSLBoost, a hybrid framework for handling imbalanced datasets through data cleaning (Tomek-Link), random under-sampling, and cost-sensitive boosting. It outperforms existing methods like RUSBoost on 27 imbalanced datasets by improving classification accuracy and reducing information loss. https://link.springer.com/chapter/10.1007/978-981-19-0019-8_32

REFERENCES

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