

SAMRAT ABDUL JALIL

AI and Backend Enthusiast

SKILLS

Back-End: Python, C/C++, Java, Php, FastAPI, Express.js, Node.js

Database: MySQL, MongoDB .

Front-End: JavaScript, TypeScript, React.js, HTML, CSS .

Machine Learning: TensorFlow, PyTorch, Keras, Scikit-learn, NumPy, Pandas, Seaborn, Matplotlib, OpenCV, MediaPipe etc.

App Development: Flutter .

Tools: Git, Docker, Github Action, JIRA, VS Code, Anaconda .

WORK EXPERIENCE

Undergraduate Thesis: GradeVision (in collaboration with Edusoftbd Ltd)

- Developed an OCR-based application to automate result management by capturing result data from images. Features include real-time data editing, updates, centralized database storage, section-wise statistical views, authentication, and OTP verification via email.
- **Tech Stack :** Python, FastAPI, Flutter, MySQL .

DL Sprint 2.0: Bengali Document Layout Analysis

- Fine-tuned YOLO and Detectron models to analyze Bengali document layouts, tackling challenges with historical newspapers, government documents, magazines, and books. The models identified paragraphs, text boxes, images, and tables, with Detectron delivering superior results
- **Tech Stack :** Pytorch, Detectron2, Yolo .

Bhasha Bichitra: Bengali Speech-to-Text for Regional Dialects

- Fine-tuned the Whisper model for Automatic Speech Recognition (ASR) to convert speech into Bengali regional text. The model was trained on diverse datasets to handle variations in pronunciation and vocabulary across dialects .
- **Tech Stack :** Pytorch, Whisper .

Bhashamul: Bengali Regional IPA Transcription

- Fine-tuned Google ByT5 (small and base versions) and mBART-5 (base and small versions) for Bengali regional IPA transcription. After thorough evaluation, the ByT5 small model outperformed others, providing superior transcription accuracy for regional phonetic variations. This model improves transcription quality for regional speech-to-text applications.
- **Tech Stack :** Pytorch, UMT5 small and base , byt5 small and base

CONTACT

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Leetcode: leetcode/Samrat_Abdul_Jalil
Badda, Dhaka.

AWARD

- **Kaggle Expert** — 2024
- **Finalist in Bhashamul: Bengali Regional IPA Transcription** — 2024
- **Top 10 Finalist in Bhasha Bichitra: ASR for Regional Dialects** — 2024
- **Top 10 Finalist in DL Enigma 1.0** — SUST CSE Carnival 2024
- **8th in ML Olympiad - CO2 Emissions Prediction Challenge** — 2024
- **Champion in Winner Career Launchpad Quiz competition** — 2023
- **Finalist in DL Sprint 2.0 - BUET CSE Fest** — 2023
- **Top 10 Finalist in Skitto Hackathon** — 2022
- **Champion in UIU Online Cisco Quiz Competition** Organized by GP Academy — 2022
- **Champion in UIU AI Contest** — 2022
- **Champion in Programming for beginners** — 2021

EDUCATION

B.Sc. in Computer Science and Engineering

United International University

July 2020 - Present

Major In : Data Science

Current CGPA: 3.30

DL Enigma 1.0 : Object Detection for Bangladeshi Autonomous Driving

- Developed model by fine-tuning YOLO and Detectron models for object detection in autonomous driving applications in Bangladesh. Addressed challenges with unique objects such as three-wheelers and wheelchairs to enhance detection accuracy
- **Tech Stack :** Pytorch, Yolov8, Detectron2 .

Undergraduate project: AgriCareHub

- Developed a web application that allows farmers to upload images of their crops to check for diseases. The app uses image recognition to analyze crop health and, if a disease is detected, recommends medication and proper treatment in Bengali. It also provides audio instructions on how to apply the medication..
- **Tech Stack :** Python, FastAPI, TensorFlow, Express, React.js, MySQL .

ML Olympiad : CO2 Emissions Prediction Challenge

- Developed and evaluated various forecasting models for CO2 emissions prediction. After thorough analysis, ARIMA, LSTM, and Logistic Regression models demonstrated the best performance in accurately predicting emissions trends.
- **Tech Stack :** ARIMA, SARIMA, LSTM, Logistic Regression, Facebook Prophet, pandas

Undergraduate project: Learn2Resume

- Developed a CV generator and e-learning platform allowing users to create and share CVs, purchase certification courses, and download certificates. Integrated live chat support, secure online payments, and implemented features for course and user management.
- **Tech Stack :** PHP, JavaScript, MySQL, HTML, CSS .

Undergraduate project: easy-Publication

- Developed a self-publishing platform enabling authors to easily publish their work with flexible terms, revenue sharing, and 24-hour delivery through a network of 64 printing presses across districts. The platform addresses challenges faced by new authors in traditional publishing. Additionally, it integrates online payment systems for smooth transactions and live chat support for real-time author assistance..
- **Tech Stack :** PHP , MySQL, Bootstrap ,HTML, CSS .

Undergraduate project: Medifind

- Medifind is a web application designed to help users find the nearest medicine shops and check the availability of their desired medicines. The app also provides information on the operating hours of these shops, so users can plan their visit accordingly. Additionally, shopkeepers can upload and manage the list of medicines available at their stores.
- **Tech Stack :** PHP , MySQL, Bootstrap ,HTML, CSS .

COURSES

Machine Learning | Digital Image Processing | Bioinformatics | Human Computer Interaction | Database Management Systems | Software Engineering | Data Structures and Algorithms | Object-Oriented Programming | System Design and Analysis |

INTEREST

Multimodal Large Language Model | Retrieval-Augmented Generation | AI Agent | Back-end development | Computer Vision | Natural Language Processing | Automatic Speech Recognition |