RISTIAN UDDIN

Passionate about crafting intelligent solutions, I specialize in machine learning, AI-driven algorithms, and full-stack software development for web and mobile platforms. With expertise in data science, model optimization, and innovative research, I excel at transforming complex data into actionable insights across diverse domains.

PERSONAL DETAILS

- +8801797120356
- ristianridoy1990@gmail.com
- Flat C-3, Bldg#10, Property Estate, 144, Shantinagar, Dhaka, Bangladesh
- LinkedIn Profile
- GitHub Profile
- Personal Portfolio

EDUCATION

July 2020 - Dec 2024
NORTH SOUTH UNIVERSITY
- B. Sc. in Computer Science
- CGPA: 3.29 (87%)

July 2017 - Oct 2019
WILLES LITTLE FLOWER SCHOOL & COLLEGE
- Pearson Edexcel IAL (A-Levels)
- Result: 1A and 2B

Jan 2016 - June 2017
WILLES LITTLE FLOWER SCHOOL & COLLEGE
- Pearson Edexcel IGCSE (O-Levels)
- Result: 2A*, 4A and 2B

SKILLS

- **Programming Languages**
  - C, C#
  - Apex
  - JAVA
  - Python
- **Machine Learning and AI**
  - ML/DL Algorithms
  - PyTorch, TensorFlow
  - Keras, OpenCV
  - Feature Engineering
  - Computer Vision, NLP
  - Transformers (Hugging Face)

WORK EXPERIENCE

Micronetbd Inc. — APR 2025 - PRESENT
Python Developer
- Working on backend automation using Python, integrating REST APIs, and contributing to Salesforce projects with Apex and Java support.

Future Interns — MAR 2025 - APR 2025
Machine Learning Intern
- I was tasked and trained to develop forecasting models and build an NLP-based chatbot, gaining hands-on experience in applying machine learning techniques through structured, real-world projects.

Caretutors — MAR 2023 - FEB 2025
Tutor
- I provide personalized teaching tailored to each student's academic needs and intellectual abilities, ensuring effective learning experiences.

RESEARCH ACTIVITIES

A Diagnostic Pipeline for Multi-Class Classification of Chest X-Ray Images Using Knowledge Distillation and Semi-Supervised Segmentation (In Review for Conference Publication)

-Improved AI-based disease detection by integrating knowledge distillation with semi-supervised segmentation, achieving unmatched accuracy in diagnosing COVID-19, pneumonia, and tuberculosis.
-Enhanced CLIP-KDViT by distilling ViT into a lightweight MobileNetV2, boosting accuracy to 99%—a 3% improvement over previous methods.

CAPTCHA Recognition From Audio Using WhisperAI And OCR

-Transcribed CAPTCHA audio with Whisper AI, achieving 79.5% accuracy, identifying 5 out of 6 characters on average.
-Preprocessed 10,000 audio samples, applying volume normalization and loudness adjustments to improve transcription quality.
-Evaluated accuracy using Character Error Rate (CER), addressing misheard words and OCR inaccuracies, with room for improvement.

Distance-Based Probability Modeling for Autonomous Overtaking Decisions on Double-Lane Highways Using Object Detection

-Developed a vision-based autonomous overtaking system using a custom dataset tailored to Bangladesh's roads for better adaptability.
-Enhanced lane detection with optimized preprocessing and improved object identification through YOLOv3-based distance estimation.
-Advanced models with probability-based safety evaluation, assessing overtaking feasibility and providing real-time feedback for safer maneuvers.

Image Based Plant Disease Classification Based On CNN and Deep Learning Techniques Through Knowledge Distillation

-Developed a smartphone-assisted crop disease diagnosis system using deep learning on 55,562 images, classifying 12 crops and 26 diseases with high precision.
-Improved efficiency with KD, training a lightweight model that achieved 78.1% accuracy, close to the teacher model's 80.1%, while reducing complexity.
-Optimized deep CNNs for on-device diagnosis, gaining 2% accuracy with a simpler model, making AI-powered crop disease detection more accessible and efficient in regions with limited infrastructure.

Machine Learning Approaches For Immune System Analysis And Modelling

-Developed an AI-driven HIV detection system using XGBoost, KNN, Decision Trees, Random Forests, and Logistic Regression, optimizing accuracy with CD4 and CD8 datasets.
-Improved performance through hyperparameter tuning, achieving 86.68% accuracy with Gradient Boosting and 86.21% with LightGBM, minimizing variance between training and validation.
-Enhanced interpretability with SHAP values, offering explainable AI insights into key biomarkers, making diagnostics more reliable and actionable.

- **Data Management & Visualization**
  - Data Science Engineering
  - Image, Text & Audio Processing
  - Pandas, Apache
  - NumPy, Matplotlib
  - SQL, Firebase, MongoDB
- **Web & App Development**
  - HTML
  - CSS
  - XML
  - Android Studio
  - Flask
  - FastAPI Integration
- **Soft Skills**
  - Teamwork
  - Research Skills
  - Project Coordination
  - MS Office
  - Git Version Control
  - Teaching

LANGUAGES

- English (Fluent)
- Bengali (Fluent)

PROJECTS

Respire Check

-A web-based application built with Python, HTML, CSS, and Firebase, enabling real-time chest X-ray analysis for COVID-19, pneumonia, and tuberculosis detection, where we integrated the AI-powered diagnostic pipeline.
-Deployed models via API integration, incorporating Grad-CAM for explainability, ensuring transparent AI-driven diagnostics and enhanced user interpretability.

TownTrek

-A Java-based Android app for local tourism, integrating Firebase authentication and Google Maps APIs for location services.
-It features OpenWeatherMap for real-time weather, a custom dataset, and CSV-based tourist spot details, with XML UI and robust API handling via Volley and Retrofit.
-Users can log in, explore places, get directions, and access weather updates.

OVS (Online Voting System)

-Developed an Android-based online voting system allowing registered voters to cast votes remotely.
-Enhances accessibility, reducing congestion and errors in vote counting.
-Ensures security and flexibility, using Java for development, SQLite for the database, and Firebase as the server.

FoodPicky

-Enables seamless online food ordering, featuring secure login, menu browsing, order tracking, and an admin dashboard.
-Built with PHP, MySQL, and AJAX, it supports real-time order management and secure payments.
-Easy deployment using XAMPP/WAMP, requiring database import and config setup.

CERTIFICATES & AWARDS

CERTIFICATES

Pearson Edexcel International GCSE	JUNE 2017
8th Bangladesh Chemistry Olympiad	AUG 2017
Pearson Edexcel International Advanced Level	OCT 2019
NSU ACM Student Chapter Club	JULY 2022
CareTutors Certificate of Tutoring	FEB 2025
NLP and Text Mining - Simplilearn	MAR 2025
Introduction to Data Science - Simplilearn	MAR 2025
Generative AI for Beginners - Great Learning	MAR 2025

AWARDS

Daily Star High Achievers Award for O Levels	JAN 2018

REFERENCES

Dr. Shahnewaz Siddique
Associate Professor
Dept. of Electrical & Computer Engineering
North South University
Phone: +88 02 55668200 Ext – 1515
Email: shahnewaz.siddique@northsouth.edu

Muhammad Shafayat Oshman
Lecturer
Dept. of Electrical & Computer Engineering
North South University
Phone: +88 02 55668200 Ext – 6376
Email: muhammad.oshman@northsouth.edu