



## PERSONAL DETAILS

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[LinkedIn Profile](#)

[GitHub Profile](#)

[Personal Portfolio](#)

## EDUCATION

July 2020 - Dec 2024  
NORTH SOUTH UNIVERSITY

- B. Sc. in Computer Science
- CGPA: 3.31 (87.1% score)

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#
  - JAVA
  - Python
- **Machine Learning and AI**
  - PyTorch
  - TensorFlow
  - Keras
  - OpenCV
  - ML/DL Algorithms
  - Model Optimization

# RISTIAN UDDIN

Passionate about crafting intelligent solutions, I specialize in machine learning, AI algorithms, and software development for web and mobile platforms. With a knack for database management and innovative research, I thrive on turning complex data into actionable insights across diverse domains.

## WORK EXPERIENCE

- **Caretutors** MAR 2023 - FEB 2025  
Verified Tutor
  - I provide personalized teaching tailored to each student's academic needs and intellectual abilities, ensuring effective learning experiences.
- **Versatile Coaching Centre** July 2017 - June 2018  
Teaching Assistant
  - As a teaching assistant, I was responsible for checking exam papers and invigilating exam rooms to ensure a fair and orderly testing environment and also managed the class schedule for my teacher.

## 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**

- Feature Engineering
- Data Analysis
- Image & Audio Processing
- NumPy
- Matplotlib

- **Web & App Development**

- HTML
- CSS
- XML
- SQLite
- Firebase
- API Integration

- **Soft Skills**

- Teamwork
- Research Skills
- Project Coordination

## 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

### AWARDS

- **Daily Star High Achievers Award for O Levels** JAN 2018

## REFERENCES

**Dr. Shahnewaz Siddique**

Associate Professor

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