

# Rafeed Mohammad Sultan

AI Researcher & Software Engineer

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 Portfolio

 GitHub

 Rafeed Sultan

*Dhaka, Bangladesh*

## Research Interests

I am passionate about advancing Artificial Intelligence, focusing on Natural Language Processing (NLP). My research interests include Trustworthy/Responsible AI, focusing on LLM alignment and evaluation, prompt optimization for robust instruction following and tool use, and retrieval-augmented generation (RAG) with emphasis on factuality, safety, and multilingual/low-resource settings. I also pursue Medical AI applications of NLP for clinical text and decision support, with the broader goal of developing transparent, fair, and accountable language technologies aligned with human values.

## RESEARCH PUBLICATIONS

### • **Beyond Labels: Aligning Large Language Models with Human-like Reasoning**

*International Conference on Pattern Recognition (ICPR) 2024*

[GitHub](#) [arXiv](#)

[Accepted]

### • **Efficient Skin Cancer Detection Using Lightweight Model Souping and Ensembling Knowledge Distillation for Memory-Constrained Devices**

[ScienceDirect](#)

*Q1 Journal: Intelligence-Based Medicine*

[Accepted]

### • **Empowering Meta-Analysis: Leveraging Large Language Models for Scientific Synthesis**

*2024 IEEE International Conference on Big Data*

[GitHub](#) [arXiv](#)

[Accepted]

### • **LegalRAG: A Hybrid RAG System for Multilingual Legal Information Retrieval**

*IJCNN 2025: International Joint Conference on Neural Networks*

[arXiv](#)

[Accepted]

### • **Paper**

*Pattern Recognition Letters*

[Under Process]

## EDUCATION

### • **BSc in Computer Science Engineering**

*North South University, Dhaka, Bangladesh*

2020-2024

CGPA: 3.38/4.00

### • **Edexcel A Levels**

*Cephalon International School, Dhaka, Bangladesh*

Subjects: Physics, Chemistry, Biology, Mathematics

2019

### • **Edexcel O Levels**

*Academia, Dhaka, Bangladesh*

Subjects: English Language, Bangla, Mathematics B, Pure Mathematics, Chemistry, Biology, Human Biology

2017

## RESEARCH EXPERIENCE

### • **Cross-Model Evaluation: Judging AI Ethics and Alignment Responses with Language Models**

Addressed ethical concerns in LLMs using the Dataset for Aligning Reasons (DFAR), which enhances the ETHICS dataset with detailed annotations. Utilized LLMs to assess and reason ethicality in DFAR statements, automating evaluations using other LLMs. Findings showed strong alignment between LLM and human evaluations, demonstrating reliability and scalability. [\[GitHub\]](#)

### • **Optimizer-Performance-Evaluation**

Investigated the impact of different optimizers and batch sizes on the performance of a custom CNN built with VGG blocks. [\[GitHub\]](#)

## Predictive Modeling and Explainable AI Analysis of Farm Features and Practices Impacting White Spot Disease Prevalence in Farmed Shrimps in Bangladesh

Developed a machine learning model with 72.67% accuracy to predict White Spot Disease prevalence in shrimp farms and used SHAP to analyze the impact of farming practices on disease trends. [\[GitHub\]](#)

## Efficiency Comparison of Programming Languages in Algorithm Development

Aimed to determine which programming language is most efficient in terms of runtime efficiency, memory consumption, and CPU utilization by implementing various algorithms with differing time complexities in different programming languages. [\[GitHub\]](#)

## EXPERIENCE

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•Associate Software Engineer	Jan 2025 – Present
SELISE Digital Platforms	Dhaka, Bangladesh
– Built a voice agent: <b>ElevenLabs</b> TTS, rigorous prompt engineering (guardrails, dynamic variables, refusals), <b>MCP</b> tool server, and <b>NestJS + MongoDB</b> services; automated GitHub issue creation via signed webhooks.	
– Led agentic chat platform: real-time WebSocket streaming, Markdown rendering, and a React–Flask ingestion pipeline for PDF/image context into Azure PostgreSQL (preview, enable/disable, delete); explored SAML-based SSO.	
– Developed energy-trading analytics ( <b>PCAT</b> ): DAM/RTM PnL and PTP/AS exposure; implemented calculations with pandas/SQLAlchemy and PostgreSQL schemas/ETL.	
– Authored technical docs and evaluation protocols; shipped automated NPS workflows to reduce manual operations.	
•Intern Software Developer	Oct 2024 – Jan 2025
SELISE Digital Platforms	Dhaka, Bangladesh
– Supported finance/procurement automation and ops tooling to improve cycle time and data quality.	
•Part-time Content Writer	Sep 2023 – Nov 2023
GameRiv	Online
– Produced SEO-aware articles on deadline; maintained publication quality in WordPress.	
•Graphics Designer	Jan 2020 – Jun 2020
Signature Minds Institute	Online
– Delivered client assets on schedule; collaborated on visual branding using Canva.	
•Teacher's Assistant	Nov 2019 – Jun 2020
Study Town	Lalmatia, Bangladesh
– Graded A-level Biology/Chemistry and tutored students in core topics.	

## PROJECTS

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**Rokkha (Android App)** - An app to enhance safety by alerting guardians with the user's location at the press of a button. Users can set intervals for periodic location alerts to specified contacts. *Technologies: Kotlin, Firebase, SQLite* [\[GitHub\]](#)

**Roomafy (Web App)** - A collaborative music-playing app integrated with Spotify API. *Technologies: Django, React, HTML+CSS, Bootstrap* Ongoing

**Phonebook (Web App)** - A mini project in Java for storing and managing contacts. *Technologies: Java Swing, SQLite* [\[GitHub\]](#)

**Library Management System (Web App)** - An online platform for storing PDF books and managing library resources. *Technologies: HTML+CSS, MySQL, PHP, Bootstrap* [\[GitHub\]](#)

**Automation With Selenium** - Automated a website for GigaTech, generating test cases and ensuring efficient testing. *Technology: Python (Selenium)* [\[GitHub\]](#)

## TECHNICAL SKILLS AND INTERESTS

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◦ **Areas of Interest:** Web Design & Development, Machine Learning, Software Quality Assurance

**Languages:** Python, Java, C, C++, HTML+CSS, JavaScript, PHP

**Back-end:** Django, MySQL

**Front-end:** HTML, CSS, JavaScript, React

**Mobile:** Kotlin

**Cloud:** Firebase

**Other:** MS Word, Basic Excel, Overleaf, WordPress

## AWARDS & ACHIEVEMENTS

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Daily Star Award for outstanding O levels results.

## POSITIONS OF RESPONSIBILITY

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- **Volunteer** Jaago Foundation - Dhanmondi, Dhaka *May 2016*
  - Raised Tk. 20,000+ for youth education and well-being through community outreach and fundraising efforts.

## CERTIFICATIONS & WORKSHOPS

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- **Tools for Data Science** (*Aug 2024*) - By IBM through Coursera  
[Certificate](#)
- **Python For Data Science, AI & Development** (*Aug 2024*) - By IBM through Coursera  
[Certificate](#)
- **Data Science Methodology** (*Aug 2024*) - By IBM through Coursera  
[Certificate](#)
- **Databases and SQL for Data Science with Python (Honors Badge)** (*Aug 2024*) - By IBM through Coursera  
[Certificate](#)
- **Python Project for Data Science** (*Aug 2024*) - By IBM through Coursera  
[Certificate](#)
- **Prepare Data for Exploration** (*July 2024*) - By Google through Coursera  
[Certificate](#)
- **What is Data Science?** (*June 2024*) - By IBM through Coursera  
[Certificate](#)
- **Introduction To Software Engineering** (*June 2024*) - By IBM through Coursera  
[Certificate](#)
- **Ask Questions to Make Data-Driven Decisions** (*May 2024*) - By Google through Coursera  
[Certificate](#)
- **Foundations: Data, Data, Everywhere** (*Feb 2024*) - By Google through Coursera  
[Certificate](#)
- **Quantum Mechanics & Quantum Computing Workshop** (*May 2022*) - By Dr. Mahdy Rahman Chowdhury
- **Deep Learning with PyTorch Workshop** (*Jan 2021*) - By Hasib Zunair (Online)
- **Programming Fundamentals** (*Jan 2020*) - By Duke University through Coursera

## REFERENCES

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Available on Request