Riaz Khan

Software Engineer(AI), MyMedicalHUB International Ltd.
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Education

🎓 Rajshahi University of Engineering & Technology Bangladesh
B.Sc. in Mechatronics Engineering *January 2017 – October 2022*
CGPA: 3.14/4.0 (Senior year GPA 3.60/4.0)
Selected Coursework: Artificial Intelligence, Software Engineering, Machine Learning Algorithms, Computer Vision, Networking and Communication Systems, Programming Fundamentals
Thesis: A Deep Generative Model Aided Intelligent Framework for Health Condition Evaluation of High Voltage Power Transformer
Adviser: Dr. Sajal Kumar Das

Publications

[J1] Islam, Naimul, **Riaz Khan**, Sajal K. Das, Subrata K. Sarker, Md Manirul Islam, Masuma Akter, and S. M. Muyeen. "Power transformer health condition evaluation: A deep generative model aided intelligent framework." *Electric Power Systems Research 218* (2023): 109201.

[J2] **Khan, Riaz**, Naimul Islam, Sajal K. Das, S. M. Muyeen, Sumaya I. Moyeen, Md Firoz Ali, Zinat Tasneem et al. "Energy sustainability–survey on technology and control of microgrid, smart grid and virtual power plant." *IEEE Access* 9 (2021): 104663-104694.

[C1] Md Hossain, **Riaz Khan**, Naimul Islam, Subrata Sarker, Shahriar Fahim, and Sajal Das. Deep learning techniques for transmission line fault diagnosis: A comparative evaluation. In 2021 International Conference on Automation, Control and Mechatronics for Industry 4.0 (ACMI), pages 1–5. IEEE, 2021

Professional Experiences

Software Engineer (AI) January 2024 - Present
MyMedicalHUB International Ltd. *Dhaka, Bangladesh*

- Developed a LLM based chatbot using **LangChain**.
- Used **RAG** to improve the performance of the chatbot.
- Utilized **NLP** tools for text preprocessing.
- Developed **RESTful APIs** using Django for web applications.
- Optimized models for performance, accuracy, and user experience.

Junior AI Developer December 2022 - December 2023
MyMedicalHUB International Ltd. *Dhaka, Bangladesh*

- Developed a **Deep Learning model** abnormal movement detection of human.
- Used HRNet for key points detection of human body.
- Developed video processing using python libraries like **OpenCV**, Matplotlib, Numpy.
- Developed medical report generation system using **Django** and **MySQL**.

Research Assistant January 2019 - September 2022
Control System Research Group of RUET *Rajshahi, Bangladesh*

- Wrote reserach papers and published these in the international journals.
- Developed health condition prediction model power transformers using machine learning and deep learning techniques.
- Developed transformer fault detection models deep learning techniques.
- Conducted survey on smart grid, microgrid and virtual power plant and their control systems.

Mathematics Expert and Reviewer January 2022 - December 2022
Photomath *Freelance*

- Solved 542 algebra and statistics problems and published these to the customers.
- Reviewed 800+ problems solved by the other experts.
- Wrote the solutions using Latex, Figma.

Selected Projects

HigherEduAssistantApp An LLM-based web application designed to assist students in finding relevant information about pursuing MS and PhD programs in the United States. Built with Django, the app leverages real user experiences from the "Nextop USA" Facebook group, which are embedded and stored in a Chroma vector database. Using LangChain and Cohere's large language model, the application enables users to ask questions in natural language and retrieves accurate, experience-driven answers through a retrieval-augmented generation (RAG) pipeline. This project showcases the practical application of LLMs, semantic search, and full-stack development to solve real-world problems in the education domain.
`riaz-khan-16/HigherEduAssistantApp`

Matrimony A matchmaking web application that enables users to find and connect with potential marriage partners based on personal preferences. Key features include profile creation, registration/login, search and filter, propose, like, comment, and real-time chat. Users can both browse profiles and manage their own, facilitating two-way interaction. Developed using Django, SQLite, REST API, and a responsive frontend with HTML, CSS, and Bootstrap.
`riaz-khan-16/Matrimony`

Transformer's Remaining Life Predictor Model Dataset: After collecting 187 test reports from DUET the dataset is made. Solution and Results: 8 types of machine learning classifiers are trained with the collected datasets. But as there are 32 features and the datasets are unbalanced these algorithms don't give accuracy above 65%. To solve the problem 5 types of autoencoders are used and among them, the Stacked-Sparse autoencoder gives a reconstruction loss near 0.01 and prediction accuracy above 97%
`riaz-khan-16/HybridAIModel`

Medical Assitant Developed an intelligent medical chatbot using Django, Cohere's command-a-03-2025 LLM, and LangChain to simulate a virtual doctor that answers health-related queries in natural language. Integrated a secure, responsive frontend with HTML/CSS and Django Forms, and implemented environment-based configuration for API key safety. Designed for educational and demo purposes, the system showcases conversational AI in a healthcare context and is cloud-deployable.
`riaz-khan-16/medicalAssitant`

Technical Skills

Programming Language: Python, C++
AI Skills: Machine Learning Algorithms, ANN, CNN, Computer Vision, NLP, LLMs
AI Technologies: LangChain, RAG, Tensorflow, Keras, OpenCV, spaCy, scikit-learn, NLTK, Pandas, NumPy, Matplotlib, Seaborn
Back-End Development: Django, Flask, RESTful API
Database: MySQL, SQLite, PostgreSQL, MongoDB
Web Design and Styling: HTML, CSS, Bootstrap
Others: Git, GitHub

Awards and Honours

2022 High Publication Award, awarded by Dept of Mechatronics Engineering, RUET
2018-22 Technical Scholarship, awarded by RUET
2015-16 Secondary School Certificate Scholarship, Ministry of Education, Bangladesh
2009-11 Primary Scholarship, Ministry of Education, Bangladesh

References

Dr. Sajal Kumar Das
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Rajshahi University of Engineering & Technology
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Md. Firoj Ali
Assistant Professor
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