

Abir Hassan

AI ENGINEER · RESEARCHER · QUANTUM ENTHUSIAST

Dhaka, Bangladesh

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Skills

Programming	Python, Bash, MATLAB, SQL, C, HTML/CSS, \LaTeX
Libraries	NumPy, Pandas, Matplotlib, SciPy, Selenium, Flask, PyTorch, Keras, fastai, Scikit-learn, Seaborn, Plotly, Pydantic, Playwright, FastAPI
Quantum	Quantum Protocols, Quantum Algorithms, QML, Cirq, Mitiq, Qiskit, PennyLane
Data Science & AI	Machine Learning, Computer Vision, NLP, Data Analytics, Data Engineering, Databases: (Elasticsearch, MySQL, PostgreSQL)
Coding Tools	Command Line, Git, GitHub, Docker, VS Code, Linux, Google Colab
Softwares	MS Office, G-Suite, Tableau, IBM SPSS, SmartPLS, Blender, Illustrator, Notion, Trello
Technical Skills	Algorithms, OOP, Design Patterns, DevOps, MLOps, Testing, Version Control, Prompt Engineering
Human Skills	Adaptability, Rapid Learning, Critical Thinking, Problem Solving, Technical Writing
Languages	English (High Proficiency), Bengali (Native Speaker)

Education

Bachelor of Science in Engineering Management

2018 - 2023

BANGLADESH UNIVERSITY OF TEXTILES

- **CGPA: 3.51 / 4.00**
- Relevant Courses: Computer Programming, Application of Computer (DBMS, MIS), Statistics, Supply Chain Management, Operations Management, Project Development, Marketing Research.

Introduction to Quantum Computing Course

Sep 2023 - Present

QUBIT BY QUBIT, THE CODING SCHOOL

- Introductory Quantum Mechanics and the foundations of Quantum computing stack (Qubit, Quantum Gates, Quantum Algo).
- Theory and Implementations of Quantum Key Distribution (BB84), Quantum Teleportation, Grover's Algorithm using **Cirq**.
- Learn more on Quantum Hardware, Types of Qubits, Noise Models & Noisy Simulation, Quantum Error Correcting Codes.

Dokkho Data Scientist Career Program

Mar 2023 - Jul 2023

MASTERCOURSE

- Used **Selenium** to scrape a dynamic website of best data scientists to generate datasets, processing and transforming them using **NumPy, Pandas, Matplotlib**, created interactive dashboards with **Tableau**.
- Built and deployed a cap recognizer computer vision model using **Fast.ai, Hugging Face**, and **DuckDuckGo API** with approximately 89% accuracy.
- Multi-label text classification in NLP project for classifying a total of 141 books genres from Goodreads using **PyTorch, Fast.ai, Transformers**, and **ONNX** with approximately 98% accuracy.

Experience

Junior AI Engineer (Full-time)

Dec 2023 - Present

NITEX

- Data Scraping operations using **Playwright, httpx, Requests**, and **BeautifulSoup**.
- Building a Data Pipeline for End-to-End data Extraction, Transformation and Loading (ETL) using **Asyncio, Pydantic**, and **Producer-Consumer** pattern.
- Data preparation for Image Segmentation tasks using **PyTorch**.

AI Developer (Part-time)

Sep 2023 - Dec 2023

ARBITRAGE INVESTMENTS AG

- AI/ML model building using **spaCy, Transformers, Hugging Face Spaces**, and **OpenAI API**.
- Software development with Python. Developing back-end with **Flask**.
- Automating business processes using **Make.com** Scenario building and OpenAI Language Models integration.

Projects

QRISE Challenge 2024

QUANTUM ERROR MITIGATION CHALLENGE BY UNITARY FUND

- An on-going project on building **Error Mitigation** techniques to reduce noise from Quantum Circuits.
- Experimenting with stacking various Error Mitigation such as ZNE, REM, and PEC using the **Mitiq** library and **Cirq**.

Journal Ranking Analysis

DATA ANALYSIS AND VISUALIZATION PROJECT

- Web scraping of journal ranking data from Scimago, Scopus, and Web of Science using **Selenium**.
- Processed. and analyzed the data using **Pandas**, **Matplotlib**, and **Plotly**. Created the interactive dashboards in **Tableau**.
- Dataset published at [kaggle](#).
- Project repo: github.com/abir0/SJR-Journal-Ranking.

Manuscript Matcher

MULTI-LABEL TEXT CLASSIFICATION PROJECT

- Multi-label text classification using **Transformers**, **Fast.ai** to match manuscripts or research articles with suitable journals.
- Dataset size of 70,000+ and 61 labels or categories. DistilRoBERTa language model was used and **ONNX** quantization.
- Achieved accuracy of approximately 97% after training and fine-tuning the model for 10 epochs on Google Colab T4 GPU.
- Developed **Flask** web app for the model and deployed in [Render](#).
- Project repo: github.com/abir0/Manuscript-Matcher.

Charts Classifier

COMPUTER VISION PROJECT

- An image classification project to classify 28 classes of charts and diagrams using **Fast.ai** and **Gradio**.
- Achieved approximately 85% accuracy on ResNet34 pre-trained model.
- Created a documentation website and deployed it in [GitHub Pages](#).
- Project repo: github.com/abir0/Charts-Classifer.

Publications

[1] Md. Syduzzaman, **Abir Hassan**, HR Anik, Mahin Akter, MR Islam. Nanotechnology for High-Performance Textiles: A Promising Frontier for Innovation. *ChemNanoMat*. 2023. doi: [10.1002/CNMA.202300205](https://doi.org/10.1002/CNMA.202300205).

[2] Md. Syduzzaman, **Abir Hassan**, HR Anik, IS Tania, T. Ferdous, FF Fahmi. Unveiling new frontiers: Bast fiber-reinforced polymer composites and their mechanical properties. *Polymer Composites*. 2023; 1-33. doi: [10.1002/pc.27661](https://doi.org/10.1002/pc.27661)

[3] Md. Syduzzaman, KP Chowdhury, FF Fahmi, SS Rumi, **Abir Hassan**. Effects of carbon-based nanofillers on mechanical, electrical, and thermal properties of bast fiber reinforced polymer composites. *Journal of Thermoplastic Composite Materials*. 2023. doi: [10.1177/08927057231216740](https://doi.org/10.1177/08927057231216740)

Please check [Google Scholar](#) or [Scopus](#) for the up-to-date publications list.

Courses

- Quantum fundamentals by *Q-CTRL*
- Python for Everybody Specialization by *Coursera*
- Build a Modern Computer from First Principles: From Nand to Tetris by *Hebrew University of Jerusalem*
- Deep Learning Specialization by *Andrew Ng (DeepLearning.AI)*
- Intermediate Machine learning by *Kaggle*
- Intermediate SQL by *DataCamp*
- Google IT Support Specialization by *Google*