MD. TAUFIQUL HAQUE KHAN TUSAR

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🏠 https://taufiq-ai.github.io/ | 🎓 scholar.google.com/citations?user=fhbEomUAAAAJ

Skills

Programming and Database	Python, PostgreSQL, MySQL, HTML5.
Machine Learning	PyTorch, TensorFlow/Keras, Transformers, NLTK, OpenCV, SK-learn, Pandas.
Back-end Development	Django, Flask, Celery, uWSGI, Ngnix, Docker, Heroku/Render.
Additional	Git & GitHub, Hugging Face, Linux (Ubuntu), LaTeX.

Experiences

NLP Engineer & Backend Developer
May 2023 - present

LaLoka Labs
Tokyo 110-0016, Japan (Remote)

- Worked on data pipeline, fine-tuning, PEFT, RAG, GPU utilization and prompt design of LLMs, notably for **KAFKAI**.
- Worked on **KAFKAI**'s back-end development, optimization, maintenance, and scaling.
- **Tools:** PyTorch, Transformers, HuggingFace, Django, Pyramid, PostgreSQL, Celery, Bash, Ubuntu, etc.

Research Engineer
Feb 2023 - March 2023

AIMS Lab, United International University
Dhaka 1212, Bangladesh

- Built backend and database for an AI-driven robot receptionist, integrating face, speaker & speech recognition, chatbot and TTS features.
- **Tools:** OpenCV, Transformers, gTTS, gSTT, Flask, MySQL, Docker, Ngnix, GitHub Actions, etc.

Machine Learning Intern
July 2022 - Sept 2022

Shadhin Lab LLC
Dhaka 1219, Bangladesh

- Built an NLP-powered web extractor to automate data collection and categorization for an in-house SaaS.
- **Tools:** Scikit-learn, NLTK, Matplot, Pandas, BS4

Education

Bachelor of Science (B.Sc.) in Computer Science & Engineering
Apr 2018 - Nov 2022

City University
Dhaka 1216, Bangladesh

Major: Software Engineering | **CGPA:** 3.21 out of 4.00 (First Class) | **Medium of Instruction:** English

Research & Publications

[1] **M. T. H. K. Tusar** and M. T. Islam, "A Comparative Study of Sentiment Analysis Using NLP and Different Machine Learning Techniques on US Airline Twitter Data," 2021 IEEE International Conference on Electronics, Communications and Information Technology (ICECIT), Khulna, Bangladesh, 2021, pp. 1-4, doi: 10.1109/ICECIT54077.2021.9641336.

[2] **M. T. Haque Khan Tusar**, M. T. Islam and F. I. Raju, "Detecting Chronic Kidney Disease (CKD) at the Initial Stage: A Novel Hybrid Feature-selection Method and Robust Data Preparation Pipeline for Different ML Techniques," 2022 5th IEEE International Conference on Computing and Informatics (ICCI), New Cairo, Cairo, Egypt, 2022, pp. 400-407, doi: 10.1109/ICCI54321.2022.9756094.

[3] **M. T. H. K. Tusar** and R. K. Anik, "Automated detection of acute lymphoblastic leukemia subtypes from microscopic blood smear images using Deep Neural Networks," B.S. Thesis, Dept. of CSE, City Univ., Dhaka, Bangladesh, 2022, doi: 10.48550/arXiv.2208.08992.

[4] J. Hossain, M. T. Islam, and **M. T. H. K. Tusar** "Streamlining Brain Tumor Classification with Custom Transfer Learning in MRI Images," 2023 IEEE Smart Information Systems and Technologies (IEEE SIST), Astana, Kazakhstan, 2023, pp. 522-526, doi: 10.1109/SIST58284.2023.10223507.

[5] **M. T. H. Khan Tusar**, M. T. Islam, and A. H. Sakil, "An experimental study for early diagnosing Parkinson's disease using machine learning," Pre-print, 2023. doi: 10.48550/arXiv.2310.13654.

[6] **M. T. H. Khan Tusar** et al., "An Intelligent Telediagnosis of Acute Lymphoblastic Leukemia using Histopathological Deep Learning," Journal of Computing Theories and Applications (JCTA), vol. 2(1), pp. 1–12, 2024. doi: 10.62411/jcta.10358.

[7] MNHN Khandaker, MM Hossain, MA Bhuiyan, **M. T. H. Khan Tusar**, and M Foysal, "An Artificial Intelligence Powered Bengali Voice-based Conversational Chat-bot for Banking Sector," pre-print, 2024. doi: 10.13140/RG.2.2.17082.20169.

Personal Projects

⬤ **Privacy Aware RAG Agent** - LLMs based contextual understanding, limitation and search from Vector DB, PEFT and Quantization for low GPU.

Bengali Speech Chatbot - A transformer Chatbot including Automatic Speech Recognition, Interaction Recognition, and Speech Synthesis.

 Kidney Disease Diagnosis using Machine Learning - An End-2-End ML pipeline that can early detect Kidney disorder with 100% accuracy. [App]

 Blood Cancer Stage Detection using Image Processing - Detected multi-patterned blast cells from microscopic images using MobileNet. [App]

Volunteer Works

Artificial Intelligence Mentor
June 2022 - March 2023

The Empty Brain
Dhaka 1212, Bangladesh

- Led technical and executive teams on an AI-powered startup idea, ranked at top 25 in StartKoro S3 (a prestigious startup bootcamp).
- Mentored 10 undergraduates in python, machine learning, and research methodologies.

Research Assistant (ML)
Dec 2020 - Nov 2022

Md. Touhidul Islam, Lecturer, Dept. of Computer Science & Engineering, City University
Dhaka 1216, Bangladesh

- Worked on several AI/ML research projects by training and fine-tuning ML models, developing back-end systems, and authoring research papers.
- Authored 5 research articles in natural language processing, image processing, and bio-informatics.

JR. Machine Learning Engineer
Dec 2022 - Feb 2023

Omdena
CA 94301, USA (Remote)

- Enhanced a real-time Smart Traffic system with computer vision to reduce congestion on urban motorways.
- Collaborated with a team of 50+ members from 20+ countries to collect and process traffic image data via APIs.

Data Science Boot-camp Mentor
Sept 2021 - Oct 2021

AI Planet (Formerly DPHI)
Hyderabad, India (Remote)

- Supported a 20 members team in running a data science bootcamp, creating final assessments and evaluating participant performance.

Conference Participation

- **Reviewer,** 3rd International Conference on Computing and Information Technology (ICCIT), 2023, Tabuk, Kingdom of Saudi Arabia.
- **Presenter,** 5th International Conference on Computing and Informatics (ICCI), 2022, Cairo, Egypt.
- **Presenter,** International Conference on Electronics, Communications and Information Technology (ICECIT),2021, Khulna, Bangladesh.

Extracurricular Activities

- **Member,** Google Machine Learning Community · 11/2022 - 11/2023
- **Member,** IEEE Computer Society · 08/2022 - 12/2022
- **Student Member,** Institute of Electrical and Electronics Engineers | IEEE · 08/2021 - 12/2022
- **Executive Member,** City University Computer Club · 12/2020 - 10/2022
- **Chapter Influencer,** Google Crowdsource · 09/2021 - 06/2022
- **V-Force Volunteer,** United Nation Volunteer · 08/2021 - 09/2021
- **Cadet,** Bangladesh National Cadet Corps | BNCC · 08/2015 - 01/2017
- **Scout,** Bangladesh Scouts · 01/2008 - 12/2009

Language Proficiency

English Professional | **Bengali** Native | **Hindi** Conversational | **Urdu** Conversational

References

Brigadier General (Rtd) Prof. Dr. Engr. Md. Lutfor Rahman
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Dr. Rubens Talukder
CEO, NexeIT Inc, Michigan 48188, USA
Sr. Program Manager (North America), Tata Consultancy Services, MI, USA
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