

TASNUVA TANJUM FERDOUS

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RESEARCH INTERESTS

Machine Learning | Natural Language Processing | Deep Learning | Multi-Modal Deep Learning

EDUCATION

Rajshahi University of Engineering and Technology
B.Sc in Computer Science and Engineering
CGPA: 3.19 out of 4.00

Rajshahi, Bangladesh
Jan 2018 - Sept 2023

TEST SCORES

- **Graduate Record Examination (GRE)** Dhaka, Bangladesh
Score: 305 (**Quant: 161**, Verbal: 144, AWA: 3.5) May, 2024
- **IELTS** Dhaka, Bangladesh
Band Score: **6.5** (Speaking: 6.5, Writing: 7.0, Reading: 6.5, Listening: 6.0) November, 2023

RESEARCH WORKS

A Progressive Step Towards Automated Fact-Checking by Detecting Context in Diverse Languages: A Prototype for Bangla Facebook Posts

To appear in Proceedings of the 20th International Conference on ENASE 2025

Supervisor: Dr. Tanjila Kanij

- Fact-checking is crucial for tackling misinformation on platforms like Facebook. While research in English is advanced, Bangla remains underexplored. We tested ML models, RNNs, and BanglaBERT on Bangla Facebook posts, finding traditional models with TF-IDF embeddings outperform BanglaBERT due to limited data and fine-tuning. To aid fact-checkers, we developed the “Automated Context Detector,” an NLP-based tool that streamlines tasks, showing promising results on Bangla posts. This study highlights the potential of ML to improve fact-checking and offers a framework for similar contexts.

Keywords: Fact-Checking, Machine Learning, Natural Language processing, Context Detection

Streamlining Facebook Fact-Checking: The Role of Proposed Automated Tools

Target Journal: PAJAIS, Expected Submission: March 2025

Supervisor: Dr. Tanjila Kanij

- This study focuses on understanding the issue of false information dissemination through Facebook in Bangladesh and proposing solutions. The survey encompassed Bangladeshi Facebook users, while professional fact-checkers and experts were interviewed to comprehend current practices and identify gaps in Facebook post fact-checking in Bangladesh. Based on these insights, the study suggests the implementation of automated tools like opinion detectors, context detectors, and information extractors to reduce the manual workload of fact-checkers and improve fact-checking efficiency in Bangladesh. These tools can also be applied in similar cultural contexts to strengthen fact-checking practices globally.

Keywords: Misinformation, Fact-checking, Thematic analysis

Leveraging LLMs to Extract Gender Profiles from Social Media posts in the Low-Resource Language Bangla

Ongoing Project

- With the expansion of social media platforms, author gender identification has grown increasingly vital for cybersecurity, preventing identity theft, addressing cyberbullying, and shaping marketing strategies. This research focuses on gender profiling in the Bangla language, aiming to uncover insights about anonymous authors based on their writing styles in social media posts. While similar work has been done in languages such as English, Spanish, and Arabic, Bangla, as a low-resource language, presents unique challenges. My approach seeks to overcome these challenges by utilizing large language models (LLMs).

RELEVANT COURSEWORKS

Data Mining | Neural Networks and Fuzzy systems | Artificial Intelligence | Digital Image Processing | Network Security and Design | Software Engineering | Information System Analysis and Design

SKILLS

Programming Languages	C, C++, Java, Python, Verilog , LaTeX, HTML, CSS
Development Tools	Netbeans, Visual Studio, Jupyter Notebook, OpenGL, Android studio
Databases	MySQL, SQLite, Postgresql
Libraries & Frameworks	PyTorch, Huggingface, TensorFlow, Pandas, Numpy, Matplotlib, Django
Hardware	Microcontroller programming (Arduino)
Qualitative Analysis Tools	CAT, TAMS

ONLINE CERTIFICATION

- **Machine learning** on Coursera
- **Mathematics for Machine Learning: Linear Algebra** on Coursera
- **Neural Networks and Deep Learning** on Coursera
- **Convolutional Neural Networks** on Coursera

WORKPLACE EXPERIENCE

MDInfotech	Rajshahi, Bangladesh
<i>System Analyst Intern</i>	Sept 2022 - Dec 2022

- The system analyst team investigated using interviews, questionnaires, and on-site observation, employing tools like data flow diagrams, data dictionaries, and decision trees. Identified challenges included poor database management, limited support capacity, and outdated resources affecting efficiency. Proposed practical solutions post a thorough feasibility study and cost-benefit analysis.

SIGNIFICANT PROJECTS

- **Fake news Classifier:** Implemented a classification model utilizing the **transformer** from the **Hugging Face** library. Trained on the BanFakeNews dataset consisting of Bangla textual news, the model demonstrates effective performance in classifying clickbaits, satire, and fake news.
- **Hospital Management system:** Developed a robust healthcare Web App via Django, ensuring secure access for admin, doctors, patients, and pharmacists. Included medical history access, appointment scheduling, prescription transfers, ambulance booking, and online consultations, highlighting Django proficiency.
- **Bookish:** Implemented a **PHP-backend** book rental app with admin and user portals. Users create accounts to rent or offer books. Organized books by genre, featuring a user rating system. Offers numerous features for an easier, affordable, and engaging reading experience.
- **Health checker:** Developed a **Java-based** health-tracking **Android App** with **SQLite**. Captured vital health data, calculated metrics, and provided personalized guidance.
- **Safeguard:** Developed an **Arduino** safety system detecting fire and gas leaks, sending real-time data via a web app and remote alerts. Required hardware-software integration and microcontroller programming.

EXTRA CURRICULAR ACTIVITES

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| • Workshop on Socio-technical Grounded Theory by Dr. Rashina Hoda | 2023 |
| • Datathon 2.0 by Robi | 2022 |
| • Participant of Precise Energy Olympiad | 2022 |
| • Bangladesh Analytics Lab boot-camp by PreneurLab and Facebook Data for Good | 2021 |
| • Member of RAPL (RUET ANALYTICAL PROGRAMMING LAB) | 2017-2021 |
| • Participant of Hult Prize, RUET 2019 | 2019 |
| • Intra Ruet Programming Contest | 2019 |