

# TASNUVA TANJUM FERDOUS

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## RESEARCH INTERESTS

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

## EDUCATION

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**Rajshahi University of Engineering and Technology**

*Rajshahi, Bangladesh*

B.Sc in Computer Science and Engineering

Jan 2018 - Sept 2023

CGPA: 3.19 out of 4.00

## TEST SCORES

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- **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

## PUBLICATIONS

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**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*

- As part of the semi-automated fact-checking system, we developed a "Context Detector", a machine learning tool to classify Bangla Facebook posts by context. While similar research exists in other languages, Bangla remains underexplored. To address this, we created a custom dataset of Bangla posts in four contexts: political, religious, health, and miscellaneous. We tested RNN and BERT-based models, yielding promising results and highlighting the potential of machine learning and language models for context detection in low-resource languages like Bangla.  
**Keywords:** Fact-Checking, Machine Learning, Natural Language Processing, Context Detection

## RESEARCH WORKS

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**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

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

## SKILLS

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

## ONLINE CERTIFICATION

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- **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

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<b>MDInfotech</b>	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

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- **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      |