

Md Farhan Ishmam

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RESEARCH INTERESTS

Visual Question Answering (VQA), Low Resource Natural Language Processing (NLP), Resource Efficiency and Evaluation of Large Language Models (LLMs)

EDUCATION

- **Islamic University of Technology** Dhaka, Bangladesh
Bachelor of Science in Computer Science and Engineering; GPA: 3.96 (Ranked: 4th/96) Jan 2019 - Aug 2023
 - **Thesis:** Visual Robustness Analysis of VQA [1] and Caption Ranking in Zero-Shot VQA

TEACHING EXPERIENCE

- **Islamic University of Technology** Dhaka, Bangladesh
Lecturer, Department of Computer Science and Engineering Aug 2023 - Present
 - **Courses:** Simulation and Modeling (Winter 2024), Microprocessor and Interfacing (Summer 2023), Business Analytics and Technology (Winter 2023) [[Slides](#)]

INDUSTRY & RESEARCH EXPERIENCE

- **Penta Global Limited** Dhaka, Bangladesh
AI Researcher, Research and Development July 2023 - Present
 - **Telecom LLM:** Designing and developing a private Retrieval Augmented Generation (RAG) system using LLMs for the telecommunications domain.
 - **Bangla NLP:** Conducted research-based projects on romanized Bangla back-transliteration [6] and Bangla VQA systems [7] using novel datasets and methodologies.
- **Advanced Machine Intelligence Lab** Dhaka, Bangladesh
Researcher, Natural Language Processing and Computational Linguistics May 2023 and Aug 2023
 - **VQA Survey:** Compiled a comprehensive survey on VQA through critical analysis and introduced novel taxonomy of the VQA literature [2].

RESEARCH

1. Visual Robustness Benchmark for Visual Question Answering (VQA)
MF Ishmam*, I Tashdeed*, TA Saadat*, MH Ashmafee, ARM Kamal, MA Hossain
ArXiv Preprint, 2024 [[Preprint](#)] [[Code](#)]
2. From Image to Language: A Critical Analysis of Visual Question Answering (VQA) Approaches, Challenges, and Opportunities
MF Ishmam, MS Shovon, MF Mridha, N Dey
Information Fusion Journal, 2024 [[Paper](#)] [[Preprint](#)]
3. Penta NLP at EXIST 2024 Task 1-3: Sexism Identification, Source Intention, Sexism Categorization In Tweets
FT Shifat, F Haider, MSUR Sourove, DD Barua, **MF Ishmam**, M Fahim, FA Bhuiyan
EXIST at Conference and Labs of the Evaluation Forum (CLEF), 2024 [[Paper](#)] [[Code](#)]
4. Penta ML at EXIST 2024: Tagging Sexism in Online Multimodal Content With Attention-enhanced Modal Context
DD Barua, MSUR Sourove, F Haider, FT Shifat, **MF Ishmam**, M Fahim, FA Bhuiyan
EXIST at Conference and Labs of the Evaluation Forum (CLEF), 2024 [[Paper](#)] [[Code](#)]
5. BnSentMix: A Diverse Bengali-English Code-Mixed Dataset for Sentiment Analysis
S Alam, **MF Ishmam**, NH Alvee, MS Siddique, MA Hossain, ARM Kamal
ArXiv Preprint, 2024 [[Preprint](#)] [[Code](#)]

6. BanglaTLit: A Benchmark Dataset for Back-Transliteration of Romanized Bangla
M Fahim*, FT Shifat*, **MF Ishmam***, DD Barua, F Haider, MSUR Sourove, FA Bhuiyan
In-Review [\[Code\]](#)
7. ChitroJera: A Regionally Relevant Visual Question Answering Dataset for Bangla
M Fahim*, DD Barua*, MSUR Sourove*, **MF Ishmam**, FT Shifat, F Haider, FA Bhuiyan
In-Review [\[Code\]](#)
8. Leveraging FourierKAN Classification Head for Pre-Trained Transformer-based Text Classification
AA Imran*, **MF Ishmam***
ArXiv Preprint, 2024 [\[Preprint\]](#) [\[Code\]](#)

RESEARCH TAGS

Visual Question Answering (3) - [1,2,7]
Sexism (2) - [3,4]

Low Resource NLP (3) - [5,6,7]
Language Mixing (2) - [5,7]

PROJECTS

1. **Queuing System Simulation:** Open source implementation of queuing systems in C++ [\[Code\]](#)
2. **ML Algorithm Visualizer:** A Jupyter notebook serving as a learning resource to visualize ML algorithms [\[Code\]](#)

TECHNICAL SKILLS

Deep Learning Tools: PyTorch, Hugging Face, JupyterLab/Colab, Scikit Learn, Keras

Programming Languages: Python, C++, C, SQL, Bash, Java, R

General Tools: Git, L^AT_EX, Draw.io, Visual Studio Code, Docker, Microsoft Office, Obsidian

RELEVANT COURSES

• Natural Language Processing • Digital Image Processing • Machine Learning • Deep Learning • Linear Algebra • Multivariate Calculus • Probability and Statistics • Data Analytics • Big Data Analysis with SQL • Database Management System • Data Mining • Data Structures • Algorithms • Graph Theory • Simulation and Modeling • Object Oriented Programming • Operating System • Software Engineering Principles

ACHIEVEMENTS

- *Finalists*, Robi Datathon 3.0 - Bangladesh's largest data science event with 3,500+ participants.