

MISBAH AL MAMUN

Sylhet, Bangladesh ♦ misbah.am@sec.ac.bd ♦ +880 1733 475166

[Google Scholar](#) ♦ [GitHub](#) ♦ [ResearchGate](#) ♦ [LinkedIn](#)

EDUCATION

B.Sc. in Computer Science and Engineering, Sylhet Engineering College

2022–2026

Affiliated with Shahjalal University of Science and Technology (SUST)

CGPA: 3.62/4.00 | Final-semester GPA: 4.00/4.00

Undergraduate Thesis: *End-to-End Swara Segmentation and Identification in Indian Classical Flute Melodies: A Deep Learning Framework with Comparative Analysis of Acoustic Features*. Two-stage CRNN+CNN pipeline compared across six acoustic feature representations, trained on a synthetically generated melody dataset built for the project.

RESEARCH INTERESTS

Machine Learning and Deep Learning; Natural Language Processing; Low-Resource and Multilingual NLP; Audio Signal Processing.

PUBLICATIONS

- **Beyond Sentiment: The Influence of Game Pricing on Player Feedback in Steam Reviews.**
Misbah Al Mamun, Akash Datta Roni. *2025 International Conference on Computer and Information Technology (ICCIT)*, 2025.
DOI: [10.1109/ICCIT68739.2025.11491221](https://doi.org/10.1109/ICCIT68739.2025.11491221)
- **Hierarchical Context-Aware Network (HC-Net): A Multi-Task Learning Approach for Robust MRI Disease Diagnosis.**
Akash Datta Roni, Misbah Al Mamun, Kazi Mohammad Shahed, Abul Kasim Mohammad Abu Musa. *2026 IEEE 2nd International Conference on Quantum Photonics, Artificial Intelligence and Networking (QPAIN)*, CUET, 2026.
DOI: [10.1109/QPAIN69676.2026.11546063](https://doi.org/10.1109/QPAIN69676.2026.11546063) [cert]

RESEARCH EXPERIENCE

- **Bangla–Sylheti Nagri Machine Translation (ongoing)** — Developing a three-tier hybrid pipeline (exact match → RAG-grounded generation → flagging) with ByT5-small fine-tuning on a self-built parallel corpus, motivating a case for byte-level models on script-unseen low-resource pairs.
- **Swara Boundary Detection in Indian Classical Flute (under review)** — Systematic comparison of five acoustic feature representations (MFCC, Log-Mel, pitch, RMS, CQT) for automatic swara boundary segmentation with an attention-guided CRNN, trained on synthetic melodies and evaluated on real recordings; attention-pattern analysis used to explain performance differences across features.
- **SylEmotions: Sylheti Emotion Detection (under review)** — Built a dual-script (Syloti Nagri and Bangla script) Sylheti emotion corpus over seven classes and benchmarked classical, character-level and pretrained-transformer models, contrasting native-script against transliterated performance.
- **Equity-Aware Parliamentary Speech Attribution (under review)** — Comparative fine-tuning of DistilBERT under five class-imbalance-mitigation strategies for party attribution on the UK Hansard corpus (1979–2018).
- **Bangla Misogyny Detection (under review)** — Benchmarked full fine-tuning against LoRA-based parameter-efficient fine-tuning on BanglaBERT, XLM-RoBERTa and Qwen2.5-1.5B for fine-grained misogyny categorisation on the OMANISHA benchmark, with SHAP-based interpretability and error analysis.

DATASET DEVELOPMENT

- **Bangla–Syloti Nagri Parallel Corpus** — 21,181 aligned entries pairing Bangla sentences with Syloti translations in Bangla script and in Syloti Nagri script, for low-resource machine translation.
- **SylEmotions** — 7,051 dual-script Sylheti sentences labelled by native speakers across seven emotion classes (Angry, Happy, Sad, Hate, Fear, Surprise, Neutral).
- **SwaraSet** — 748 isolated swara recordings across the seven primary swara classes, collected from professional flute musicians across multiple octaves and playing styles, plus 1,000 synthetic continuous melodies generated by DTW-based concatenation with time-stretching, carrying ground-truth boundary timestamps.

PROFESSIONAL SERVICE

Reviewer, 4th International Conference on Computing Advancements (ICCA 2026) [cert]

August 2026

TECHNICAL PROJECTS

- **Syltrans** — Bidirectional Bengali $\rightleftharpoons$ Syloti Nagri transliterator: a rule-based Flask engine behind a dual-panel web UI with live conversion ([live demo](#)).
- **Multilingual Translator Web** — Flask application translating across 45+ languages with Hugging Face NLLB-200-distilled-600M and automatic language detection; measured 84.8% detection accuracy across 46 languages.
- **Summer–Winter Translator** — Unpaired image-to-image translation between summer and winter landscapes using CycleGAN in PyTorch, with a Gradio interface.

TECHNICAL SKILLS

Programming: Python, C, C++, Java, SQL

ML & NLP: PyTorch, Hugging Face Transformers, LoRA / parameter-efficient fine-tuning, SHAP; BanglaBERT, XLM-RoBERTa, Qwen2.5, ByT5, DistilBERT, NLLB-200

Audio & Signal Processing: MFCC, Log-Mel, CQT, pitch and RMS features, DTW, digital signal processing

Computer Vision: CNN, CRNN, CycleGAN, MobileNetV2, YOLOv8

Web & Tools: Flask, Gradio, HTML/CSS, Git, GitHub, MATLAB, LaTeX

HONORS AND CERTIFICATIONS

- Winner, Semi-Final and Quarter-Final Rounds, ICT Olympiad Bangladesh, 2025 [\[cert\]](#) [\[cert\]](#)
- Cyber Security, Arena Web Security, November 2025 (Verification No. A56W2511S028) [\[cert\]](#)

LEADERSHIP AND ACTIVITIES

Vice President, Public Universities Students' Association of Gowainghat (PUSAG)	<i>Oct 2025–Present</i>
Education Affairs Secretary, CSE Society, Sylhet Engineering College	<i>Nov 2025–Present</i>
Treasurer, CSE Research Club, Sylhet Engineering College	<i>Dec 2025–Present</i>
Organizing Secretary, Gowainghat Chhatra Parishad, Sylhet	<i>Feb 2023–Dec 2025</i>

LANGUAGES

Bangla (native) ♦ Sylheti (native) ♦ English (working proficiency)