Mehedi Hasan Bijoy

mhb6434@gmail.com

LinkedIn • GitHub • Google Scholar • Portfolio

Experience

Mar 24 - May 25 **Research Assistant**
Automatic Speech Recognition Research Group, Aalto University
Projects: Knowledge Distillation for Large Audio-Language Model Compression
- Multilingual Speech Emotion Recognition
- Accented English Speech Recognition (ongoing Master's thesis)

Jan 23 - Oct 23 **Lecturer**
Department of CSE, Bangladesh University of Business and Technology
Courses:
- CSE103 - Discrete Mathematics
- CSE111 & CSE112 - Structured Programming Language and Lab
- CSE121 & CSE122 - Object Oriented Programing Language and Lab
- CSE231 & CSE232 - Data Structures and Lab
- CSE467 - Pattern Recognition

Mar 22 - Jun 23 **Research Assistant**
Institute for Advanced Research, United International University
Project: Development of Bangla Spell and Grammar Checker
Outcomes: Co-authored peer-reviewed publications in *Computer Speech & Language*, *Neural Computing and Applications*, and *EMNLP/BLP 2024*.

Feb 22 - Jan 23 **Lab Instructor**
Department of Electrical & Computer Engineering, North South University
Courses:
- CSE115L - Programming Language I Lab
- CSE225L - Data Structures and Algorithms Lab

Oct 20 - Sep 21 **Teaching Assistant**
Department of Mathematics & Physics, North South University
Course: MAT361 - Probability & Statistics

Academic Credential

- M.Sc. in Computer, Communication and Information Sciences
  Aalto University, Finland   Sep 2023 - May 2025
  CGPA: **4.73* / 5.00**
  Major: **Speech and Language Technology**
  Minor: **Machine Learning, Data Science and Artificial Intelligence**

- B.Sc. in Computer Science & Engineering
  North South University, Bangladesh   May 2017 - Sep 2021
  CGPA: **3.81 / 4.00**
  Specialization: **Artificial Intelligence**

Programming Skills

- **Languages**: Python, C, C++, SQL, Java
- **DL Frameworks**: PyTorch, HuggingFace, LangChain
- **ML Libraries**: Scikit-learn, NLTK, Gensim, Pandas, Numpy, Matplotlib, Seaborn
- **Web Development Tools**: FastAPI, Gradio
- **Data Visualization Tool**: Tableau
- **Web Scraping Libraries:** Selenium, Beautiful Soup, Requests, Urllib, Wikipedia-API
- **Developer Tools**: LaTex, Git, Google Colab, Jupyter Notebook, Eclipse, SSMS, SQL Workbench

List of Relevant Courses

- Software Engineering with Large Language Models, CS-AJ1040, Aalto University, Finland.
- Large Language Models, ELL881/AIL821, IIT Delhi, India. <Audited>
- Statistical Natural Language Processing, ELEC-E5550, Aalto University, Finland.
- Machine Learning, CS-C3240, Aalto University, Finland.
- Deep Learning with Python, CS-EJ3311, Aalto University, Finland.
- Deep Learning, CS-E4890, Aalto University, Finland.
- Speech Processing, ELEC-E5500, Aalto University, Finland.
- Speech Recognition, ELEC-E5510, Aalto University, Finland.
- Supervised Machine Learning, CS-E4715, Aalto University, Finland.
- Natural Language Processing, CSE495, North South University, Bangladesh.

Open-Source LLM Projects

- **A web application for general questions and answers.** (code)
  Developed using Mistral-7B-instruct, Gradio and FastAPI.

- **RAG-Powered PDF Query System.** (code)
  Developed using Llama2.

Awards & Scholarships

- Finland Scholarship for graduate studies at Aalto University, Finland.
- Summa Cum Laude distinction in Bachelor of Science.
- Partial tuition fee waiver grant for undergraduate studies at North South University, Bangladesh.

Standard Test Scores

- **International English Language Testing System (IELTS)**
  Overall: 7.0 | Speaking - 8.0
  Date of Exam - October 29, 2022

Research Interests

Knowledge Distillation, Multilinguality, Large Language Models, Speech & Language Processing

Publication († indicates equal contributions)

- **Multimodal Humor Detection and Social Perception Prediction**
  ACM Multimedia 2024, MuSe 2024 / Code
  Authors: **Mehedi Hasan Bijoy†**, Dejan Porjazovski†, Nhan Phan†, Guangpu Huang†, Tamás Grósz, and Mikko Kurimo

- **A transformer-based spelling error correction framework for Bangla and resource scarce Indic languages**
  Computer Speech & Language / Paper / Code
  Authors: **Mehedi Hasan Bijoy†**, Nahid Hossain†, Salekul Islam, and Swakkhar Shatabda

- **Panini: A Transformer Based Grammatical Error Correction Method for Bangla**
  Neural Computing and Applications / Paper / Code
  Authors: Nahid Hossain†, **Mehedi Hasan Bijoy†**, Salekul Islam, and Swakkhar Shatabda

- **Advancing Bangla Punctuation Restoration by a Monolingual Transformer-based Method and a Large-Scale Corpus**
  EMNLP 2023, BLP 2023 / Paper / Code / Slides / Oral Presentation
  Authors: **Mehedi Hasan Bijoy†**, Mir Fatema Afroz Faria†, Mahbub E Sobhani, Tanzid Ferdoush, and Swakkhar Shatabda

- **Towards Sustainable Agriculture: A Novel Approach for Rice Leaf Disease Detection using CNN and Enhanced Dataset**
  IEEE Access / Code / Paper
  Authors: **Mehedi Hasan Bijoy**, Nirob Hasan, Mithun Biswas, Suvodeep Mazumdar, Andrea Jimenez, Faisal Ahmed, Mirza Rasheduzzaman, and Sifat Momen

- **Image Tagging by Fine-tuning Class Semantics Using Text Data from Web Scraping**
  ICCIT 2021 / Paper / Oral Presentation
  Authors: **Mehedi Hasan Bijoy†**, Nirob Hasan†, Md. Tahrim Faroque Tushar, and Shafin Rahman

Research Papers (Under Review)

- **Multi-Teacher Language-Aware Knowledge Distillation for Multilingual Speech Emotion Recognition** [Code]
  Authors: **Mehedi Hasan Bijoy**, Dejan Porjazovski, Tamás Grósz, and Mikko Kurimo