SAFAEID HOSSAIN ARIB

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EDUCATION

■ **Bachelor of Science in Robotics and Mechatronics Engineering**   Jan 2019 - Mar 2024
University of Dhaka

CGPA: 3.67/4.00

Final Year Project: Continuous Bangla Sign Language Translation: Mitigating the Expense of Gloss Annotation with the Assistance of Graph [Presentation]

Relevant Coursework:

- Artificial Intelligence
- Introduction to Machine Learning
- Digital Image Processing and Robot Vision
- Digital Signal Processing
- Object Oriented Programming
- Fundamentals of Programming
- Linear Algebra
- Multivariate and Vector Calculus
- Statistics for Engineers

■ **CFA**   Feb 2024
CFA Institute

Passed CFA level 1 on the first attempt.

Relevant Coursework:

- Economics
- Corporate Finance
- Portfolio Management
- Financial Reporting Analysis
- Quantitative Analysis
- Fixed income Analysis
- Professional Ethics
- Equity Investment
- Derivatives

RESEARCH INTERESTS

Natural Language Processing (NLP)

PUBLICATIONS

■ **Classical machine learning approach for human activity recognition using location data** [Paper]
Authors : **Safaeid Hossain Arib**, Rabeya Akter, Omar Shahid, and Md Atiqur Rahman Ahad.
Conference : *Adjunct Proceedings of the 2021 ACM International Joint Conference on Pervasive and Ubiquitous Computing and Proceedings of the 2021 ACM International Symposium on Wearable Computers*

■ **Bornil : An open-source sign language data crowdsourcing platform for AI enabled dialect-agnostic communication**
[Paper]
Authors : Shahriar Elahi Dhruvo, Mohammad Akhlaqur Rahman, Manash Kumar Mandal, Md Istiak Hossain Shihab, A. A. Ansary, Kaneez Fatema Shithi, Sanjida Khanom, Rabeya Akter, **Safaeid Hossain Arib**

■ **SignFormer-GCN : Continuous Sign Language Translation Using Spatio-Temporal Graph Convolutional Networks**
(Manuscript submitted)
Authors : **Safaeid Hossain Arib**[�she], Rabeya Akter[�she], Sejuti Rahman, Shafin Rahman (☯Authors contributed equally)

RESEARCH EXPERIENCE

■ **Undergraduate Research Assistant**   Jan 2023 - Dec 2023
Department of Robotics and Mechatronics Engineering, University of Dhaka

- Designed and implemented a novel architecture for BdSL translation, establishing the first benchmark in this low-resource language domain.
- Authored a manuscript detailing innovative methodology and findings, currently under review.

RESEARCH GRANTS

■ Special Innovation Fund of Bangladesh Ministry of Science and Technology (MoST) for the 2023-2024 Fiscal Year (Project ID : SRG-232431)

PROFESSIONAL EXPERIENCE

■ **Machine Learning Engineer**   February 2024 - Present
Ontik Technology
  ○ Created Power BI dashboard to enable the Business and Finance teams to track organizational progress and help in making data driven decisions.
  ○ Designed prototype for Retrieval Augmented Generation Chatbot for automating customer support.
  ○ Led the development of Project Ongaurd-M, serving both as a machine learning engineer and the point of contact (PoC), creating a tool to help patients scan prescriptions, schedule medication dosages, and find alternative medicines.
  ○ Conducted financial planning and analysis for LazyChat, spanning competitor analysis, go-to-market strategy, value proposition, market positioning, and pricing strategy development.
  ○ Working as the PoC for multiple projects, including a microsite project in collaboration with the Faculty of Information (iSchool), University of Toronto and a finance project Zapier.

PROJECTS

■ **Continuous Sign Language Translation** [Github] [Demo]   Jan 2023 - Jul 2024
Topic : Natural Language Processing and Computer Vision
  ○ Developed SignFormer-GCN, a novel architecture combining transformer and STGCN to capture both high-level context and low-level spatial-temporal dependencies in sign language translation, integrating keypoint and RGB features to enhance recognition of body configurations and expressions, achieving competitive performance on RWTH-PHOENIX-2014T, How2Sign, and BornilDB v1.0 datasets.

■ **Comparative Analysis of Emotional Support Delivery by NAO Robot and Humans Across Varied Emotional States** [GitHub] [Demo]   Aug 2023 - Nov 2023
Topic : Human Robot Interaction
  ○ Conducted a comparative analysis of emotional support delivery by NAO robot and humans across 3 emotional states, developing a system and questionnaire to quantify emotional impact, comfort levels, communication clarity, and overall satisfaction, with the goal of assessing the efficacy of robotic versus human emotional support and identifying areas for improvement.

■ **Automatic Stock Trading** [GitHub]   Aug 2022 - Nov 2022
Topic : Reinforcement Learning
  ○ Developed an automated stock trading system using approximate Q-learning to optimize buy, sell, and hold decisions for three Bangladeshi stocks, achieving an 11% return on investment and demonstrating the effectiveness of reinforcement learning in financial decision-making.

■ **Human Activity Recognition Using Location Data** [GitHub]   Apr 2021 - Jun 2021
Topic : Machine Learning
  ○ Developed a classification model using location data with statistical feature extraction and a Random Forest classifier to identify 8 different activities and modes of locomotion, achieving a validation accuracy of 78.138% and a weighted F1 score of 78.28%, ranking 11th best result in the dataset.

CONFERENCE / WORKSHOP ATTENDED

■ 2nd International Workshop on Computational Linguistics and Bangla Language Processing   2023
■ UbiComp / ISWC Conference [Poster]   2021
  ○ Presented a poster on human activity recognition using location data.

AWARDS AND SCHOLARSHIPS

■ Honourable Mention, NASA Earth Observatory (EO) Dashboard Hackathon   2021
■ 11th, Sussex Huawei Locomotion Challenge   2021

LEADERSHIP/VOLUNTEER ACTIVITIES

■ **Student Activity Secretary**   Jan 2023 - Dec 2023
IEEE Robotics and Automation Society
University of Dhaka Student Branch
  ○ Organized several workshops, interactive sessions and industry expert experience sharing sessions.

■ **Mentor**   Jul 2019 - Dec 2020
Bangladesh Robot Olympiad (BdRO)
  ○ Conducted robotics workshops in multiple high schools and developed engaging quizzes for BdRO.

■ **Mentor**   Jun 2024 - Sep 2024
Bangladesh Artificial Intelligence Olympiad (BdAIO)
  ○ Designed and delivered lessons on classification algorithms and evaluation metrics for a group of 10 high school students, and created quizzes to assess their understanding.