

SYED MOSTOFA MONSUR

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Research Interests

Human-in-the-Loop Machine Learning, NLP, Conversational AI, Human-Centered Design

Publications

- Md Ehtesham-Ul-Haque, **Syed Mostofa Monsur** and Syed Masum Billah. *Grid-Coding: An Accessible, Efficient, and Structured Coding Paradigm for Blind and Low-Vision Programmers*. **UIST'22**. [Best Paper Award, Core Ranking A*]
- **Syed Mostofa Monsur**, Sakib Chowdhury, Md Shahrar Fatemi and Shafayat Ahmed. *SHONGLAP: A Large Bengali Open-Domain Dialogue Corpus*. Proceedings of the 13th Conference on Language Resources and Evaluation (LREC 2022)
- **Syed Mostofa Monsur** and Muhammad Abdullah Adnan. *Distributing Active Learning Algorithms*. In Proceeding of the 7th International Conference on Networking, Systems and Security (NSysS), December 22–24, 2020, Dhaka

Professional Employments

(4+ Years Experience in Industry AI)

- **Celloscope** Dhaka, Bangladesh
Lead AI Research Engineer, AI Team (NLP, Speech and Vision R&D) Jan. 2023 – Present
 - ◇ **Agrani Voice Banking**. Led development of *Agrani Voice Banking*, Bangladesh's pioneering Voice-based AI Chatbot for seamless banking activities, serving hundreds of thousands of real-users. *Agrani Bank* is Bangladesh's one of the largest state-owned banks with a huge number of customers who have very little access to information. *Agrani Voice Banking* makes banking services accessible to everyone. It is powered by Bengali ASR and a finetuned NLU engine for natural language-driven fund transfers and inquiries.
 - ◇ **Leading AI Team**. Leading AI Team for NLP, Speech and Computer Vision tasks. Developing Natural Language based interfaces to make financial services accessible to people. Led Computer Vision Team to develop and deploy production-grade OCR, Liveness Check, Facematch application for API consumers. Improvement of Speech Processing Applications, speech enhancement, keyword spotting for accurate selection, denoising.
- **Celloscope** Dhaka, Bangladesh
AI Research Engineer, NLP and Speech (R&D) Sept. 2020 – Dec. 2022
 - ◇ **Document AI**. Finetuned large multimodal document question answering model with Bengali synthetic and real data. The model can perform question answering on various types of scanned/unstructured documents beating several benchmarks including commercially available OCR products.
 - ◇ **License Plate Extraction**. Training sequence transduction models for extracting license plate contents in very noisy settings.
 - ◇ **NLU ChatBot for Fintechs**. Developed task-oriented bots for businesses; intent detection, slot-filling using Dual Intent and Entity Transformer; training data augmentation using unsupervised paraphrasing model (*t5*-based, fine-tuned on *TaPaCo*).
 - ◇ **Speaker Verification**. Developed production-level speaker verification system using ensemble of pre-trained *unispeech-sat*, *wavlm* and *ecapa-tdnn*.
 - ◇ **Bengali Text-to-Speech**. Trained a production-grade Text-to-Speech system for Bengali language with 40+ hours curated data. Improved generated audio quality with Vcoders (naturalizing audio)
 - ◇ **Bengali ASR**. Collected and pre-processed 400+ hrs of Bengali audio and text transcription data. Developed Hybrid CTC-Attention based end-to-end speech recognition system for Bengali. Integrated LM to improve accuracy.
- **GRP, ICTD** Dhaka, Bangladesh
Software Engineer, Backend Jul. 2019 – Sept. 2020
 - ◇ Implemented automatic deployment of dockerized microservices in cloud; distributed service registry, load balancing, queueing, logging-tracing; API for scalable ERP softwares for public offices.

Education

- **Bangladesh University of Engineering and Technology** Dhaka, Bangladesh
Bachelor of Science in Computer Science and Engineering, Major AI, CGPA 3.54 (out of 4) Feb. 2015 – Apr. 2019

Relevant Coursework

ML (A+), AI (A+), Simulation and Modeling (A+), OS(A), Databases(A), Algorithms (A+), Data Structures(A+) etc.

Skills

- **Research:** NLP, ML, Technical Writing, System Analysis and Design, Quick-Prototyping
- **Tools & OS:** Huggingface, PyTorch, Spacy, Docker, AWS, GCP, Linux
- **Languages & Frameworks:** Python, Java, C++, SQL, Shell, L^AT_EX, Spring, FastAPI, React
- **Databases:** PostgreSQL, SQLite, BerkeleyDB

Reference

- Dr. Muhammad Abdullah Adnan, Professor, Department of CSE, BUET
- Dr. Mamunur Rashid, Assistant Professor in Bioinformatics, University of Birmingham
- Dr. Faizul Bari, University of Waterloo, CTO at Spectrum Software & Consulting Ltd.