

# 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

- **Celloscope** Dhaka, Bangladesh  
*Lead AI Research Engineer, NLP and Speech (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 NLP Team**. Developing Natural Language based interfaces to make financial services accessible to people.
  - ◇ **Consulting Computer Vision Team**. Guiding computer vision and multimodal problems, providing high-quality real world solutions.
- **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 Vocoder (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

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- **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<sup>A</sup>T<sub>E</sub>X, Spring, FastAPI, React
- **Databases:** PostgreSQL, SQLite, BerkeleyDB

## Reference

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- 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.