SAKIB CHOWDHURY

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EDUCATION

Currently Pursuing PhD, ECE, Stevens Institute of Technology 2023 - Expected 2028
Relevant Coursework: Introduction to robotics, Cooperative Mobile Robotics, Probability and Statistics, Deep Learning etc.

Bachelor in EEE, Bangladesh University of Engineering and Technology 2017 - 2022

SKILLS

Technical Skills Python, C, C++, Pytorch, Tensorflow, Bash, ROS, Docker, Microcontrollers, PCB Designing
Soft Skills Teamwork, Problem Solving, Communication

EXPERIENCE

Graduate Research Fellow Sept 2023 - Present
Stevens Institute of Technology *Hoboken, NJ*

- Currently studying high speed decision making and motion planning in receiving and throwing projectiles.

Machine Learning Engineer Dec 2021 - Sept 2023
Celloscope *Dhaka, Bangladesh*

- Developed the first Bangla voice banking system in Bangladesh.
- Designed vision transformer based image to sequence model for extracting text from national ID card images.
- Developed domain-specific speech-to-text system (for Banking application).

Assistant Researcher Mar 2021 - Nov 2021
Bangladesh University of Engineering and Technology *Dhaka, Bangladesh*

- Designed an edgeML powered system that detects derailment from upto 1200 meters distance by sensing the vibrations generated from the movement of train.

Intern Engineer (Hardware Design) Jul 2020 - Dec 2020
Adorsho Pranisheba *Dhaka, Bangladesh*

- Contributed to the development of BOLUS, an AI powered IoT hardware that monitors the health condition of the domestic animals.

PUBLICATIONS

Journal Articles

- S. Chowdhury, D. K. Sikder, A. Roy - ***A Simulated Intelligent Pixelated Electrode Array for Surface Electromyography Sensors***
  IEEE Sensors Journal 2023 (Q1, Impact Factor: 4.325), Submitted (Under Review)
- S. Ahmed, S. Chowdhury, A. B. M. A. A. Islam - ***Joint Optimization of Energy Efficiency and Data Fidelity for Real-Time Air Condition Monitoring***
  Heliyon Journal 2023 (Q1, Impact Factor: 3.776), Submitted (Under Review)
- S. Chowdhury, M. Morshed, S.A. Fattah - ***SpectroCardioNet: An Attention Based Deep Learning Network Using Triple-Spectrograms of PCG Signal for Cardiac Disease Detection***
  IEEE Sensors Journal 2022 (Q1, Impact Factor: 4.325), doi: 10.1109/JSEN.2022.3196263.
- T. Mahmud, M.J. Alam, S. Chowdhury, S.N. Ali, M.M. Rahman, S.A. Fattah, M. Saquib - ***CovTANet: a hybrid tri-level attention based network for lesion segmentation, diagnosis, and severity prediction of COVID-19 chest CT scans***
  IEEE Transactions on Industrial Informatics (Q1, Impact Factor: 11.648) vol. 17, no. 9, pp. 6489-6498, Sept. 2021, doi: 10.1109/TII.2020.3048391.

Conference Articles

- S. M. Monsur, Shariar Kabir, S. Chowdhury - ***SynthNID: Synthetic Data to Improve End-to-end Bangla Document Key Information Extraction***
  EMNLP 2023 (Accepted)
- S. M. Monsur, S. Chowdhury, M. S. Fatemi, S. Ahmed, M. A. Adnan - ***SHONGLAP: A Large Bengali Open-Domain Dialogue Corpus***
  LREC 2022 pp. 5797-5804
- S. Chowdhury, M. L. Rahman, S. N. Ali, M. J. Alam - ***A RNN based parallel deep learning framework for detecting sentiment polarity from Twitter derived textual data*** 2020 11th International Conference on Electrical and Computer Engineering (ICECE 2020)

PROJECTS

Robot Table Tennis Player (ongoing project) Building a table-tennis player with our custom built robotic arm (called "Usain Bolt 2"). Our objective is to study efficient algorithms for throwing and receiving projectiles.

Neural Voice Banking System This project is the first Bangla speech-to-speech system focused on banking applications that acts as a call center. It includes intent recognition, text to speech, speech to text and NLU chatbots trained on Bangla corpus. This application is currently being used as an experimental feature at Agrani Bank.

SpectroCardioNet This is an end-to-end machine learning model that can be used as a diagnosis tool for Cardiovascular diseases. We published it at IEEE Sensors Journal (LINK)

CovTaNet This project is an end-to-end attention-enabled machine learning model that acts as a diagnosis tool for COVID-19. It can diagnose and predict the severity of COVID infected lesion in lungs. We published it in IEEE Transactions on Industrial Informatics. (LINK)

SynthNID This is a synthetic data generator for pretraining Bangla document key information extraction systems. It is primarily designed for generating synthetic Bangladeshi national ID cards, however, it can easily be modified for any other types of Bangla documents. We published it at EMNLP 2023 BLP Workshop(LINK)

Bangla ESPNET This is ESPNET trained on Bangla audios. This is a domain specific speech-to-text system, primarily focused on banking applications.

LEADERSHIP

- Served as Vice Chairperson (Activity) at IEEE BUET Student Branch from 2020-2021. I have been part of IEEE BUET Student Branch since 2017.
- Served as a program coordinator at IEEE PES BUET chapter from 2019-2020.
- Directed the management and coordination of IEEE Region 10 Humanitarian Technology Conference (R10-HTC) 2017 and IEEE WIE International Leadership Summit (ILS) 2018.

HONORS & AWARDS

- Received Provost's Doctoral Fellowship at Stevens Institute of Technology.
- Received special prize for innovative solution at Bengali.AI speech recognition challenge 2023 (from Kaggle).
- Champion at Industrial Automation Challenge 2017, BUET.