# SAKIB CHOWDHURY

+1(201) 448-6568 ◇ Jersey City, NJ
sakibchowdhury131@gmail.com ◇ https://www.linkedin.com/in/sakib-chowdhury97/ ◇ https://sakibchowdhury131.github.io/

## EDUCATION

**Currently Pursuing PhD in Robotics**, 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 Teaching Assistant** Sept 2024 - Present
Stevens Institute of Technology *Hoboken, NJ*

- For the course ENGR 245: Circuits & Systems

**Graduate Research Fellow** Sept 2023 - Aug 2024
Stevens Institute of Technology *Hoboken, NJ*

- Designed a robotic arm for studying high speed control strategies during table-tennis.
- Developed a residual physics-based control system combining core physics principles with machine learning.
- Designed control algorithms for precise, strategic hits, ensuring the ball lands accurately at target locations.

**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).

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

- Designed an edgeML powered device 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*

- Designed BOLUS, an IoT hardware that is placed in the stomach of domestic cattle to monitor the health conditions.

## 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** Designed a table tennis-playing robot using a custom-built robotic arm, "IVOR". Implemented a residual physics-based modular control strategy that integrates physics knowledge with machine learning experience. This approach enables precise control, allowing the robot to strategically hit the ball ensuring the ball lands at the desired location on the court.

**Neural Voice Banking System** Built the first Bangla speech-to-speech system tailored for banking applications, functioning as a Bengali AI assistant for bank helplines. Currently deployed as an experimental feature at Agrani Bank.

**SpectroCardioNet** Developed a comprehensive machine learning model designed as a diagnostic tool for cardiovascular diseases. The model was published in the IEEE Sensors Journal.Read the publication.

**CovTaNet** Developed an end-to-end machine learning model with attention mechanisms for diagnosing and predicting the severity of COVID-19 lesions in the lungs. The findings were published in IEEE Transactions on Industrial Informatics. Read the publication.

**Bangla Image2Text** Built vision transformer based Bangla image to text model. This model was originally built at Celloscope for extracting car license plate text at toll plazas. The model outperformed the only commercially available Bangla OCR API, "OCRSpace," in extracting information from Bangladeshi national ID cards and vehicle license plates.

**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.