

# Sabbir Ahmed

**Email:** sabbirahmed@iut-dhaka.edu | **Phone:** (880) 1754221481 | **Website:** ggck43.github.io

**Google Scholar:** [https://scholar.google.com/citations?user=I\\_Dk4ZoAAAAJ](https://scholar.google.com/citations?user=I_Dk4ZoAAAAJ)

## About

I am working as an Assistant Professor in the Department of CSE at the Islamic University of Technology (IUT). At present, I am a member of the Computer Vision lab, advised by Prof. Hasanul Kabir. Before that, I received my M.Sc. and B.Sc. (Gold medalist) in CSE from IUT, respectively, in the years 2022 and 2017. My current research is in improving few-shot learning algorithms for image classification tasks. Besides, I've worked with different applications of deep learning in the fields of Computer Vision and Natural Language Processing, such as leaf disease classification, gait analysis, traffic sign detection, text summarization, handwritten digit recognition, etc.

## Education

- **M.Sc. in Computer Science and Engineering**  
Department of CSE, Islamic University of Technology  
*Thesis:* Classification of Plant Disease from Leaf images using Few-shot Learning  
*Supervisor:* Dr. Md. Hasanul Kabir, Professor, IUT
- **B.Sc. in Computer Science and Engineering** (First Class First - IUT Gold Medalist) 2014 - 2017  
Department of CSE, Islamic University of Technology
- **Higher Secondary School Certificate (HSC)** 2011 - 2012  
Chittagong College

## Experience

- **Assistant Professor** September 2022 - Present  
Department of CSE, Islamic University of Technology  
*Courses conducted:* Pattern Recognition, Data Structures, Algorithms, Big Data Analysis, Linear Algebra  
*Official responsibilities:* Routine preparation, Exam coordination, Question moderation, Course load distribution, Student advisor for third year.  
*Club responsibilities:* Advisor - IUT Computer Society (IUTCS), IUT Programming Community (IUTPC)
- **Lecturer** 2018 - August 2022  
Department of CSE, Islamic University of Technology

## Publications

### Journals (5)

1. Tasnim Ahmed, Shahriar Ivan, Ahnaf Munir, and **Sabbir Ahmed**. "Decoding depression: Analyzing social network insights for depression severity assessment with transformers and explainable AI." *Natural Language Processing Journal* (2024), Elsevier.
2. Md Bakhtiar Hasan, Tasnim Ahmed, **Sabbir Ahmed**, and Md Hasanul Kabir. "GaitGCN++: Improving GCN-based gait recognition with part-wise attention and DropGraph." *Journal of King Saud University-Computer and Information Sciences*, Elsevier (2023)
3. ABM Ashikur Rahman, Md Bakhtiar Hasan, **Sabbir Ahmed**, Tasnim Ahmed, Md Hamjajul Ashmafee, Mohammad Ridwan Kabir, and Md Hasanul Kabir. "Two decades of Bengali handwritten digit recognition: A survey." *IEEE Access* 10 (2022)
4. **Sabbir Ahmed**, Md Bakhtiar Hasan, Tasnim Ahmed, Md Redwan Karim Sony, and Md Hasanul Kabir. "Less is more: lighter and faster deep neural architecture for tomato leaf disease classification." *IEEE Access* 10 (2022)
5. Mohammed A. Alanezi, Mohammad S. Shahriar, Md Bakhtiar Hasan, **Sabbir Ahmed**, Yusuf A. Sha'aban, and Houssein REH Boucekara. "Livestock management with unmanned aerial vehicles: A review." *IEEE Access* (2022)

## Conferences (20)

1. Shahriar Ivan, Tasnim Ahmed, **Sabbir Ahmed**, and Md Hasanul Kabir. "A Vision-Language Multimodal Framework for Detecting Hate Speech in Memes." In CCECE (2024), IEEE, Canada.
2. Tasnim Ahmed, Md Bakhtiar Hasan, **Sabbir Ahmed**, and Md Hasanul Kabir. "ExE-Net: Explainable Ensemble Network for Potato Leaf Disease Classification." In CCECE (2024), IEEE, Canada.
3. Syem Aziz, Nokimul Hasan Arif, Sakif Ahbab, **Sabbir Ahmed**, Tasnim Ahmed, and Md Hasanul Kabir. "Improved Speech Emotion Recognition in Bengali Language using Deep Learning." In 26<sup>th</sup> ICCIT (2023), IEEE, Cox's Bazar, Bangladesh.
4. Mohtasim Hadi Rafi, Mohammad Ratul Mahjabin, Md Sabbir Rahman, Md Hasanul Kabir, and **Sabbir Ahmed**. "A Critical Analysis of Deep Learning Applications in Crop Pest Classification: Promising Pathways and Limitations." In 26<sup>th</sup> ICCIT (2023), IEEE, Cox's Bazar, Bangladesh.
5. Sidratul Tanzila Tasmi, **Sabbir Ahmed**, and Md Mohsin Sarker Raihan. "Performance Analysis of Machine Learning Algorithms for Autism Spectrum Disorder Level Detection using Behavioural Symptoms." In 26<sup>th</sup> ICCIT (2023), IEEE, Cox's Bazar, Bangladesh.
6. Tauseef Tajwar, Muftiqur Rahman, Taukir Azam Chowdhury, **Sabbir Ahmed**, Moshir Farazi, and Md Hasanul Kabir. "Improving Zero-Shot Semantic Segmentation using Dynamic Kernels." In *DICTA (2023)*, IEEE, Australia.
7. Alvi Khan, Fida Kamal, Nuzhat Nower, Tasnim Ahmed, **Sabbir Ahmed**, and Tareque Chowdhury. "NERvous About My Health: Constructing a Bengali Medical Named Entity Recognition Dataset", *EMNLP Findings (2023)*, ACL, Singapore
8. Ridwan Mahbub, Ifrad Khan, Samiha Anuva, Md Shihab Shahriar, Md Tahmid Rahman Laskar, and **Sabbir Ahmed**. "Unveiling the Essence of Poetry: Introducing a Comprehensive Dataset and Benchmark for Poem Summarization", *EMNLP Main (2023)*, ACL, Singapore.
9. Alvi Khan, Fida Kamal, Mohammad Abrar Chowdhury, Tasnim Ahmed, Md Tahmid Rahman Laskar, and Sabbir Ahmed. "BanglaCHQ-Summ: An Abstractive Summarization Dataset for Medical Queries in Bangla Conversational Speech", *EMNLP BLP workshop (2023)*, ACL, Singapore.
10. Asaduzzaman Herok, and Sabbir Ahmed. "Cotton Leaf Disease Identification Using Transfer Learning", 2<sup>nd</sup> *ICICT4SD (2023)*, IEEE, Dhaka, Bangladesh.
11. Rafid Haque, ABM Ashikur Rahman, and **Sabbir Ahmed**. "Data-Driven Analysis and Forecasting of COVID-19 Third Wave in SAARC Countries", 2<sup>nd</sup> *ICICT4SD (2023)*, IEEE, Dhaka, Bangladesh.
12. Tasnim Ahmed, Ahnaf Munir, **Sabbir Ahmed**, Md. Bakhtiar Hasan, Md. Taslim Reza, Md. Hasanul Kabir, "Structure-Enhanced Translation from PET to CT Modality with Paired GANs", 6<sup>th</sup> *ICMVA (2023)*, ACM, Singapore.
13. Md. Hamjajul Ashmafee, Tasnim Ahmed, **Sabbir Ahmed**, Md. Bakhtiar Hasan, Mst Nura Jahan, A.B.M. Ashikur Rahman, "An Efficient Transfer Learning-based Approach for Apple Leaf Disease Classification", 3<sup>rd</sup> *ECCE (2023)*, IEEE, Chittagong, Bangladesh.
14. Ahmed Nusayer Ashik, Md Saimul Haque Shanto, Rizwanul Haque Khan, Md. Hasanul Kabir, and **Sabbir Ahmed**, "Recognizing Bangladeshi Traffic Signs in the Wild", 25<sup>th</sup> *ICCIT (2022)*, IEEE, Cox's Bazar, Bangladesh.
15. Minhaz Kamal, Fairuz Shaiara, Chowdhury Mohammad Abdullah, **Sabbir Ahmed**, Tasnim Ahmed, and Md. Hasanul Kabir, "Huruf: An Application for Arabic Handwritten Character Recognition Using Deep Learning", 25<sup>th</sup> *ICCIT (2022)*, IEEE, Cox's Bazar, Bangladesh.
16. Akib Mohammed Khan, Alif Ashrafee, Reeshoon Sayera, Shahriar Ivan, and **Sabbir Ahmed**, "Rethinking Cooking State Recognition with Vision Transformers", 25<sup>th</sup> *ICCIT (2022)*, IEEE, Cox's Bazar, Bangladesh.
17. Refaat Mohammad Alamgir, Ali Abir Shuvro, Mueeze Al Mushabbir, Mohammed Ashfaq Raiyan, Nusrat Jahan Rani, Md Rahman, Md Kabir, and **Sabbir Ahmed**, "Performance Analysis of YOLO-based Architectures for Vehicle Detection from Traffic Images in Bangladesh", 25<sup>th</sup> *ICCIT (2022)*, IEEE, Cox's Bazar, Bangladesh.
18. Md. Samin Morshed, **Sabbir Ahmed**, Tasnim Ahmed, Muhammad Usama Islam, and A. B. M. Rahman, "Fruit quality assessment with densely connected convolutional neural network", 12<sup>th</sup> *ICECE (2022)*, IEEE, Dhaka, Bangladesh,
19. Arowa Yasmeen, Fariha Ishrat Rahman, **Sabbir Ahmed**, and Md Hasanul Kabir, "CSVC-Net: Code-switched voice command classification using deep CNN-LSTM network", 10<sup>th</sup> *ICIEV (2021)*, IEEE, Kitakyushu, Japan.
20. Ayesha Khatun, Mohammad Sajid Shahriar, Md Hasibul Hasan, Krishna Das, **Sabbir Ahmed**, and Md Sakibul Islam, "A systematic review on the chronological development of Bangla sign language recognition systems", 10<sup>th</sup> *ICIEV (2021)*, IEEE, Kitakyushu, Japan.

## Ongoing Research Projects

---

- **Leaf Disease Detection with Limited Data**  
Exploring different Deep Learning techniques to achieve high performance with limited amount of data.
- **Pest Detection from images taken in the wild**  
Investigating the use of Deep learning techniques to effectively detect and segment pests from real-life images.
- **Bangladeshi Traffic Sign Detection Benchmark**  
Curating a dataset containing traffic sign images representing real-life challenges from road of Bangladesh.

## Training and Workshop

- **Day long workshop on Outcome Based Education (OBE)** 2021  
*Location:* Gazipur, Bangladesh  
*Content:* Detailed introduction of the terminologies regarding OBE to apply in course curriculum
- **Software Quality Assurance for Web Development** 2018  
Islamic University of Technology  
*Location:* Gazipur, Bangladesh  
*Content:* Quality assurance and cyber security  
*Workshop:* Project management and software testing tools

## Other Experiences

- **Reviewer**  
*Journal:* IEEE Access (6), Engineering Applications of Artificial Intelligence- Elsevier (1), Connection Science - Taylor & Francis (1)  
*Conference:* ICIEV- IEEE (3)
- **Advisor** 2018 - Present  
*IUT Programming Community (IUTPC), IUT Computer Society (IUTCS)*
- **Regional Mentor** 2021 - 2022  
Smart Agro-Technology Innovation Youth Network (SAIYN), Bangladesh Agricultural University (BAU)

## Honors and Awards

- **Best Presentation Award**, 2021 10th Int. Conf. on Informatics, Electronics & Vision (ICIEV), IEEE 2021
- **IUT Gold Medal**, Islamic University of Technology 2018
- **Champion**, App Development, AUW Tech Fest 2016
- **Runner Up**, Project Showcasing, 8<sup>th</sup> National ICT Fest, IUT 2016
- **OIC Full Free Scholarship**, Islamic University of Technology 2015
- **4 years Govt. Scholarship**, Bangladesh Education Board for Higher Secondary Certificate 2014
- **2 years Govt. Scholarship**, Bangladesh Education Board for Secondary School Certificate 2012

## Extra-Curricular Activities

- **Vice President**, IUT Computer Society (IUTCS) 2016 - 2017
- **Organizer**, 9<sup>th</sup> National ICT Fest, IUT 2017

## Links

- **ORCID:** [orcid.org/my-orcid?orcid=0000-0001-5928-4886](https://orcid.org/my-orcid?orcid=0000-0001-5928-4886)
- **LinkedIn:** [linkedin.com/in/sabbirahmediut](https://www.linkedin.com/in/sabbirahmediut)

## References

- **Dr. Md. Hasanul Kabir**

Professor

Department of Computer Science and Engineering

Islamic University of Technology

*Email:* hasanul@iut-dhaka.edu

- **Dr. Abu Raihan Mostafa Kamal**

Professor

Department of Computer Science and Engineering

Islamic University of Technology

*Email:* raihan.kamal@iut-dhaka.edu