



# Md. Mushfiqur Rahman

AI | ML/DL Research  
Computer Vision Research

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## About Me

I am a final year undergrad student at the Islamic University of Technology (CSE department). I am a Computer Science student, a Machine Learning researcher, and most importantly, an AI enthusiast.

## Social Network

- /mushfiqur11
- /mmushfiqur
- /mushfiqur11

## References

**Dr. Fazlul Hasan Siddiqui**  
Professor and Head of Dept., Computer Science and Engineering Department, Dhaka University of Engineering and Technology  
Contact: siddiqui@duet.ac.bd

**Dr. Md. Hasanul Kabir**  
Professor, Department of Computer Science and Engineering, Islamic University of Technology  
Contact: hasanul@iut-dhaka.edu

**Arup Sarker**  
Chief Engineer, Samsung R&D Institute Bangladesh.  
Contact: arup.sarker@samsung.com

## Education

2017 – present	<b>Islamic University of Technology</b> Current CGPA: 3.77/4.00	B.Sc. in CSE
2014 – 2016	<b>Notre Dame College</b> HSC: 5.00/5.00	English Version
2006 – 2014	<b>St. Joseph Higher Secondary School</b> SSC: 5.00/5.00	English Version

## Work Experience

2019 Nov – 2020 Jan	<b>Dhaka University of Engineering and Technology</b> I was involved in an AI research under the supervision of Dr. Fazlul Hasan Siddiqui. The research was on class scheduling where I wrote the main implementation. The research was funded by <b>University Grant Commission (UGC)</b> , Bangladesh.	Research Assistant
2019 Nov – 2020 Jan	<b>Samsung R&amp;D Institute Bangladesh</b> I was part of a research team that was tasked to generate equirectangular images from 3-D models using GAN. My responsibility was to write the initial GAN architecture based on the Pix2pix model.	Intern
2019 Jul – 2019 Sept	<b>M-World</b> My team developed 2 games for a nutrition awareness project funded by <b>GAIN</b> and <b>BSMMU</b> . The games are available in google play-store	Game Development Team Lead
2017 Nov – 2017 Dec	<b>Harriken</b> Harriken is a Bangladeshi tech start-up. I was part of a business development team during my 2 month internship at Harriken	Business Intern
2016 – 2017	<b>Bangladesh Mathematical Olympiad</b> I was part of the academy team of the BdMO for two years. It was a voluntary work	Academy Team

## Notable Awards and Accolades

2020	Silver Medal in "Bengali.AI Handwritten Grapheme Classification"	Kaggle Competition
2019	Champion of "Intra IUT App Development Contest"	IUT CS
2019	Runner-up of "Inter University App Development Contest"	10th IUT ICT Fest
2019	Champion of "ICT4D Competition"	4th AUW ICT Fest
2007 – 2014	<b>Gold medalist in Mathematics (x2)</b> International Assessment for Schools is an annual exam conducted by the University of New South Wales, Australia. I was the national topper in two occasions (2007, 2014)	IAS by UNSW
2008 – 2015	<b>National Awards in Math Olympiads (x4)</b> I received multiple medals in divisional rounds (5 times) and national rounds (4 times) of Bangladesh Mathematical Olympiad	BdMO
2014 – 2015	<b>Divisional Awards in Physics Olympiads (x2)</b> I received medals in 2 (Dhaka) divisional Physics Olympiads	BDPhO

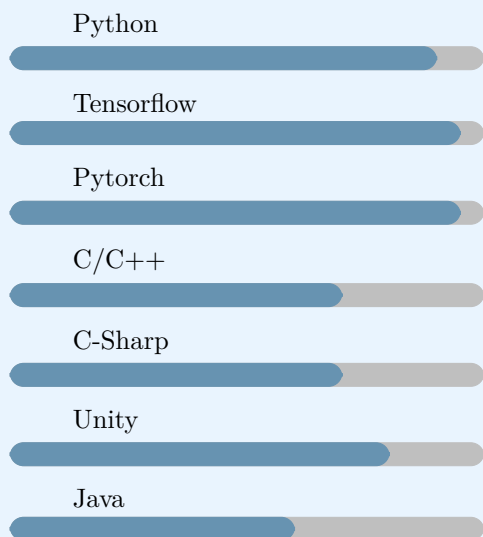
## Notable Projects

2020	<b>Comparative Study of YOLO v3, YOLO v5, and EfficientDet for Object Detection</b> In this project, we fine-tuned the three object detection algorithms for Dhaka-AI vehicles dataset and conducted a comparative study on them.	with Pytorch
2019	<b>Bengali Hand-written Digit Classification</b> It was a project for an academic course. We used the NumtaBD dataset and appended it with our own data	with Tensorflow
2019	<b>Parameter Optimization of CIFAR-10</b> This research project was part of a online competition. The goal was to achieve the lowest number of parameters for CIFAR-10 while maintaining at least 70% accuracy.	with Pytorch

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## Skills



## Research Experience

### Publications

- 2020 **Md. Mushfiqur Rahman**, Nahian Muhtasim Zahin, Kazi Raiyan Mahmud, Md. Azmaeen Bin Ansar. **"Automated Intersection Management with MiniZinc"**  
*At 2020 2nd International Conference on Sustainable Technologies for Industry 4.0 (STI), 19-20 December, Dhaka*  
(Will be indexed by IEEE Xplore Digital Library). The paper proposes a novel automated system for managing traffic intersections to increase traffic-flow. The proposed system uses MiniZinc to optimize the solution.
- 2020 **Md. Mushfiqur Rahman**, Sabah Binte Noor, Fazlul Hasan Siddiqui. **"Automated Large-scale Class Scheduling in MiniZinc"**  
*At 2020 2nd International Conference on Sustainable Technologies for Industry 4.0 (STI), 19-20 December, Dhaka*  
(Will be indexed by IEEE Xplore Digital Library). The paper proposes a system that integrates MiniZinc and Python to solve the task of class scheduling. The research emphasizes on the importance of Chuffed solver for scheduling tasks.

### Other Notable Research

- 2020 **Md. Mushfiqur Rahman**, Thasin Abedin, Khondokar S. S. Prottoy, Ayana Moshrubu, Fazlul Hasan Siddiqui. **"Video captioning with stacked attention and semantic hard pull"**  
*Under review at PeerJ CS*  
The paper proposes an architecture for video captioning with two novel sub-architectures – stacked attention and semantic hard pull. The proposed model tries to extract meaningful higher-level features as well as lower-level features.
- 2019 – 2020 **Md. Mushfiqur Rahman**, Kazi Raiyan Mahmud, Nahian Muhtasim Zahin, Md. Hasanul Kabir. **"StructGAN: Image restoration maintaining structural consistency using two step Generative Adversarial Networks"**  
*On-going research*  
This research proposes a two-step GAN architecture with a novel structure loss to restore broken or distorted images. The proposed architecture emphasizes on structural consistency rather than pixel-by-pixel correctness.

## Scores

2020 Nov	<b>GRE</b>	327/340
	Quantitative: 167/170   Verbal: 160/170   AWA: 4.0/ 6.0	
2020 Oct	<b>TOEFL</b>	105/120
	Reading: 29   Listening: 30   Speaking: 23   Writing: 23	

## Extra-Curricular Activities

### Sports

#### Cricket

University: Played for CSE team in all 4 years and reached the final of Inter-Department Cricket Tournament each year. Won the tournament in 2019 and 2020.

Semi-Professional: Played for Abahani in age-level cricket  
Played for the Josephite School Cricket Team for 5 years in inter-school tournaments. Currently playing for the Josephite Cricket Team in different weekend leagues.