

# Towsif Alam Chowdhury

Curriculum Vitae

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## CONTACT INFORMATION

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Website: <https://towsif13.netlify.app/>

Additional Resources: [Github](#), [LinkedIn](#)

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## RESEARCH INTEREST

My primary field of research interest is Artificial Intelligence (AI). Within AI, I am interested in problems related to **Computer Vision**, **Artificial Neural Networks**, and **Reinforcement learning**. In particular, my research incorporates problems related to machine learning and deep learning.

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## EDUCATION

January 2017 - April 2021

### **Bachelor of Science in Computer Science and Engineering**

North South University(NSU)

Dhaka, Bangladesh

- **CGPA** - 3.60/4.00
- **Specialized Trail** - Artificial Intelligence

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## WORK EXPERIENCE

October 2021 - Present

### **Lab Officer**

Department of Mathematics and Physics, North South University

Dhaka, Bangladesh

- Independently teach 3 undergraduate lab classes
- Provide consultation to students
- Assist in the preparation of lab manuals
- Responsible for grading and marking the students in their lab classes

September 2021 - Present

### **Graduate Teaching Assistant (GA)**

Department of ECE, North South University

Dhaka, Bangladesh

- Facilitate a discussion section or tutorial; hold weekly office hours; grade homework, programming assignments, exams, or projects; prepare answer keys or supplementary notes
- Assisting faculty with record keeping, such as tracking attendance and calculating grades

May 2021 - Present

### **Graduate Research Assistant (GRA)**

Department of ECE, North South University

Dhaka, Bangladesh

- Designing algorithms based on experience replay memory and catastrophic forgetting for autonomous agents
- Development of code and experimental platforms, running experiments and analyzing data using machine learning

September 2021 - October 2021

### Research Intern

IDLC Finance Limited  
Dhaka, Bangladesh

- Collection of stock market data from different sources through web scraping
- Performing exploratory data analysis of market data for insights

January 2020 - August 2021

### Undergraduate Teaching Assistant (UGA)

Department of ECE, North South University  
Dhaka, Bangladesh

- Facilitate a discussion section or tutorial; hold weekly office hours; grade homework, programming assignments, exams, or projects; keep records; distribute and copy reading materials; prepare answer keys or supplementary notes
- Assisting faculty with record keeping, such as tracking attendance and calculating grades

## RESEARCH EXPERIENCE

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### RER: Recycled Experience Replay, Blending Oldest Memories with Recent Selective Experiences to Improve Remembering

*Under review*

**Short abstract:** Despite the advancement of deep reinforcement learning, deep neural nets suffer from catastrophic forgetting when learning sequential multitasks, as the network trained with previous knowledge tends to forget after learning on new experiences. In this work, we improved remembering by proposing a double replay memory where we augmented the replay buffer with important transition sequences based on two strategies: loss-based and average reward-based strategy for accelerating the learning process, as well as improving the sampling efficiency.

### Generalization of Bangla Sign Language Recognition using Angular Loss Functions

*Under review*

**Short abstract:** Most of the works on Bangla Sign Language are executed on small datasets and report very good performance. However, when small datasets are evaluated from the perspective of generalizability, particularly when using deep learning-based solutions, these models fail to reproduce to the same performance. Therefore, this work poses inter-dataset evaluation as the main evaluation criteria and evaluates several deep learning-based models. Unsurprisingly, the inter-dataset performance is very poor and several approaches to improve are explored and documented, including the use of angular margin-based loss functions. The results demonstrate the importance of such an evaluation and also show that one of the proposed approaches shows promising performance, albeit with significant room for improvement.

## TECHNICAL SKILLS

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#### Programming Languages

Python, Java, C

#### Familiar with

C++, CSS, HTML, SQL, Assembly, LaTeX, MATLAB, Flutter

#### Operating Systems

Windows, Linux

#### Libraries

PyTorch, Tensorflow, Pandas, Scikit-learn

#### Database Tools

Firebase, MySQL

#### Others

Machine learning, Deep learning, Data Science, Android Development

## LANGUAGE PROFICIENCY

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IELTS

8.0 (L-9, R-7, W-6.5, S-8.5)

## REFERENCES

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**Shahnewaz Siddique, Ph.D**

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**Nabeel Mohammed, Ph.D**

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Email: nabeel.mohammed@northsouth.edu