Sabbir **Mollah**

GRADUATE RESEARCH ASSISTANT | CRCV, UCF

Oviedo, Florida, USA

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Summary

A professional with expertise in **Visual Language Models** research and development. Highly versed in the intricacies of Linear Algebra and Statistics. Current research interest includes developing and improving unified VLM models. Currently working as a **GRA** at **CRCV, UCF**.

Education

University of Central Florida
Orlando, Florida, USA

PHD IN COMPUTER SCIENCE — *2024 - Present*

- Graduate Research Assistant at CRCV lab.
- Supervisor: Dr. Mubarak Shah

North South University
Dhaka, Bangladesh

B.S. IN COMPUTER SCIENCE AND ENGINEERING — *2017 - 2021*

- Graduated with **Magna Cum Laude distinction**, CGPA - **3.73/4.00**.
- Thesis : Implemented **Domain Adaptation** on RawNet to train language invariant speaker recognition model.
- Experimented **Image Colorization** by implementing GAN models with different loss functions to gain bright colorized images.

Publications

ICPR 2022

M. I. Hossain, M. Rakib, S. Mollah, F. Rahman, and N. Mohammed, *"LILA-BOTI: Leveraging Isolated Letter Accumulations By Ordering Teacher Insights for Bangla Handwriting Recognition,"* in arXiv preprint arXiv:2205.11420, 2022.

ICLR (Tiny Paper) 2023

Sabbir Mollah, Rakib Mohammed, Mashrur Wasek, AKM Shahariar Azad Rabby, Fuad Rahman, Nabeel Mohammed, *"Automated Mapping of Healthcare Concepts to a Standardized Healthcare Taxonomy,"* in Proceedings of IEEE Conference or Journal Name, 2023, in Proceedings of IEEE Conference or Journal Name, 2023, Available: https://openreview.net/forum?id=87oCobKKS6x.

Experience

Machine Learning Engineer
Dhaka, Bangladesh

BKASH LIMITED — *DEC 2022 - Present*

- Experimented with transformer based models to **extract information** from printed documents.
- Building **fraud preventive system** from graph database.
- Trained LSTM model to **predict missing address tokens**, e.g. missing postoffice.
- Designed comprehensive solution for English to Bangla **machine transliteration**.
- Built **loan repayment model** and completed loan risk assessment using Julia.
- Implemented backend features using **Reactive Programming Paradigm** to allow users to get human agent assisted services.

Software Engineer, Machine Learning
Dhaka, Bangladesh

APURBA TECHNOLOGIES LIMITED — *SEP 2022 - DEC 2022*

- Designed and developed Bangla Screen Reader, an **accessibility application** for visually impaired people.
- Developed NLP solution for mapping electronic health record against SNOMED Clinical Terminology.
- Developed an inter-encoding converter library for Bangla writings, implemented in Python, Java, C#, and Javascript.

Research Assistant
Dhaka, Bangladesh

APURBA-NSU R&D LAB — *SEP 2021 - AUG 2022*

- Used **Knowledge Distillation** to improve performance of CRNN model on minor classes.
- Trained MaskRCNN model to detect segments of Bangla documents.
- Worked on Bangla **speech recognition**.

Lab Instructor
Dhaka, Bangladesh

ECE DEPARTMENT, NORTH SOUTH UNIVERSITY — *Spring 2022 & Summer 2022*

- Taught **Database Management Systems (DBMS) using SQL** and **Object-Oriented Programming (OOP) using Java** to an average class size of 40 students.
- Prepared lab materials and provided exam questions; examined students' answer scripts.

Skills

Machine Learning	PyTorch, TensorFlow, Huggingface, scikit-learn, pandas, polars, pyspark and matplotlib.
Programming	Python, Julia, Java, C, C++, C#, Julia, Haskell
Development Frameworks	Flask, FastAPI, Spring Boot (Reactive), .Net Framework.
Database	MySQL, DynamoDB, MongoDB, Neo4j
Version Controlling	Git, GitHub, GitLab
Languages	Bangla, English and Italian.

Volunteering Experience

NSU ACM Student Chapter   *Dhaka, Bangladesh*
CHAIR   *2017 - 2021*
- Elected as the **Chapter Chair** of this community of over 300 members.
- Planned and **organized HackNSU Season 2**, an inter-university Hackathon with more than 25 participating teams.

NSU Communications Club   *Dhaka, Bangladesh*
SUB EXECUTIVE   *2017 - 2019*
- Lead the Promotions team responsible for digital advertisement.

NSU Cultural Club   *Dhaka, Bangladesh*
GENERAL MEMBER   *2017 - 2019*
- Helped the various artists in organizing on-campus cultural events.
- Decorated campus during national and local festivities.

Workshops   *Dhaka, Bangladesh*
INSTRUCTOR   *2020, 2021, 2022*
- Instructed in 4 different workshops on Python, Pytorch, and deep learning

Atomic BAFSK Science Club   *Dhaka, Bangladesh*
FOUNDING GENERAL SECRETARY   *2014 - 2016*
- Took initiative in founding Science Club in secondary school

Achievements & Awards

Robi Datathon 2.0   *Robi, Axiata Ltd., Dhaka*
FINALISTS   *2022*
- Implemented cost sensitive learning to bump performance of a machine learning model

MIST Inter-University ICT Innovation Fest Hackathon   *MIST, Dhaka*
CHAMPIONS   *2021*
- Designed and deployed a handwriting recognition model

IOT For Tomorrow   *NSU IEEE SB, Dhaka*
FIRST RUNNERS-UP   *2019*
- Presented a fire detection circuit using a microcontroller integrated with Firebase

Electrathon   *NSU IEEE SB, Dhaka*
2ND RUNNERS-UP   *2018*
- Solved various hardware and software related problems

Standardized Test Scores

GRE: 329 **Quantitative Reasoning: 170**, Verbal Reasoning: 159, Analytical Writing: 4.0
IELTS: 8.0 Listening: 9.0, Reading: 7.5, Writing: 7.5, Speaking: 7.0