Mominul Islam

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EDUCATION

- **North South University** — Jan. 2019 – Jun. 2013

  Bachelor of Science (B.Sc.), Computer Science and Engineering; CGPA: 3.86/4.00 — *Dhaka, Bangladesh*

  Distinction: *Summa Cum Laude*

WORK EXPERIENCE

- **Research Assistant** — Oct. 2023 – Present

  Department of Electrical and Computer Engineering, North South University — *Dhaka, Bangladesh*

  Supervisor: Dr. Mohammad Ashrafuzzaman Khan

- **Graduate Teaching Assistant** — Jul. 2023 – Present

  Department of Electrical and Computer Engineering, North South University — *Dhaka, Bangladesh*

  Course: Concepts of Programming Language (CSE425)

- **Undergraduate Teaching Assistant** — Feb. 2022 – Jun. 2023

  Department of Electrical and Computer Engineering, North South University — *Dhaka, Bangladesh*

  Course: Computer Organization and Architecture (CSE332)

  Responsibilities:
  - Grading homework assignments and maintaining office hours for student consultations.
  - Conducting tutorial sessions for students requiring extra help outside of class hours.
  - Maintaining 4 hours per week per section, divided among assisting faculty members.

RESEARCH INTEREST & EXPERTISE

Interest: Artificial Intelligence, Machine Learning, Computer Vision, Natural Language Processing (NLP)

Expertise: Classification, Regression, CNNs, GANs, Vision Transformers, LLMs (Encoder-Decoder Models)

ONGOING RESEARCH

[1] **Reinforcement learning from human feedback for healthcare domain adaptation**

Supervisor: Dr. Mohammad Ashrafuzzaman Khan

PUBLICATIONS

[1] **CosSIF: Cosine similarity-based image filtering to overcome low inter-class variation in synthetic medical image datasets**, <u>Mominul Islam</u>*, Hasib Zunair, Nabeel Mohammed, in *Computers in Biology and Medicine, Elsevier 2023.* [Q1] [IF: 7.7] [PDF] [Code] [Under Review]

This research also serves as my bachelor's thesis

NOTABLE PROJECTS

Fine-Tuning mT5 on XL-Sum Dataset for Abstractive Text Summarization — Jan. 2023 - Jun. 2023

CSE495: Natural Language Processing

- This project involves fine-tuning a pre-trained mT5 model on the XL-Sum dataset for the abstractive Bengali text summarization task, followed by a comprehensive evaluation using ROUGE metrics..
- **Tools/Technology:** Python, PyTorch, HuggingFace, Kaggle
- **Github:** [Code]

Image-to-Image Translation via GAN to Address Class Imbalance — May 2022 - Sep. 2022

CSE465: Pattern Recognition and Neural Network

- Leveraging StyleGAN2-ADA, this project mitigates class imbalance in the ISIC-2016 dataset by generating synthetic images, while also utilizing convolutional neural networks (CNNs) for training a skin lesion classifier.
- **Tools/Technology:** Python, TensorFlow, Keras, PyTorch, Kaggle
- [**Matured to bachelor's thesis**]

Heart Disease Detection Using Machine Learning — May 2022 - Sep. 2022

CSE445: Machine Learning

– Predicting heart disease probability and categorizing patient risk levels using machine learning algorithms: Logistic Regression, Random Forest, Decision Tree, KNN, and Naive Bayes.
– **Tools/Technology:** Python, Scikit-learn
– **Github:** [[Code]](#)

Internship Repository System — Jan. 2022 - May 2022

CSE482: Internet and Web Technology

– A sophisticated internship repository web application featuring a comprehensive search menu designed to efficiently catalog and showcase completed internships pursued by students across various universities and diverse companies.
– **Tools/Technology:** HTML5, CSS3, Sass, JavaScript, Ajax, PHP, MySQL
– **Github:** [[Code]](#)

ScholarLink: Academic Management and Scholarship System — Sep. 2021 - Jan 2022

CSE327: Software Engineering

– ScholarLink is an innovative web application that transforms academic management, offering students seamless online course registration, grade tracking, and scholarship applications, while enhancing faculty course management and administrative control.
– **Tools/Technology:** HTML5, CSS3, Bootstrap 5, JavaScript, Node.js, Express.js, MongoDB, Mongoose ODM
– **Github:** [[Code]](#)

16-bit Single Cycle RISC based Processor — Jan. 2021 - May 2021

CSE332: Computer Organization and Architecture

– A simulation of 16 bit single-cycle RISC based CPU including ISA, Assembler and Data-path.
– **Tools/Technology:** Python, Assembly Language, Logisim
– **Github:** [[Code]](#)

SKILLS

Programming Languages: Python, C/C++
Frameworks: TensorFlow, Keras, PyTorch
Libraries: Scikit-learn, OpenCV, Pandas, Matplotlib
Front-end: HTML, CSS, JavaScript
Miscellaneous: GitHub, Git, LaTeX

HONORS & AWARDS

Top 10 out of 102 teams, in Innovation Challenge (IC) Season 13, Capstone Project Showcase	2023
50% tuition waiver, in recognition of academic performances at North South University	2022
25% tuition waiver, in recognition of academic performances at North South University	2020

CERTIFICATES

IELTS, *Speaking: 7.5, Reading: 7.5, Writing: 7, Listening: 6.5; Overall: 7.0*	2023
Coursera, Deep Learning Specialization, Neural Networks and Deep Learning; *Grade: 97%*	2022
Code with Mosh, Ultimate Java Part 1: Fundamentals	2020
Code with Mosh, Ultimate Java Part 2: Object-oriented Programming	2020

REFERENCES

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