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] **Supercharging domain adaptation tasks through reinforcement learning from human feedback**
Supervisor: *Dr. Mohammad Ashrafuzzaman Khan*

Publications

[1] **CosSIF: Cosine similarity-based image filtering to overcome low inter-class variation in synthetic medical image datasets**, Mominul Islam*, Hasib Zunair, Nabeel Mohammed [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: Colab, Kaggle, 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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