Mominul Islam

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🎓 Google Scholar   ⓘD ORCiD   ⚙ GitHub   in LinkedIn

Education

BSc	**North South University**, Computer Science and Engineering	Jan. 2019 – Jun. 2023

- *CGPA: 3.86/4.00 ($\approx$Top 2%)*
- *Graduated Summa Cum Laude*
- *Merit Scholarships: Spring 2020 – Fall 2022*

Teaching Experience

Lecturer	**Primeasia University** Dept. of Computer Science and Engineering	Oct. 2024 – Present *(Full-time)*

Courses Taught:

- *CSE485 / CSE486: Internet and Web Technologies (Theory & Lab)*
- *CSE101 / PHN102: Introduction to Computer*
- *CIS201: Computer Application*

Lab Instructor	**North South University** Dept. of Electrical and Computer Engineering	Jul. 2024 – Present *(Part-time)*

Courses Taught:

- *CSE225L: Data Structures and Algorithms (Lab)*

Teaching Assistant (GA / UGA)	**North South University** Dept. of Electrical and Computer Engineering	Feb. 2022 – Jun. 2024 *2 years 4 months*

Graduate Assistant (GA) — (Jul. 2023 – Jun. 2024)
Undergraduate Assistant (UGA) — (Feb. 2022 – Jun. 2023)

Courses Assisted:

- *CSE332: Computer Organization and Architecture*
- *CSE325: Concepts of Programming Language*

Industry Experience

Intern	**Beximco Communications Limited** Dept. of Business Systems	Mar. 2024 – Jun. 2024 *3 months*

Key Responsibilities:

- *ERP data verification and migration using Python.*
- *UI testing for web applications with test cases.*
- *Maintained project tracker for monitoring development of ongoing projects.*

Publications

M. Islam, H. Zunair, N. Mohammed, **"CosSIF: Cosine similarity-based image filtering to overcome low inter-class variation in synthetic medical image datasets,"** *Computers in Biology and Medicine (CIBM)*, 2024 [Paper] [Code] [Q1, IF: 7.0]

Research Interests

- Computer Vision (*Image Quality Assurance, Segmentation, Generative Models, Computational Neuroscience*)
- Natural Language Processing (*LLM Context Preservation, Lossless RAG, Q&A, Behavioral Modeling*)
- Quantum Machine Learning (*Classical to Quantum Knowledge Transfer, Hybrid QML*)

Research in Progress

CV — **Frame Distillation Algorithm for Reducing Manual Annotation in Video Datasets**
NLP — **Context-Aware Semantic Chunking Algorithm for Clinical RAG-Based Q&A Systems**
QML — **Alzheimer's Disease Detection from 3D MRI Images with Classical-Quantum Neural Networks**

Projects

CV — Cattle Pose Estimation Using a Semi-Annotated High-Resolution Image Dataset [Code]	Jun. 2024
NLP — Context-to-Question Generation Using Transformer Models [Code] [Model]	Jan. 2024
NLP — Bengali Text Summarization Using a Multilingual Encoder-Decoder Model [Code]	Jun. 2023
CV — Skin Lesion Classification Using Cross-Stage CNNs and Transformers [Code]	Sep. 2022
CV — Image-to-Image Translation with GAN to Address Class Imbalance [Code]	Aug. 2022

Certificates

Quantum Information, Quantum Computing and Quantum Machine Learning	Jan. 2024 – Jun. 2024

- *Supervisor:* Dr. Mahdy Rahman Chowdhury
- *Recommendation / Certification:* [PDF]

Academic Archive

Introduction to Linear Algebra [α] [β]	Probability and Statistics [PDF]
Calculus and Analytical Geometry I [α] [β] [γ]	Discrete Mathematics [PDF]
Calculus and Analytical Geometry II [α] [β] [γ]	Digital Logic Design [PDF]
Calculus and Analytical Geometry IV [α] [β]	Computer Organization and Architecture [PDF]
Engineering Mathematics [α] [β] [γ]	Pattern Recognition and Neural Network [PDF]

Number of Scanned Pages: 2,698 (Mathematics: 2,141, Computer Science: 557))

Skills

Programming Languages: C/C++, Python
ML Frameworks: PyTorch, TensorFlow, OpenMMLab, Qiskit
Web: HTML, CSS, JavaScript, SQL
Simulation Software: Logisim, Proteus
Typesetting: LaTeX

Languages

Bengali: Native
English: Proficient

References

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