Kazi Ramisa **Rifa**

Ph.D. Student · Graduate Research Assistant

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Education

PhD - University of Kentucky *Lexington, Kentucky, USA*

Computer Science, Specialization: Computer Vision, Medical Imaging, Generative AI *Aug. 2024 - Present*

- Research: Diffusion model adaptation for limited domain-specific data.
- Supervisor: Dr. Abdullah-Al-Zubaer Imran

BSc - North South University *Dhaka, Bangladesh*

Computer Science and Engineering (CSE), Specialization: Computer Vision, Virtual-Try-On *Jan. 2019 - Jun. 2023*

- CGPA: 3.82 out of 4.00 (Graduated with summa cum laude distinction)
- Thesis: BT-VITON: Bangladeshi Traditional Virtual Try-On with Generative Adversarial Networks
- Supervisor: Dr. Nabeel Mohammed, Associate Professor, North South University

Work Experience

Graduate Research Assistant, University of Kentucky *Lexington, Kentucky, USA*

CHILL Commons Lab *Aug. 2024 - Present*

- Currently working on Reliable generative AI for fair and effective medical image analysis
- Mitigating the issue of requiring a large number of images training Diffusion models
- Designing and running experiments on Swin-Transformer-based KAN Network for IQA Score prediction of CT images

Undergraduate Teaching Assistant, North South University *Dhaka, Bangladesh*

Depatment of ECE *Feb. 2022 - Jun. 2023*

- Assisting faculty members in the Design and Analysis of Algorithms course.
- Conducting tutorial sessions for students.
- Performing invigilation in exam halls.
- Evaluating home-works, assignments, and projects.

Executive Body Member, NSU Athletics Club *Dhaka, Bangladesh*

Treasurer of Club Activities *Sep. 2022 - Present*

- Managing the club's finances and budget.
- Planning and coordinating sports events.
- Regularly update and maintain the club's web analytics.

Web Developer, NSU Athletics Club *Dhaka, Bangladesh*

Web Application Developer for Club website *Apr. 2021 - Sep. 2022*

- Designed contents on the website, including event information, news, and results.
- Ensured the website was user-friendly and visually appealing.
- Handled communication and correspondence.

Publications

[1]. Kazi Ramisa Rifa, J. Zhang, A. Imran. 2025. **Swin-KAT: Advancing Swin Transformer with Kolmogorov-Arnold network for CT image quality assessment.** *IEEE International Symposium on Biomedical Imaging (ISBI 2025).*

[2]. Kazi Ramisa Rifa, M. Ahamed, J. Zhang, A. Imran. 2025. **Task-focused knowledge transfer from natural images for CT image quality assessment.** *SPIE Medical Imaging: Image Perception, Observer Performance, and Technology Assessment 2025.*

*** denotes equal contribution**

Selected Projects

SA-VITON: A Method and Dataset for South Asian Clothing Virtual Try-On [Project-Page] *Dhaka, Bangladesh*

Research on Computer Vision with Prof. Nabeel Mohammed and Hasib Zunair *Spring & Summer 2023*

- Proposing a GAN-based virtual try-on framework for South Asian clothes.
- Present a dataset for virtual try-on of South Asian clothing items.

NSU Inter-University Sports Carnival 2023 Official Website [Site] [GitHub] *Dhaka, Bangladesh*

Professional Project *Spring 2023*

- Developed the official website of NSU Inter-University Sports Carnival 2023 for NSU's flagship events.
- Used Bootstrap, HTML, and JavaScript to create dynamic and interactive web pages.

Bangladeshi Traditional Virtual Try-On with Generative Adversarial Networks [Synopsis] *Dhaka, Bangladesh*

CSE499 - Undergraduate Dissertation, Supervisor: Prof. Nabeel Mohammed *Fall 2022 & Spring 2023*

- Proposed a virtual try-on framework to address accurate alignment and photo-realistic synthesis of long clothes.
- Introduced a dataset of long clothing items for virtual try-on.

A Comparative Analysis of Supervised Machine Learning Models for Liver Cirrhosis Detection [GitHub] *Dhaka, Bangladesh*

CSE445 - Machine Learning, Supervisor: Prof. Sifat Momen *Spring 2023*

- Proposed supervised learning models for multi-class classification to predict different stages of liver cirrhosis.
- Used ten different algorithms to analyze the performance and compare to find the best approach.

Pixels to Phrases: A Hybrid CNN-RNN Approach for Image Captioning [GitHub] *Dhaka, Bangladesh*

CSE465 - Pattern Recognition and Neural Network, Supervisor: Prof. Mohammad Ashrafuzzaman Khan *Summer 2022*

- Proposed encoder CNN with a language-generating decoder RNN to generate a fitting natural-language caption from the image.
- Used spaCy tokenization for splitting strings into individual words and mapped to corresponding index values.

An 14-bit RISC-V Microprocessor Simulator [GitHub] *Dhaka, Bangladesh*

CSE332 - Computer Organization and Architecture, Supervisor: Prof. Tanzilur Rahman and Md Sajid Ahmed *Summer 2021*

- Proposed 14-bit RISC microprocessor datapath with pipeline and control units.
- Perform various computational tasks, including addition, subtraction, multiplication, looping, and addressing functional problems.

The Game of Minion [GitHub] *Dhaka, Bangladesh*

Java Project *Fall 2019*

- Proposed a minigame where a minion crosses a side-scrolling landscape, avoiding obstacles to achieve a higher score.
- Used Java swing to built the game.

Skills

Programming	Python, C++, Java, MySQL, bash
AI & ML	PyTorch, Open-CV, Scikit-learn, Pandas, NumPy, Matplotlib, PIL, Tensorboard
Web	PhP, HTML, CSS, Bootstrap, Selenium
IDE	VScode, Atom, Eclipse, CodeBlocks
Environment	Anaconda, Jupyter, Git, Latex, CMakeBuild, MS-Office
Simulation	Logisim, MultiSim, Proteus
Contents	Draw.io, Canva, Adobe Premier Pro, Photoshop, Illustrator
OS	Windows, MacOS

Honors & Awards

Academic

2023 **Summa Cum Laude**, Academic Excellence in Undergraduate Level

2022 **2nd Runner up**, NSU ACM SC Capstone Innovation Challenge Season 12

Scholarships

2023 **100 % Scholarship on Tuition Fees**, Recognition of Excellent Academic Performances

2022 **50 % Scholarship on Tuition Fees**, Recognition of Excellent Academic Performances

2020 **25 % Scholarship on Tuition Fees**, Recognition of Excellent Academic Performances