

Rafat Hasan Khan

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Education

M.Sc. in Computer Science and Engineering Curriculum University of Dhaka (DU) QS 2025 Rank: 554th Ranked 9 th in Admission Advisor: Dr. Mosaddek Hossain Kamal	<i>Paused</i> Dhaka, Bangladesh
B.Sc. in Computer Science Curriculum Independent University Bangladesh (IUB) CGPA: 3.73/4.00 Advisor: Dr. Amin Ahsan Ali Thesis: “Deep Focus Matting: Light-Weight Trimap-Free Portrait Image Matting”	2017 - 2021 Dhaka, Bangladesh

Research Experience

Center for Computational & Data Sciences CCDS Research Assistant (RA)	2023 - present Dhaka, Bangladesh
<ul style="list-style-type: none">Research projects on Semantic Segmentation, & authentication systemAdvisors: Dr. Amin Ahsan Ali, Dr. AKM Mahbubur Rahman and Prof. Ashrafur Amin	
Artificial Intelligence and Cybernetics Lab AGenCy Lab Undergraduate Research Student	2022 Dhaka, Bangladesh
<ul style="list-style-type: none">Explored machine learning tools and libraries and participated in weekly literature review discussions that supported the completion of my thesis.Advisor: Dr. Amin Ahsan Ali, Mentor: Fahim Faisal Niloy	

Academic Experience

Coding for All Initiative Coding for All Initiative, IUB Tutor	2023 - present Dhaka, Bangladesh
<ul style="list-style-type: none">Tutored undergraduate students in the CIS-101, CSC-101 courses, covering topics about Python programming, application development, introduction to AI, Prompt Engineering, and others.	
Department of Computer Science & Engineering Dept. of CSE, IUB Student on Duty (SoD)	2019 - 2020 Dhaka, Bangladesh
<ul style="list-style-type: none">Assisted undergraduate students in the CSE-213 course, conducted review sessions on Java programming, object oriented concept, software development, and graded assignments.Course Instructor: Mr. Subrata Kumar Dey [Letter from Instructor]	

Honors & Awards

Received cum laude honors in the B.Sc. in CS program IUB	2022
Received the Vice Chancellor's Award IUB	2021
Received the Dean's Merit Award IUB	2020
Awarded 100% scholarship for the B.Sc. in CS program IUB	2017

Academic Service

International Joint Conference on Neural Networks (IJCNN)	Assisted Review	2024
International Conference on Electrical Engineering and Information & Communication Technology (ICEEICT)	Assisted Review	2024

Selected Projects

Face Liveness and Recognition System CCDS <i>Description:</i> Developed face recognition and liveness detection models for face biometric login, explored CNN methods on remote photoplethysmography and moiré patterns to prevent spoof attacks, and trained the model using data from over 50 individuals. Secured 18,00,000 BDT (~\$15,000) in funds from Penta Global Ltd.	2024
Semantic Segmentation of Satellite Imagery of Bangladesh CCDS <i>Description:</i> The project focused on developing deep learning models for semantic segmentation of satellite imagery in Bangladesh, aiming to enhance accuracy through boundary attention techniques.	2023
Weather Station CSC-212, IUB <i>Description:</i> Developed an embedded weather monitoring system on helium balloons using an Arduino Nano with various sensor modules and a GSM module for edge server connectivity, anchored securely to 1 km from the university's premise. Received best project showcase award.	2019
Evaluation and Implementation of System of Linear Equation CSC-470, IUB	2019

Description: Developed program tool as part of a Parallel Programming course, utilizing CUDA API, multithreading in Java, and C with OpenMPI, while assessing performance on public datasets.

Acknowledged as exceptional in the course.

Data Analysis & Representation System (DARS) | CSC-401, IUB

2018

Description: An interactive web-based data visualization and analysis tool that seamlessly integrates real-time data management, leveraging ERD and BPMN for architecture planning, built using PHP, JavaScript, MySQL, and Chart.js for rich graphical displays. **Recognized as outstanding among others in the course.**

Competitions

IEEE Signal Processing Cup 2022 | Regional Ranked 14th [30+ Teams worldwide]

2022

Mentor: *Dr. Sakira Hassan*

Description: Explored state-of-the-art deep learning models, analyzed synthetic speech methods for data insights, and proposed a method that produced results using PyTorch, Lightning, and scikit-learn.

Intra IUB Hackathon | Champion [50+ Teams]

2019

Description: Developed an Android app called “µClass” for visual class management, integrating students, teachers, and courses using the university’s internal API, with Android Studio, Flutter, and Google Firebase.

National Programming Contest, IEEE Day 2018 | 1st Runner-up [120+ Teams]

2018

Description: As a team of two, we competed against top universities and solved 4 out of 5 problems in a limited time using C++ in Code::Blocks IDE.

Standardized Test Score

Duolingo English Test (DET) | Overall Score: 120

2023

Literacy: 120, Comprehension: 125, Conversation: 110, Production: 100

Relevant Courseworks

Linear Algebra (Grade: A, Above 90%), *Image Processing* (Grade: A, Above 90%), *System Analysis and Design* (Grade: A, Above 90%), *Object Oriented Programming* (Grade: A, Above 90%), *Parallel Programming* (Grade: A, Above 90%), *Numerical Methods* (Grade: A-, Above 85%).

Certificates and Workshops

JICA B-TopSE program | JICA-BCC-BASIS joint initiative [Youngest among selected Trainers]

Ongoing

Workshop on Statistical Inference Frequentist & Bayesian Estimation | CCDS

2024

Mathematics for Machine Learning Specialization | Coursera

2020

Open Source Software Development, Linux and Git Specialization | Coursera

2020

Google IT Automation with Python Specialization | Coursera

2020

Google Mobile Sites Certification | Google Skillshop

2019

Memberships

Bangladesh Computer Society (BCS) | Life-Time Member

2023

Institute of Electrical and Electronics Engineers (IEEE) | Graduate Member

2022

Technical Skills

Programming: Python (Strong), Java (Strong), Javascript (Moderate), C++ (Moderate).

ML Libraries: Pytorch, Scikit-Learn, Pandas, Pytorch-lighting, Ray.

Softwares and Tools: React, Flutter, JavaFX, Git, RegEx.

Clouds & Deployments: Docker, Azure, Alicloud.

Platform: Github, Stackoverflow, Kaggle, Colab.

Document Preparation: Latex, Markdown, MS Office.

Embedding Board: Arduino, Raspberry Pi, NodeMCU (ESP8266, ESP32-CAM), HackerRF One.

Others: Linux, Vim, Bash Scripting, Open MPI, CUDA API.

Reference

Available upon request.