

Rafat Hasan Khan

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Education

B.Sc. in Computer Science | Curriculum

Independent University Bangladesh (IUB)

CGPA: 3.73/4.00 | Rank: 2nd in the class of 50

Thesis: Deep Focus Matting: Light-Weight Trimap-Free Portrait Image Matting

Advisor: Prof. Amin Ahsan Ali

May'2017 - Dec'2021

Dhaka, Bangladesh

Research Experience

Center for Computational & Data Sciences | CCDS.ai

Research Assistant (RA)

Feb'2023 - current

Dhaka, Bangladesh

- Worked on Remote Sensing, & authentication system projects, collaborating with research professors from universities in the USA. Currently, leading projects on privacy & security and projects on computational biology.
- Supervisors: Prof. Amin Ahsan Ali, Dr. AKM Mahbubur Rahman, and Prof. Ashraful Amin

Artificial Intelligence and Cybernetics Lab | AGenCy Lab

Research Student

May'2022 - Jan'2023

Dhaka, Bangladesh

- Explored machine learning tools and libraries and participated in weekly literature review discussions that supported the completion of my thesis.
- Supervisor: Prof. Amin Ahsan Ali, Mentor: Fahim Faisal Niloy

Academic Experience

Coding for All Initiative | Coding for All Initiative, IUB

Tutor

Feb'2023 - Jun'2024

Dhaka, Bangladesh

- Tutored undergraduate students in the CIS101, CSC101 tutorial 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)

May'2019 - Mar'2020

Dhaka, Bangladesh

Course Instructor: Mr. Subrata Kumar Dey [Letter from Instructor]

- Assisted undergraduate students in the CSE213 course, conducted review sessions on Java programming, object oriented concept, software development, and graded assignments.

Conducted Workshops

Interdisciplinary Computational Biology Workshop 2025

[Webpage](#)

Jan'2025

2nd CCDS Workshop on Deep Learning Code Management

[Webpage](#)

Dec'2024

Workshop On Hands-on Deep Learning Coding & Code Management

[Webpage](#)

Feb'2024

Publication

Preprint:

M. Rahmun, **R. H. Khan**, T. T. Aurpa, S. Khan, Z. N. Nahiyen, M. S. B. Almas, R. H. Rajib, and S.S. Hassan, "Synthetic Speech Classification: IEEE Signal Processing Cup 2022 challenge," arXiv preprint arXiv:2412.13279.

In Preparation:

Rafat Hasan Khan, AKM Mahbubur Rahman, Amin Ahsan Ali, M Ashraful Amin, "ALIGN: Adaptive Learning for Geographic imagery with boundary attention loss"

Selected Projects

Face Liveness and Recognition System | CCDS.ai

2024

Description: 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 100 individuals.

Semantic Segmentation of Satellite Imagery of Bangladesh | CCDS.ai

2023

Description: The project focused on solving the uncertainty between boundary labels in remote sensing. We are developing an attention-based clustering CNN model for semantic segmentation of satellite imagery in Bangladesh, aiming to enhance accuracy through our newly developed boundary attention techniques. (Ongoing)

Evaluation and Implementation of System of Linear Equation | Github | CSC470, 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) | Github | CSC401, 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.**

Grants and Funding

Received 24,00,000 BDT (~\$20,000) PACS software (Industry project) Telerad Bangladesh	Jun'2024
Received 18,00,000 BDT (~\$15,000) Face Liveness and Recognition System Penta Global Ltd.	Feb'2024

Competitions

IEEE Signal Processing Cup 2022 Github World Rank 14th [50+ Teams worldwide] Mentor: Dr. Sakira Hassan <i>Description:</i> Explored state-of-the-art deep learning models, analyzed synthetic speech methods for data insights, and built CNNs using PyTorch, Lightning, and scikit-learn.	Jul'2022
Intra IUB Hackathon Champion [80+ Teams] <i>Description:</i> 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.	Dec'2019
National Programming Contest, IEEE Day 2018 1st Runner-up [120+ Teams] <i>Description:</i> 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.	Nov'2018

Honors & Achievements

Awarded Bangladesh Top Software Engineer (B-TopSE) JICA-ICT Division Bangladesh	2024
Ranked 9th in Admission Test, MSc in CSE University of Dhaka QS 2025 Rank: 554th	2023
Received Cum Laude honors in the B.Sc. in CS program IUB	2022
Completed coursework with 100% scholarship IUB	2021
Received the Vice Chancellor’s Award Honor List IUB	2021
Received the Dean’s Merit Award Honor List IUB	2020
Selected for Merit Scholarship for B.Sc. program IUB	2017

Press Coverage

Featured on multiple local news channels and covered by over 10 newspapers for the Bangladesh Top Software Engineer (B-TopSE) program , a joint initiative by JICA and the ICT Division Bangladesh, October 2024. Notable coverage includes: <ul style="list-style-type: none"> The Daily Star: “JICA, ICT Division jointly launch B-TopSE Program” The Business Standard: “B-TopSE program launched to boost software engineering skills in Bangladesh” 	Oct'2024
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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

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%), **Web Application & Internet** (Grade: A, Above 90%), **Mobile Application Development** (Grade: A, Above 90%), **Numerical Methods** (Grade: A-, Above 85%).

Certificates and Workshops

Bangladesh Top Software Engineer (B-TopSE) program JICA-ICT Division, Bangladesh	2024
Workshop on Statistical Inference Frequentist & Bayesian Estimation ccds.ai	2024
Mathematics for Machine Learning Specialization Imperial College London	2020
Open Source Software Development, Linux and Git Specialization The Linux Foundation	2020
Google IT Automation with Python Specialization Google	2020
Google Mobile Sites Certification Google Skillshop	2019
Mobile Games & Apps Development ICT Division, Bangladesh	2018

Extracurricular Activities & Memberships

Bangladesh Computer Society (BCS) Life-Time Member	Lifetime
IUB ACM Student Chapter IUB Student Member	2019
Division of Student Affairs (DoSA) IUB Student Member	2018

Technical Skills

Programming: Python, Java, Javascript, C++.

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), HackRF One.

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