

# Rahul Kumar Ghosh

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## Education

**Northern University of Business and Technology Khulna**

*Khulna, Bangladesh*

*B.Sc. in Computer Science & Engineering*

2022 – 2025

CGPA: **3.884** / 4.00   |   152 Credit Hours

**Relevant Coursework:** Data Structures, Algorithms Design & Analysis, Artificial Intelligence, Neural Networks, Pattern Recognition, Compiler Design, Operating Systems, Database Management Systems, Computer Architecture, Theory of Computation, Software Engineering, Computer Networks, Discrete Mathematics, Mathematical Analysis for Computer Science, Linear Programming & Combinatorial Optimization.

**Undergraduate Thesis:** *RadScribe: Explainable Dual-View Vision-Language Modeling for Parameter-Efficient Chest X-Ray Report Generation via LoRA*

## Research Interests

Large Language Models, Deep Learning, Low Rank Adaptation (LoRA), Quantum Error Correction, Bridge between Classical and Quantum Computing, Medical Image Processing, Transformers Competitive Programming, Algorithms, Machine Learning, Explainable AI (XAI), Natural Language Processing, Human Computer Interaction(HCI)

## Competitive Programming

| Contest                                                        |                              | Rank | Scope      |
|----------------------------------------------------------------|------------------------------|------|------------|
| <a href="#">BUET Inter University Programming Contest 2026</a> | Team: <i>NUBTK \$(^w^)\$</i> | 88   | National   |
| <a href="#">ICPC Dhaka Regional 2025</a>                       | Team: <i>NUBTK \$(^w^)\$</i> | 83   | National   |
| <a href="#">ICPC Dhaka Regional 2025 — Preliminary</a>         | Team: <i>NUBTK \$(^w^)\$</i> | 45   | National   |
| <a href="#">NWU IUPC 2025</a>                                  | Team: <i>NUBTK \$(^w^)\$</i> | 23   | National   |
| <a href="#">UU IUPC 2025</a>                                   | Team: <i>trio_QUbit</i>      | 101  | National   |
| <a href="#">DUET IUPC 2025</a>                                 | Team: <i>trio_QUbit</i>      | 82   | National   |
| <a href="#">KUET IUPC 2025</a>                                 | Team: <i>trio_QUbit</i>      | 140  | National   |
| <a href="#">ICPC Dhaka Regional 2024 — Preliminary</a>         | Team: <i>trio_QUbit</i>      | 391  | National   |
| <a href="#">KU KRIUPC 2024</a>                                 | Team: <i>trio_QUbit</i>      | 37   | Divisional |

## Problem Setting

- [Intra University Programming Contest 2025 — CSE Fest Sfuron 22](#)
- [Intra University Programming Contest 2025](#)
- [Inter University Online Contest 2024 \(Div 2\)](#)
- [Inter University Online Contest 2024 \(Div 1+2\)](#)

## Projects

**Application Generator** — A web-based formal university application generator for automating structured academic requests.

**Cover Page Generator** — An automated NUBTK assignment cover page generator with customizable fields and PDF export.

**10000 Hour** — A deliberate practice tracker designed to help users master any skill through structured 10,000-hour milestones.

**Word Chain** — An interactive word chain game built with vanilla JavaScript.

**Playlist** — A personal music playlist collection and player web application.

## Technical Skills

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|------------------|-----------------------------------------------------------------------------------------------------------------------------|
| <b>Languages</b> | C, C++, Python, Java, Rust, Assembly(x86, ARM) JavaScript, HTML/CSS, L <sup>A</sup> T <sub>E</sub> X                        |
| <b>AI/ML</b>     | PyTorch, TensorFlow, Scikit-learn, Hugging Face Transformers                                                                |
| <b>Tools</b>     | Git, GitHub, Linux (Arch, Mint), VS Code, Jupyter                                                                           |
| <b>Domains</b>   | Data Structures & Algorithms, Machine Learning, Deep Learning, Computer Vision, Natural Language Processing, Explainable AI |

## Interests

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- Mathematics (Number Theory, Linear Algebra, Calculus)
- Physics (Quantum Mechanics, Electromagnetism)
- Quantum Computing
- Linux (Arch Linux, Linux Mint)
- Competitive Programming
- Combat Sports (MMA, Brazilian Jiu-Jitsu)

## Online Profiles

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|-------------------|---------------------------------------------------------------------------------|
| <b>GitHub</b>     | <a href="https://github.com/QKnot">github.com/QKnot</a>                         |
| <b>LinkedIn</b>   | <a href="https://linkedin.com/in/qknot">linkedin.com/in/qknot</a>               |
| <b>Codeforces</b> | <a href="https://codeforces.com/profile/qknot">codeforces.com/profile/qknot</a> |
| <b>LeetCode</b>   | <a href="https://leetcode.com/QKnot">leetcode.com/QKnot</a>                     |
| <b>Portfolio</b>  | <a href="https://qknot.github.io/Portfolio">qknot.github.io/Portfolio</a>       |