# RAHEEB HASSAN

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## SUMMARY

I am a dedicated and research driven individual with an aptitude for problem solving. I recently graduated 2nd in my class from the University of Dhaka and am currently working as an Associate Machine Learning Engineer at Therap (BD) Ltd.. My research interests encompass decentralized learning, reinforcement learning, multi-agent systems, and optimization. I've authored papers under review in journals such as "Applied Intelligence" and "Nature Machine Intelligence". My goal is to play a significant role in shaping the future of artificial intelligence and its applications.

## EDUCATION

2018 - 2023 **University of Dhaka** *BSc. (Hons)*
Department of Computer Science and Engineering
CGPA: 3.75 (2nd highest in my class)

## WORK EXPERIENCE

2/2023 – **Associate Machine Learning Engineer** *Therap (BD) Ltd.*

- Worked with **computer vision**, **face recognition**, **multi-object tracking**, **activity recognition**
- Worked with the **NVIDIA Deepstream** platform for low level machine learning computation
- Designed and implemented systems for ML based real time monitoring

2020 – 2021 (Part-Time) **Full Stack Developer** *CranTech LLC (Formerly Quixx Projects)*

- Worked on several frontend projects like **Shoshikkha**, **Amplfiy**, etc.
- Worked with **ReactJS** (*frontend*), **ExpressJS** (*backend*) and **React Native** (Mobile)

## RESEARCH

In Review **DePAint: A Decentralized Safe Multi-Agent Reinforcement Learning Algorithm considering Peak and Average Constraints** *Applied Intelligence Journal*

Authors: **Raheeb Hassan**, K.M. Shadman Wadith, Md. Mamun or Rashid, Md. Mosaddek Khan

Keywords: *Decentralized Learning, Reinforcement Learning (RL), Mutli Agent RL, Safe RL, Peak Constraint, Average Constraint*

Preprint: https://arxiv.org/abs/2310.14348

In Review **A Graph Neural Network-Based QUBO-Formulated Hamiltonian-Inspired Loss Function for Combinatorial Optimization using Reinforcement Learning** *Nature Machine Intelligence Journal*

Author: Redwan Ahmed Rizvee, **Raheeb Hassan**, Md. Mosaddek Khan

Keywords: *Hamiltonian Function, Deep Reinforcement Learning, Graph Neural Network, Monte Carlo Tree Search*

## AWARDS AND ACHIEVEMENTS

**Awards** **Best Poster Presentation Award**

Undergraduate Project Final Poster Presentation 2021 (Held on Jan 2023)
Department of Computer Science and Engineering, University of Dhaka

Topic: *DePAint: A Decentralized Safe Multi-Agent Reinforcement Learning Algorithm considering Peak and Average Constraints*

**Competitions**

- Code Samurai: Inter-University Hackathon 2022 (**Champion**)
- SUST Technovent 2023 Capture the Flag (**11$^{th}$ place**)
- International Collegiate Programming Contest Asia Dhaka Regional 2021 (**16$^{th}$ place**)
- MIST Inter University Programming Contest 2019 (**20$^{th}$ place**)
- SUB Inter University Programming Contest 2019 (**28$^{th}$ place**)

**Online Judge**

- Solved 90+ problems on **LightOJ**
- Expert (rating 1647) on **Codeforces**
- Blue (rating 1744) on **Codechef**

## PROJECTS

Python — **kamlabot** — *https://github.com/hoenchioma/kamlabot*
AI-powered helper chatbot for fetching various useful info (like class routine, syllabus, etc.)
Uses NLP to parse message intent and fetch data from Firebase Database

Unity, C#, Python — **Trojan Capture The Flag**
A capture-the-flag game with AI-powered agents who can deceive you
Trained agents using multi agent reinforcement learning (MA-POCA)

Android, Java, C/C++ — **hotkey** — *github.com/hoenchioma/hotkey*
A cross-platform solution for controlling your PC from a mobile device

Python — **vlawyer** — *github.com/hoenchioma/vlawyer*
An unofficial vjudge statistics API

SFML, OpenGL, C/C++ — **Depths of CSEDU** — *github.com/hoenchioma/Depths-of-CSEDU*
Top-down horror/adventure RPG

ReactJS, NodeJS, Strapi — **Corona Factcheck** — *github.com/Viper4717/corona-factcheck-frontend*
A website for fact-checking Corona-related information

## STANDARDIZED TESTS

**GRE**

| | |
|---|---|
| Quantitative Reasoning: | 161 |
| Verbal Reasoning: | 162 |
| Analytical Writing: | 4.0 |

**TOEFL**

| | |
|---|---|
| Total: | 113 |
| Reading: | 30 |
| Listening: | 29 |
| Speaking: | 27 |
| Writing: | 27 |

## SKILLS

**Languages:** Python, C++, C, Java, Javascript, Typescript, C# (Unity3D), Dart (Flutter)

**Data Science:** Pandas, Numpy, Sympy, Matplotlib, Seaborn, Scrapy, Beautiful Soup, Selenium.

**Machine Learning:** PyTorch, TorchVision, NVIDIA DeepStream, Scikit-Learn.