

# RAHEEB HASSAN

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## EDUCATION

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

## EXPERIENCE

2/2023 - **Machine Learning Engineer** *Therap Services LLC*

- 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

2021 - 2023 **Undergraduate Research Student** *Cognitive Agents and Interaction Lab (CAIL), University of Dhaka*

- Worked on **Mutli-Agent Reinforcement Learning** and **Safe RL**

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

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

## RESEARCH

Published **DePAint: A Decentralized Safe Multi-Agent Reinforcement Learning Algorithm considering Peak and Average Constraints** *Springer 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*  
DOI: 10.1007/s10489-024-05433-x  
Preprint: <https://arxiv.org/abs/2310.14348>

Preprint **A Graph Neural Network-Based QUBO-Formulated Hamiltonian-Inspired Loss Function for Combinatorial Optimization using Reinforcement Learning**  
Author: Redwan Ahmed Rizvee, **Raheeb Hassan**, Md. Mosaddek Khan  
Keywords: *Hamiltonian Function, Deep Reinforcement Learning, Graph Neural Network, Monte Carlo Tree Search*  
Preprint: <https://arxiv.org/abs/2311.16277>

## AWARDS AND ACHIEVEMENTS

**Awards**  
**Best Undergraduate Final Project Award 2021** (Held on Jan 2023)  
Department of Computer Science and Engineering, University of Dhaka  
**Scholarship Recipient for Academic Excellence in Undergraduate Examinations 2021**  
University of Dhaka

**Competitions**  
**Hackathons**

- Code Samurai: Inter-University Hackathon 2022 (**Champion**)

**Programming Competitions**

- International Collegiate Programming Contest Asia Dhaka Regional 2021 (**16<sup>th</sup> place**)
- MIST Inter University Programming Contest 2019 (**20<sup>th</sup> place**)
- SUB Inter University Programming Contest 2019 (**28<sup>th</sup> place**)

**Cybersecurity Competitions**

- SUST Technovent 2023 Capture the Flag (**11<sup>th</sup> place**)

**Miscellaneous**  
**Online Judge**  
LightOJ (90+ problems), Codeforces (expert), Codechef (blue)

## PROJECTS

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Python	<b>kamlabot</b> 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	<a href="https://github.com/hoenchioma/kamlabot">https://github.com/hoenchioma/kamlabot</a>
Unity, C#, Python	<b>Trojan Capture The Flag</b> 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++	<b>hotkey</b> A cross-platform solution for controlling your PC from a mobile device	<a href="https://github.com/hoenchioma/hotkey">github.com/hoenchioma/hotkey</a>
Python	<b>vlawyer</b> An unofficial vjudge statistics API	<a href="https://github.com/hoenchioma/vlawyer">github.com/hoenchioma/vlawyer</a>
SFML, OpenGL, C/C++	<b>Depths of CSEDU</b> Top-down horror/adventure RPG	<a href="https://github.com/hoenchioma/Depths-of-CSEDU">github.com/hoenchioma/Depths-of-CSEDU</a>
ReactJS, NodeJS, Strapi	<b>Corona Factcheck</b> A website for fact-checking Corona-related information	<a href="https://github.com/Viper4717/corona-factcheck-frontend">github.com/Viper4717/corona-factcheck-frontend</a>

## STANDARDIZED TESTS

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<b>GRE</b>	Quantitative Reasoning: 161	<b>TOEFL</b>	Total: 113
	Verbal Reasoning: 162		Reading: 30
	Analytical Writing: 4.0		Listening: 29
			Speaking: 27
			Writing: 27

## SKILLS

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<b>Languages:</b>	Python, C++, C, Java, Javascript, Typescript, C# (Unity3D), Dart (Flutter)
<b>Web:</b>	ReactJS, NodeJS, FastAPI (Python).
<b>Data Science:</b>	Pandas, Numpy, Sympy, Matplotlib, Seaborn, Scrapy.
<b>Machine Learning:</b>	PyTorch, TorchVision, NVIDIA DeepStream, Scikit-Learn, Optuna.
<b>Miscellaneous:</b>	Git, Docker, Linux (Debian, Arch), AWS Cloud, Oracle Cloud.