

FERDOUS AL RAFI

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Dhaka, Bangladesh

EDUCATION

Bangladesh University of Engineering and Technology Feb. 2020 - Present
Bachelor of Science (ongoing), Civil Engineering
Major in Transportation Engineering

CGPA: 3.83(As of 4th Year)

Expected graduation date: March 2025

RESEARCH INTERESTS

Reinforcement Learning, Artificial Intelligence, Multi-agent Systems

PUBLICATIONS

Accepted Papers

1. **F. A. Rafi**, “Analyzing the Robustness of Adaptive Traffic Control System Using Reinforcement Learning for Urban Traffic Flow” in 7th International Conference on Advances in Civil Engineering (ICACE), 2024

Published Papers

1. T. Ahmed, **F. A. Rafi**, and S. Mahmud, “A comparative analysis of different algorithms for optimizing cutting force components in turning stainless steel” in Lecture notes in mechanical engineering, 2022, pp. 1255–1264

SUBMITTED MANUSCRIPTS

Workshop Papers

1. **F. A. Rafi**, “Using Mutual Information Minimization as Intrinsic Reward for Reinforcement Learning”, in The 39th Annual AAAI Conference on Artificial Intelligence 2025: PRL Workshop, 2024

RESEARCH EXPERIENCE

Enhancing Urban Traffic Flow using Multi-Agent Reinforcement Learning in Adaptive Traffic Control System Nov. 2023 – Present

Undergraduate Thesis

Supervisor: Dr. Md. Shamsul Hoque

- Utilized a simulation model to evaluate reinforcement learning(RL) algorithms for adaptive traffic control systems
- Analyzed the robustness of RL based traffic control by examining 14 traffic conditions across 3 RL and 2 non-RL models

PROJECT EXPERIENCE

LibSignal

Jan. 2024 – Present

GitHub Contributor

DaRL Group, Arizona State University

- Library developed by DaRL for applying reinforcement learning for traffic control
- Committed 13 bug fixes to the repository that improved functionality
- Modified a graph neural network based reinforcement learning model to manage heterogeneous networks

SKILLS

Programming Languages

Python, JavaScript, C++, C

General Libraries

NumPy, Pandas, TensorFlow, PyTorch

Specialized Libraries

Gymnasium, CleanRL, Stable Baselines3

Others

Git, LaTeX

SCHOLARSHIPS

University Merit Scholarship

Jan. 2024

- Obtained scholarships for placing in the top 10% in the 2019 batch of students during first year, second year and fourth year of university

Dean's List

Jan. 2022

- Placed on the Dean's List for exceptional results in January 2022
- Placed on the Dean's List for exceptional results in January 2021

WORK EXPERIENCE

Upwork

Dec. 2021 – Present

Freelancing Programmer

- Worked independently with clients to gather a large amount of information from the internet using the Python programming language
- Developed custom automation tools for data mining from multiple sources

ORGANIZATION

BUET ITE Student Chapter

Sep. 2024 – Present

Executive Member

- Collaborated with a team of 16 members to organize 1 workshop and 2 seminars on various topics

Civil Engineering Department, BUET

Oct. 2020 – Present

Class Representative

- Organized class activities for the students and communicated with teachers regarding academic work
- Coordinated 2 departmental festivals involving around 800 students under strict budgets and deadlines