Shamyo Brotee

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Research Interest

Intersection of Cyber-Physical Systems and ML, Reinforcement Learning, Autonomous Vehicles, Systems Security, Robotics

Education

University of Dhaka   Dhaka, Bangladesh
B.Sc. in Computer Science and Engineering   Jan 2018 – Jan 2023

- CGPA: 3.60 (5th highest among 54 students)
- Thesis: Safe navigation of autonomous vehicles using reinforcement learning

Research Experience

Green Networking Research (GNR) Group, University of Dhaka   Dhaka, Bangladesh
Research Assistant   2022 - Present

- Explored several *reinforcement learning algorithms* and their applications in projects related to *networking* and *cyber-physical systems*
- Developed and published a hybrid framework integrating *mean-shift clustering* and *multi-agent deep reinforcement learning* for *minimal-collision path-planning* of *autonomous vehicles* in *obstructed environments*

Publications

Optimizing UAV-UGV Coalition Operations: A Hybrid Clustering and Multi-Agent Reinforcement Learning Approach for Path Planning in Obstructed Environment   Jul 1, 2024

Journal: **Elsevier Ad Hoc Networks** (Q1 Journal, IF: 4.4)

Authors: ***Shamyo Brotee***, Farhan Kabir, Md. Abdur Razzaque, Palash Roy, Md. Mamun-Or-Rashid, Md. Rafiul Hassan, Mohammad Mehedi Hassan

DOI: 10.1016/j.adhoc.2024.103519 ↗

Professional Experience

Enosis Solutions   Dhaka, Bangladesh
Software Engineer   Feb 2023 – Jul 2024

- Worked in the *data analytics team* of a US-based healthcare practice system
- Engaged in *system designing*, *development*, *database query optimization* and *maintenance* of the healthcare data infrastructure
- Involved in *cleaning and processing* patient data, *building BI analytics dashboards*

Standardized Tests

GRE   Sep 18, 2023
Total Score: 325/340

- Quantitative Reasoning Score: 169/170
- Verbal Reasoning Score: 156/170
- AWA: 5.0/6.0

TOEFL Oct 28, 2023

Total Score: 108/120

- Reading: 30/30
- Listening: 26/30
- Speaking: 27/30
- Writing: 25/30

Achievements

Code Samurai (4th Place) 2022

- An inter-university hackathon arranged by Japan in Bangladesh

Projects

Tag 2022

- A *Multi-Agent Deep Reinforcement Learning* based *predator-prey game*, using *C#* and *Unity game engine*

Nox 2021

- An *English to Bangla web dictionary* implementing *Perfect Hashing* for faster search speed, using *JavaScript*

CSEDU Gossip Bot 2020

- An *educational chatbot* for academic queries regarding our department, using *Python*

Donate+ 2019

- An *Android app* that caters to people in *urgent need of blood donors and recipients*, using *Java*

The Lone Ranger 2018

- An *action-platform shooter game*, using *C++* and *iGraphics library*

Technical Skills

Language: Python, C++, C#, C, Java, JavaScript

Database: Microsoft SQL Server, MySQL, Microsoft Azure, Azure Data Studio, SSMS

Machine Learning: PyTorch, Scikit-Learn

Data Science: Panda, Numpy, Matplotlib, Seaborn, Microsoft Power BI

Miscellaneous: Git, .NET, System Designing