

# Maharin Afroj

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in maharin-afroj

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## Work

- 2024 Working as **Lecturer** at Bangladesh University of Business and Technology(BUBT).
- 2024 Working as **Research Assistant** at Advanced Machine Intelligence Research Lab (AMIRL).
- Jan 2024 -June 2024 Worked as **Teaching Assistant** at Bangladesh University of Business and Technology(BUBT).

## Thesis work

- "Analysis between self-build Ensemble and Hybrid model as detection method of Dos/DDoS attack detection in SDN." Supervised by Md. Saifur Rahman.

## Education

- 2020 – 2024 ■ **B.Sc** in CSE, Bangladesh University of Business and Technology, Dhaka, Bangladesh.  
Result : CGPA 3.91 out of 4.00  
**Rank: 1/50**

## Competitive programming

- **Two time 2nd runners up** (team) in BUBT Intra University Programming Contest.
- Secured **7th position** in Luna Shamsuddoha All Girl Programming Contest 2024 (individual) Hosted By DU IIT.
- **Best Female Team** in UITS Collaborative (BUBT, IUBAT, UITS) Programming Contest 2022.
- Participated in **National Girls Programming Contest 2021** (position 103 among 150 teams).
- Participated in **Ada Lovelace National girls programming contest 2021 & 2022** (position 45 among 125 teams and 49 among 120 teams ).
- Participated in **Collaborative (BUBT, IUBAT, UITS,UAP) Programming Contest 2022 (2 times)**.
- Secured **10th**(individual) position in BUBT Intra University Programming Contest .
- Participated in **UITS Inter University programming contest(IUPC)**.
- Solved **300+** problems in **CodeForces**, **160+** problems in **CodeChef**, and **70** problems in **UVA**, and other various online judges.
- Solved **710+** problems in various online judges.
- Participated in **70+** Prestigious Competitive Programming Contests and obtaining good ranks (both onsite and online) including **IEEE Xtreme 16.0**, **ICPC Dhaka Regional Preliminary Contest 2022** and so on.

## Projects

- **BUBT programming contest manger** : A project in **c** language to manage various programming contests of BUBT.
- **BUBT Alumni association** : A interesting project with PHP and MySQL to work with database of BUBT alumni and students.
- **Defensive Weapon Maintenance through IoT-Enabled RFID System** : RFID, Firebase & integrating web app (with html & CSS).
- **Online learning management system (OLMS)**: Online based system that empower's Educators and Enhance Learning Experience developed using HTML, CSS, Bootstrap for frontend, PHP for backend and MySQL for database.

## Technical Skills

Languages	■ Python, C, C++, Java, SQL, Javascript, HTML, CSS, MATLAB.
Machine Learning	■ PyTorch, Keras, Tensorflow, OpenCV
Developer Tools	■ VS Code, Android Studio, LATEX, PyCharm, Jupyter Notebook, Git.
Others	■ Data structure, Algorithm.

## Selected Publications

### Journal-Q1

- Nuruzzaman Nobel, S. **M. Afroj**, M., Kabir, M.M., and Mridha, M.F., 2024. Development of a cutting-edge ensemble pipeline for rapid and accurate diagnosis of plant leaf diseases. **Artificial Intelligence in Agriculture**, [online] Available at: <https://doi.org/10.1016/j.aiia.2024.10.005>. [IF : 8.2]

### Published Conference

- **Afroj, M.**, Rifat, K.M.S. and Rahman, M.S., 2024, September. Enhanced Detection of DoS/DDoS Attacks in SDN Using Ensemble and Hybrid CNN-LSTM Models. In 2024 IEEE International Conference on Computing, Applications and Systems (COMPAS) (pp. 1-6). IEEE.
- **Afroj, M.**, Islam, M.P., Sultana, S. and Rahman, M.S., 2024, September. Integrated Multiclass Sentiment Analysis of Movie Reviews: Combining Fine-Tuned DistilBERT, LightGBM and XAI for Interpretation. In 2024 IEEE International Conference on Computing, Applications and Systems (COMPAS) (pp. 1-6). IEEE.
- Mukherjee, P.P., **Afroj, M.**, Hossain, S., Biswas, M. (2023). Towards a Digital Twin Integrated DLT and IoT-Based Automated Healthcare Ecosystem. In: Santosh, K., Goyal, A., Aouada, D., Makkar, A., Chiang, YY., Singh, S.K. (eds) Recent Trends in Image Processing and Pattern Recognition. RTIP2R 2022. Communications in Computer and Information Science, vol 1704. Springer, Cham.
- Prathibha, S., Bino, J., Ahammed, M.T., Das, C., Oion, S.R., Ghosh, S. and **Afroj, M.**, 2022, January. Detection methods for software defined networking intrusions (SDN). In 2022 International Conference on Advances in Computing, Communication and Applied Informatics (ACCAI) (pp. 1-6). IEEE.
- Ahammed, M.T., Boppana, U.M., **Afroj, M.**, Ghosh, S., Hossain, S. and Balaji, P., 2022, September. Real-time based Violence Detection from CCTV Camera using Machine Learning Method. In 2022 International Conference on Industry 4.0 Technology (I4Tech) (pp. 1-6). IEEE.
- S. Sultana, **M. Afroj** and M. S. Rahman, "An efficient fraud detection mechanism based on machine learning and blockchain technology," 2023 International Conference on Innovation and Intelligence for Informatics, Computing, and Technologies (3ICT), Sakheer, Bahrain, 2023, pp. 162-168, doi: 10.1109/3ICT60104.2023.10391306.

## Selected Publications (continued)

### Book chapter

- **Afroj, M.**, Al Hassan, W., Jim, J.R., Shoaib, H.A., Khaled, M. and Firdaus, S., 2024. Improved Classification of Kidney Lesions in CT Scans Using CNN with Attention Layers: Achieving High Accuracy and Performance. In Data-Driven Clinical Decision-Making Using Deep Learning in Imaging (pp. 147-165). Singapore: Springer Nature Singapore.

## Miscellaneous Experience

### Awards and Achievements

- 2024 ■ **1st Runners-up**, In paper presentation at the IEEE CS BDC Symposium 2024 Hosted by Jnu.
- 2022 ■ **Champion**, HULT Prize Oncampus 2022 ( for **MUKUL** an online based market place based idea which includes some AI technique).
- 2021 ■ **Champion**, English Oratory Competition organized by IEEE BUBT SB chapter 2021.
- 2018 ■ Placed **2nd** position in reciting poem competition in Annual cultural competition 2021.
- **BUBT Merit Scholarship**: Awarded **scholarships** for academic excellence from session 2019.

### Participation

- 2021 ■ Participated in RUET CSE Fest with a hardware project named **Dipti Braille** a operating system for blind people.
- 2023 & 2024 ■ Participated in 7th & 8th Bangladesh Women's Mathematics Olympiad.
- 2023 ■ Participated in Intra-faculty cricket tournament (Female) and part of the **Champion** team.
- participated in the IEEE-sponsored flagship AI Symposium organized by the Department of Computer Science, **University of South Dakota 2024**.

### Certification

- 2023 ■ Certified for Supervised Machine Learning: Regression and Classification Awarded by **coursera**.
- 2024 ■ Certified for Advanced Learning Algorithms Awarded by **coursera**.
- Certified for Unsupervised Learning, Recommenders, Reinforcement Learning Awarded by **coursera**.
- 2022 ■ Certified Networking Basics and Campus Network Design training course. Awarded by the Asi@Connect sub-granted project, organized by the Department of CSIT, PSTU.

### Volunteer work

- IEEE BUBT SB ( hosted **15+** international events and worked in IEEE conferences.) & Awarded as **most valuable member** in IEEE BUBT SB chapter.
- Technical team member of **ACM ICPC 2023**.
- **Organizing Co-Chair** of International Virtual Summit-2021.
- **Advisor**, Competitive programming committee, BUBT.
- **Coach** of (BUBT\_Retired\_Participants) in ICPC Dhaka Regional Onsite 2024 Contest and (BUBT\_Mudbloods) in BUET IUPC 2024.

## Miscellaneous Experience (continued)

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### Research Interests

- Machine Learning, Deep Learning, Computer Vision, Image Processing, Artificial Intelligence, Intelligent Systems Development, LLM, Digital Health.

## References

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### **Md. Saifur Rahman**

Assistant Professor & Chairman, CSE  
Bangladesh University of Business and Technology.  
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### **Dr. M. Firoz Mridha**

Associate Professor, CSE  
American International University-Bangladesh.  
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