

Azwad Fawad Hasan

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EDUCATION

Independent University, Bangladesh (IUB)

B.Sc. in Computer Science & Engineering (CSE); CGPA: 3.73/4.00

Minor in Management Information Systems (MIS); *Cum laude* graduate

Dhaka

Jan 2020 – Sept 2023

Pearson Edexcel International Advanced Levels (IAL), Academia

Physics, Chemistry, Mathematics; Grade: 3 A

Dhaka

Jun 2017 – Jun 2019

Pearson Edexcel International GCSEs (O levels/ IGCSE), Academia

Took 8 exams in a single sitting; Grade: 8 A*

Dhaka

Jun 2017

PUBLICATIONS

Md Fahad Monir and **Azwad Fawad Hasan**, "Exploring SDN Based Firewall and NAPT: A Comparative Analysis with Iptables and OVS in Mininet," in *Advanced Information Networking and Applications (AINA-2024)*, L. Barolli, Ed. Cham: Springer, 2024, vol. 202, pp. 423-432, doi: https://doi.org/10.1007/978-3-031-57916-5_37.

Md Fahad Monir, **Azwad Fawad Hasan**, Md Mozammel Hoque, Tarem Ahmed, Fabrizio Granelli, "Benchmarking Network Functionality: Performance Evaluation of SDN Controllers on Different Network Functions," 2024 IEEE 100th Vehicular Technology Conference (**VTC2024-Fall**), Washington DC, USA, doi:<https://doi.org/10.1109/VTC2024-Fall63153.2024.10756803>.

Azwad Fawad Hasan, Md Fahad Monir and Zoheb Hasan, Tarem Ahmed "Resilience of SDN Controllers to DDoS Attacks: A Comparative Study of RYU, ODL, and OVS," in WS19 IEEE ICC 2025 Workshop-Security 6G (**IEEE ICC-2025**), Montreal, Canada, 2025. [Accepted]

Azwad Fawad Hasan, Md. Fahad Monir and Khorshed Alam, "Enhancing DDoS Attack Detection through Multi-modal Fusion of Features Extracted using Deep Learning and Large Language Models (LLMs)" [On-going]

RESEARCH EXPERIENCE

IUB, Dept. Of Computer Science And Engineering

Researcher Assistant (RA)

Bashundhara, Dhaka

Sept 2022 – Present

- * Implemented and validated **network middleware** (firewalls, load balancers, IDS, NAPT) in **programmable emulated environments** (Mininet, NS-3) under the supervision of **Dr. Tarem Ahmed**. Quantified **packet loss** and **jitter** under diverse **DDoS** and **P2P attack scenarios**. Identified critical performance bottlenecks crucial for **robust and resilient network design in next-gen telecom infrastructures**
- * Designed and evaluated **programmable network test beds** to rigorously benchmark and optimize **Quality of Service (QoS)** under diverse, **software-defined network (SDN)** conditions. Explored their role in **next-generation network architectures** (e.g., **6G, Open RAN**), focusing on dynamic network control and resource orchestration, with contributions leading to three peer-reviewed publications under the mentorship of Senior Lecturer, **Md. Fahad Monir**
- * Developed a novel, high-fidelity, **multi-class DDoS dataset** using Mininet-based SDN emulation and *advanced packet generation* (Scapy). Applied **rigorous feature engineering and machine learning** (XGBoost, Random Forest, SMOTE) for DDoS mitigation, achieving **99.86% accuracy** on custom data and **99.90% on CIC-DDoS2019 validation**, contributing to **intelligent network security, anomaly detection, and data-driven network management**.

INDUSTRY WORK EXPERIENCE

Aamra Networks Ltd.

Programmer (ERP) - RnD & Pre-Sales

Banani, Dhaka

March 2025 – Present, Full-time

- * Collaborated in a team of six to develop and optimize critical features across **Aamra group's large-scale ERP system** (HR, CRM, SCM, Expenses modules). Automated **Yearly Assessment workflows**, enhanced contract management, and improved **HR, BTRC reporting**, increasing data entry efficiency by **21%** and supporting a **10% revenue uplift**. Leveraged **CodeIgniter (PHP), MySQL, JavaScript**, and modern web practices to deliver scalable, high-reliability solutions with proactive bug resolution, robust validation, and smooth data migration.

Aamra Networks Ltd.

Banani, Dhaka

Executive (SWE) - RnD & Pre-Sales

March 2023 – Feb 2025, Full-time

- Engineered a **robust, real-time facial attendance web application**, integrating *Flask* and *RTSP streams*. Leveraged **advanced AI models** (FaceNet, DeepFace, MTCNN, ONNX Face Detection) achieving **95% accuracy** on large video datasets. Designed a **scalable processing pipeline** (reducing time by **30%**) and a **secure dual-database system** for enhanced operational security.
- Developed "*Infiltra Watch*", a state-of-the-art **AI-powered intruder detection system** for old existing CCTV infrastructure. Achieved **91% accuracy** in real-time intruder detection and implemented a robust alarm system, significantly enhancing **security and preventing property damage** through automated threat response.

SKILLS

Languages: Python, SQL, JavaScript, PHP

Technologies and Libraries: TensorFlow, PyTorch, Scikit-learn, Pandas, OpenCV, Flask, Django, SQLAlchemy, Numpy, Redis, Celery, Git, Streamlit, Bootstrap, Plotly.js, ApexCharts.js, YOLO, NS-3, Mininet, iPerf, SVN

Certificates: *Professional Google Cloud Security Engineer, KodeKloud Mastering Generative AI*

AWARDS & ACHIEVEMENTS

Multiple Dean's List, Honor List, and Vice Chancellor's List Awards(2020-2023): Recognized for consistently high academic achievement throughout my undergraduate studies.

Top Team Finalist, Innovate For Bangladesh 2021: My work on waste recycling during the pandemic was selected as one of the top finalists in the student competition organized by Bangladesh Innovation Conclave.

IUB 100% Merit Scholarship 2020: Got full scholarship for being *Top 5% scorer* of Spring 2020 Admission Test.

The Change Maker Awards 2019: Recognized for one of the *country's best* IGCSE results.

The Daily Star Award 2020, 2018: Recognized for achieving top grades in A-levels and O-levels.

Pearson Edexcel High Achievers Awards 2017: Graduated as the highest ranked student.

PROJECTS

Predicting From Images | [GitHub](#)

- Explored transfer learning techniques using the VGG-16 convolutional neural network architecture on the CIFAR-100 dataset, consisting of 60,000 images across 100 classes.
- Implemented VGG-16 in PyTorch and trained the model both from scratch and using pre-trained ImageNet weights, adjusting the final layers to fit CIFAR-100 classes.
- Applied techniques like freezing convolutional and fully connected layers, comparing performance across different training approaches to enhance model accuracy.

LEADERSHIP & SERVICE

IUB Admission & Financial Aid Office

Bashundhara, Dhaka

Student On Duty (SOD)

2021 – 2023, On-Site Part-Time

- Provided customer service and administrative support for undergraduate admissions and scholarships, including handling queries, calls, and credit transfer evaluations.

Private Tutor (Self-Employed)

Mirpur, Dhaka

O-Level and A-Level Students

2019 – 2023, On-Site Part-Time

- Provided personalized tutoring in Math and Science for O-Level and A-Level students in Bangladesh, helping them achieve academic success.

EXTRA-CURRICULAR ACTIVITIES (ECA)

Sub-Executive, IEEE Computer Society IUB Student Branch Chapter

Jul 2021 - Jul 2023

Managed social media, boosted LinkedIn followers by 50%, and created content strategies.

Edge Ambassador, The Business Standard (TBS)

Aug 2021 - Aug 2022

Created content, partnered with university clubs, and facilitated TBS and Walton collaborations.