

### **Recommendation for Ayesha Binte Mostofa**

I am pleased to recommend my student, Ayesha Binte Mostofa, for graduate studies at your esteemed university. I had been her undergraduate advisor, research advisor and course instructor throughout her academic journey. This close involvement has allowed me to observe her exceptional intellectual abilities, strong work ethic, and impressive personal growth, all of which make her an outstanding candidate for higher studies.

Ayesha possesses a quite rare growth mindset. Despite facing significant health challenges during her first semester, Ayesha demonstrated remarkable resilience and determination, ultimately becoming one of the top students in her junior and senior years. She graduated with a 4.00 GPA in her last semester. Her hard work and commitment were recognized through her receipt of the prestigious Dean's List Scholarship, awarded for academic excellence. As Ayesha's undergraduate advisor, I have observed her growth and development over the past four years. Based on my experience working with her, I can confidently attest to her ability to tackle challenging situations.

In 2024, Ayesha joined my research team to work on a project focused on detecting advanced persistent threats from system logs. The initial phase involved an extensive literature review, during which Ayesha demonstrated exceptional organizational skills by meticulously documenting our research process. Her independent reviews and thoughtful contributions during our weekly meetings showcased her dedication, resourcefulness, and ability to refine and expand on the project's concepts. Once our methodology is defined, Ayesha contributed in implementing random walks on the dataset to construct provenance graphs and generating leaf-to-source trees to trace the origins of events to capture the attack information. Currently, our work involves deploying large language models using Retrieval-Augmented Generation techniques, employing tools such as Llama-index, Roberta, and XML-Roberta, in which Ayesha continues to play an important role.

Before that, Ayesha has successfully completed four courses under my instruction : Computer Networks and Computer Security, along with their associated sessional (lab-based) courses. Her performance across these courses was exemplary, highlighting her strong technical skills and problem-solving abilities. In the Computer Security sessional course, Ayesha excelled in a series of challenging tasks. These included constructing cryptographic systems, implementing AES, RSA, and the Diffie-Hellman Key Exchange Algorithm, and facilitating secure message exchange using TCP socket programming. She also conducted buffer overflow attacks and developed malware within a Docker environment. Afterwards, she explored firewalls and evasion techniques. For her term project, Ayesha implemented and documented the functionalities and installation process of the open-source security tool MISP (Malware Information Sharing Platform), ensuring that users could easily understand and utilize the tool effectively. In the Computer Networks sessional course, Ayesha showcased her ability to design

and simulate networks with high precision. She configured networks using Cisco Packet Tracer and simulated various wireless and wired configurations, including TCP/UDP protocols, in Network Simulator-2. For her term project, she modified the TCP algorithm CubicFit to enhance its performance, an undertaking that required significant technical skill and ingenuity. Ayesha's ability to excel in all assignments earned her a perfect grade.

Beyond her academic achievements, Ayesha has actively participated in technical competitions in machine learning, deep learning, and software development, achieving victories that have brought pride to our university. She is also a member of the IEEE Computer Society BUET Student Branch Chapter, where she served for two years. During the COVID-19 pandemic, Ayesha volunteered to manage online class records for her peers, demonstrating her commitment to her fellow students and her ability to adapt to challenging situations. Just after her graduation, Ayesha joined the Canadian University of Bangladesh as a lecturer, further showcasing her strong teaching abilities. I believe she will be an invaluable asset to any program she chooses to pursue. I strongly recommend Ayesha for the graduate program at your esteemed university.

Dr. Md. Shohrab Hossain,  
Professor,  
Dept. of Computer Science & Engineering,  
Bangladesh University of Engineering & Technology,  
Dhaka-1000, Bangladesh