**UNIVERSITY OF SCIENCE & TECHNOLOGY OF HANOI** 

**TRƯỜNG ĐẠI HỌC KHOA HỌC & CÔNG NGHỆ HÀ NỘI**

**GROUP PROJECT TOPIC PROPOSAL**

Specialty: ☐ Data Science

☐ Cyber Security

Academic year: 2024-2025

**STUDENT INFORMATION**

Full name: Phạm Tuấn Nam Student ID: 22BI13326

|  |
| --- |
| **Topic: DDoS Detection - Deep Learning Approach** |
| **Description:**   * The topic involves evaluating the effectiveness of deep learning models in detecting and preventing DDoS attacks. Deep learning can learn data from attacks, detect anomalies and adapt to new types of attack. * The models after training can distinguish between the attack network traffic and normal traffic, then give an alert to the server about attackers’ IP. After that, scripts inside the server will take action and block those IPs. * The models will be set up running parallel with the server. Network topology chosen for the attack scenario is tree topology, there will be 8 VMs, 1 for server + firewall and 7 for clients. 3 out of 7 clients will be the attackers and send a massive amount of requests to the server, 4 others will be normal users and have access to the server normally. |
| **Expected outcomes:**   * Effective detection of DDoS using deep learning model * Early detection of anomalies (Distinguish between attack traffic and normal traffic) * Prevention and mitigation of DDoS attacks (block IP, increase threshold, …) * Evaluate efficiency of deep learning model |
| **Used Methods and Techniques:**   * Training Deep Learning model * Building web application server * Setup a network topology * Send a massive amount of requests (using Jmeter) and capture them (using tcpdump and Wireshark) * Scripts for blocking IP |