**Threat Prediction Using Honeypot and Machine Learning**

SUBMITTED IN COMPLETE FULFILLMENT OF THE REQUIREMENTS OF THE DEGREE OF

# BACHELOR OF ENGINEERING

IN

# INFORMATION TECHNOLOGY

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# INFORMATION TECHNOLOGY DEPARTMENT XAVIER INSTITUTE OF ENGINEERING UNIVERSITY OF MUMBAI

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**ABSTRACT**

A honeypot is a deception tool, designed to entice an attacker compromise the electronic information systems of an organization. If deployed correctly, a honeypot can serve as an early-warning and an advanced security surveillance tool. It can be used to minimize the risks of attacks on IT systems and networks. Honeypots can also be used to analyze the ways attackers try to compromise an information system and to provide valuable insights into potential system loopholes. This research investigated the effectiveness of the existing methodologies that used honeynet to detect and prevent attacks. The study used centralized system management technologies called Puppet and Virtual Machines to implement automated honeypot solutions. A centralized logging system was used to collect information about the source IP address, country, and timestamp of attackers. In this paper, we detect a compromised SSH session that is carrying out malicious activities. We use flow-based approach and machine learning techniques to detect a compromised session. In a flow-based approach, individual packets are not scrutinised. Hence, it works better on a high-speed network. The data is extracted from a distributed honeypot. The paper also describes the machine learning techniques with appropriate parameters and feature selection technique..

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