



جامعة الإمارات العربية المتحدة
United Arab Emirates University

**The College of Graduate Studies and the College of Information Technology
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Master Thesis Defense**

Entitled

ENHANCING FIREWALL FILTERING PERFORMANCE USING NEURAL NETWORKS

by

Heba Saleous

Faculty Advisor

Dr. Zouheir Trabelsi, Department of Information Systems and Security
College of Information Technology

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Abstract

The internet has grown to a point where people all over the world have grown dependent of the convenient communication medium that is being provided. However, with this dependency, malicious traffic has become a major concern. Because of this, firewalls are a mandatory part of any network, due to their ability to filter the traffic based on rules that state which packets should be accepted or denied. However, filter rules must be manually configured by a network administrator, and packets that do not fit any rule may be subject to wrong judgement by the firewall. This can become tedious in larger networks. Neural networks can learn the filter rules that have been set by administrators in order to decide if packets that do not fit any specific rules should be accepted or denied. The neural network will be trained with existing packet data and their firewall actions, and then tested to determine its filtering accuracy compared to the firewall.

Keywords: Network Security, Firewall, Packet filtering, Neural Networks.