The affect of fuzzification on neural networks intrusion detection system

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Abstract:

Intrusion detection (ID) is an interesting approach that could be used to improve the security of network systems. IDS detects suspected patterns of network traffic on the remaining open parts through monitoring user activities (runtime gathering of data from system operations), and the subsequent analysis of these activities. The purpose of this work is to contribute ideas of finding a solution to detect attacks (intrusion) through building artificial detection system using feedforward neural networks to detect attacks with low false negative rate (which is the most important point), and low false positive rate. To do so, two feedforward neural networks architectures (one for non fuzzified data, the other for fuzzified data) are suggested, and their behaviors in detecting the attacks are studied. In this research, the suggested IDS not only has the ability to distinguish if the access is normal or attack, but also capable of distinguishing the attack type.

Keywords

- Neural networks,
- Intrusion detection,
- Artificial neural networks,
- Feedforward neural networks,
- Data security,
- Telecommunication traffic,
- Monitoring,
- Runtime,
- Pattern analysis,
- Buildings