

# A Deep Auto-Encoder based Approach for Intrusion Detection System

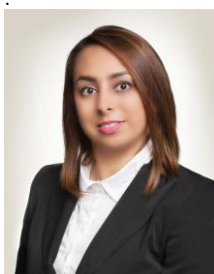
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**Abstract**—One of the most challenging problems facing network operators today is network attacks identification due to extensive number of vulnerabilities in computer systems and creativity of attackers. To address this problem, we present a deep learning approach for intrusion detection systems. Our approach uses Deep Auto-Encoder (DAE) as one of the most well-known deep learning models. The proposed DAE model is trained in a greedy layer-wise fashion in order to avoid overfitting and local optima. The experimental results on the KDD-CUP'99 dataset show that our approach provides substantial improvement over other deep learning-based approaches in terms of accuracy, detection rate and false alarm rate.

**Keyword**— Intrusion detection systems, deep neural networks, stacked autoencoders, unsupervised learning, anomaly detection



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