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# A Genetically Optimized Network Intrusion Detection System using K-means Clustering via Principal Component Analysis

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***Abstract*— Intrusion detection is to detect attacks against a computer system. It is an important technology in business sector as well as an active area of research. In Information Security, intrusion detection is the act of detecting actions that attempt to compromise the confidentiality, integrity or availability of a resource. It plays a very important role in attack detection, security check and network inspect.**

**This paper presents the performance of k-mean algorithm for various values of number of clusters, based on experiments. The optimization of output is done using genetic algorithm by selecting initial through GA. Preliminary experiments with KDD cup'99 Data set show that the k-mean clustering can effectively detect intrusive attacks and achieves a low false positive rate. Here PCA is used to reduce the dimensionality of feature vectors extracted from data for analysis and visualization.**

***Keywords*— Intrusion detection, Principle Component Analysis, K-means Clustering, Genetic Algorithm, Data mining.**