



# **Credit Card Fraud Detection using Bayesian Optimized K-Nearest Neighbors**

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*Abstract* – Credit card fraud is one of the most important problems that financial institutions are currently facing. Although the technology has allowed to increase the security in the credit cards with the use of PIN keys, the introduction of chips in the cards, the use of additional keys such as tokens and improvements in the regulation of its use is also a necessity for banks, to act preventively against this crime. To act preventively, it is necessary to monitor in real time the operations that are carried out and have the ability to react in a timely manner against any doubtful operation that is performed. This paper presents an implementation of automatic credit card fraud detection system using Bayesian Optimized K-Nearest Neighbors on Kaggle dataset. The selection of proper attributes for reducing the training overhead and claiming higher accuracy for the fraud detection using soft computing. Performance evaluation is achieved using confusion matrix plot with accuracy, sensitivity and precision values.

*Keywords* – Artificial Intelligence, Bayesian Optimization, CIA, Data Mining, FBI, KDD, KNN, Machine Learning.