

Abstract

Adverse drug events are pharmacologic impacts past the restorative reason that happens after the use of a drug. Serious adverse drug events are evaluated to be the fourth driving cause of passing within the United States coming about in 100,000 passings per year. The main difficulty in finding adverse drug events through experiments is that designing clinical trials to discover side effects is typically very expensive, time-consuming, and most importantly, remains very challenging in terms of cost and efficiency. To cut down on the time-consuming and expensive process of drug discovery, machine learning about potential side effects must be used early. This study aims to develop a model that can predict drug side effects. The model will use the Gravitational Search Algorithm (GSA) method to choose the most relevant data or features, and the Support Vector Machine (SVM) method to build the prediction model. Hyperparameter tuning is performed with Linear, Polynomial, and RBF kernels to enhance the model performance. The best model is the RBF kernel with good performance having an accuracy value of 0.6391 and F1-Score value of 0.7163.

Keywords: Gravitational Search Algorithm, Support Vector Machine, Machine Learning, Drug Side Effects