

Abstract—This study utilizes the Camel Algorithm and an Artificial Neural Network (ANN) to predict drug side effects that may be associated with breast and reproductive problems, based on a sample from the SIDER database. Clinical trials and post-market monitoring are popular methods for identifying adverse effects, but they frequently suffer from flaws that lead to delays or omission of important information. With systematic optimization and deep learning methods working together, predictions become more accurate. The Camel Algorithm is utilized for fine-tuning artificial neural network structures. This algorithm is famous for being very reliable. Model 2, the best ANN model on the test set, achieved an F1 score of 0.6747, precision of 0.6176, and accuracy of 0.6400. These results demonstrate that the Camel Algorithm and ANN can work together for accurate and early drug side effect predictions. This is especially true in complex cases like breast and reproduction problems. This combination would simplify the process of identifying drug side effects. Conducting further research with larger and more diverse datasets is necessary to demonstrate the applicability of the suggested method in various scenarios.

Keywords—camel algorithm, artificial neural network, side effect, fingerprint-based