This Python script conducts machine learning experiments using various classification algorithms such as Random Forest, Gaussian Naive Bayes, AdaBoost, MLP (Multi-Layer Perceptron), and KNeighbors. The data is split into training and testing sets based on the selected algorithm, either BAT, Sparrow Search, or Squirrel Search. The script trains classifiers for each algorithm and calculates performance metrics, including accuracy, precision, recall, F1 score, and AUC. Additionally, it implements a Convolutional Neural Network (CNN) using Keras and trains a Support Vector Machine (SVM). The script visualizes the class distribution in the dataset using seaborn and matplotlib. It also contains commented-out code for visualizing the training history of the CNN model. The results are stored in lists for further analysis or presentation. Overall, the script serves as a comprehensive tool for evaluating multiple machine learning models and visualizing their performance on a given dataset.