IMPLEMENTATION OF
CLASSIFICATION ALGORITHMS
IN VARIOUS APPLICATIONS
USING MACHINE LEARNING AND DEEP LEARNING

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ABSTRACT

Classification is a process of categorizing data or objects into predefined classes or categories based on their features or attributes. In machine learning, classification is a type of supervised learning technique where an algorithm is trained on a labeled dataset to predict the class or category of new, unseen data.

The main objective of classification is to build a model that can accurately assign a label or category to a new observation based on its features. For example, a classification model might be trained on a dataset of images labeled as either dogs or cats and then used to predict the class of new, unseen images of dogs or cats based on their features such as color, texture, and shape.In this book we are implementing Classification techniques for two different applications like Inappropriate and spam email detection using hybrid features, Identification of Weeds and Crops.

As an attack of social engineering, phishing email has caused tremendous financial loss to recipients. Therefore, there is an urgent need for phishing email detection with high accuracy. In this project, we propose phishing emails detection based on hybrid features. By analyzing the email-header structure, email-URL information, email-script function and email psychological features, we extract hybrid features. Then we choose Support Vector Machine (SVM), LSTM and CNN classifiers to evaluate our experiments. Experiments are performed on a dataset consisting of legitimate emails and phishing emails. The proposed approach achieves overall true-positive rate, false-positive rate, precision and accuracy. The results show that psychological features can improve the accuracy of detection and reduce the false-positive

rate. Our proposed method has a good performance in detecting phishing emails.

A farm's crop productivity can be greatly affected by the methods used to detect and remove weeds from the field. Recent years have seen significant advancements in image processing thanks to the application of machine learning technology over more conventional methods. There have been significant advances in image processing thanks to deep learning, and not just for better identification. Automated Crop Weed Identification uses these two methods to determine what is a crop and what is a weed in a given image. Weeds in crops can be accurately identified using the machine learning classifiers SVM and KNN, as well as the deep learning model CNN. Finally, we are producing accurate comparison findings between two technologies; this will allow us to select the classifier model that has the highest accuracy for identifying crop weeds. According to the findings of the experiments, the CNN has a classification accuracy that is 95% higher than that of the other well-known methods now in use. In the future, it will be possible to detect it using smartphones by taking a picture of a plant leaf, then using the image to classify and identify weeds and crops using the best prediction model available.

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