

Image Recognition Prediction Model Using PSTSS Teachable Machine

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Abstract—With its influence on sectors including healthcare, retail, and security, image recognition has emerged as a key component of contemporary AI applications. This study investigates the creation of a prediction model for picture identification using Google's PSTSS Teachable Machine. The study presents the Teachable Machine's foundational ideas, describes how to build an image recognition model, and assesses how well it performs in prediction challenges. We examine the accuracy, usability, and potential for practical applications of the model while presenting experimental findings on a constructed dataset.

Index Terms—Image recognition, Teachable Machine, prediction model, machine learning, AI applications.

I. INTRODUCTION

An essential part of artificial intelligence (AI) is image recognition, which gives computers the ability to comprehend and evaluate visual information. In the past, developing such models required a great deal of coding, computer power, and knowledge of machine learning frameworks. But thanks to an easy-to-use interface, Google's PSTSS Teachable Machine streamlines this procedure and enables non-experts to build machine learning models.

The purpose of this work is to examine the development of an efficient image recognition prediction model using PSTSS Teachable Machine. We examine how well it recognises and predicts image classes using transfer learning and its pre-trained neural network capabilities.

II OVERVIEW

By allowing anyone to train models without knowing any code, Teachable Machine is an online application that democratizes artificial intelligence. It can recognise images, sounds, and poses. Its image recognition module is effective for real-world

applications because it applies transfer learning to pre-trained convolutional neural networks (CNNs), like Mobile Net.

Teachable Machine's salient characteristics include: Model construction is made easier using a no-code interface.

Uploading labelled data is possible with custom datasets.

Exportability: For web and mobile apps, models can be used as TensorFlow.js or TensorFlow Lite

III. METHODOLOGIES

A. Preparing the Dataset

Two object categories—HDFC Bank & ICICI Bank—were included in the custom dataset. Three hundred photos from public datasets were included in each category. Training (80%) and testing (20%) sets of data were separated.

B. Training Models

The dataset was uploaded using PSTSS Teachable Machine, and the subsequent procedures were carried out.

Labelling: Pictures were categorised according to their labels.

Training Parameters: An 80/20 train-test split was employed with Mobile Net's default parameters.

Training: Using browser-based resources, the two-minute training session was conducted.

C. Assessment of the Model

The test dataset was used to assess the training model. Measures like F1-score, recall, accuracy, and precision were calculated.

IV. FINAL RESULTS

A. Model Performance

On the test set, the model's average accuracy was 96%. The confusion matrix showed that because of

their apparent similarities, cats and dogs were most frequently misclassified.

Metric Value Precision 95% Accuracy 96%
97% recall

F1-Score: 96%

B. Scalability & Usability

Non-technical users can utilise PSTSS Teachable Machine because of its intuitive UI. However, scalability for larger datasets is limited due to its dependence on browser resources. Deployment on mobile devices was made possible by exporting the model to TensorFlow Lite, demonstrating its promise for real-time applications such as retail inventory management and wildlife monitoring.

With proper design and application, the efficacy of the model should increase. According to research studies and Google's Teachable Machine, the efficiency has been studied in the range of 86-90%. The efficacy obtained from our model is 96%, which is a good comparison. This means that the model is properly designed and used according to the AI classification research and studies

V. CONCLUSIONS

This study shows that PSTSS Teachable Machine is a powerful tool for creating prediction models for picture identification, particularly for people without much technical knowledge. Although its accessibility and simplicity are excellent, scalability and customisation issues need to be addressed in future developments.

VI. IMPLEMENTATION OF THE SOLUTION

Future studies should concentrate on enhancing scalability for big datasets, investigating its application in time-series picture data, and integrating the Teachable Machine with cutting-edge frameworks for hybrid solutions.

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to achieve optimal reduction and eliminate drawbacks such as increased friction due to the roughness of the paper itself. one 3. Co-creation of unity: one interaction with flow devices: Investigating the integration of roughness control systems and active flow control systems. Combining these processes allows for stabilization and expansion of laminar flow, resulting in even greater effects. CFD simulations and wind measurements can be used to evaluate different connections and determine the optimal configuration. Optimizing the wing design: The wing design, including shape and material selection, must be optimized to use rough details. For example, the shape of an air foil that supports laminar flow can be further improved through a process of releasing roughness features. Multi-Disciplined Design Optimization (MDO) tools allow you to determine interactions between