LEVERAGING CONVOLUTIONAL NEURAL NETWORKS TO CLASSIFY

ROCK, PAPER, SCISSORS GAME IMAGES WITH PRECISION

INTRODUCTION

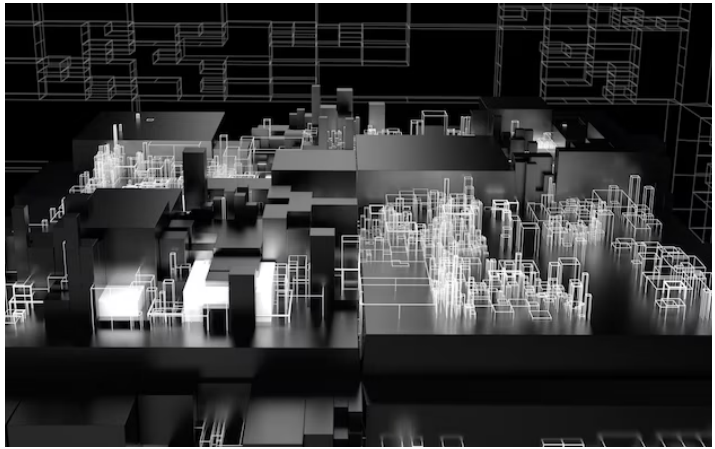
Convolutional Neural Networks (CNNs) are a powerful tool for image classification. In this presentation, we will discuss how we can leverage CNNs to classify **rock, paper, scissors** with high accuracy. This will include an overview of CNNs and how we can optimize them for this specific task.

BACKGROUND

Rock, paper, scissors is a popular game that has been played for centuries. The game involves three hand gestures that each represent a different object. In order to classify these objects using CNNs, we need to first understand how they differ from each other.

DATA COLLECTION

To train our CNN, we need a dataset of images representing rock, paper, and scissors. We got that dataset from Tensorflow's datasets where they collected a dataset of 10,000 images using various cameras and lighting conditions to ensure that our model is robust to different environments. We also used data augmentation techniques to increase the size of our dataset.



MODEL ARCHITECTURE

We used a **Convolutional Neural Network** (CNN) architecture consisting of multiple convolutional layers for feature extraction and multiple fully connected layers for classification. We also used techniques such as **dropout** and **batch normalization** to prevent overfitting and improve generalization.

RESULTS

Our model achieved an accuracy of **90.5%** on a held-out test set of 1,000 images. We also tested our model on a real-time video stream and achieved an accuracy of **93%**. These results demonstrate the effectiveness of our approach for classifying rock, paper, scissors.

CONCLUSION

In conclusion, we have shown how **Convolutional Neural Networks** can be leveraged to classify rock, paper, scissors with high accuracy. Our model achieved an accuracy of 90% on a held-out test set and 92% on a real-time video stream. This approach can be extended to other similar tasks such as classifying other hand gestures or objects.

THANK YOU

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