

Hand Gesture Recognition System Using Deep Learning

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Abstract: Hand gesture recognition is an attractive research field with a wide range of applications. Another important application of hand gesture recognition is the translation of sign language. The importance of hand gesture recognition has increased due to the prevalence of touchless applications. The software proposed in this project is created using Python, NumPy, Open-CV, Tk-inter, labelling, and TensorFlow. Recent research has proved the supremacy of Convolutional Neural Networks (CNN) for image representation and classification. The CNN model, the provided image or video will be classified as the respective Alphabet or number from the American Sign Language Set. The proposed system is evaluated on a very challenging dataset, which consists of 11 dynamic hand gestures. The results show that the proposed system outperforms state-of-the-art approaches, demonstrating its effectiveness. The model was trained on 800 images and tested on 400 images. The model with augmented data achieved an accuracy of 86.75%.

Keywords: Convolutional Neural Networks, OpenCV, Computer vision, Deep Learning, TensorFlow, Gestures.

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