

Face Mask Detection using CNN

Author: Elavarasi Chinnadurai

Year: 2025

Introduction

The Face Mask Detection project uses Convolutional Neural Networks (CNN) to classify whether people in images are wearing face masks or not. This helps monitor mask compliance in public spaces.

Objective

To develop a reliable CNN-based system that can automatically detect face masks in images.

Tools and Libraries

Python, TensorFlow/Keras, OpenCV, NumPy, Matplotlib, Scikit-learn

Dataset Description

Dataset sourced from Kaggle Face Mask Detection Dataset with two categories: With Mask and Without Mask.

Methodology

Data preprocessing, augmentation, CNN model building, training, and evaluation.

Model Architecture

Convolutional + MaxPooling + Dense + Dropout layers. Optimizer: Adam, Loss: Binary Crossentropy.

Results and Discussion

The model achieved high accuracy and performed well in distinguishing masked vs unmasked faces.

Conclusion

The CNN-based model effectively detects face masks and can be expanded for real-time detection applications.

Future Scope

Integrate with webcam for real-time use, deploy as a web/mobile app, improve with transfer learning models.