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Detection of Deepfake Images Using Deep Learning Models

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Abstract: The emergence of deep learning has led to remarkable progress in generating hyper-realistic synthetic images, widely known as deepfakes. These AI-generated visuals pose significant challenges for detection, as well as serious risks such as misinformation, public manipulation, and reputational harm. Identifying and mitigating the spread of such content is an ongoing concern in the field of digital media forensics. This study explores a deepfake detection approach based on a deep learning architecture — the Xception model. Leveraging the DeepFake Detection Challenge (DFDC) dataset, which includes 124,647 labeled images split evenly between authentic and manipulated content, the model is trained to classify deepfake imagery. The proposed system achieves a training accuracy of 98.5% and a validation accuracy of 94.10%, indicating that the Xception model is a promising tool for effectively detecting deepfake images in practical applications.

Keywords: Deep Fake, XceptionNet, fake image, real image classification, neural network





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