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Signature Recognition Models: Performance Comparison

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Abstract

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Abstract:
In recent times Signature Verification has become an act of absolute necessity in the area of biometric verification. Unlike other verification problems, every small detail between genuine and forged signatures needs to be observed because a skilled forgery can only differ by only some specific kind of features of the real signature. The task of verifying signatures has become even harder in writing independent scenarios. In this paper, with the help of Siamese Network, VGG16 model and DEEP CNN models we have modeled a system that will verify signatures offline. Siamese networks use two images as input with shared weights, which can be trained to learn the features of both the images to find out the similarity between them. This is done by passing sets of similar and dissimilar images to the network so that it can learn to reduce the loss and Euclidean distance between similar images and increase it in dissimilar images. As for VGG 16, it is a pre-trained 16-layer model that is based on CNN, these 16 layers consist of max layer, pooling layers, and many more. CNN is simply a convolutional neural network on which both Siamese and VGG models are based. The performance analysis shows the VGG16 to have best accuracy about 85-90%, Siamese shows 65-70% and CNN shows 65-70% and the Siamese network to have the highest speed in identification.

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