

ABSTRACT

In today's information technology, the image or image component is a very important component. Through an image or image, we can find out information that may be difficult to explain in words. Previous research has succeeded in improving the color quality of the image using the multilayer perceptron and color featured-based SRCNN methods. However, the SRCNN method still cannot produce images with clear edges and good textures.

In this final project, modifications have been made to the modified Super Resolution Convolutional Neural Network (SRCNN) method by inserting an autoencoder skip connection that has been tested and compared with the original SRCNN method. one-time up sampling and two-time up-sampling model with different layer comparisons, but the best model that can outperform the original SRCNN model is the one-time up sampling model which has nine layers.

The final result that has been obtained is that the modified model uses one up sampling using the adam optimizer and the relu activator for the convolution layer and sigmoid for the decoder layer of this modified model to get a PSNR value of 39.857 dB and an MSE of 0.001. Based on the test results, the modified model dataset can outperform the original SRCNN if the training test uses the historical and BSDS 100 datasets, while for testing the modified model testing is superior when using the Set 5, Set 14 and Historical datasets.

Keywords: Image super resolution, convolutional neural network, autoencoder, skip connection