

Abstract

Colorization is an interesting activity in Image Processing. The image that have unfavorable color, can be changed become your favorable color. The same issues are raised by this final assignment in titled: Implementation Neighbor Embedding for Colorizing Grayscale Image. Grayscale image that looked black and white based on the luminance will be reproduced to be the colored image.

The methodology used was Neighbor Embedding method that is the development of Locally Linear Embedding method. The Method has been implemented for handling cases Super-Resolution by Hong Chong. This method has also been implemented by Jun Li to handle the case of staining image.

Neighbor Embedding method that applied for coloring grayscale images is an automatic's method for coloring grayscale image. This method requires two images, grayscale image as the target image and the color image as an image training or its reference. Having done the research to make coloring the image with the method based on histogram analysis, image training successful transfer the color to the target image. The closer the luminance of both, the easier the transfer color. In addition, there are several parameters that affect the system, the patch, the value of K and the color's ranges that available in the target image. Another research method, we use MAE (Mean Absolute Error) for research YIQ color model that used as the color model in the system. MAE obtained from the research, image target which is training image that are made in to grayscale image, has the worst value 0.028311104 for MSE I, and for MSE Q, 0.025990016. This shows that the YIQ color model is good enough to be used in the system. Another analysis that based on MOS, also show that the color of the result image by embedding Neighbor quite match to the color of the general images.

Key Words: *grayscale, colorization, Locally Linear Embedding, Neighbor Embedding, kNN*