

AUTOMATIC COLORIZATION OF GRAYSCALE IMAGE

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Introduction

This project deals with assigning colors to grayscale image. There are two popular methods for colorization : one in which a color is assigned to an individual pixel based on its intensity as learned from a color image with similar content, and another in which the image is segmented into regions, each of which are then assigned a single hue. In this project we are going to use variations of latter technique.

Project work is divided into following category:

- Creating a database of images, to find most similar image to the given input image.
- exploiting different Colorization algorithm (using matched image) such as micro-scribbling of different segments and colorization using energy optimization.

Motivation

Assigning color to a grayscale image is a difficult problem. Given a certain image, there is often no “correct” attainable color. The applications of such a method allow for a new appreciation of old, black and white photographs and cinema, along with allowing better interpretation of modern grayscale images such as those from CCTV cameras, astronomical photography, or electron microscopy.

Dataset

Colorization of image is possible only for similar images on which dataset has been trained. Hence a dataset which can cover wide varieties of images is considered to a good dataset. For this project we are going to use Berkeley Segmentation Dataset BSD 300 (Local IITK copy: <http://web.cse.iitk.ac.in/users/cs676/data/BSDS300-images.tgz>) and collect some similar images manually.

References

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3. A Bugeau and V T Ta. Patch-based Image Colorization. Pattern Recognition (ICPR), 2012.
4. Automatic grayscale image colorization using histogram regression, S. Liu , X. Zhang, 2012, Pattern Recognition Letters