Abstract

The task of text detection natural scene images is very challenging due to the complex background and unpredictable text appearances in the image. Apart from the background and the structure of the text, unpredictability also lies in the image capturing quality. These issues include noise, orientation, low exposure, blurring, and other kinds of degradations.

It is therefore necessary to first restore the target text in the image in order to ensure robust text detection and recognition. This research focuses on removing a maximum number of degradation factors from a natural scene image containing text such that the detection and recognition of the text present in that image becomes very easy. Text Specific Dictionaries will be used in order to restore the text in the images. The sparse representation method is selected with an aim to apply techniques such as denoising, deblurring, sharpening and implementing other forms of enhancement in a single text image restoration system.

References

2. Jian Sun, and Zongben Xu, “Color Image Denoising via Discriminatively Learned Iterative Shrinkage”, IEEE TRANSACTIONS ON IMAGE PROCESSING, VOL. 24, NO. 11, NOVEMBER 2015


5. Huanjing Yue, Xiaoyan Sun, Jingyu Yang and Feng Wu, “Image Denoising by Exploring External and Internal Correlations”, IEEE TRANSACTIONS ON IMAGE PROCESSING, VOL. 24, NO. 6, JUNE 2015


10. Xiaoyong Shen, Qiong Yan, Li Xu, Lizhuang Ma, Jiaya Jia,“Multispectral Joint Image Restoration via Optimizing a Scale Map”, IEEE TRANSACTIONS ON PATTERN ANALYSIS AND MACHINE INTELLIGENCE, 2015


15. Rim Walha, Fadoua Drira, Adel M. Alimi, Frank Lebourgeois and Christophe Garcia, “A
Sparse Coding based Approach for the Resolution Enhancement and Restoration of Printed and Handwritten Textual Images”, 14th International Conference on Frontiers in Handwriting Recognition, 2014


32. J Mairal, G Sapiro, M Elad, “LEARNING MULTISCALE SPARSE REPRESENTATIONS
FOR IMAGE AND VIDEO RESTORATION", Multiscale Modeling & Simulation, 2008 -SIAM
33. Celine Thillou, Silvio Ferreira, Bernard Gosselin, “An Embedded Application for
Degraded Text Recognition”, EURASIP Journal on Applied Signal Processing 2005:13,
2127-2135
Education, 2008

Index Terms

Computer Science Pattern Recognition

Keywords

Text- Specific Dictionary, Natural Scene Dictionary, Image restoration, Image enhancement,
Text Detection, Text recognition, Sparse representations, Dictionaries.