

Accepted Manuscript

Infrared image super-resolution via transformed self-similarity

Wei Qi, Jing Han, Yi Zhang, Lian-fa Bai

PII: S1350-4495(16)30405-4

DOI: <http://dx.doi.org/10.1016/j.infrared.2016.12.008>

Reference: INFPHY 2189

To appear in: *Infrared Physics & Technology*

Received Date: 8 August 2016

Accepted Date: 12 December 2016

Please cite this article as: W. Qi, J. Han, Y. Zhang, L-f. Bai, Infrared image super-resolution via transformed self-similarity, *Infrared Physics & Technology* (2016), doi: <http://dx.doi.org/10.1016/j.infrared.2016.12.008>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Infrared image super-resolution via transformed self-similarity

Wei Qi, Jing Han, Yi Zhang, Lian-fa Bai*

Jiangsu Key Laboratory of Spectral Imaging & Intelligence Sense, Nanjing University of Science and Technology, Nanjing, 210094, China

Abstract

Single image super-resolution is of great importance in computer vision. Various methods (*e.g.* learning methods) have been successfully developed in recent years. Despite the demonstrated success in the natural images, less research focuses on the infrared images. In this paper, we present a transformed self-similarity based super-resolution method without any learning priors, restore high-resolution infrared images from low-resolution ones. We exploit appearance similarity, dense error, and region covariances, and use the detected cues to guide the patch search process. We also add scale cue to consider local scale variations. We then present a compositional framework to simultaneously accommodate the four different cues. Experimental results demonstrate that our method performs better than previous methods, restores pleasant results, and high evaluate scores further show the effectiveness and robustness of our method for the infrared images.

Keywords: Super-resolution, infrared image, dense error, region covariance.

1. Introduction

Image super resolution (SR) reconstruction is a very active topic in computer vision, as it offers the promise of overcoming some limitations of low cost imaging sensors. The infrared image super resolution plays an important role

*Corresponding author. Tel/fax:+862584315247

Email address: blf@njust.edu.cn, weiq.cs@gmail.com (Lian-fa Bai)

Download English Version:

<https://daneshyari.com/en/article/5488679>

Download Persian Version:

<https://daneshyari.com/article/5488679>

[Daneshyari.com](https://daneshyari.com)