

Accepted Manuscript

Image Restoration via Bayesian Dictionary Learning with Nonlocal Structured Beta Process

Zhou Liu, Lei Yu, Hong Sun

PII: S1047-3203(18)30043-9
DOI: <https://doi.org/10.1016/j.jvcir.2018.02.011>
Reference: YJVC I 2142

To appear in: *J. Vis. Commun. Image R.*

Received Date: 20 June 2016
Accepted Date: 17 February 2018

Please cite this article as: Z. Liu, L. Yu, H. Sun, Image Restoration via Bayesian Dictionary Learning with Nonlocal Structured Beta Process, *J. Vis. Commun. Image R.* (2018), doi: <https://doi.org/10.1016/j.jvcir.2018.02.011>

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.

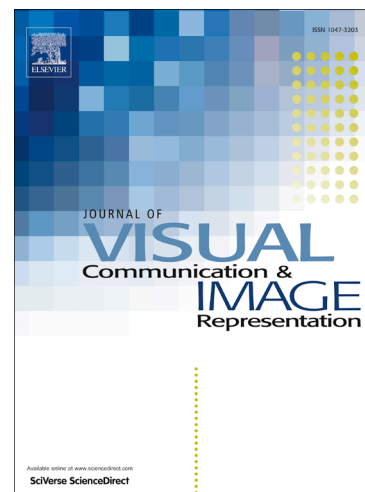


Image Restoration via Bayesian Dictionary Learning with Nonlocal Structured Beta Process

Zhou Liu^{a,*}, Lei Yu^a, Hong Sun^a

^a*Signal Processing Laboratory, School of Electronic Information, Wuhan University, Wuhan
430072, China*

Abstract

Nonparametric Bayesian dictionary learning has shown a powerful potential in image restoration. However, it still lacks exploiting image structure to improve the performance. In this work, we propose a sparse Bayesian dictionary learning framework with structure prior called nonlocal structured beta process factor analysis (NLS-BPFA) which connects nonlocal self-similarity and sparse Bayesian dictionary learning. A nonlocal structured beta process is proposed to introduce the nonlocal self-similarity as a structure prior for image denoising and inpainting. Unlike most of the existing image denoising methods, our proposed method does not need to know noise variance in advance like an unsupervised learning. The experimental results demonstrate the effectiveness of our proposed model.

Keywords: Nonparametric Bayesian, Beta Process, Image Restoration, Nonlocal Structure Prior, Dictionary Learning.

1. Introduction

Image restoration is a fundamental problem in the field of computer vision and image processing. In recent years, sparse representation of natural image has been extensively studied for image restoration [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11,

*Corresponding author

Email addresses: liuzhou@whu.edu.cn (Zhou Liu), ly.wd@whu.edu.cn (Lei Yu), hongsun@whu.edu.cn (Hong Sun)

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات