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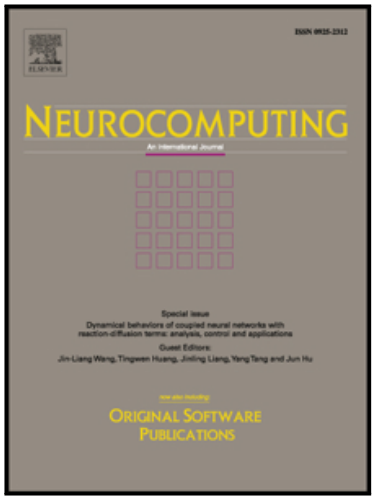

Double sparsity for multi-frame super resolution

Toshiyuki Kato, Hideitsu Hino, Noboru Murata

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Double sparsity for multi-frame super resolution

Toshiyuki Kato[a], Hideitsu Hino[*,b], Noboru Murata[a]

[a]*School of Science and Engineering, Waseda University, 3-4-1 Ohkubo, Shinjuku, Tokyo, Japan, 169-8555*
[b]*Department of Computer Science, University of Tsukuba, 1-1-1 Tennoudai, Tsukuba, Ibaraki, Japan, 305-8573*

Abstract

A number of image super resolution algorithms based on the sparse coding have successfully implemented multi-frame super resolution in recent years. In order to utilize multiple low-resolution observations, both accurate image registration and sparse coding are required. Previous study on multi-frame super resolution based on sparse coding firstly apply block matching for image registration, followed by sparse coding to enhance the image resolution. In this paper, these two problems are solved by optimizing a single objective function. The proposed formulation not only has a mathematically interesting structure, called the double sparsity, but also yields comparable or improved numerical performance to conventional methods.

Keywords: Image Super Resolution, Sparse Coding, Double Sparsity, Dictionary Learning

1. Introduction

Image super resolution (SR) is the problem of enhancing low-resolution (LR) images. Its importance is increasing over time because of a growing need to remaster old videos or investigate low-resolution surveillance videos,

*Corresponding author. Tel.:+81 298 53 5538; Fax: +81 298 53 5538
Email address: hinohide@cs.tsukuba.ac.jp (Hideitsu Hino*,)