# SCI-Preparing

## A

## B

### 帮助

01 the fused image assists the physician in disease diagnosis for effective treatment planning

02 However, the NN based method relies too much on a large number of parameters manually set, which is not conducive to the adaptive implementation of the fusion process

### 包含

Medical image fusion encompasses a broad range of general image fusion techniques to integrate complementary information from different modalities of medical images.

### 比较

the speed of our improved CNN method is much faster than that of comparison algorithms which have good fusion quality

### 不好/不完美

it must avoid imperfect states

### 不够

However, when very limited labeled information is available,most of these spectral classifiers are still not able to obtain satisfactory classification accuracies

### 不能

The main defect of the NSCT-SF-PCNN and NSCT-RPCNN methods is their lower ability in detail extraction.

### 不同的

Diverse modalities of images

### 不想

In this paper, we have no intention to provide a survey of this vast activity

## C

## D

## E

## F

### 分辨率

Similarly, in the remote sensing applications, multispectral (MS) images, which have low resolution and high spectral density are fused with panchromatic (PAN) images possessing high resolution and low spectral density

### 分成

Then,the dimension reduced image is partitioned into several subsets of adjacent bands.

### 丰富的

The rich spectral information of hyperspectral images can be used for accurate classification of different materials

### 方法

PROPOSED APPROACH

## G

### 改进

Results demonstrate a significant improvement of compressed MR image reconstruction on four medical MRI datasets

### 更好的

In order to address the deficiencies of MSTs based methods and obtain an encouraging fusion performance

### 给出

draws the conclusion giving a brief summary and critique of the findings.

### 关键

we show that if sparsity in the recognition problem is properly harnessed, the choice of features is no longer critical

### 根据

The proposed method is tested on several categories of images and compared with some popular image fusion methods. The experimental results show that the proposed method can provide superior fused image in terms of several quantitative fusion evaluation indexes.

## H

### 合成/混合

01 The fusion process combines multi-modal images to incur（招致） a single image with excellent quality, retaining the information of original images

02 This paper proposes a multi-modal medical image fusion through a weighted blending of high-frequency subbands of nonsubsampled shearlet transform (NSST) domain via chaotic grey wolf optimization algorithm

### 划分

Region partition algorithm

### 很好地

some important information (e.g.,edge) in the MR-T1 source image is not well preserved in the fused images of these methods

### 涵盖

it is desirable to put a thorough survey concerning SR-based image fusion in place, which may be useful to a variety of audience, ranging from image fusion learners intended to quickly grasp the current progress in this research area as a whole

### 邻近的

Then, the dimension reduced image is partitioned into several subsets of adjacent bands

### 黑色

we use bold-face capital letter, D, to denote a matrix.

## J

### 加权

This paper proposes a multi-modal medical image fusion through a weighted blending of high-frequency subbands of nonsubsampled shearlet transform (NSST) domain via chaotic grey wolf optimization algorithm

### 紧支撑

compactly supported

### 据我们所知

As far as our knowledge is concerned

### 结构

The remainder of the manuscript has been structured as follows

### 减少

CTD-SR methods lose a large amount of energy,leading to a significant decrease in the intensity and contrast in many regions

### 据我们所知

To the best of our knowledge

## K

## L

### 良好的效果

01 The experiment results show that the proposed method achieves competitive performance in both the image quantity and computational costs

02 demonstrated very good performances in terms of high classification accuracies

03 the proposed IFRF method shows outstanding performance in terms of classification accuracy and computational efficiency

04 demonstrate the superiority of the proposed method over traditional multi-focus image fusion methods

### 利用

we show that if sparsity in the recognition problem is properly harnessed, the choice of features is no longer critical

## M

### 目的

In order to meet these objectives, the fused result should meet the following requirements

### 模糊

Many details are blurred or even lost in the fused images of these two methods

## N

### 能够

Compressed sensing (CS) allows for good reconstruction even when the signal is significantly subsampled compared to the Nyquist sampling

## O

## P

### 评价

draws the conclusion giving a brief summary and critique of the findings.

*Evaluation Metrics*

## Q

### 潜力

Compressed sensing has shown great potential in speeding up MR imaging by undersampling

### 全面地

In this work, we comprehensively survey the existing methods and applications for the fusion of infrared and visible images.

### 确实是

This demonstrates that IID is indeed an effective way for feature extraction of hyperspectral images.

### 受…驱动

In addition, the sparse representation methods, inspired from the compressed sensing algorithms, construct a dictionary of input images.

### 增加了

the NNSR model imposes the joint sparsity and non-negativity constraints on the representation coefficients

### 情况

Online dictionary learning (ODL) is an emerging and efficient dictionary learning algorithm, which can extract fault features information of fault signals in most occasions

### 缺点

each transform has its own merits and limitations cor- responding to the context of input images

## R

## S

### 深刻

Finally, we conclude with the current status of infrared and visible image fusion and deliver insightful discussions

### 实验表明

Experimental results show that

### 说明

This demonstrates that IID is indeed an effective way for feature extraction of hyperspectral images.

### 实际的

The rich spectral information of hyperspectral images can be used for accurate classification of different materials and thus has been widely used in many practical applications such as monitoring of the environment and precision agriculture

### 使用

When conducting image fusion, authors firstly block an image and rearrange each image block into a column vector. Then,

### 使….成为可能

Since computer aided imaging techniques enable a quantitative assessment of the images under evaluation

### 导致

All these lead to what is considered today as some of the best available image denoising methods

## T

### 通过这样做

By doing so

### 同时

In parallel, the introduction of the matching pursuit, and the basis pursuit denoising gave rise to the ability to address the image denoising problem as a direct sparse decomposition technique over redundant dictionaries.

### 条理

Considering the consecution, we will first present it in the next section.

## U

## V

## W

### 无法替代的角色

medical imaging plays an irreplaceable role in modern medical diagnosis and treatment

### 文献

It is observed from the literature that the feature level image fusion technique can be further classified into machine learning, region based and similarity matching to content based

### 维度

Then,the dimension reduced image is partitioned into several subsets of adjacent bands.

### 为了

For the sake of clarity, we just show one set of results for each parameter

In terms of multi-modal medical image fusion, scheme for image decomposition and reconstruction closely relates to the quality extracted from the images. Characteristic of approaches in this frame aims at decomposing the original image into a sequence of images and then reconstructing the decomposition images into a single image.

## X

### 新的

a novel feature extraction method based on intrinsic image decomposition (IID) is proposed for hyperspectral image classification

### 也就是说

Namely, the MRI image can be represented using a suitable sparsifying transform

### 优于

The experimental results show that our algorithm is superior to some state-of-the-art dictionary learning based techniques in both subjective visual effects and objective evaluation criteria

### 应用

Most of the fusion applications need analysis of multiple images of the same scene for improved results

### 显著

CTD-SR methods lose a large amount of energy,leading to a significant decrease in the intensity and contrast in many regions

### 许多

01 A considerable number of publications emerge every year

02 a growing body of research has focused on the development of automatic segmentation algorithms

03 We conduct extensive experiments on publicly available databases to verify the efficacy of the proposed algorithm and corroborate the above claims.

## Y

### 原理图

Schematic of the proposed feature extraction method

### 验证

To verify the effectiveness of the proposed method

### 研究下

It is of interest to look at a snapshot of five different key methodologies

### 源于

he fusion method based on sparse representation is derived from the compressed sensing and developed to joint sparse representation

### 应用于

the optimum theory was employed to fuse complementary components and an optimal solution could be obtained by orthogonal matching pursuit

### 一定程度上

to some extent

### 引起

Using redundant representations and sparsity as driving forces for denoising of signals has drawn a lot of research attention in the past decade or so

### 有

The image denoising problem is important, not only because of the evident applications it serves

## Z

### 重要的

01 Medical image fusion has emerged as an impressive technique in merging the medical images of different modalities

### 主观的评估

01 subjective and objective quality assessment

### 最先进的

01 current state-of-the-art image fusion techniques in terms of entropy,

### 指标

*Evaluation Metrics*

### 遭受

CTD-SR methods still suffer from the undesirable effects caused by loss of energy

### 增加

In parallel, the introduction of the matching pursuit, and the basis pursuit denoising gave rise to the ability to address the image denoising problem as a direct sparse decomposition technique over redundant dictionaries.

### 在这方面

In that respect, the image denoising work reported in is ofgreat importance