

论文

基于非采样Contourlet变换的图像融合算法

易正俊, 宋瑞晶, 李华锋

重庆大学 数理学院

摘要:

针对同一场景的红外与可见光图像融合问题, 提出了一种基于非采样Contourlet变换的图像融合方法。该方法对图像经非采样Contourlet变换后的低频系数采用基于图像物理特征的“加权平均”融合方法; 对于高频系数采用基于局部对比度与空间频率比相结合的系数融合方法。为验证本文算法的有效性, 对红外与可见光图像进行了融合实验, 实验结果表明该方法相对于传统的简单融合方法以及基于区域能量的融合方法能得到具有更好视觉效果和更优化指标的融合图像。

关键词: 图像融合 非采样Contourlet变换 局部对比度 空间频率比

Image Fusion Algorithm Based on Nonsubsampled Contourlet Transform

YI Zheng-Jun, SONG Rui-Jing, LI Hua-Feng

College of Mathematics and Physics, Chongqing University, Chongqing

Abstract:

For the fusion problem of visible and infrared image of the same scene, a novel image fusion algorithm is proposed based on the nonsubsampled contourlet transform. For choosing the low-frequency coefficients, we propose a weighted average scheme based on the physical features of images. With the high-frequency coefficients, a selection principle is proposed based on region contrast and spatial frequency ratio. In order to verify the effectiveness of proposed algorithm, the experiment upon visible and infrared image are done. The experimental results show that the method compared with the traditional simple fusion method and the regional energy fusion rule can be better in visual quality and objective evaluation criteria.

Keywords: image fusion nonsubsampled contourlet transform region contrast spatial frequency ratio

收稿日期 2009-08-18 修回日期 2009-11-12 网络版发布日期 2010-06-25

DOI:

基金项目:

重庆市科技攻关资助项目(CSTC2009AC3037)

通讯作者:

作者简介:

作者Email:

参考文献:

本刊中的类似文章

文章评论

扩展功能

本文信息

- ▶ Supporting info
- ▶ PDF(2634KB)
- ▶ [HTML全文]
- ▶ 参考文献[PDF]
- ▶ 参考文献

服务与反馈

- ▶ 把本文推荐给朋友
- ▶ 加入我的书架
- ▶ 加入引用管理器
- ▶ 引用本文
- ▶ Email Alert
- ▶ 文章反馈
- ▶ 浏览反馈信息

本文关键词相关文章

- ▶ 图像融合
- ▶ 非采样Contourlet变换
- ▶ 局部对比度
- ▶ 空间频率比

本文作者相关文章

- ▶ 易正俊
- ▶ 宋瑞晶
- ▶ 李华锋

PubMed

- ▶ Article by Yi, Z. J.
- ▶ Article by Song, R. J.
- ▶ Article by Li, H. F.

反馈人	<input type="text"/>	邮箱地址	<input type="text"/>
反馈标题	<input type="text"/>	验证码	<input type="text" value="8690"/>