

论文

## 综合有向纹理特征及其在多光谱图像融合中的应用

张易凡, 何明一

西北工业大学电子信息学院陕西省信息获取与处理重点实验室 西安 710072

收稿日期 2005-5-8 修回日期 2005-9-27 网络版发布日期 2008-1-9 接受日期

摘要

纹理特征是多光谱图像中除光谱特征以外的一类重要的图像特征。该文通过对有向纹理特征的分析提出了综合有向纹理特征的概念, 建立了求解综合有向纹理特征的方法, 并在此基础上提出了基于图像冗余小波域的综合有向纹理特征重要中心系数算法。该算法将多光谱图像的光谱信息与形态信息进行了有机的结合, 在保持源图像光谱特征的同时也考虑到了纹理特征对于融合效果的影响。对模拟及真实多光谱图像融合实验结果的主观视觉评价、客观定量分析说明该算法与现有的同类多光谱图像融合算法相比, 能够更有效地融合源图像信息、更好地保持源图像纹理特征。

关键词 [多光谱](#) [图像融合](#) [à trous算法](#); [综合有向纹理特征](#)

分类号 [TP391](#)

## Integrated Orientation Texture Feature and Its Application in Multi-spectral Image Fusion

Zhang Yi-fan, He Ming-yi

School of Electronics and Information, Northwestern Polytechnical University, Shaanxi Key Laboratory of Information Acquisition and Processing, Xi'an 710072, China

Abstract

Texture feature is one kind of important image features in multi-spectral images except with spectral characteristics. In this paper, the characteristics of orientation texture features are analyzed. And then the concept and method of integrated orientation texture feature are proposed and developed. On the basis of this, Significant Central Coefficient (SCC) image fusion algorithm based on integrated orientation texture feature in redundant wavelet field is proposed. The algorithm can combine spectral and morphological information in multi-spectral images successfully. It can pertain the spectral characteristics of source images and also take effect on fusion result of texture features into account. The new multi-spectral image fusion algorithm is carried out with emphases on the novelty of the fusion algorithm and the demonstration by using both simulated and real multi-spectral images. The subjective qualitative evaluation and objective quantitative analysis of the experimental results are made, appearing that the new algorithm can fuse the information and retain the texture features of source images more effectively compared with several existing fusion algorithms for multi-spectral images.

Key words [Multi-spectral](#) [Image fusion](#) [à trous algorithm](#) [Integrated orientation texture feature](#)

DOI:

通讯作者

作者个人主页 张易凡; 何明一

扩展功能
本文信息
▶ <a href="#">Supporting info</a>
▶ <a href="#">PDF(1363KB)</a>
▶ <a href="#">[HTML全文](0KB)</a>
▶ <a href="#">参考文献[PDF]</a>
▶ <a href="#">参考文献</a>
服务与反馈
▶ <a href="#">把本文推荐给朋友</a>
▶ <a href="#">加入我的书架</a>
▶ <a href="#">加入引用管理器</a>
▶ <a href="#">复制索引</a>
▶ <a href="#">Email Alert</a>
▶ <a href="#">文章反馈</a>
▶ <a href="#">浏览反馈信息</a>
相关信息
▶ <a href="#">本刊中 包含“多光谱”的 相关文章</a>
▶ 本文作者相关文章
· <a href="#">张易凡</a>
· <a href="#">何明一</a>