



Wavelet transform based new interpolation technique for satellite image resolution enhancement

Submitted by Pejman RASTI on Fri, 09/07/2018 - 14:05

Titre	Wavelet transform based new interpolation technique for satellite image resolution enhancement
Type de publication	Communication
Type	Communication avec actes dans un congrès
Année	2014
Langue	Anglais
Date du colloque	13-14/11/2014
Titre du colloque	2014 IEEE International Conference on Aerospace Electronics and Remote Sensing Technology (ICARES)
Titre des actes ou de la revue	2014 IEEE International Conference on Aerospace Electronics and Remote Sensing Technology
Pagination	185-188
Auteur	Rasti, Pejman [1], Lüsi, Iris [2], Demirel, Hasan [3], Kiefer, Rudolf [4]
Pays	Indonésie
Editeur	IEEE
Ville	Yogyakarta
ISBN	978-1-4799-6188-7
Mots-clés	Image Interpolation [5], Image Registration [6], Iterative Back Projection [7], Remote sensing [8], Resolution Enhancement [9], Stationary Wavelet Transform [10]
Résumé en anglais	<p>In this research paper, we propose a new interpolation technique based on the Stationary Wavelet Transform (SWT) and iterative back projection (IBP) for satellite images. Firstly the low resolution image is interpolated by using bicubic interpolation and then decomposed into different subband images by SWT. Each subband is decimated to four lower low resolution images. The four low resolution images are interpolated and registered by using bicubic interpolation and IBP respectively. Inverse SWT (ISWT) is used to generate a Super-resolved output image. The proposed interpolation technique has been tested on several remote sensing images. The quantitative PSNR and SSIM results as well as the visual results show the superiority of the proposed interpolation technique over the other interpolation and image resolution enhancement techniques. For one of the images the PSNR of the proposed method has achieved 3.84dB, 2.11dB, and 1.1dB more improvements than bicubic interpolation, Irani and Peleg technique, and Wavlet Zero Padding technique respectively.</p>
URL de la notice	http://okina.univ-angers.fr/publications/ua17518 [11]
DOI	10.1109/ICARES.2014.7024405 [12]

Lien vers le document en ligne <https://ieeexplore.ieee.org/document/7024405/> [13]

Liens

- [1] <http://okina.univ-angers.fr/httperso-laris.univ-angers.fr/rasti/publications>
- [2] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=29021>
- [3] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=29009>
- [4] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=28990>
- [5] <http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=25198>
- [6] <http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=25195>
- [7] <http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=25193>
- [8] <http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=15084>
- [9] <http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=25196>
- [10] <http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=25197>
- [11] <http://okina.univ-angers.fr/publications/ua17518>
- [12] <http://dx.doi.org/10.1109/ICARES.2014.7024405>
- [13] <https://ieeexplore.ieee.org/document/7024405/>

Publié sur *Okina* (<http://okina.univ-angers.fr>)