Progressive Dual-Domain Filter for Enhancing and Denoising Optical Remote-Sensing Images

ABSTRACT

- This letter proposes a progressive DDF to simultaneously enhance and de noise low-quality optical remote-sensing images.
- The main procedure of the proposed enhancement filter has two parts.
- First, a bilateral filter is exploited as a guide filter to obtain high contrast images, which are enhanced by a histogram modification method.
- Then, low contrast useful structures are restored by a short-time Fourier transform and are enhanced using an adaptive correction parameter.

EXISTING SYSTEM

- More unfortunately, the quality of these images is degraded by radiometric noisemaking it inevitable to reduce the visual quality as well as restrain the accuracy of image interpretation and analysis.
- Therefore, it is essential but difficult for image information processing methods to simultaneously enhance and de noise low quality optical remote sensing images.
- Because enhancement and de noising have conflicting goals, a single method cannot simultaneously perform both the tasks.

PROPOSED SYSTEM

- Both the quantitative and qualitative results of experiments on synthetic and real world low quality remote-sensing images demonstrate that the proposed method performs well on contrast enhancement, structure preservation, and noise reduction.
- In the proposed method, a low-quality remote-sensing image was first decomposed into a base layer and a detail layer by the employment of a bilateral filter.
- Then, the base layer was enhanced by a histogram modification method, and the detail layer was de noised by the STFT and enhanced by an adaptive correction parameter.

HARDWARE REQUIREMENTS

- Processor - Intel
- Speed - 1.1 Ghz
- RAM - 256 MB(min)
- Hard Disk - 20 GB
- Monitor - SVGA

SOFTWARE REQUIREMENTS

- Tool - MATLAB R2012
- Operating system - Windows Xp, 7

REFERENCE

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