Abstract

For some applications the whole image cannot be processed directly because it is inefficient and impractical. Segmentation results in a set of images that cover the entire image. This work proposes a two stage segmentation method, which effectively process both the textured and non-textured regions. Dual Tree Complex Wavelet Transform, an extension of discrete wavelet transform, extracts texture feature from the image and orientation median filtering reduces the double edge effect at the texture edges. Watershed transform of Gaussian gradient of combined texture and non-texture feature give the first stage segmentation. The initial segmentation into super-pixels reduces computational burden and the second stage uses spectral clustering technique to cluster these primitive regions.

References

- P. Hill, C. Canagarajah, and D. Bull, “Image Segmentation Using a Texture
- Musoko Victor, Procházka Ale, "Complex Wavelet Transform in Signal and Image Analysis," Institute of Chemical Technology, Department of Computing and Control Engineering, Technicka.
107–114.

**Index Terms**

Computer Science

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**Keywords**

Dual Tree Complex Wavelet Transform  texture  watershed  super pixels  spectral clustering  GLCM