Abstract

The field of biomedical image analysis is extremely broad and resolution enhancement is a fundamental aspect of virtually every implementation of an image analysis and visualization solution. Enhancement is a system component of all medical imaging modalities and a basic part of many diagnostic applications. Resolution enhancement can significantly aid diagnosis by highlighting regions and accentuating image characteristics, which may be lost in the enormous...
complexity of a biomedical image. Super resolution imaging technique reconstructs a high resolution image from a set of low resolution images that are taken from almost the same point of view. Super resolution algorithms work in two main phases: an image registration to align input images, and a reconstruction to reconstruct the high resolution image from the aligned images. If the low resolution images are under sampled and have aliasing artifacts, the performance of standard registration algorithms and in turn of interpolation decreases. The key challenge is estimating the high frequency values more accurately in the high resolution image. In this paper, we present a method for the reconstruction of a high resolution image from a set of under sampled and aliased images. In this paper we assume that the motion between low resolution images is a global one; shift and rotation. We suggest a wavelet based interpolation that decomposes image into correlation based subspaces and then interpolate each one of them independently. This information we have intelligently extended in high frequency bins to make edges look shaper. Finally we combine these subspaces back to get the high resolution image. We propose it for super resolution imaging along with results to put forth that it produces best results.

Reference

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Index Terms

Computer Science Wireless

Key words

Biomedical
High

Resolution
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Low Resolution
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