

[54] RESOLUTION ENHANCEMENT AND ZOOM

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[58] Field of Search 358/166, 167, 36, 37; 382/42, 54

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[57] ABSTRACT

In this invention, the resolution is enhanced first by effectively decreasing the scan angle subtended between adjacent samples significantly below that of the Rayleigh limit to obtain an image blurred by the point spread function (or diffraction pattern) of the aperture. The next step is to process this blurred image at least to partially remove the blur. The unblurring process consists of correlating each small segment of the blurred image with blurred images of preconstructed image primitives and then synthesizing a new image comprising a mosaic of spatially correlated original (unblurred) primitives. The blurred images of the primitives are obtained from a complete set of image primitives comprising, ideally, all possible unblurred primitive shapes. These primitives are then blurred by convolution with the point spread function of the aperture of the imager.

10 Claims, 11 Drawing Figures

