(a) means for separating out a first estimate, $D_0(x)$, of reconstructed object data from filtered **D1** data;

(b) means for replacing reconstructed background scene pixels by estimated reconstructed object pixels at predetermined object positions to obtain an image indicative of the reconstructed background and estimated reconstructed object (S(x));

(c) means for blurring the combination o the reconstructed background and estimated reconstructed object to obtain a blurred image $I_s(x)$;

(d) means for dividing on a pixel basis the filtered **D1** scene data by the blurred combination of the reconstructed background and estimated reconstructed object data to obtain a new array of image data N(x);

(e) means for correlating said new array N(x) with the optical system point spread function and multiplying for each pixel specified by the current estimate of the reconstructed object to provide a new estimate of said reconstructed object; and

(f) means for taking the new estimate of the reconstructed object to be the reconstructed image of the object having increased spatial resolution.

29. The apparatus of claim **28**, further comprising means for determining whether a threshold number of iterations has been met and repeating steps b–f of claim **28** until said threshold is achieved.

30. The apparatus of claim **29**, wherein the means for separating out a first estimate of the reconstructed object from the filtered data **D1** further comprises means for using binmap values specifying the position in a scene of the object to be resolved in combination with the filtered data ($D_f(x)$) to obtain $D_0(X)$, where

$$D_0(x)=\text{binmap}(x)\cdot D_f(x).$$

31. The apparatus of claim **30**, wherein the predetermined object positions for replacing the reconstructed background scene pixels by the estimated reconstructed object pixels S(x) are specified by the binmap values, where

$$S(x)=I_r(x)(\text{binmap}(x)-1)+\text{binmap}(x)D_0(x).$$

32. The apparatus of claim **31**, wherein the means of blurring the combination of the reconstructed background and estimated reconstructed object data uses the optical system point spread function, where

$$I_s(x)=\Sigma_y h_0(x-y)S(y).$$

33. The apparatus of claim **31** wherein the optical system is diffraction limited.

34. The apparatus of claim **33** wherein said optical system has a numerical aperture and said detector means has at least five detectors spread across the central lobe of the diffraction pattern determined by said aperture.

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