

for performing image interpolation in a single one of said successive video frames.

4. The system of claim 1 further comprising an array of detectors having a detector-to-detector sampling rate greater than the Nyquist rate.

5. The image system of claim 1 wherein each said small segment comprises n rows and n columns of said data words and said means for generating a synthesized video frame comprises a memory device for storing said synthesized video frame data words, and wherein said correlation means comprises a charge coupled device transversal filter including n-parallel registers receiving data from said charge coupled device memory, said correlation means comprising the equivalent of a planar array of n rows and n columns of sense electrodes overlying said parallel registers, said electrode array further comprising means for detecting each segment of video data words transferred through said parallel registers, and transmitting said detected video data words to a correlation computator, wherein said correlation computator computes a correlation between said detected segment of video data words and said digitized version of a corresponding one of said blurred image primitives.

6. In an imaging system, a method for employing a set of primitives to enhance an image whose resolution is degraded by system limitations including blurring caused by focus, diffraction and sampling, said method comprising:

generating a set to degraded primitives by degrading said primitives to the same extent as the image is degraded by said system limitations;

correlating the intensity distribution of a sampled segment of said degraded image with the intensity distributions of said degraded primitives and selecting the most correlated degraded primitive; and synthesizing an enhanced image by displaying the undegraded version of said selected degraded primitive at the image location where the best match occurs between said sampled degraded image segment and said selected degraded primitive.

7. The method of claim 6 further comprising the additional step of: increasing the sampling density of the degraded image and the degraded primitives prior to comparing the intensity distributions of degraded primitives and sampled segments of said degraded image.

8. The method of claim 6 wherein the correlation of intensity distributions is made between sampled degraded image segments and degraded primitives of similar size to each other.

9. The method of claim 6 wherein said degraded primitives are generated mathematically by convolving said primitives with a function representing said system limitations.

10. The method of claim 6 wherein said sampled segments of said degraded image have overlapping portions.

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