

16 bit, 24 bit or 32 bit. With this in mind, it will be realized that at least the limits imposed by projection 2 herein (Step 10) would necessarily require adjustment in order to accommodate differing resolutions. Further, it will be recognized by those skilled in the art that the method of the present invention can easily be adapted to processing of color imaging by considering each color component/channel of a given image separately as a gray scale image, or by transforming the image so as to remove the correlations, if any, amongst the various color channels.

In view of the above description of the present invention, it will be appreciated by those skilled in the art that many variations, modifications and changes can be made to the present invention without departing from the spirit or scope of the present invention as defined by the claims appended hereto. All such variations, modifications and changes are fully contemplated by the present invention.

What is claimed:

1. A method of removing scratch noise from a digitized image, comprising the steps of:

inputting digitized image data;  
 displaying said digitized image data on a display device;  
 identifying a scratch noise area in said digitized image data displayed on said display device;  
 generating binary mask data which distinguishes pixels within the area of said identified scratch noise from pixels within a remainder of said displayed image;  
 storing said binary mask data;  
 defining a repair window area on said displayed image, wherein  
 said repair window area contains identified scratch noise areas;  
 storing data representing values of pixels within said repair window area;  
 defining a sample window area within said displayed image, wherein  
 said sample window is chosen so as to resemble the features and values of said repair window area;  
 storing data representing values of pixels within said sample window;  
 calculating a fast Fourier transform of said data representing values of pixels within said repair window;  
 calculating a fast Fourier transform of said data representing values of pixels within said sample window;  
 generating new image data in accordance with said fast Fourier transformed pixel value data of said repair window and said fast Fourier transformed pixel value data of said sample window;  
 calculating an inverse fast Fourier transform of said new image data;  
 conforming the values of said new image data to predefined limits;  
 generating new repair window data in accordance with said new image data, said data representing values of pixels within said repair window area and said binary mask data; and  
 replacing said data representing values of pixels within said repair window area with said new repair window data.

2. An apparatus for removal of scratch noise from a digitized image, comprising:

an input for receiving digitized image data;  
 a display device for displaying digitized image data;  
 scratch identifying means for identifying scratch noise within a digitized image displayed on said display device;

a processor for generating binary mask data which distinguishes identified scratch noise within a digitized image from other areas of said digitized image;  
 means for identifying repair window and sample window areas;

a first storage memory for storing data representing said identified repair window area;

a second storage memory for storing data representing said identified sample window area;

a third storage memory for storing said binary mask data, wherein

said processor further comprises:

means for calculating fast Fourier transform data for said repair window data and said sample window data;

means for generating new image data in accordance with the fast Fourier transform data of said sample and repair windows; means for calculating inverse fast Fourier transform data for said new image data; means for conforming values of said new image data to predefined limits; and

means for generating new repair window data in accordance with said new image data, repair window data and said binary mask data.

3. A method of removing scratch noise from a digitized image, comprising the steps of:

identifying a scratch noise area in said digitized image data;

defining repair window data which contains the identified scratch noise area;

defining sample window data which is chosen so as to resemble the features and values of said repair window data;

transforming said repair window data and said sample window data to data of a frequency domain;

generating new image data based upon said repair window transformed data and said sample window transformed data;

inverse-transforming said new image data;

generating new repair window data based upon said new image data; and

replacing said repair window data with said new repair window data.

4. The method of claim 3, wherein said step of transforming uses a Fourier transform.

5. The method of claim 3, further comprising the step of: conforming values of said new image data to predefined limits.

6. The method of claim 3, wherein said new image data is generated using a DC magnitude value of a repair window frequency spectrum.

7. The method of claim 3, wherein said new image data is generated using a smaller of a magnitude of said repair window frequency spectrum and a magnitude of the sample window frequency spectrum.

8. The method of claim 3, further comprising the steps of: generating mask data which distinguishes pixels within the area of said identified scratch noise from pixels within a remainder of said image, wherein said new repair window data is generated based upon said new image data, repair window data and said mask data.

9. The method of claim 8, wherein said mask data is binary data.