Claims

[Claim 1] An image processing apparatus comprising:
a color separation unit configured to separate image data into a luminance component and a color component; a processing unit configured to generate second image data of the luminance component by manipulating pixel values of multi-resolution image data generated from first image data of the luminance component and reconstructing the manipulated multi-resolution image data; and
a composition unit configured to composite the second image data of the luminance component with image data of the color component,
wherein the processing unit is configured to generate the second image data of the luminance component based on pixel values which are adjusted by using parameters in accordance with pixel values of the image data of the color component,
wherein the processing unit is configured to generate the second image data of the luminance component by compositing the first image data of the luminance component with third image data of the luminance component, which is generated by the reconstructing, by using the parameters in accordance with the pixel values of the image data of the color component.

[Claim 2] The image processing apparatus according to claim 1,
wherein the processing unit is configured to generate the second image data of the luminance component by reconstructing a composition between the multi-resolution image data, which is generated from the first image data of the luminance component, and the manipulated multi-resolution image data, in which the pixel values of the multi-resolution image data are manipulated, by using the parameters in accordance with the pixel values of the image data of the color component.

[Claim 3] The image processing apparatus according to claim 1,
wherein the parameters indicate ratios when the first image data of the luminance component and the third image data of the luminance component are composited with each other, and
wherein the greater the pixel values of the image data of the color component, the greater the ratios of the first image data of the luminance component when the first image data of the luminance

component and the third image data of the luminance component are composited with each other.

[Claim 4] The image processing apparatus according to claim 2,
wherein the parameters indicate ratios when the multi-resolution image data, which are generated from the first image data of the luminance component, and the manipulated multi-resolution image data, in which the pixel values of the multi-resolution image data are manipulated, are composited with each other and
wherein the greater the pixel values of the image data of the color component, the greater the ratios of the multi-resolution image data generated from the first image data of the luminance component when the multi-resolution image data, which are generated from the first image data of the luminance component, and the manipulated multi-resolution image data, in which the pixel values of the multi-resolution image data are manipulated are composited with each other.

[Claim 5] The image processing apparatus according to claim 4,
wherein the parameters are determined for each of resolution levels of multi-resolution image data which are generated from the image data of the color component.

[Claim 6] The image processing apparatus according to claim 1 or 2,
wherein the parameters are set to one or zero when pixel values of image data of saturation values calculated based on the image data of the color component are less than or equal to a predetermined value C_{th1} or greater than or equal to a predetermined value C_{th2} ($C_{th1} < C_{th2}$).

[Claim 7] The image processing apparatus according to any one of claims 1 through 6,
wherein the processing unit is configured to generate the multi-resolution image data of a Laplacian pyramid from the first image data of the luminance component.

[Claim 8] The image processing apparatus according to any one of claims 1 through 6,
wherein the processing unit is configured to generate the multi-resolution image data by performing a discrete wavelet transformation on the first image data of the luminance component.

[Claim 9] The image processing apparatus according to any one of claims 1 through 6,
wherein the processing unit is configured to manipulate to increase

pixel values which are less than one tenth of a dynamic range of the first image data of the luminance component and which are included in the pixel values of the multi-resolution image data generated from the first image data of the luminance component.

[Claim 10] An image processing method comprising:
a color separation step of separating image data into a luminance component and a color component;
a processing step of generating second image data of the luminance component by manipulating pixel values of multi-resolution image data generated from first image data of the luminance component and reconstructing the manipulated multi-resolution image data; and a composition step of compositing the second image data of the luminance component with image data of the color component,
wherein, in the processing step, the second image data of the luminance component are generated based on pixel values which are adjusted by using parameters in accordance with pixel values of the image data of the color component.

[Claim 11] A program causing a computer of an image processing apparatus to execute an image processing method comprising: a color separation step of separating image data into a luminance component and a color component;
a processing step of generating second image data of the luminance component by manipulating pixel values of multi-resolution image data generated from first image data of the luminance component and reconstructing the manipulated multi-resolution image data; and a composition step of compositing the second image data of the luminance component with image data of the color component,
wherein, in the processing step, the second image data of the luminance component are generated based on pixel values which are adjusted by using parameters in accordance with pixel values of the image data of the color component.

[Claim 12] A recording medium storing a program causing a computer to execute an image processing method comprising:
a color separation step of separating image data into a luminance component and a color component;
a processing step of generating second image data of the luminance component by manipulating pixel values of multi-resolution image data generated from first image data of the luminance component and recon-

structing the manipulated multi-resolution image data; and a composition step of compositing the second image data of the luminance component with image data of the color component, wherein, in the processing step, the second image data of the luminance component are generated based on pixel values which are adjusted by using parameters in accordance with pixel values of the image data of the color component.