WHAT IS CLAIMED IS:

1. A method for sampling multi-spectral images of a dynamically changing scene, the method comprising the steps of:

(a) sampling the dynamically changing scene with a mosaic color photosensor, said mosaic color photosensor providing a plurality of sequences of images of the dynamically changing scene, wherein each of said plurality of sequences of images is a distinct predefined color;

(b) processing a first group of two or more images each provided from one of said plurality of sequences of images to optimize an exposure parameter for the first group, said exposure parameter determined by applying at least one exposure criterion to the first group while disregarding a second group of one or more images each from one of said plurality of sequences of images other than said sequences of images providing images for the first group;

(c) setting an effective exposure for said mosaic color photosensor, said effective exposure for said mosaic color photosensor being set in accordance with said exposure parameter; and

(d) generating a corresponding sequence of multi-spectral images from subsequent images from the first group.

2. The method of claim 1 wherein said mosaic color photosensor is a Bayer mosaic color photosensor.

3. The method of claim 1 wherein said first group includes images from a sequence of images having the distinct predefined color of green and images from a sequence of images having the distinct predefined color of red, and said second group includes images from a sequence of images having the distinct predefined color of blue.

4. The method of claim 1 wherein a near infrared (NIR) photosensor provides a sequence of NIR images of the dynamically changing scene.

5. The method of claim 4 wherein a NIR image from said sequence of NIR images is processed to optimize an exposure parameter for said NIR image and an effective exposure for said NIR photosensor is set in accordance with said exposure parameter for said NIR image.

6. The method of claim 5 wherein said corresponding sequence of multi-spectral

images is generated with corresponding subsequent NIR images.

7. The method of claim 1 wherein respective contrast enhancement parameters are derived from each of one or more of said plurality of sequences of images in the first group, and one or more of said plurality of sequences of images is independently processed with said respective contrast enhancement parameters.

8. The method of claim 7 wherein the contrast-enhanced images are used to generate a corresponding sequence of multi-spectral images.

9. The method of claim 1 wherein said exposure parameter is determined from exactly one image from each of one or more of said plurality of sequences of images in the first group.

10. The method of claim 1 wherein said exposure parameter is determined from a plurality of images from each of one or more of said plurality of sequences of images in the first group.

11. A method for generating a multi-spectral image of a scene, the method comprising the steps of:

(a) generating from a mosaic color photosensor a plurality of images of the scene, wherein each of said plurality of images is a distinct predefined color;

(b) processing one or more of said plurality of images to perform contrast enhancement correction on each of one or more of said plurality of images to generate contrast-enhanced images; and

(c) generating a multi-spectral image based on at least two images selected from the group consisting of: said contrast-enhanced images; and said plurality of images.

12. The method of claim 11 wherein said multi-spectral image is generated based on two or more of said contrast-enhanced images.

13. The method of claim 11 wherein said multi-spectral image is generated based on one or more of said contrast-enhanced images with one or more of said plurality of images.

14. The method of claim 11 wherein a plurality of sequences of images is generated, and said processing is repeated on each of said plurality of sequences of images to generate a sequence of multi-spectral images.

15. A system for sampling multi-spectral images of a dynamically changing scene comprising:

(a) a mosaic color photosensor configured to provide a plurality of sequences of images of the dynamically changing scene, wherein each of said plurality of sequences of images is a distinct predefined color; and

(b) an optical arrangement for transferring light of the dynamically changing scene to said mosaic color photosensor; and

(c) a processing system including one or more processors configured to:

(i) process a first group of two or more images each provided from one of said plurality of sequences of images to optimize an exposure parameter for the first group, said exposure parameter determined by applying at least one exposure criterion to the first group while disregarding a second group of one or more images each from one of said plurality of sequences of images other than said sequences of images providing images for the first group;

(ii) generate an effective exposure for said mosaic color photosensor based on said exposure parameter, said mosaic color photosensor responsive to said effective exposure, said mosaic color photosensor being set in accordance with said effective exposure; and

(iii) generate a corresponding sequence of multi-spectral images from subsequent images from the first group.

16. The system of claim 15 wherein said mosaic color photosensor is a Bayer mosaic color photosensor.

17. The system of claim 15 wherein said first group includes images from a sequence of images having the distinct predefined color of green and images from a sequence of images having the distinct predefined color of red, and said second group includes images from a sequence of images having the distinct predefined color of blue.

18. The system of claim 15 further including a near infrared (NIR) photosensor providing a sequence of NIR images of the dynamically changing scene.

19. The system of claim 18 wherein said optical arrangement includes a system of dichroic filters configured to split said light of the dynamically changing scene into NIR light and visible light, and configured to provide said NIR light to said NIR photosensor and provide

said visible light to said mosaic color photosensor.

20. The system of claim 18 wherein said optical arrangement includes a system of one or more prisms configured to split said light of the dynamically changing scene into NIR light and visible light, and configured to provide said NIR light to sad NIR photosensor and provide said visible light to said mosaic color photosensor.

21. The system of claim 18 wherein a NIR image from said sequence of NIR images is processed to optimize an exposure parameter for said NIR image and an effective exposure for said NIR photosensor is set in accordance with said exposure parameter for said NIR image.

22. The system of claim 18 wherein said corresponding sequence of multi-spectral images is generated with a subsequent NIR image.

23. The system of claim 15 wherein said processing system is further configured to derive respective contrast enhancement parameters from each of one or more of said plurality of sequences of images in the first group, and one or more of said plurality of sequences of images is independently processed with said respective contrast enhancement parameters to generate contrast-enhanced images.

24. The system of claim 23 wherein said processing system is further configured to use said contrast-enhanced images to generate a corresponding contrast-enhanced sequence of multi-spectral images.

25. The system of claim 24 further configured to output said corresponding contrast-enhanced sequence of multi-spectral images as a video sequence.

26. The system of claim 15 configured to be switchable between generating multi-spectral images and generating true color mode images.

27. A system for generating a multi-spectral image of a scene, the system comprising:

(a) a mosaic color photosensor providing a plurality of images of the scene, wherein each of said plurality of images is a distinct predefined color; and

(b) a processing system including one or more processors configured to:

(i) process one or more of said plurality of images to perform contrast enhancement correction on each of one or more of said plurality of images to generate contrast-enhanced images; and

(ii) generate a multi-spectral image based on at least two images selected from

(ii) generate a multi-spectral image based on at least two images selected from the group consisting of: said contrast-enhanced images; and said plurality of images.

28. The system of claim 27 wherein said multi-spectral image is generated based on two or more of said contrast-enhanced images.

29. The system of claim 27 wherein said multi-spectral image is generated based on one or more of said contrast-enhanced images with one or more of said plurality of images.

30. The system of claim 27 wherein said mosaic color photosensor is configured to generate a plurality of sequences of images, and said processing is repeated on each of said plurality of sequences of images to generate a sequence of multi-spectral images.

WHAT IS CLAIMED IS:

1. A method for sampling multi-spectral images of a dynamically changing scene, the method comprising the steps of:

(a) deriving by use of a mosaic color photosensor a plurality of color-separation sequences of images of the dynamically changing scene, wherein each of said plurality of color-separation sequences of images contains color-separation images corresponding to a distinct predefined color;

(b) determining an exposure parameter by applying at least one exposure criterion to a group of one or more of said color-separation images derived from a subset of said color-separation sequences;

(c) setting an effective exposure for said mosaic color photosensor, said effective exposure for said mosaic color photosensor being set in accordance with said exposure parameter; and

wherein said exposure parameter is determined without dependence on one of said color-separation sequences not included in said subset of color-separation sequences.

2. The method of claim 1 wherein said mosaic color photosensor is a Bayer mosaic color photosensor.

3. The method of claim 1 wherein said subset of color-separation sequences contain color-separation images corresponding to green and red, and wherein said color-separation sequence not included in said subset of color-separation sequences contains color-separation images corresponding to blue.

4. The method of claim 1 wherein a near infrared (NIR) photosensor provides a sequence of NIR images of the dynamically changing scene.

5. The method of claim 4 wherein a NIR image from said sequence of NIR images is processed to optimize an exposure parameter for said NIR image and an effective exposure for said NIR photosensor is set in accordance with said exposure parameter for said NIR image.

6. The method of claim 5 wherein a corresponding sequence of multi-spectral images is generated from a combination of subsequent color-separation images from said subset of color-separation sequences and corresponding subsequent NIR images.

7. The method of claim 1 wherein respective contrast enhancement parameters are derived from each of one or more of said plurality of color-separation sequences of images in said subset of color-separation sequences, and one or more of said plurality of color-separation sequences of images is independently processed with said respective contrast enhancement parameters.

8. The method of claim 7 wherein the contrast-enhanced images are used to generate a corresponding sequence of multi-spectral images.

9. The method of claim 1 wherein said exposure parameter is determined from exactly one color-separation image from each of said color-separation sequences of said subset of color-separation sequences.

10. The method of claim 1 wherein said exposure parameter is determined from a plurality of color-separation images from each of said color-separation sequences of said subset of color-separation sequences.

11. A system for sampling multi-spectral images of a dynamically changing scene comprising:

(a) a mosaic color photosensor configured to provide a plurality of color-separation sequences of images of the dynamically changing scene, wherein each of said plurality of color-separation sequences of images contains color-separation images corresponding to a distinct predefined color; and

(b) an optical arrangement for transferring light of the dynamically changing scene to said mosaic color photosensor; and

(c) a processing system including one or more processors configured to:

(i) determine an exposure parameter by applying at least one exposure criterion to a group of one or more of said color-separation images derived from a subset of said color-separation sequences;

(ii) generate an effective exposure for said mosaic color photosensor based on said exposure parameter, said mosaic color photosensor responsive to said effective exposure, said mosaic color photosensor being set in accordance with said effective exposure;

wherein said exposure parameter is determined without dependence on one of said color-separation sequences not included in said subset of color-separation sequences.

12. The system of claim 11 wherein said mosaic color photosensor is a Bayer mosaic color photosensor.

13. The system of claim 11 wherein said mosaic color photosensor is further configured to provide said subset of color-separation sequences containing color-separation images corresponding to green and red, and wherein said color-separation sequence not included in said subset of color-separation images containing color-separation images corresponding to blue.

14. The system of claim 11 further including a near infrared (NIR) photosensor providing a sequence of NIR images of the dynamically changing scene.

15. The system of claim 14 wherein said optical arrangement includes a system of dichroic filters configured to split said light of the dynamically changing scene into NIR light and visible light, and configured to provide said NIR light to said NIR photosensor and provide said visible light to said mosaic color photosensor.

16. The system of claim 14 wherein said optical arrangement includes a system of one or more prisms configured to split said light of the dynamically changing scene into NIR light and visible light, and configured to provide said NIR light to said NIR photosensor and provide said visible light to said mosaic color photosensor.

17. The system of claim 14 wherein said processing system processes a NIR image from said sequence of NIR images to optimize an exposure parameter for said NIR image and an effective exposure for said NIR photosensor is set in accordance with said exposure parameter for said NIR image.

18. The system of claim 14 wherein said processing system generates a corresponding sequence of multi-spectral images from a combination of subsequent color-separation images from said subset of color-separation sequences and corresponding subsequent NIR images.

19. The system of claim 11 wherein said processing system derives respective contrast enhancement parameters from each of one or more of said plurality of color-separation sequences of images in said subset of color-separation sequences, and one or more of said plurality of color-separation sequences of images is independently processed with said respective contrast enhancement parameters to generate contrast-enhanced images.

20. The system of claim 19 wherein said processing system generates a corresponding contrast-enhanced sequence of multi-spectral images from said contrast enhanced images.

21. The system of claim 20 wherein said processing system outputs said corresponding contrast-enhanced sequence of multi-spectral images as a video sequence.

22. The system of claim 11 wherein said processing system generates multi-spectral images and alternatively generates true color mode images.

23. The method of claim 1 further including the step of:

(d) generating a corresponding sequence of multi-spectral images employing subsequent images from said subset of said color-separation sequences.

24. The system of claim 11 wherein said processing system is further configured to:

(iii) generate a corresponding sequence of multi-spectral images employing subsequent images from said subset of said color-separation sequences.