CLAIMS

1. A computer-implemented method, comprising:

capturing, using a first array of multiple image acquisition devices, a first set of images of a scene, wherein the multiple image acquisition devices of the first array are each focused at a first distance;

capturing, using a second array of multiple image acquisition devices, a second set of images of the scene, wherein the multiple image acquisition devices of the second array are each focused at a second distance that is different from the first distance;

identifying a first image in the first set of images to include a feature of interest;

identifying a second image in the second set of images to include the feature of interest;

determining a focal score for each of the first image and the second image;

selecting one of the first image or the second image based on a comparison of the corresponding focal scores; and

initiating an authentication process based on the selected image.

2. The method of claim 1, wherein fields of view of adjacent image acquisition devices in each of the first array and the second array have a partial overlap.

3. The method of claim 2, wherein a dimension of the partial overlap is configured based on a size of the feature of interest.

4. The method of claim 1, further comprising:

illuminating the scene with electromagnetic radiation of a first wavelength range;

capturing a third image using a first set of sensors of a pixel array of an image acquisition device corresponding to the selected image;

illuminating the scene with electromagnetic radiation of a second wavelength range;

capturing a fourth image using a second set of sensors of the pixel array;

determining a focal score for each of the third image and the fourth image; and

initiating the authentication process based on at least one of the third image or the fourth image that has the higher focal score.

5. The method of claim 4, further comprising:

calculating a first difference image using pixel-wise differences between (i) the third image and (ii) the selected one of the first image or the second image;

calculating a second difference image using pixel-wise differences between (i) the fourth image and (ii) the selected one of the first image or the second image

generating a composite image using the first and second difference images; and

initiating the authentication process based on the composite image.

6. The method of claim 1, wherein a first zoom factor associated with the image acquisition devices in the first array is different from a second zoom factor associated with the image acquisition devices in the second array.

7. The method of claim 6, wherein the first zoom factor and the second zoom factors are selected such that a size of the feature of interest in corresponding images are substantially equal.

8. The method of claim 4, wherein the scene is illuminated with electromagnetic radiation of the first wavelength range and the second wavelength range in a coded pattern.

9. The method of claim 1, wherein initiating the authentication process based on the selected image comprises:

illuminating the scene with electromagnetic radiation of a first wavelength range by activating a corresponding illumination source in an on-off pattern over multiple time periods;

capturing multiple images using a set of sensors of a pixel array of an image acquisition device corresponding to the selected image, wherein each of the multiple images are captured during a time period when the illumination source is switched on;

performing a matched filtering operation using the multiple images to generate a third image that aggregates information content from the multiple images; and

initiating the authentication process using the third image.

10. An imaging system comprising:

a first array of multiple image acquisition devices that captures a first set of images of a scene, wherein the multiple image acquisition devices of the first array are each focused at a first distance;

a second array of multiple image acquisition devices that captures a second set of images of the scene, wherein the multiple image acquisition devices of the second array are each focused at a second distance that is different from the first distance; and

one or more processing devices programmed to:

identify a first image in the first set of images to include a feature of interest,

identify a second image in the second set of images to include the feature of interest,

determine a focal score for each of the first image and the second image;

select one of the first image or the second image based on a comparison of the corresponding focal scores, and

initiate an authentication process based on the selected image.

11. The system of claim 10, wherein fields of view of adjacent image acquisition devices in each of the first array and the second array have a partial overlap.

12. The system of claim 11, wherein a dimension of the partial overlap is configured based on a size of the feature of interest.

13. The system of claim 10, further comprising:

one or more illumination sources for illuminating the scene with electromagnetic radiation of a first wavelength range during a first time period, and a second wavelength range during a second time period,

wherein,

a first set of sensors of a pixel array of an image acquisition device corresponding to the selected image captures a third image under illumination of the first wavelength range,

a second set of sensors of the pixel array captures a fourth image under illumination of the second wavelength range, and

the one or more processing devices are further programmed to:

determine a focal score for each of the third image and the fourth image, and

initiate the authentication process based on at least one of the third image or the fourth image that has the higher focal score.

14. The system of claim 13, wherein the one or more processing devices are programmed to:

calculate a first difference image using pixel-wise differences between (i) the third image and (ii) the selected one of the first image or the second image;

calculate a second difference image using pixel-wise differences between (i) the fourth image and (ii) the selected one of the first image or the second image

generate a composite image using the first and second difference images; and

initiate the authentication process based on the composite image.

15. The system of claim 10, wherein a first zoom factor associated with the image acquisition devices in the first array is different from a second zoom factor associated with the image acquisition devices in the second array.

16. The system of claim 15, wherein the first zoom factor and the second zoom factors are selected such that a size of the feature of interest in corresponding images are substantially equal.

17. The system of claim 13, wherein the one or more illumination sources illuminate the scene with electromagnetic radiation of the first wavelength range and the second wavelength range in a coded pattern.

18. The system of claim 10, further comprising:

one or more illumination sources to illuminate the scene with electromagnetic radiation of a first wavelength range in an on-off pattern over multiple time periods; and

a first set of sensors of a pixel array of an image acquisition device corresponding to the selected image, the first set of sensors synchronized with the one or more illumination sources to capture multiple images, each of which is captured during a time period when the one or more illumination sources are switched on,

wherein the one or more processing devices are programmed to:

perform a matched filtering operation using the multiple images to generate a third image that aggregates information content from the multiple images, and

initiate the authentication process using the third image.

19. One or more machine-readable storage devices having encoded thereon computer readable instructions for causing one or more processing devices to perform operations comprising:

generating a first control signal for operating a first array of multiple image acquisition devices to capture a first set of images of a scene, wherein the multiple image acquisition devices of the first array are each focused at a first distance;

generating a second control signal for operating a second array of multiple image acquisition devices to capture a second set of images of the scene, wherein the multiple image acquisition devices of the second array are each focused at a second distance that is different from the first distance;

identifying a first image in the first set of images to include a feature of interest;

identifying a second image in the second set of images to include the feature of interest;

determining a focal score for each of the first image and the second image;

selecting one of the first image or the second image based on a comparison of the corresponding focal scores; and

initiating an authentication process based on the selected image.

20. The one or more machine-readable storage devices of claim 19, further comprising instructions for:

generating a third control signal for activating one or more illumination sources to illuminate the scene with electromagnetic radiation of a first wavelength range;

causing a first set of sensors of a pixel array of an image acquisition device corresponding to the selected image to capture a third image;

generating a fourth control signal for activating the one or more illumination sources to illuminate the scene with electromagnetic radiation of a second wavelength range;

causing a second set of sensors of the pixel array to capture a fourth image;

determining a focal score for each of the third image and the fourth image; and

initiating the authentication process based on at least one of the third image or the fourth image that has the higher focal score.