CLAIMS

1. A mobile computing device, comprising:

an image sensor configured to capture image data for a field of view;

a light source module embedded in the mobile computing device, the light source module comprising:

a first Fresnel lens comprising a plurality of different zones, wherein a first one of the different zones is a first asymmetric zone that is radially asymmetric, and wherein the first asymmetric zone is configured to redirect light received from a first illumination element to at least a portion of a field of view for an image sensor;

the first illumination element located within respective focal lengths of the different zones of the Fresnel lens and configured to emit light; and

a controller configured to cause the first illumination element to emit light that passes through the first Fresnel lens.

2. The mobile computing device of claim 1, wherein the radial asymmetry of the first asymmetric zone comprises a sinusoidal pattern that varies an angle of a surface within the asymmetric zone along at least a portion of a circumference around a center of the first Fresnel lens.

3. The mobile computing device of claim 1, wherein a second one of the zones is a second asymmetric zone that is radially asymmetric, wherein the second asymmetric zone is configured to redirect light received from the illumination element to a different portion of the field of view for the image sensor.

4. The mobile computing device of claim 1, wherein the light source module further comprises:

a second Fresnel lens comprising a second plurality of different zones, wherein a first one of the second plurality of different zones is a second asymmetric zone that is radially asymmetric, wherein the second asymmetric zone is configured to redirect light received from a second illumination element to at least another portion of the field of view for the image sensor; and

the second illumination element located within respective focal lengths of the second plurality of different zones of the second Fresnel lens and configured to emit light.

5. The mobile computing device of claim 4, wherein a shape of the first illumination element is different than a shape of the second illumination element.

6. A light source module comprising:

a first Fresnel lens comprising a plurality of different zones, wherein a first one of the different zones is first asymmetric zone that is radially asymmetric, and wherein the first asymmetric zone is configured to redirect light received from a first illumination element to at least a portion of a field of view for an image sensor; and

the first illumination element configured to emit light, wherein the illumination element is located within respective focal lengths of the plurality of different zones of the Fresnel lens.

7. The light source module of claim 6, wherein the first asymmetric zone redirects the light to provide inverted illumination at the portion of the field of view.

8. The light source module of claim 6, wherein the first asymmetric zone redirects the light to provide non-inverted illumination at the portion of the field of view.

9. The light source module of claim 6, wherein the radial asymmetry of the first asymmetric zone comprises an angle for a surface of the first asymmetric zone that is different at different cross sections of the Fresnel lens.

10. The light source module of claim 6, wherein the radial asymmetry of the first asymmetric zone comprises a surface radius of the first asymmetric zone that is different at different cross sections of the Fresnel lens.

11. The light source module of claim 6, wherein a second one of the zones is a second asymmetric zone that is radially asymmetric and wherein the radial asymmetry of the second asymmetric zone is different from the radial asymmetry of the first asymmetric zone.

12. The light source module of claim 6, wherein the first illumination element is a square shape.

13. The light source module of claim 6, wherein the first illumination element is a non-square shape.

14. The light source module of claim 6, further comprising:

a second Fresnel lens comprising a second plurality of different zones, wherein a first one of the second plurality of different zones is a second asymmetric zone that is radially asymmetric, wherein the second asymmetric zone is configured to redirect light received from a second illumination element to at least another portion of the field of view for the image sensor; and

the second illumination element located within respective focal lengths of the second plurality of different zones of the second Fresnel lens configured to emit light.

15. The light source module of claim 14, wherein the radial asymmetry of the second asymmetric zone of the second Fresnel lens is different than the radial asymmetry of the first asymmetric zone of the first Fresnel lens, and wherein a shape of the illumination element is different than a shape of the other illumination element.

16. A Fresnel lens comprising a plurality of different zones, wherein at least one of the different zones comprises a radially asymmetric sub-zone such that a surface radius of the radially asymmetric subzone is different at different locations along a circumference around a center of the Fresnel lens, and wherein the asymmetric sub-zone is configured to redirect light received from a light source to at least a portion of a field of view for an image sensor.

17. The Fresnel lens of claim 16, wherein the asymmetric sub-zone redirects the light to provide inverted illumination at the portion of the field of view.

18. The Fresnel lens of claim 16, wherein the radial asymmetry of the asymmetric sub-zone comprises an angle for a surface of the asymmetric sub-zone that is different at different cross sections of the Fresnel lens.

19. The Fresnel lens of claim 16, wherein the different locations are at different cross sections of the Fresnel lens.

20. The Fresnel lens of claim 16, wherein the at least one zone comprises a radially symmetric sub-zone that is adjacent to the radially asymmetric sub-zone.