BRIEF SUMMARY

In certain embodiments, calculating intraocular lens (IOL) power includes determining locations of parts of an eye along an axis of the eye. The locations include the location of a cornea, the anterior and posterior locations of a crystalline lens, and the location of a retina. An IOL location of an IOL is calculated according to the anterior and posterior locations of the crystalline lens. Corneal data is also determined. The IOL power is calculated using the corneal data, the IOL location, and the retinal location. In certain embodiments, features of the IOL, such as aspects of the optic or haptics, may be used in the calculation. In certain embodiments, refractive indices are determined for segments of the axis, and at least one location is adjusted according to the refractive indices.

According to a first aspect, there is provided a method for calculating intraocular lens (IOL) power comprising: determining a plurality of locations of parts of an eye along an axis of the eye, the locations comprising a corneal location of a cornea, a crystalline lens anterior location of a crystalline lens, a crystalline lens posterior location of the crystalline lens, and a retinal location of a retina, the crystalline lens anterior location and the crystalline lens posterior location determined by measuring the locations; calculating an IOL location of an IOL according to the measured crystalline lens anterior location and the measured crystalline lens posterior location; determining corneal data of the cornea; and calculating the IOL power of the IOL according to the corneal data, the IOL location, and the retinal location

According to a second aspect, there is provided a system for calculating intraocular lens (IOL) power comprising: a memory configured to store location information; and one or more processors configured to: determine a plurality of locations of parts of an eye along an axis of the eye, the locations comprising a corneal location of a cornea, a crystalline lens anterior location of a crystalline lens, a crystalline lens posterior location of the crystalline lens, and a retinal location of a retina, the crystalline lens anterior location and the crystalline lens posterior location determined by measuring the locations; calculate an IOL location of an IOL according to the measured crystalline lens anterior location and the measured crystalline lens posterior

location; determine corneal data of the cornea; and calculate the IOL power of the IOL according to the corneal data, the IOL location, and the retinal location.

According to a third aspect, there is provided one or more non-transitory computer-readable media storing logic for calculating intraocular lens (IOL) power, when executed by one or more processors the logic configured to: determine a plurality of locations of parts of an eye along an axis of the eye, the locations comprising a corneal location of a cornea, a crystalline lens anterior location of a crystalline lens, a crystalline lens posterior location of the crystalline lens, and a retinal location of a retina, the crystalline lens anterior location and the crystalline lens posterior location determined by measuring the locations; calculate an IOL location of an IOL according to the measured crystalline lens anterior location and the measured crystalline lens posterior location; determine corneal data of the cornea; and calculate the IOL power of the IOL according to the corneal data, the IOL location, and the retinal location.

CLAIMS

What is claimed is:

1. A method for calculating intraocular lens (IOL) power comprising:

determining a plurality of locations of parts of an eye along an axis of the eye, the locations comprising a corneal location of a cornea, a crystalline lens anterior location of a crystalline lens, a crystalline lens posterior location of the crystalline lens, and a retinal location of a retina~~;~~, the crystalline lens anterior location and the crystalline lens posterior location determined by measuring the locations;

calculating an IOL location of an IOL according to the measured crystalline lens anterior location and the measured crystalline lens posterior location;

determining corneal data of the cornea; and

calculating the IOL power of the IOL according to the corneal data, the IOL location, and the retinal location.

2. The method of Claim 1, the calculating the IOL location further comprising:

calculating the IOL location according to a predetermined proportional distance between the crystalline lens anterior location and the crystalline lens posterior location.

3. The method of Claim 1, the calculating the IOL location further comprising:

calculating the IOL location according to one or more features of the IOL.

4. The method of Claim 1, the calculating the IOL location further comprising:

calculating the IOL location according to one or more features of the eye.

9. A system for calculating intraocular lens (IOL) power comprising:

a memory configured to store location information; and

one or more processors configured to:

determine a plurality of locations of parts of an eye along an axis of the eye, the locations comprising a corneal location of a cornea, a crystalline lens anterior location of a crystalline lens, a crystalline lens posterior location of the crystalline lens, and a retinal location of a retina~~;~~, the crystalline lens anterior location and the crystalline lens posterior location determined by measuring the locations;

calculate an IOL location of an IOL according to the measured crystalline lens anterior location and the measured crystalline lens posterior location;

determine corneal data of the cornea; and

calculate the IOL power of the IOL according to the corneal data, the IOL location, and the retinal location.

10. The system of Claim 9, the calculating the IOL location further comprising:

calculating the IOL location according to a predetermined proportional distance between the crystalline lens anterior location and the crystalline lens posterior location.

11. The system of Claim 9, the calculating the IOL location further comprising:

calculating the IOL location according to one or more features of the IOL.

12. The system of Claim 9, the calculating the IOL location further comprising:

calculating the IOL location according to one or more features of the eye.

13. The system of Claim 9, the determining the locations further comprising:

determining a refractive index of each segment for a plurality of segments of the axis to yield a plurality of refractive indices; and

adjusting at least one location according to the refractive indices.

17. One or more non-transitory computer-readable media storing logic for calculating intraocular lens (IOL) power, when executed by one or more processors the logic configured to:

determine a plurality of locations of parts of an eye along an axis of the eye, the locations comprising a corneal location of a cornea, a crystalline lens anterior location of a crystalline lens, a crystalline lens posterior location of the crystalline lens, and a retinal location of a retina~~;~~, the crystalline lens anterior location and the crystalline lens posterior location determined by measuring the locations;

calculate an IOL location of an IOL according to the measured crystalline lens anterior location and the measured crystalline lens posterior location;

determine corneal data of the cornea; and

calculate the IOL power of the IOL according to the corneal data, the IOL location, and the retinal location.

18. The non-transitory computer-readable media of Claim 17, the calculating the IOL location further comprising:

calculating the IOL location according to a predetermined proportional distance between the crystalline lens anterior location and the crystalline lens posterior location.

19. The non-transitory computer-readable media of Claim 17, the determining the locations further comprising:

determining a refractive index of each segment for a plurality of segments of the axis to yield a plurality of refractive indices; and

adjusting at least one location according to the refractive indices.