

CLAIMS

What is claimed is:

1. A product comprising one or more tangible computer-readable non-transitory storage media comprising computer-executable instructions operable to, when executed by at least one computer processor, enable the at least one computer processor to cause a computing device to:
 - process at least one captured image of at least one reflection of a flash on a lens of eyeglasses; and
 - determine one or more optical parameters of said lens based at least on said at least one captured image.
2. The product of claim 1, wherein the captured image comprises an image captured by a camera, the instructions, when executed, cause the computing device to determine the one or more optical parameters of said lens based on said at least one reflection and a relative angle between a plane of said lens and a plane of said camera.
3. The product of claim 2, wherein the instructions, when executed, cause the computing device to determine the relative angle based on said at least one reflection.
4. The product of claim 2, wherein said at least one reflection comprises a first reflection of said flash on a front surface of said lens and a second reflection of said flash on a back surface of said lens, the instructions, when executed, cause the computing device to determine the relative angle based on at least one displacement between said first and second reflections.
5. The product of claim 4, wherein said at least one displacement comprises at least one of a vertical displacement or a horizontal displacement.
6. The product of claim 2, wherein the instructions, when executed, cause the computing device to determine the relative angle based on a relative location of said at least one reflection relative to a center of said lens.
7. The product of claim 6, wherein the captured image comprises a first reference object image of a first reference object captured via said lens and a second reference object image of a second reference object captured not via said lens, the instructions, when

executed, cause the computing device to determine the center of said lens based on said first reference object image and said second reference object image.

8. The product of any one of claims 1-7, wherein the instructions, when executed, cause the computing device to determine a spherical power of said lens based on a diameter
5 size of said at least one reflection in said captured image.

9. The product of any one of claims 1-7, wherein the instructions, when executed, cause the computing device to determine at least one of a cylindrical power of said lens or a cylindrical axis of said lens based on a deformation of the at least one reflection in said captured image.

10. The product of any one of claims 1-7, wherein the captured image comprises a reference object image of a reference object captured by a camera via said lens, the instructions, when executed, cause the computing device to determine one or more estimated optical parameters of said lens based on a comparison between said reference object and said reference object image; to determine a relative angle between a plane of said lens and a plane
15 of said camera based on said at least one reflection; and to determine the one or more optical parameters of said lens based on said relative angle and said one or more estimated optical parameters.

11. The product of claim 10, wherein the instructions, when executed, cause the computing device to determine an estimated spherical power of said lens based on a
20 magnification between a reference dimension of said reference object and an imaged dimension of said reference dimension in said reference object image, and to determine a spherical power of said lens based on said relative angle and the estimated spherical power.

12. The product of claim 10, wherein the instructions, when executed, cause the computing device to determine at least one of an estimated cylindrical power of said lens or
25 an estimated cylindrical axis of said lens based on a deformation between one or more reference dimensions of said reference object and one or more respective imaged dimensions of said one or more reference dimensions in said reference object image, and to determine at least one of a cylindrical power of said lens or a cylindrical axis of said lens based on said relative angle and at least one of the estimated cylindrical power or the estimated cylindrical
30 axis.

13. The product of any one of claims 1-7, wherein said at least one reflection comprises a first reflection of said flash from a front surface of said lens, and a second reflection of said flash from a back surface of said lens.
14. The product of claim 13, wherein the captured image comprises a reference object
5 image of a reference object captured via said lens, the instructions, when executed, cause the computing device to determine the one or more optical parameters of said lens based on a comparison between said reference object and said reference object image when said first and second reflections coincide in said captured image.
15. The product of claim 14, wherein the instructions, when executed, cause the
10 computing device to trigger an instruction to a user to rotate the eyeglasses at least until said first and second reflections coincide.
16. The product of any one of claims 1-7, wherein the instructions, when executed, cause the computing device to trigger capturing of said at least one captured image.
17. The product of any one of claims 1-7, wherein the one or more optical parameters
15 comprise at least a spherical power of said lens.
18. The product of any one of claims 1-7, wherein the one or more optical parameters comprise at least one of a cylindrical power or a cylindrical axis of said lens.
19. A mobile device comprising:
a camera to capture at least one image of at least one reflection of a flash on a lens of
20 eyeglasses; and
a lensometer module to determine one or more optical parameters of said lens based at least on said at least one captured image.
20. The mobile device of claim 19, wherein the captured image comprises an image captured by a camera, the lensometer module to determine the one or more optical parameters
25 of said lens based on said at least one reflection and a relative angle between a plane of said lens and a plane of said camera.
21. A method of determining one or more optical parameters of a lens of eyeglasses, the method comprising:

capturing at least one image by a camera of at least one reference object via a lens of eyeglasses;

determining a relative angle between a plane of said lens and a plane of said camera;
and

- 5 determining one or more optical parameters of said lens based at least on said relative angle and said at least one image.

22. The method of claim 21 comprising determining the relative angle based on a comparison between said reference object and at least one object image of said reference object in said at least one image.

- 10 23. The method of claim 22, wherein the at least one image comprises at least one reflection of a flash on the lens, the method comprising determining one or more estimated optical parameters of said lens based on said at least one reflection, and determining the one or more optical parameters of said lens based on said relative angle and the one or more estimated optical parameters of said lens.

- 15 24. The method of claim 23 comprising determining an estimated spherical power of said lens based on a diameter size of said at least one reflection in said image.

25. The method of claim 23 comprising determining at least one of an estimated cylindrical power of said lens or an estimated cylindrical axis of said lens based on a deformation of the at least one reflection in said image.

- 20 26. The method of claim 21, wherein the at least one image comprises at least one reflection of a flash on the lens, the method comprising determining the relative angle based on said at least one reflection.

27. The method of claim 26, wherein said at least one reflection comprises a first reflection of said flash on a front surface of said lens and a second reflection of said flash on
25 a back surface of said lens, the method comprising determining the relative angle based on at least one displacement between said first and second reflections.

28. The method of claim 26 comprising determining one or more estimated optical parameters of said lens based on a comparison between said reference object and at least one object image of said reference object in said at least one image, and determining the one or

more optical parameters of said lens based on said relative angle and the one or more estimated optical parameters of said lens.

29. A product comprising one or more tangible computer-readable non-transitory storage media comprising computer-executable instructions operable to, when executed by at least one computer processor, enable the at least one computer processor to cause a computing device to perform the method of any one of claims 21-28.
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