CLAIMS

1. A computer-implemented method for authentication, comprising:

obtaining a first image, wherein the first image is an image of an identification (ID) document captured when the ID document is tilted at a first angle relative to a light source while a light from the light source is projected on the ID document;

obtaining a second image, wherein the second image is another image of the ID document captured when the ID document is tilted at a second angle relative to the light source while the light from the light source is projected on the ID document; and

authenticating the ID document based on performing operations comprising:

identifying a first illuminated region of the first image and a second illuminated region of the second image, wherein the first illuminated region is brighter than a remaining area of the first image other than the first illuminated region, and the second illuminated region is brighter than a remaining area of the second image other than the second illuminated region and

comparing a first position of the first illuminated region and a second position of the second illuminated region to determine whether the first position and the second position are a same position in the ID document, wherein the first position is a center point of the first illuminated region and the second position is a center point of the second illuminated region.

2. The computer-implemented method of claim 1, wherein:

the first angle relative to the light source which the ID document is tilted at is between 60 degrees and 80 degrees or 100 degrees and 120 degrees; and

the second angle relative to the light source which the ID document is tilted at is between 60 degrees and 80 degrees or 100 degrees and 120 degrees, and wherein the second angle is different from the first angle.

3. The computer-implemented method of claim 1, wherein the light is a flashlight.

4. The computer-implemented method of claim 1, further comprising:

processing, using an image erosion method or an image dilation method, the first image; and

processing, using the image erosion method or the image dilation method, the second image.

5. The computer-implemented method of claim 1, wherein authenticating the ID document comprises authenticating the ID document on a condition that the first illuminated region and the second illuminated region are identified, and on another condition that the first position of the first illuminated region and the second position of the second illuminated region are different.

6. The computer-implemented method of claim 1, wherein:

the first angle relative to the light source which the ID document is tilted at is smaller than the second angle relative to the light source which the ID document is tilted at; and

authenticating the ID document comprises authenticating the ID document on a condition that the first position of the first illuminated region has a shorter distance from a tilt axis than the second position of the second illuminated region from the tilt axis.

7. The computer-implemented method of claim 1, wherein authenticating the ID document comprises:

determining a first coordinate, wherein the first coordinate corresponds to a first center point of the first illuminated region;

determining a second coordinate, wherein the second coordinate corresponds to a second center point of the second illuminated region; and

authenticating the ID document on a condition that the first coordinate is different from the second coordinate.

8. A non-transitory computer-readable medium storing one or more instructions executable by a computer system to perform operations for authentication, comprising:

obtaining a first image, wherein the first image is an image of an identification (ID) document captured when the ID document is tilted at a first angle relative to a light source while a light from the light source is projected on the ID document;

obtaining a second image, wherein the second image is another image of the ID document captured when the ID document is tilted at a second angle relative to the light source while the light from the light source is projected on the ID document; and

authenticating the ID document based on performing operations comprising:

identifying a first illuminated region of the first image and a second illuminated region of the second image, wherein the first illuminated region is brighter than a remaining area of the first image other than the first illuminated region, and the second illuminated region is brighter than a remaining area of the second image other than the second illuminated region and

comparing a first position of the first illuminated region and a second position of the second illuminated region to determine whether the first position and the second position are a same position in the ID document, wherein the first position is a center point of the first illuminated region and the second position is a center point of the second illuminated region.

9. The non-transitory computer-readable medium of claim 8, wherein:

the first angle relative to the light source which the ID document is tilted at is between 60 degrees and 80 degrees or 100 degrees and 120 degrees; and

the second angle relative to the light source which the ID document is tilted at is between 60 degrees and 80 degrees or 100 degrees and 120 degrees, and wherein the second angle is different from the first angle.

10. The non-transitory computer-readable medium of claim 8, wherein the light is a flashlight.

11. The non-transitory computer-readable medium of claim 8, further comprising:

processing, using an image erosion method or an image dilation method, the first image; and

processing, using the image erosion method or the image dilation method, the second image.

12. The non-transitory computer-readable medium of claim 8, wherein authenticating the ID document comprises authenticating the ID document on a condition that the first illuminated region and the second illuminated region are identified, and on another condition that the first position of the first illuminated region and the second position of the second illuminated region are different.

13. The non-transitory computer-readable medium of claim 8, wherein:

the first angle relative to the light source which the ID document is tilted at is smaller than the second angle relative to the light source which the ID document is tilted at; and

authenticating the ID document comprises authenticating the ID document on a condition that the first position of the first illuminated region has a shorter distance from a tilt axis than the second position of the second illuminated region from the tilt axis.

14. The non-transitory computer-readable medium of claim 8, wherein authenticating the ID document comprises:

determining a first coordinate, wherein the first coordinate corresponds to a first center point of the first illuminated region;

determining a second coordinate, wherein the second coordinate corresponds to a second center point of the second illuminated region; and

authenticating the ID document on a condition that the first coordinate is different from the second coordinate.

15. A computer-implemented system for authentication, comprising:

one or more computers; and

one or more computer memory devices interoperably coupled with the one or more computers and having tangible, non-transitory, machine-readable media storing one or more instructions that, when executed by the one or more computers, cause the one or more computers to perform one or more operations comprising:

obtaining a first image, wherein the first image is an image of an identification (ID) document captured when the ID document is tilted at a first angle relative to a light source while a light from the light source is projected on the ID document;

obtaining a second image, wherein the second image is another image of the ID document captured when the ID document is tilted at a second angle relative to the light source while the light from the light source is projected on the ID document; and

authenticating the ID document based on performing operations comprising:

identifying a first illuminated region of the first image and a second illuminated region of the second image, wherein the first illuminated region is brighter than a remaining area of the first image other than the first illuminated region, and the second illuminated region is brighter than a remaining area of the second image other than the second illuminated region and

comparing a first position of the first illuminated region and a second position of the second illuminated region to determine whether the first position and the second position are a same position in the ID document, wherein the first position is a center point of the first illuminated region and the second position is a center point of the second illuminated region.

16. The computer-implemented system of claim 15, wherein:

the first angle relative to the light source which the ID document is tilted at is between 60 degrees and 80 degrees or 100 degrees and 120 degrees; and

the second angle relative to the light source which the ID document is tilted at is between 60 degrees and 80 degrees or 100 degrees and 120 degrees, and wherein the second angle is different from the first angle.

17. The computer-implemented system of claim 15, further comprising:

processing, using an image erosion method or an image dilation method, the first image; and

processing, using the image erosion method or the image dilation method, the second image.

18. The computer-implemented system of claim 15, wherein authenticating the ID document comprises authenticating the ID document on a condition that the first illuminated region and the second illuminated region are identified, and on another condition that the first position of the first illuminated region and the second position of the second illuminated region are different.

19. The computer-implemented system of claim 15, wherein:

the first angle relative to the light source which the ID document is tilted at is smaller than the second angle relative to the light source which the ID document is tilted at; and

authenticating the ID document comprises authenticating the ID document on a condition that the first position of the first illuminated region has a shorter distance from a tilt axis than the second position of the second illuminated region from the tilt axis.

20. The computer-implemented system of claim 15, wherein authenticating the ID document comprises:

determining a first coordinate, wherein the first coordinate corresponds to a first center point of the first illuminated region;

determining a second coordinate, wherein the second coordinate corresponds to a second center point of the second illuminated region; and

authenticating the ID document on a condition that the first coordinate is different from the second coordinate.