

Fundus imaging

using DCRA

toward large eyebox

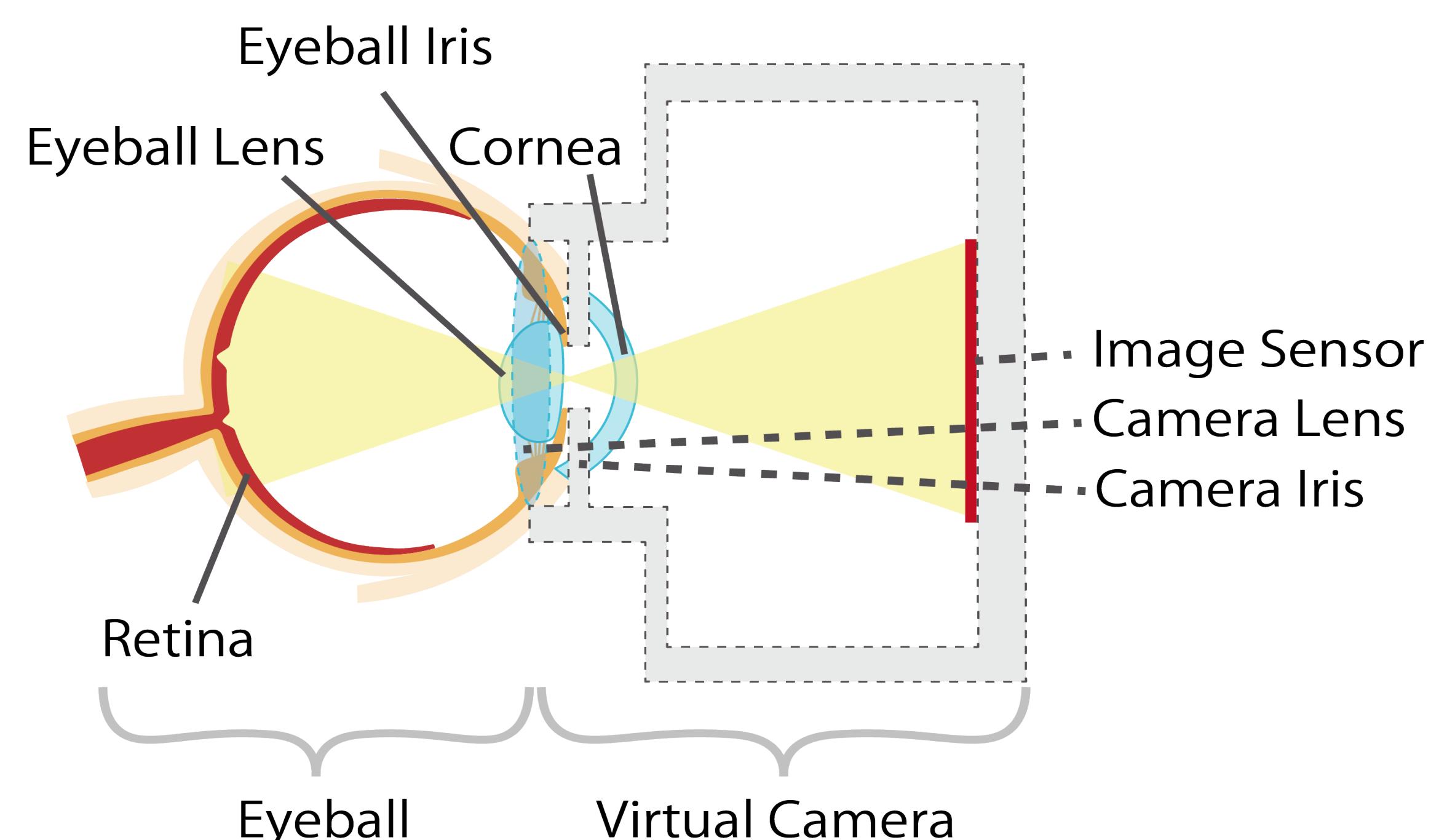
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Concept

Virtual camera that overlaid to the eyeball using DCRA.



Problem of Maxwellian view

Conventional fundus imaging system is based on Maxwell view. It has the following problems.

- Maxwellian view is sensitive to eye movement

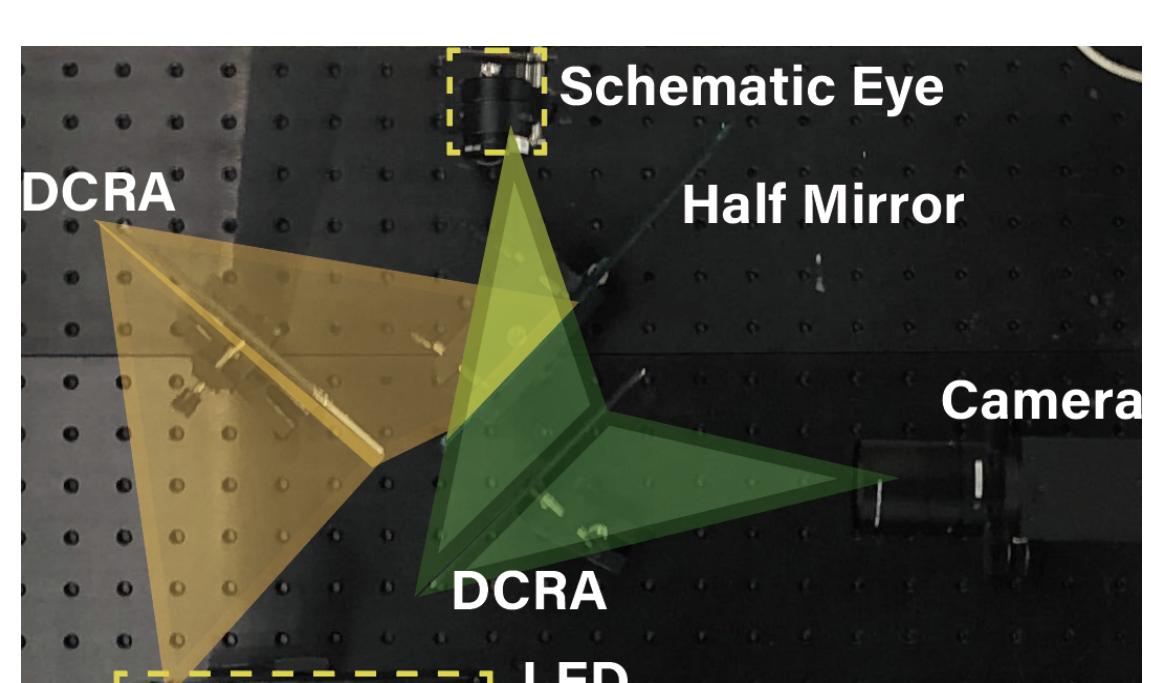
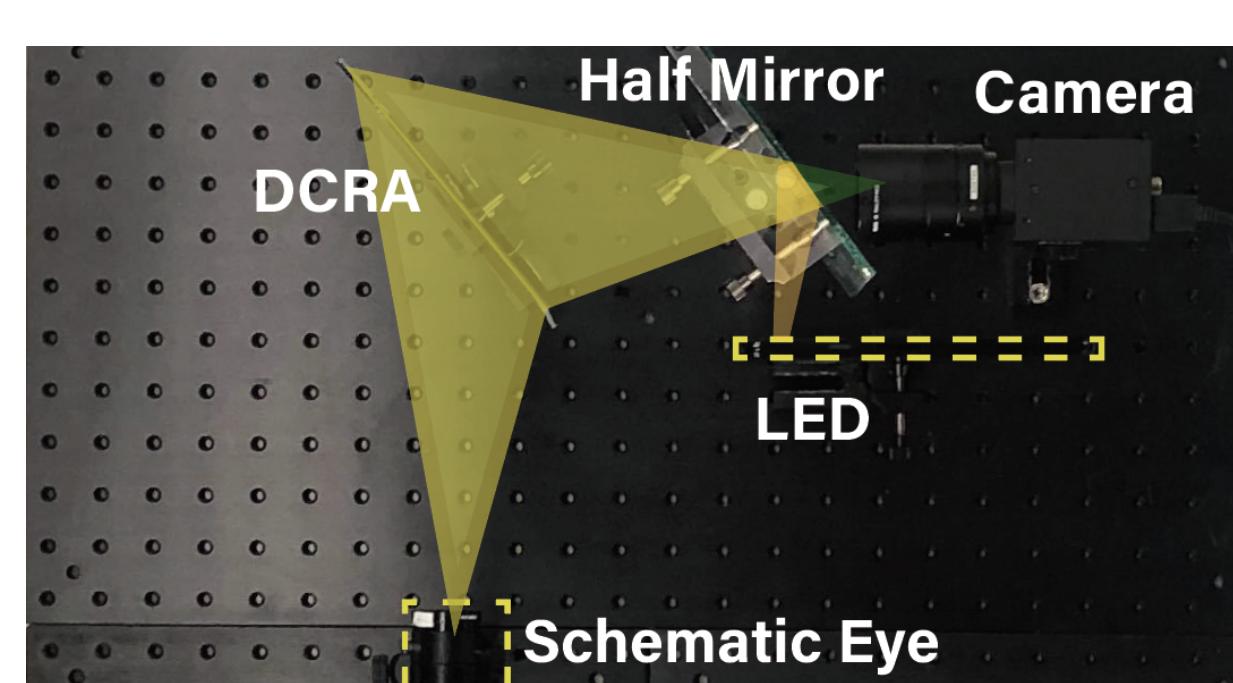
Contribution

We propose a novel fundus imaging method using a DCRA with the following features

- Robust to eye movement
- Wavelength independence
- A simple optical system

Our optical system

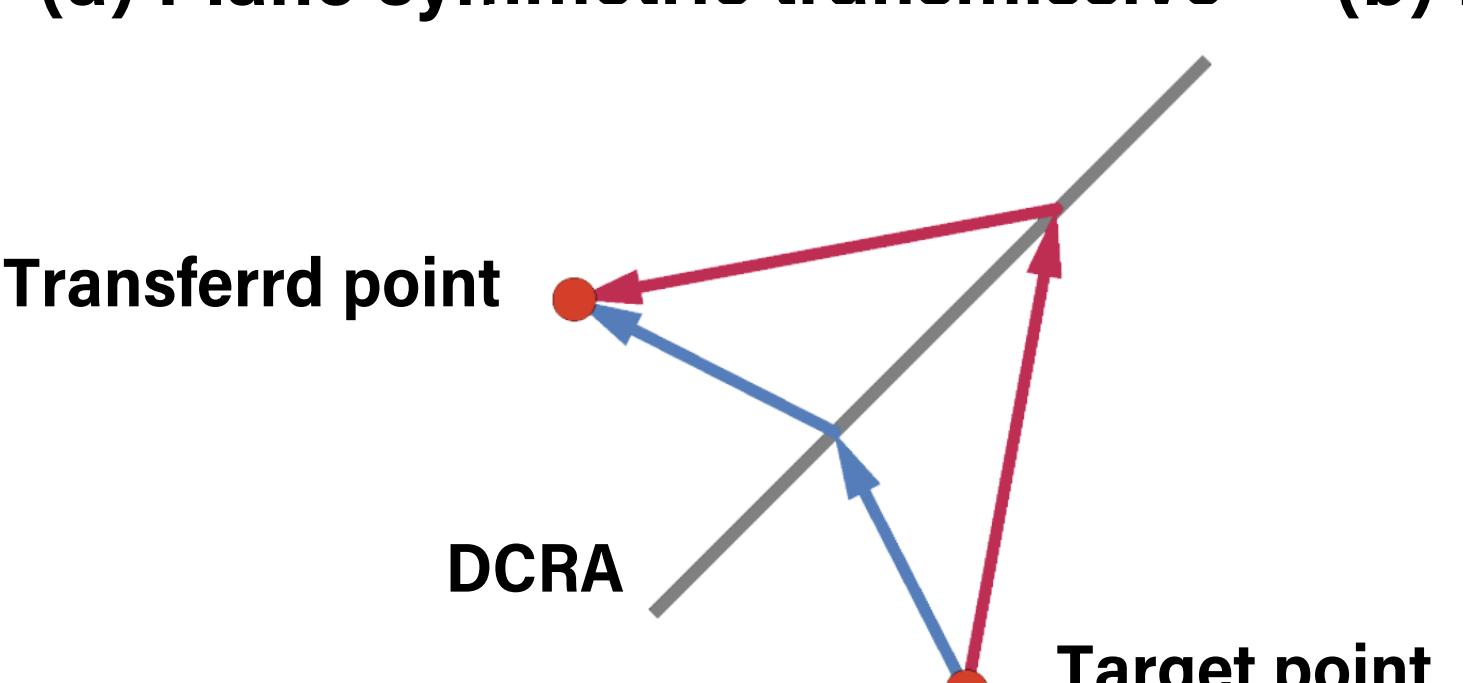
Figure shows our proposed optical system consists of a camera and two DCRAs and light source. A DCRA transfers a physical camera into a plane symmetric position.



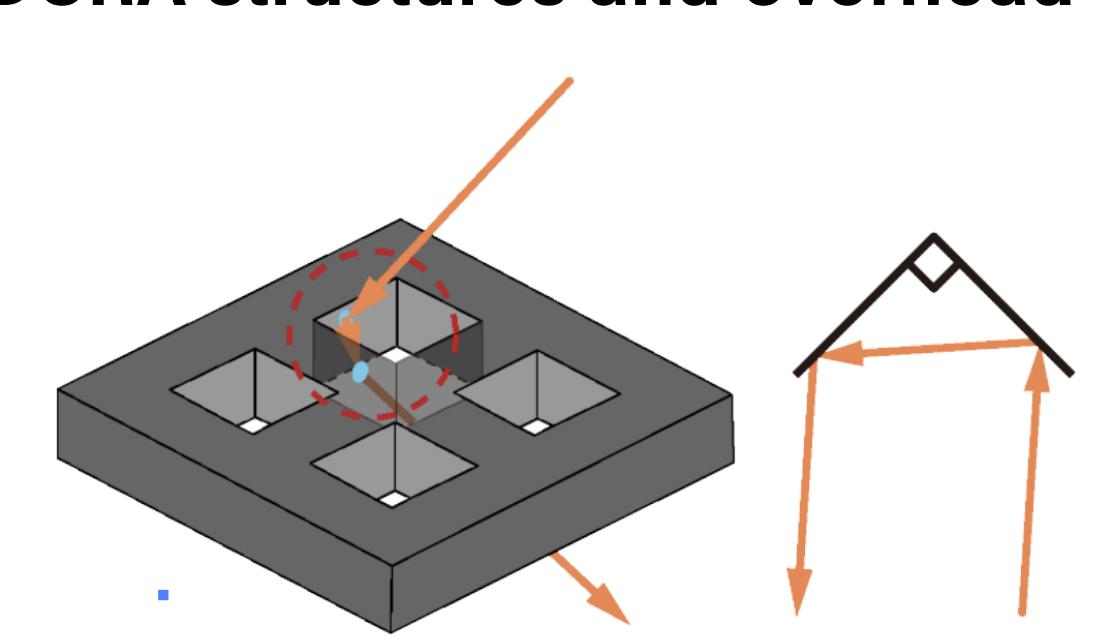
Dihedral corner reflector array

A DCRA is an optical component that can image input light source to the symmetric position

(a) Plane symmetric transmissive

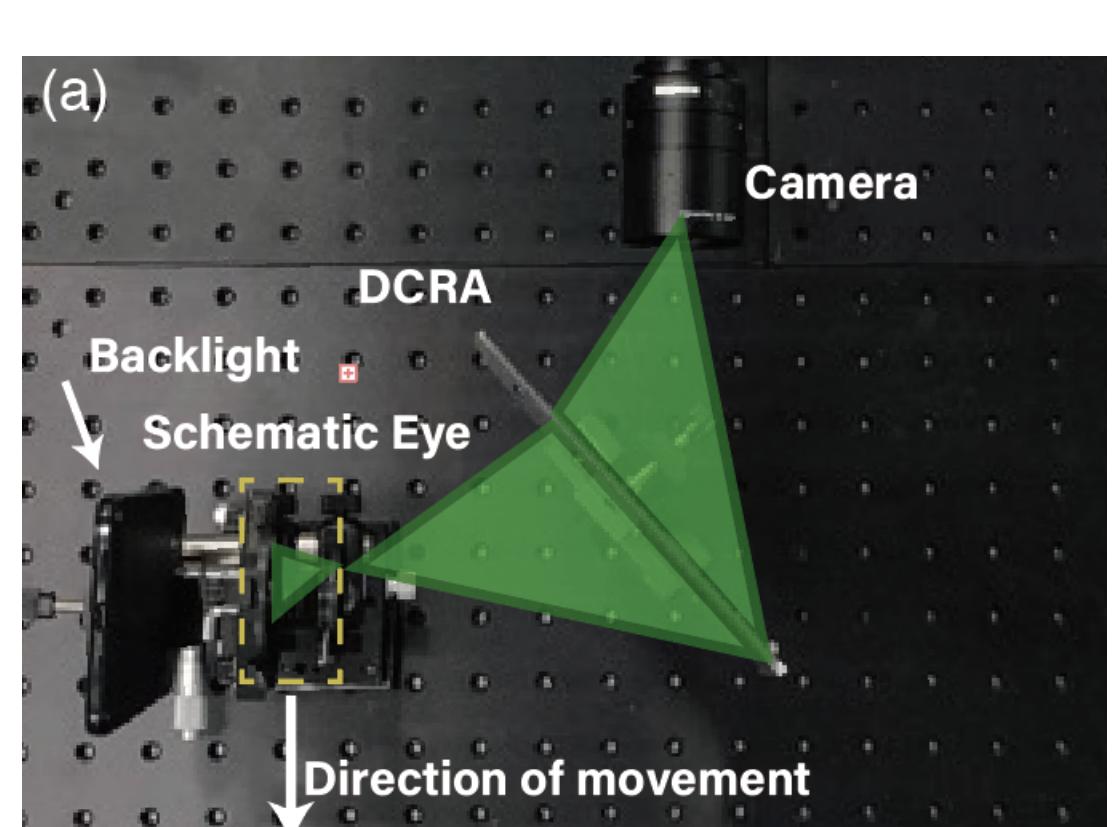


(b) DCRA structures and overhead view



Experimental Result

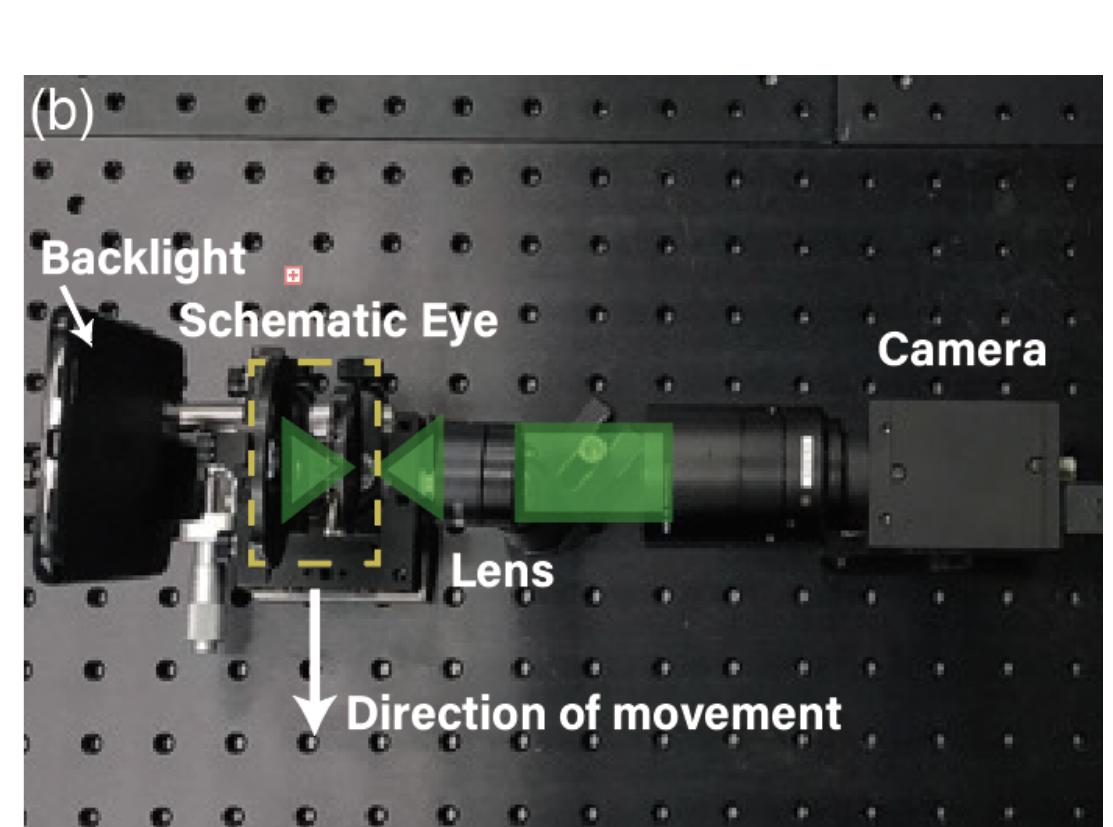
Comparison



Our proposed system

Our proposed system

The system based on a Maxwellian view



The system based on a Maxwellian view

Figure shows the result of eyebox when we move the schematic eye to horizontal by 1 mm.



A captured image. We used the schematic eye instead of the real eye.