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A Novel Objective Method of Central Reference Point Mapping in Adaptive Optics Retinal Camera Using a Multi-modal Artificial Intelligence-based Algorithm

Stanford researchers have developed a method for identifying the foveal center in the eye for high resolution retinal mapping in adaptive optics devices using artificial intelligence. It can increase the effectiveness and usability of these imaging devices to make them practical for clinical use.

Adaptive optics retinal cameras are imaging devices used to evaluate retinal microstructures. It's challenging to use these devices in clinical settings because precise localization is essential. Currently, subjective methods are used which require operator skill and full patient compliance to center the image around the center of the fovea. Current methods are also time consuming and depend on another device, such as optical coherence tomography, to localize the fovea point.

This new method determines a central reference point using AI. The algorithm developed by the researchers uses a model trained on both optical coherence tomography and adaptive optics images to localize foveal regions on adaptive optics images. This invention has the potential to significantly advance the practical use of adaptive optics devices to take images of the eye with high magnifications.

Stage of Development

- Working prototype

Applications

- Adaptive optics devices

Advantages

- User-friendly
- Adds reliability
- Saves time
- First known method for precise localization in adaptive optics devices
- Removes the need for an ancillary device, such as optical coherence tomography

Innovators

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