

# Velocity-based Clinical Optoretinography System

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## OTHER INFORMATION

### KEYWORDS

ocular diseases,  
glaucoma, ROP, OCT,  
imaging, diagnostic,  
optical coherence  
tomography

### CATEGORIZED AS

- ▶ **Medical**
  - ▶ Diagnostics
  - ▶ Disease:  
Ophthalmology and  
Optometry
  - ▶ Imaging
  - ▶ Other
  - ▶ Research Tools
- ▶ **Research Tools**
  - ▶ Other

### RELATED CASES

Researchers at the University of California, Davis, have developed a new optoretinography) imaging and analysis system for diagnosing and monitoring retinal health and diseases.

**FULL DESCRIPTION**

Over 2.2 billion people suffer from eye disease, leading to near or distant vision impairment. Unfortunately, in at least 1 billion of these cases, vision impairment could have been prevented or has yet to be addressed. In the US, eye disease leads to more than \$139 billion in economic burden. The most common eye conditions include age-related macular degeneration, glaucoma, diabetic retinopathy, and cataracts. Optical coherence tomography (OCT) is a noninvasive imaging modality used throughout medicine that generates images of biological tissues with high axial and transverse resolutions. While it is a standard for diagnosing eye conditions, it still suffers from limited resolution, large file size, high technical expertise, and expensive systems.

Researchers at the University of California, Davis, have developed a new optoretinography system using tissue velocity obtained from a modified OCT system. The system avoids the need to track specific cells over time, obviates the cost and labor of the position-based approaches such as adaptive optics, digital aberration correction and real time tracking. The system extracts OCT images within 40 milliseconds and produces optoretinograms, a measurement of neural function in the retina (e.g., photoreceptors). A prototype of the system has been developed, and responses have been acquired from three test subjects. Results indicate the system exhibits high test-retest repeatability and dependence on stimulus dose and retinal eccentricity.

**APPLICATIONS**

- ▶ Diagnostic imaging of the eye for many eye conditions.

**FEATURES/BENEFITS**

- ▶ A novel diagnostic system that provides OCT analysis of neural function within the eye.
- ▶ It is noninvasive, uses inexpensive components, and does not necessitate adaptive optics.
- ▶ Requires minimal training and resources.
- ▶ It may facilitate early diagnosis and treatment of various ocular diseases.

**PATENT STATUS**

Country	Type	Number	Dated	Case
Patent Cooperation Treaty	Published Application	<a href="#">WO 2023/220235</a>	11/16/2023	2022-584

Additional Patent Pending

**RELATED MATERIALS**

- ▶ [Velocity-based optoretinography for clinical applications](#)

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