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

ABSTRACT

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	WO 2023/220235	11/16/2023	2022-584

Additional Patent Pending

RELATED MATERIALS

▶ Velocity-based optoretinography for clinical applications

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