

PRODUCT

AI-driven ophthalmic image analysis platform.

INDICATION

Ophthalmic diseases.

VALUE PROPOSITION

- Compatible with all ophthalmic imaging modalities.
- In-depth assessment of different anatomical features of the eye for disease diagnosis, prognosis treatment planning, response assessment and monitoring.
- Outputs are editable and can be validated by humans.

DEVELOPMENT STAGE

Software validated at the Cleveland Clinic.

INTELLECTUAL PROPERTY

Multiple patents issued and pending.

RELATED PUBLICATIONS

Li, H.H., et al. (2020).
ARVO Journals, Translational Vision Science & Technology, 9 (52).

CONTACT INFORMATION

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Ophthalmic Image Analysis Platform

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UNMET NEED

Major diseases affecting the eye rely on imaging for disease diagnoses and prognosis, evaluation of therapeutic efficacy, and monitoring of disease status; however, image selection, image quality, and pathologic feature extraction in ophthalmic imaging, is a specialized, time-intensive endeavor, which presents a challenge in ophthalmology clinical trials and clinical practice.

SOLUTION

Cleveland Clinic investigators have developed an AI-driven ophthalmic image analysis platform that identifies quality images, segments ocular layers, and analyses ophthalmic disease hallmarks. AI-driven analysis enables reliable assessment, of photoreceptor (i.e., ellipsoid zone) integrity, quantitative leakage, and volumetric fluid valuable in disease diagnosis and prognosis, as well as treatment planning, assessment and monitoring.

A multi-faceted, comprehensive suite of tools includes the following:

- Vascular Parameters for Image Quality Assessment and Image Selection
- Quality Assessment of UWFA
- Quality Assessment of OCT
- Automated Volumetric Image Analysis of Pathologic Conditions
- Automated Analysis of Ocular Inflammation
- Angiographic Imaging Biomarkers
- Optical Coherence Tomography Imaging Biomarkers
- Integrative Imaging Biomarker Analysis with Correlated Phenotypic Features and Outcomes
- Fluid Feature Extraction for Evaluation of Macular Edema in Posterior Segment Ophthalmic Diseases: Retinal fluid index (RFI), Cystic Circularity, Reflectivity Signatures, and Cystic Entropy Measures
- Automated Machine Learning Enabled Feature Extraction for Ultra-widefield Fluorescein Angiography
- Automated Machine Learning Enabled Feature Extraction for Optical Coherence Tomography with Compartmental Mapping, Zonal and Panmacular Metrics
- Automated Machine Learning Classification of Eyes at Risk for the Development of Advanced Dry Macular Degeneration
- Automated Detection and Quantification of Geographic Atrophy
- At-Risk Ellipsoid Zone/Photoreceptor Detection
- Image Co-Registration