



# D-EYE

## Smartphone-Based Healthcare System

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## *Our Vision*

We see a world where healthcare monitoring and prevention is available for everyone and everywhere.

## *Our Mission*

Develop smartphone-based platforms to unleash mass screening like never before to improve people's quality of life.

A blurred photograph of a busy city street with many people walking. The image is out of focus, creating a sense of motion and a crowded environment. The background shows various people in different clothing, some carrying bags, and the street surface with white crosswalk lines.

Vision Loss Affects Over  
285 M People Globally

80% is Preventable  
or Curable

Current technology solutions are not well-suited to geographic regions where need is greatest:

- Traditional retinal imaging products (Fundus cameras) are too expensive and bulky and are used only by ophthalmologists
- Less expensive ophthalmoscopes cannot capture or transmit images

## Ophthalmoscope

€ 200–800



## Fundus camera

€ 5k–25k



Optics from  
ophthalmoscope

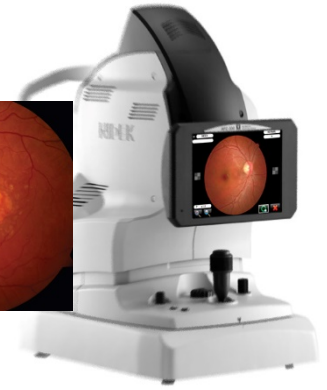


Image Processing from  
Fundus Camera



Connectivity from  
smartphone



# D•EYE

## Smartphone-Based Retinal Imaging System





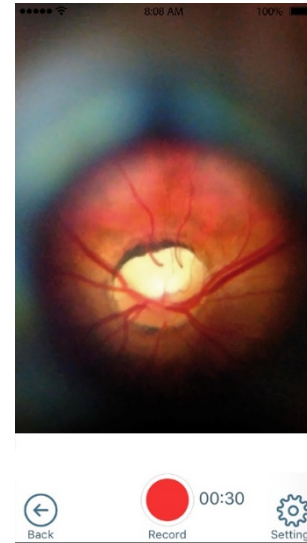
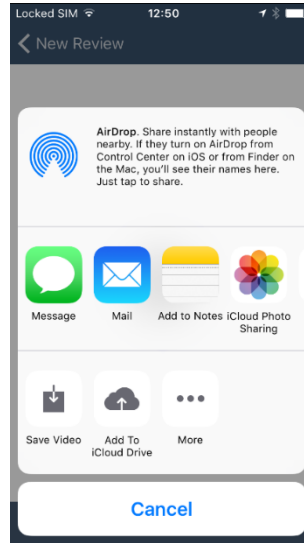
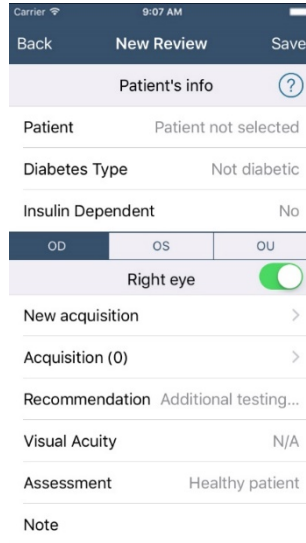
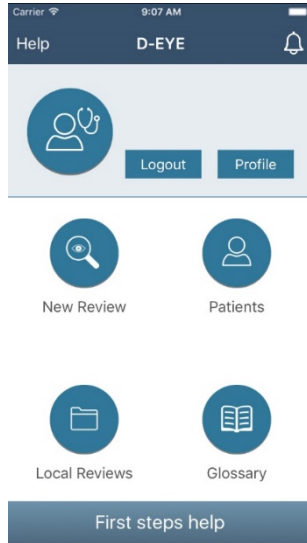
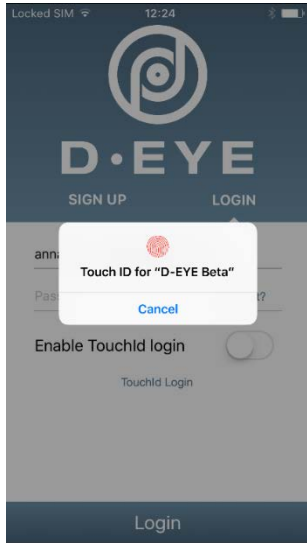


# The D-EYE Retinal Imaging System

D-EYE performs a **direct ophthalmoscopy** for leading causes of blindness including glaucoma, advanced non-proliferative retinopathy and age related macular degeneration. D-EYE can be used with **un-dilated eyes**.

D-EYE is currently being used by **Ophthalmologists, Optometrists, Neurologists, Pediatricians, Endocrinologists, Primary Care and Emergency Medical Physicians, Nurse Practitioners** and any clinician that uses a traditional ophthalmoscope.

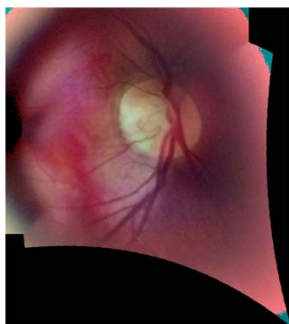
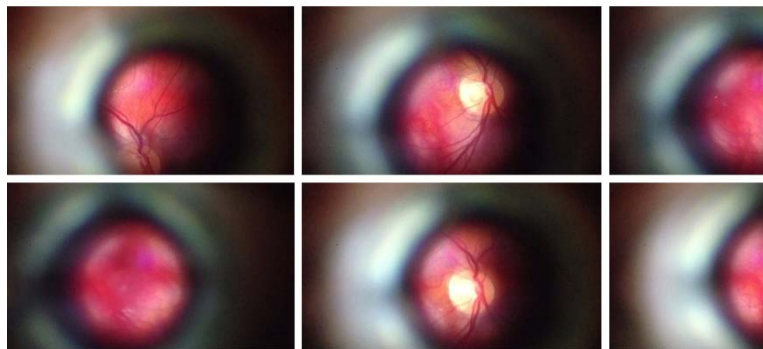
# D-EYE App



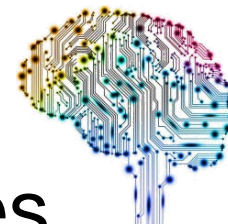


# Image Processing: Stitching

Combine video frames into one image with a wider FOV



## AI: Detection of the main features



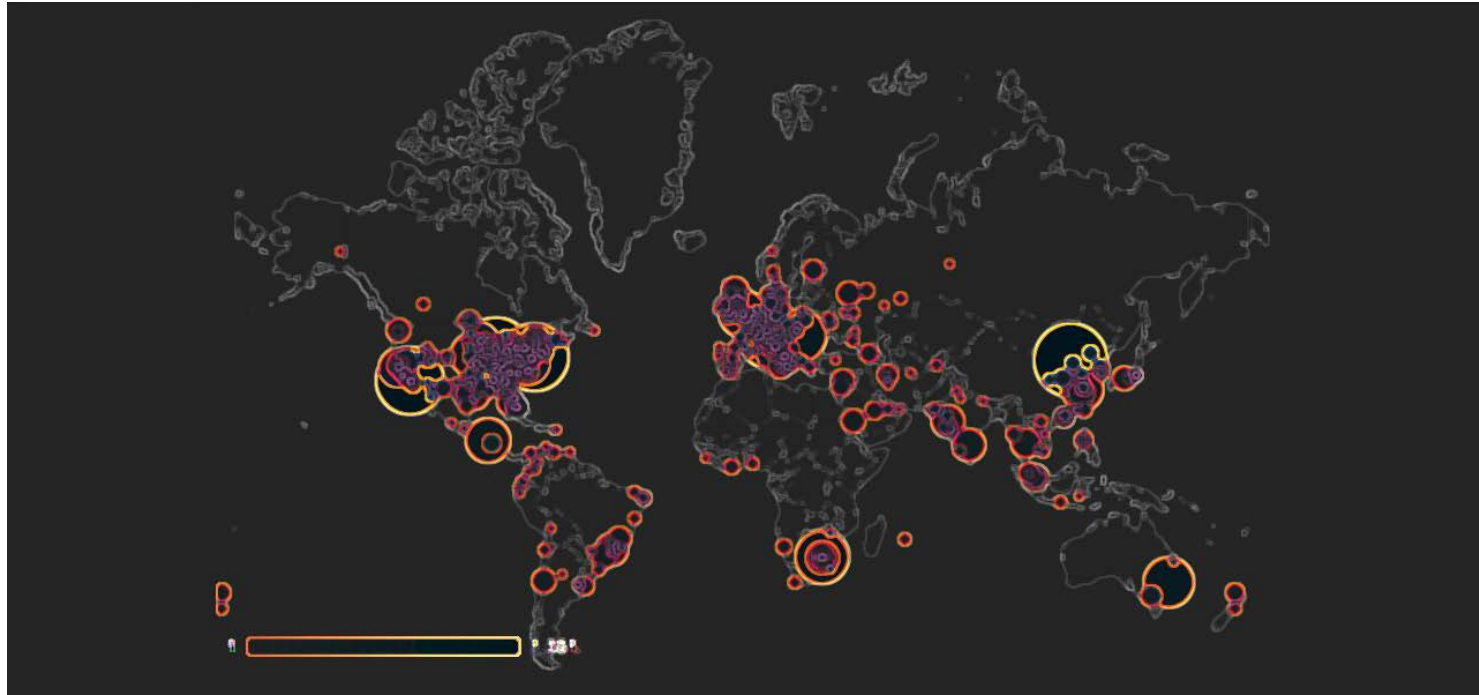
Detection of retina and optic disc with ML algorithms



# Glaucoma Screening

- Screening test of Glaucoma for final users
- The screening is performed outside hospital
- D-EYE provides examination station
- AI algorithms evaluate examination for triage
- Ophthalmologists provide diagnosis

# 60.000 Examinations



# Scientific Papers and Clinical Studies

- **University of Bonn – Nature** - Undilated versus dilated monoscopic smartphone-based fundus photography for optic nerve head evaluation
- **University Eye Hospital Bonn** – Smartphone-Based optic nerve head evaluation
- **University of Pennsylvania** –D-EYE for detection of Optic Nerve Pathology in an Outpatient Clinical
- **University of Nebraska** – Comparison Study using the D-EYE and the direct ophthalmoscope
- **University of Nebraska** - Comparison Study Of Pediatric Patients Using D-Eye And Indirect Ophthalmoscopic
- **UC San Diego** - The Comparison Of Smartphone vs. direct Ophthalmoscopy as a teaching tool
- **University of Nebraska** - Smartphone device could revolutionize ophthalmology teaching
- **Rochester Institute of Technology** – Cell Phone Retinal Imaging
- **Ross Eye Institute** - D-EYE in the pediatric population with telemedicine potential
- **University of Brescia** - Comparison of D-EYE versus Dilated Ophthalmic Examination
- **Journal of Hypertension, University of Brescia** - Fundus Photography with D-EYE In Acute Hypertension
- **University of Brescia** - Comparison of D-EYE with Slit-Lamp for Grading Diabetic Retinopathy
- **Journal of Ophthalmology, University of Brescia** - A New Device for Fundus exam
- **Wake Forest School of Medicine** – D-EYE for funduscopy examination: a promising Teaching tool
- **University of Manchester** - Ease of use and vertical cup-to-disc ratio agreement
- **Newcastle University** - Assessing the validity of D-EYE alternative to the direct ophthalmoscope





D·EYE

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