

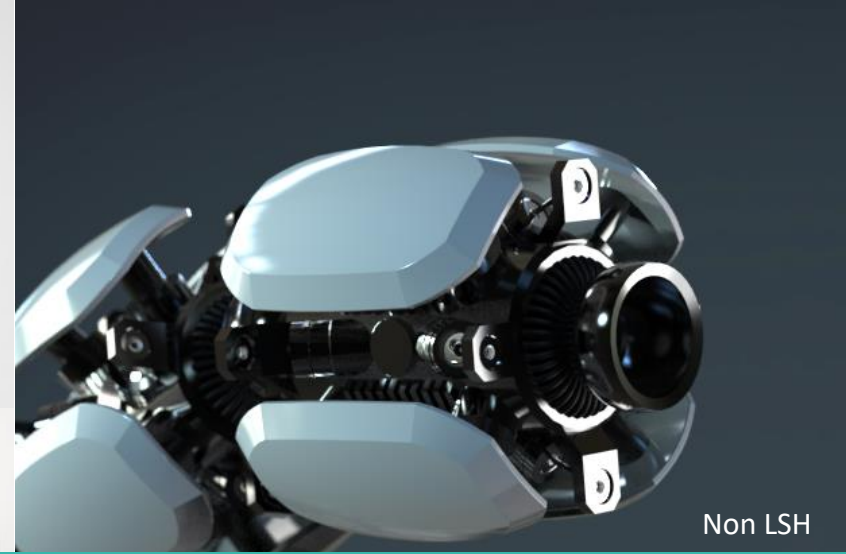
A man in a suit looking forward, with a satellite in the background.

imagine
tomorrow.
challenge
today.



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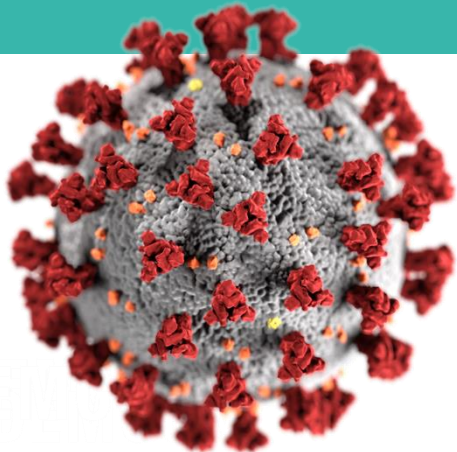
Non LSH

live sciences & health.

We work on medical solutions to social challenges in the area of life sciences & health, amongst others. We do this by developing, manufacturing and supplying high quality technology and innovative products.

Demcon is a high-end technology system supplier. Supporting the customer from initial idea and concept, to prototyping, industrialization and (series) production with all relevant competences on board.

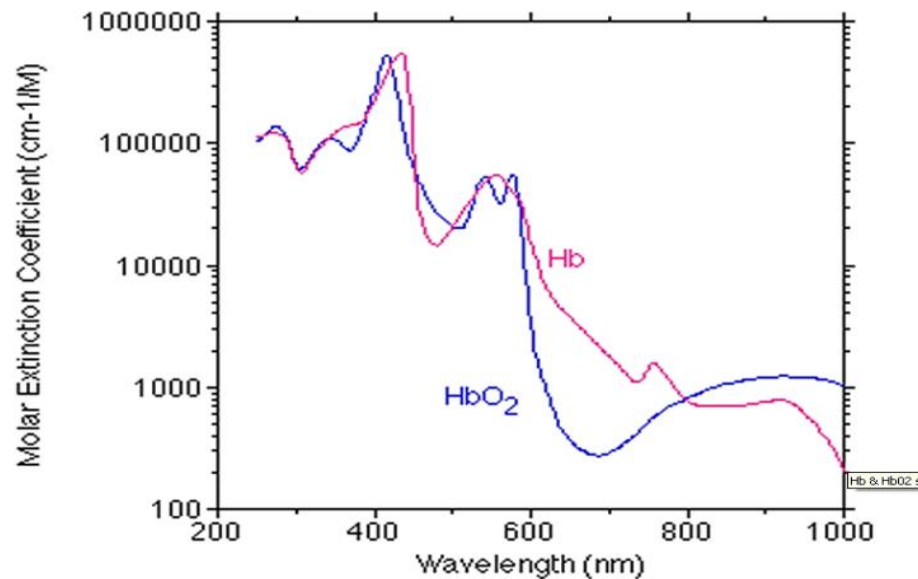
Founded in 1993 | 800+ employees | ISO13485



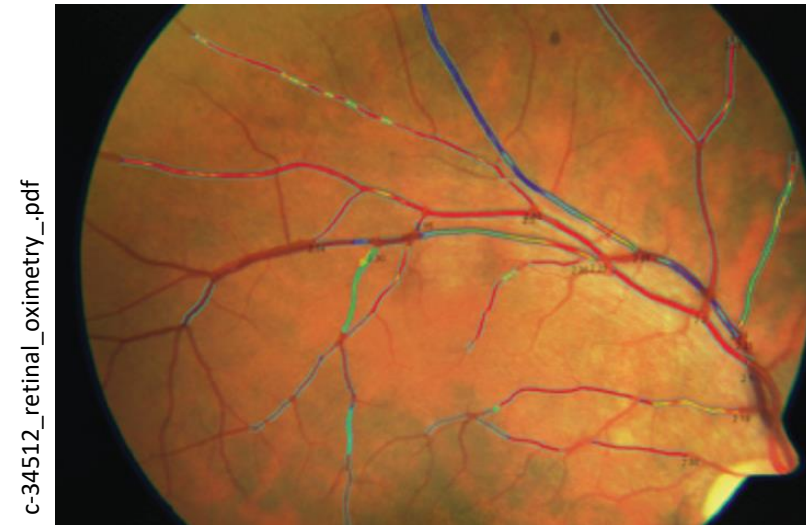
Corimap

Compact Oximetry Retinal Imager for Prematures

- Measurements of the oxygen concentration in the blood vessels of the retina has the potential to provide valuable information for the diagnosis of various eye diseases *

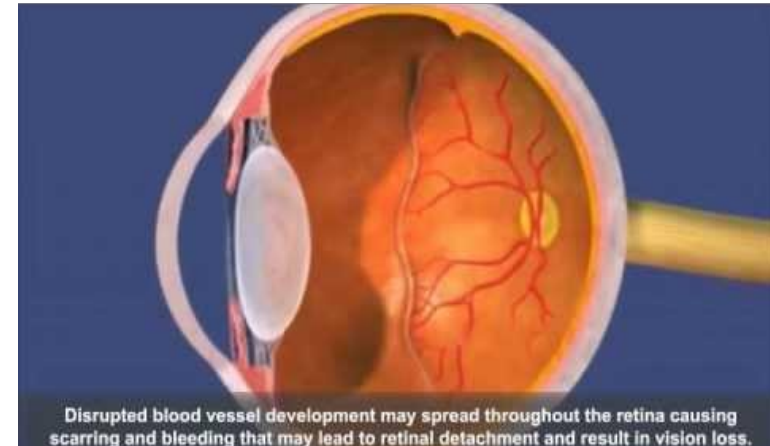


Pseudo-colour map of retinal vessels displaying oxygen saturation (SO₂)



Corimap

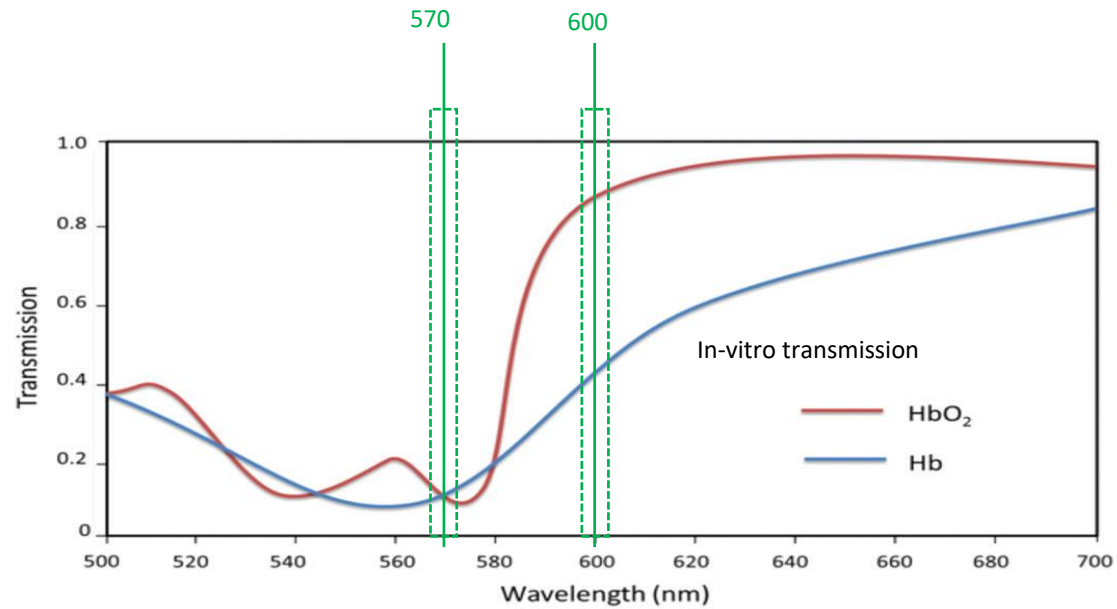
- Retinopathy of Prematurity (ROP) is a disease of the eye of prematurely born babies
- Clinical study @ LUMC*: *Measurement of oxygen concentration might result into earlier intervention and better adjustment of ROP treatment*



Goal for DEMCON Focal:
Design and develop a handheld dual spectrum fundus camera for measuring oxygen metabolism in premature born baby eyes

Corimap

Dual spectrum fundus camera



Retina @ 570 nm

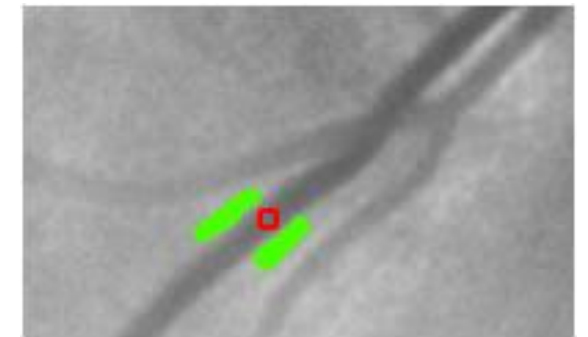


λ_1 : Isobestic: Reflectance of blood vessel does not depend on SO₂

Retina @ 600 nm



λ_2 : Non-isobestic
Reflectance of blood vessel depends strongly on SO₂

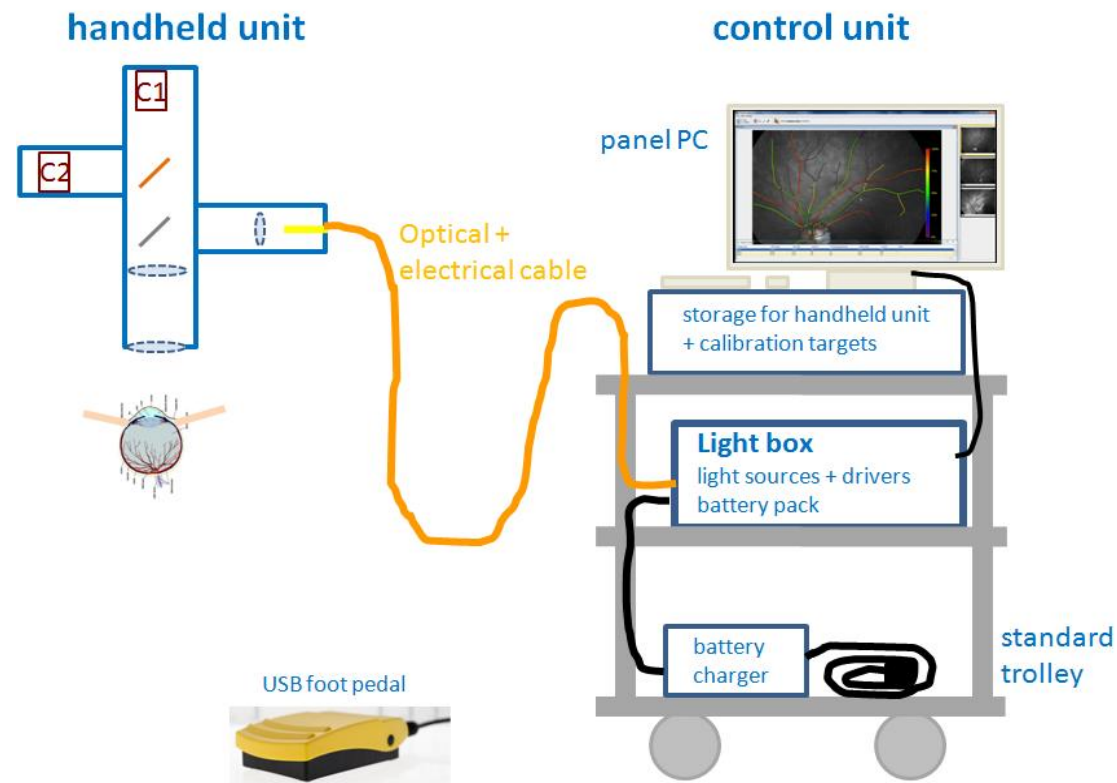


Reflected light from location on vessel normalized by light reflected from area surrounding vessel

Corimap

Dual spectrum handheld fundus camera system

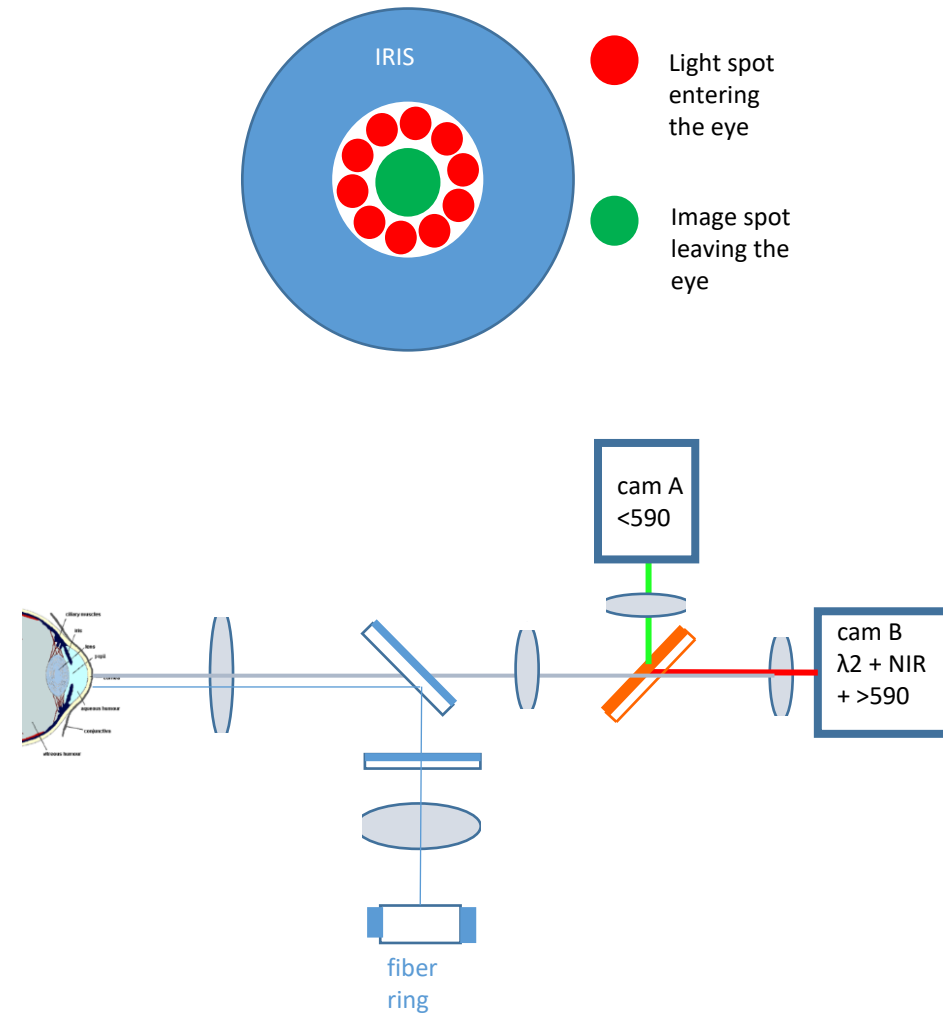
- Concept



Corimap

Corimapper: Handheld fundus camera

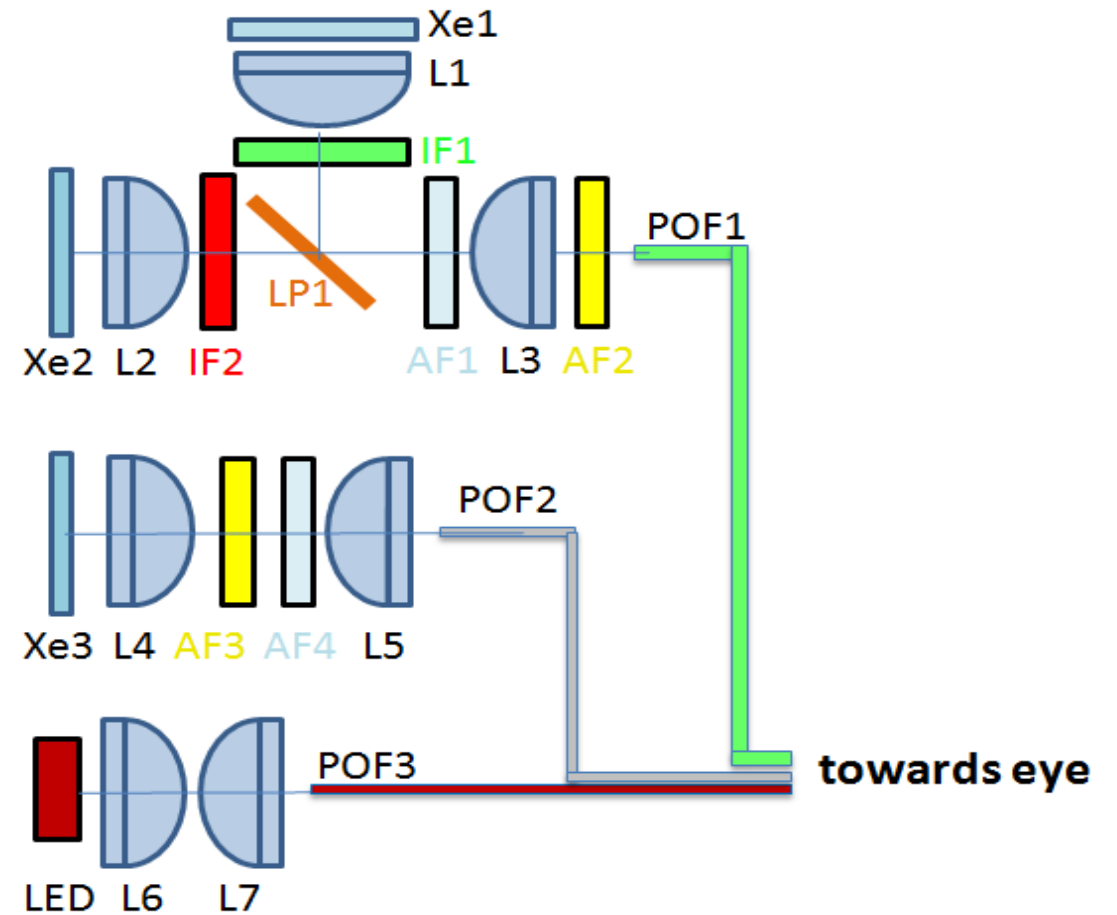
- Illumination is based on fiber ring illumination
- Imaging is based on cross-polarisation and dichroic filter



Corimap Lightbox

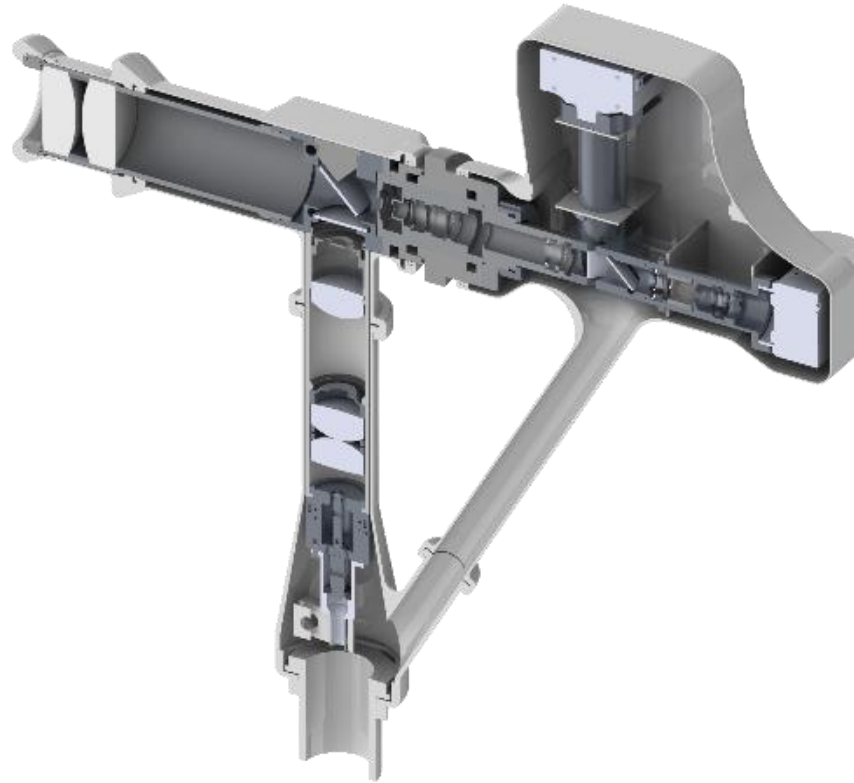
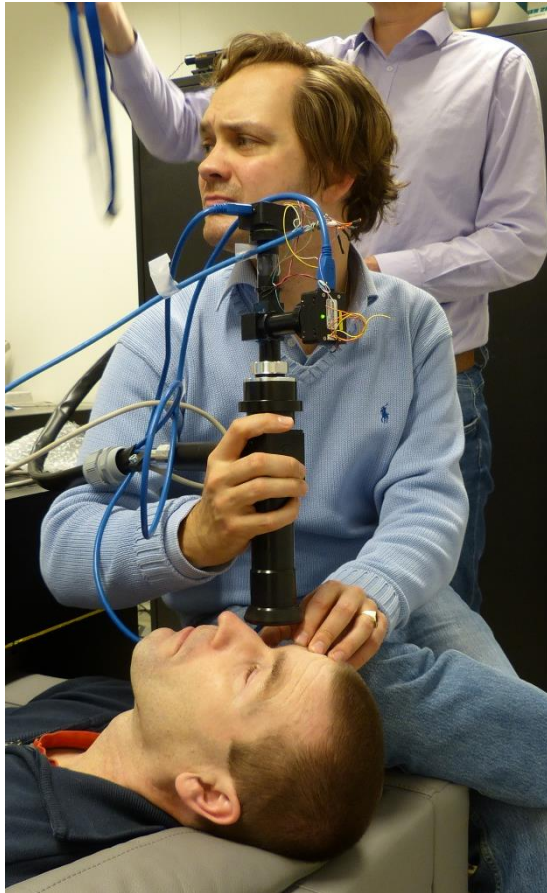
Concept

- Lightsoure: Xe-flash tube
- Multiplexing 570 & 600 nm, NIR
- Fiber bundle



Corimap

Handheld fundus camera



Corimap

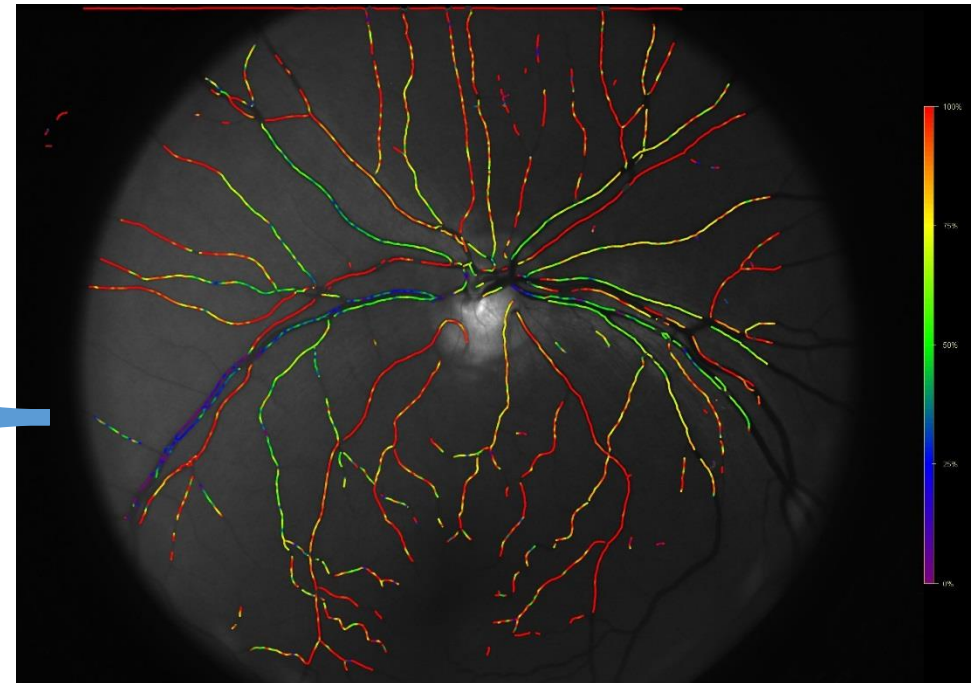
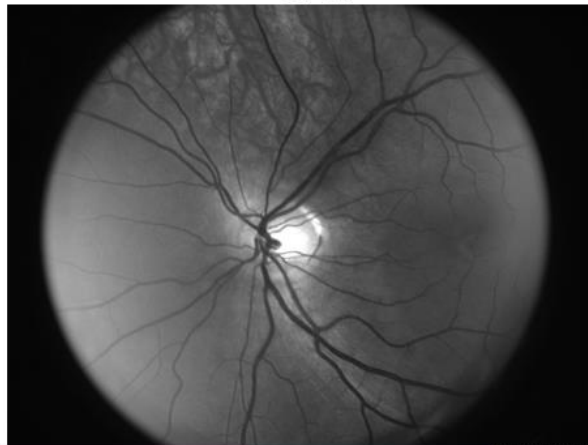
Results



Retina @ 570 nm



Retina @ 600 nm



Oxymap

Dataprocessing and
modelling