A microscopic image of neural tissue, likely a retinal section, showing a dense network of yellow-stained axons and blue-stained nuclei. The axons are arranged in a fan-like pattern, radiating from a central point on the left. The blue-stained nuclei are scattered throughout the tissue, interspersed among the yellow axons.

ALPAO

Leading the light

VISION SCIENCE

More than meets the eye

Imagine being able to see beyond the limitations of the human sight, to witness every detail with unmatched clarity. This is what Adaptive Optics allows to do.

This breakthrough technology revolutionized vision research and ophthalmology research. It corrects optical aberrations caused by the eye. It has drastically improved the capacity to study the eye, as well as the accuracy of laser surgery and the capacity to detect diseases.

AO-FIO

Flood Illumination
Ophthalmoscopy

High temporal resolution

Large field of view

High pixel rate

Low distortion

AO-SLO

Scanning Laser
Ophthalmoscopy

Axial sectioning of the retina

High lateral spatial resolution

High contrast

Disease diagnosis

AO-OCT

Optical Coherence
Tomography

Cross-sectional imaging

Improved lateral resolution

Reduced speckle size

Disease diagnosis

AO-LSO

Line Scanning
Ophthalmoscopy

Reduced system complexity

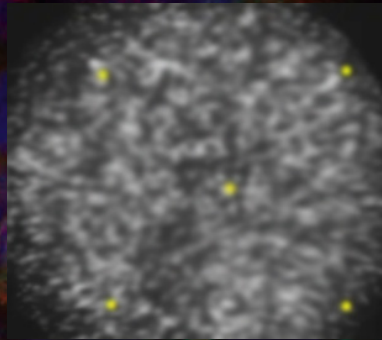
Moderate field of view

High frame rate

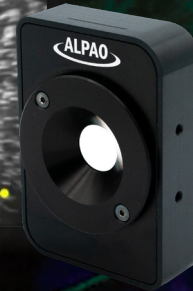
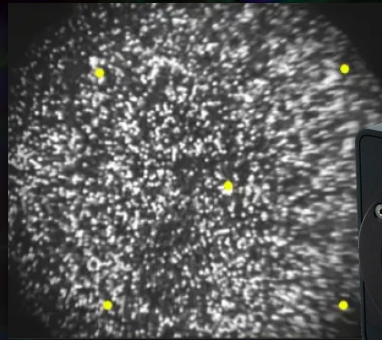
Disease diagnosis

“I believe that Adaptive Optics in retinal imaging will be a game changer. There are currently a multitude of research instruments globally and we have been on this line of research for a long time. It began with only a few labs which had the possibility and knowledge to use Adaptive Optics and now it is spread.”

Zoran Popovic, Senior Optical Engineer at Profundus



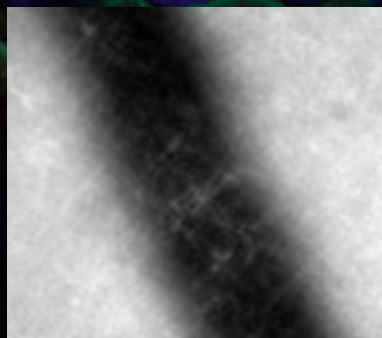
Credits: Zoran Popovic, Lund University



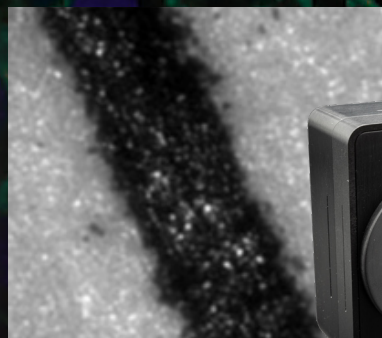
DM 97-15

“Adaptive Optics scanning ophthalmoscopy has become an effective imaging technique for observing microscale structural and functional changes in the retina, facilitating the identification of diseases that cause irreversible blindness and allowing the evaluation of novel treatments”

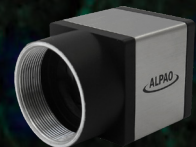
Dr. Vyas Akondi, Assistant Professor at IISER Berhampur



Credits: Phillip Bedggood, University of Melbourne



DM 97-08



SH-CMOS

ALPAO Vision Science related products

Deformable Mirrors

DM 57-15
DM 69-15
DM 97-08 HS/LS*
DM 97-15 HS/LS*

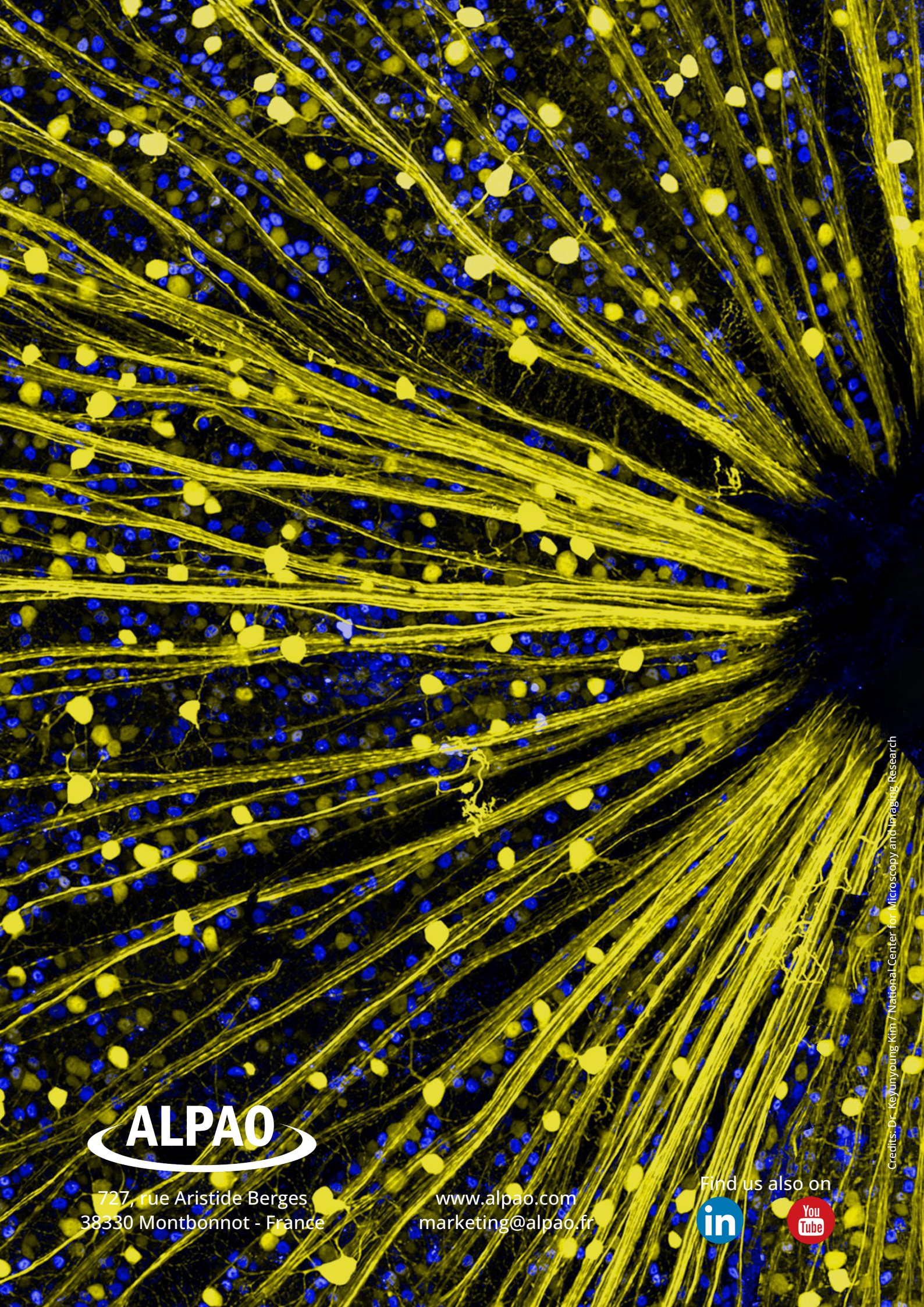
Shack-Hartmann Wavefront Sensors

SH-CMOS

Software Control

ALPAO Core Engine

*Options: HS - High Stability / LS - Large Stroke



Credits: Dr. Keyunyoung Kim / National Center for Microscopy and Imaging Research

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