« SÉMINAIRE NATIONAL IMAGERIE OPTIQUE *IN VIVO* »

17 & 18 SEPTEMBRE 2015 – AVIESAN (PARIS)

APPEL À MANIFESTATION D'INTÉRÊT

OFFRE DE SERVICES

medicen PARIS REGION | innovation for health

France Life Imaging

Imagine Optic & Imagine Eyes

Grégory Clouvel

R&D Engineer

2. Imagine key points

imagine optic™

History and statistics:

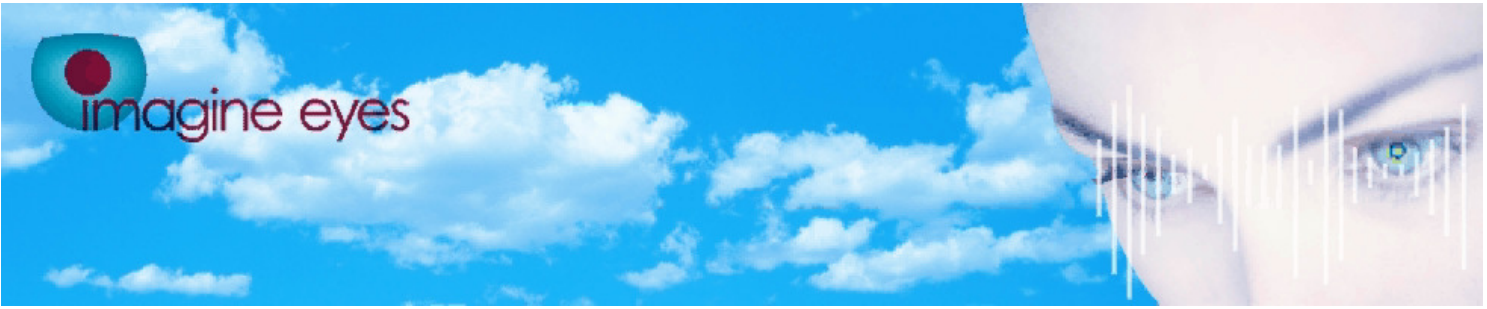
Founded in December 1996,
By Samuel Bucourt and Xavier Levecq

ISO 9001:2008 Certified

Optical Metrology Applications

Adaptive Optics for Laser Beam Control

Adaptive Optics Solutions for Microscopy



imagine eyes

2003 founded sister company

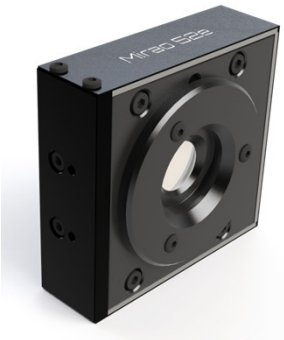
Ophthalmic applications

ISO9001 & ISO13485 Certified

2. Adaptive Optics « kit » for 2PEF microscopy

Mirao 52E

Continuous membrane deformable mirror



52 actuators
15mm diameter
Largest dynamic : ±50 µm PV
Best Open Loop stability technique

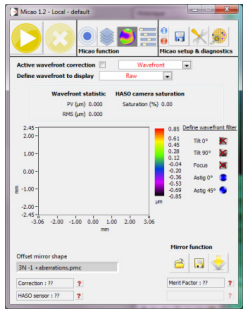
Haso 4 First

Wavefront Sensor

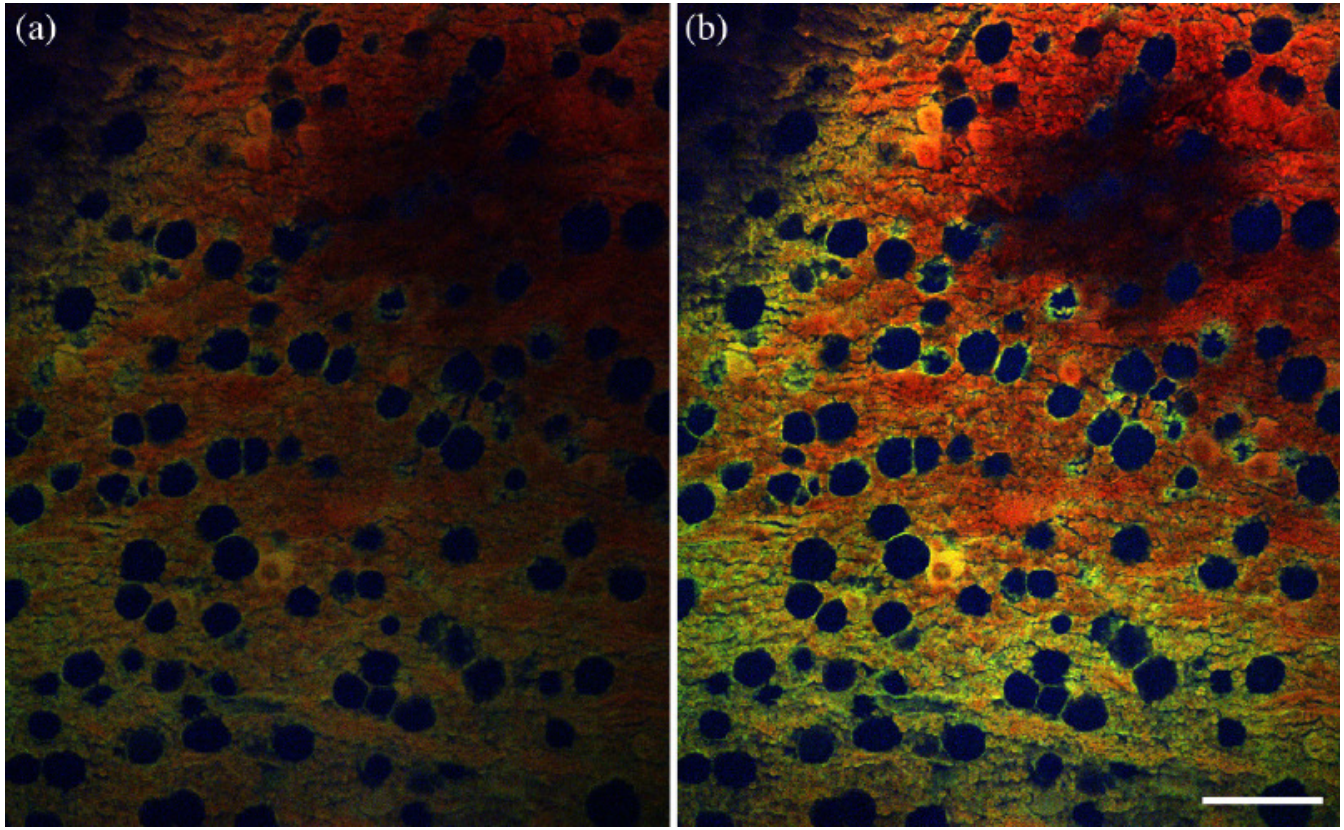
λ/100 accuracy
Designed for quick MirAO 52e calibration
Visible wavelength range

WaveBio Software

All in one AO algorithms for microscopy



Fish Bone structure - “Two photon” image



Uncorrected Corrected with adaptive optics

Facomprez et al (2012) “Correction accuracy in image-based adaptive optics for nonlinear microscopy” , *SPIE Proc.*, **8227**, 822709-1

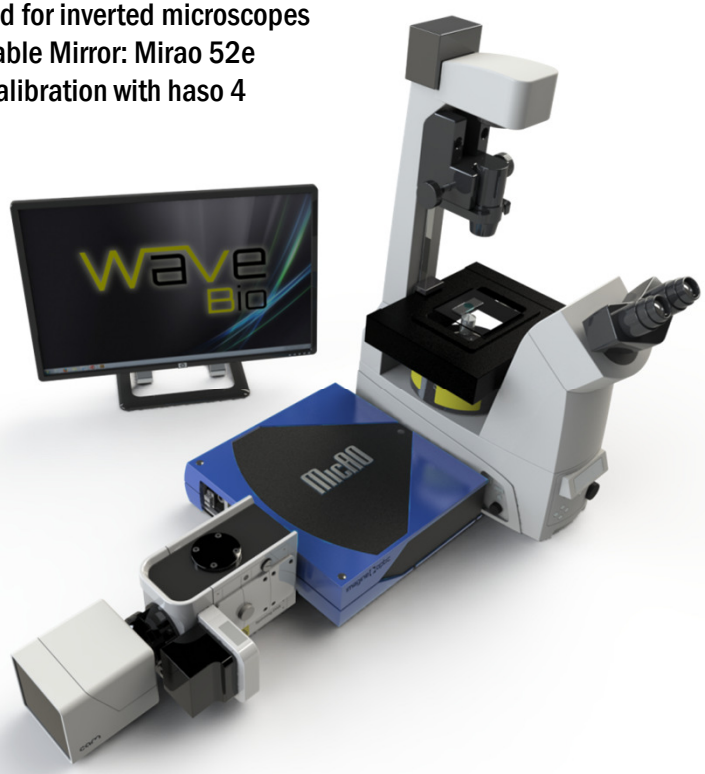
Enhance the Signal
Improve the resolution

2. Adaptive Optics accessory For Spinning Disk microscopes

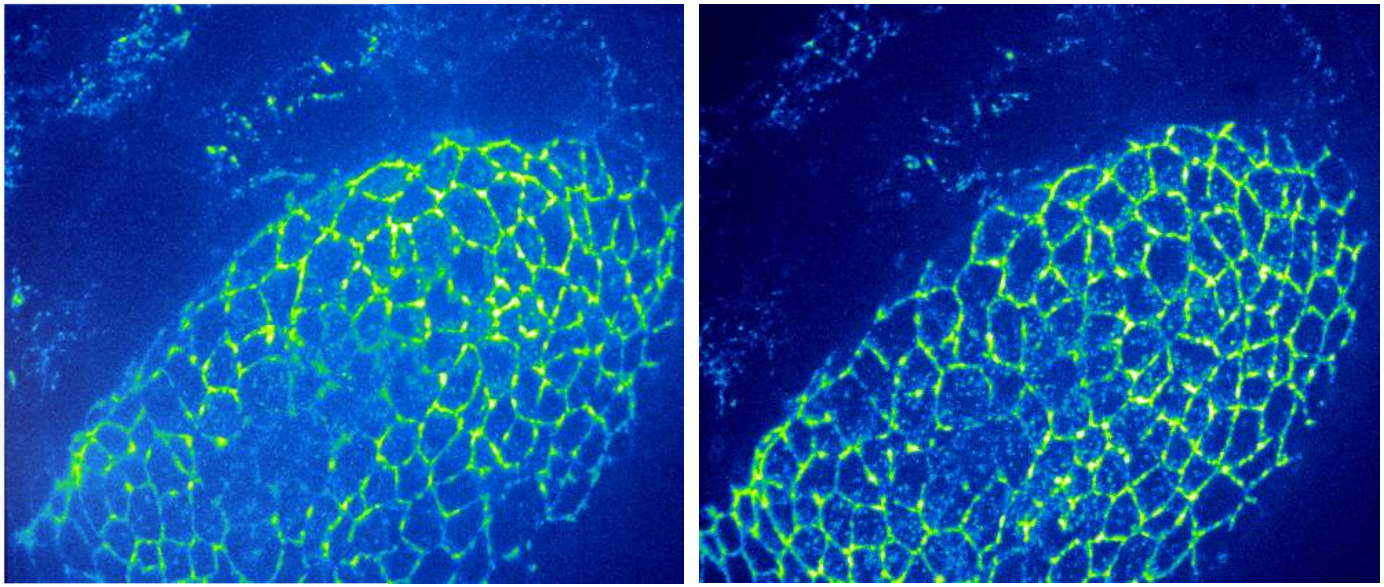
MicAO SD

Adaptive Optics solution

Designed for inverted microscopes
Deformable Mirror: Mirao 52e
mirror calibration with haso 4



Ex vivo Drosophila Brain - Spinning Disk image



Courtesy of Fraisier, unpublished data

Uncorrected Corrected with adaptive optics

Easy implementation

Direct correction using model
Integrated with usual microscope softwares

Better Signal to Noise ratio

Less excitation power on the sample

2. *In vivo* Retinal Imaging With Cellular resolution

rtx1

Adaptive Optics retinal camera

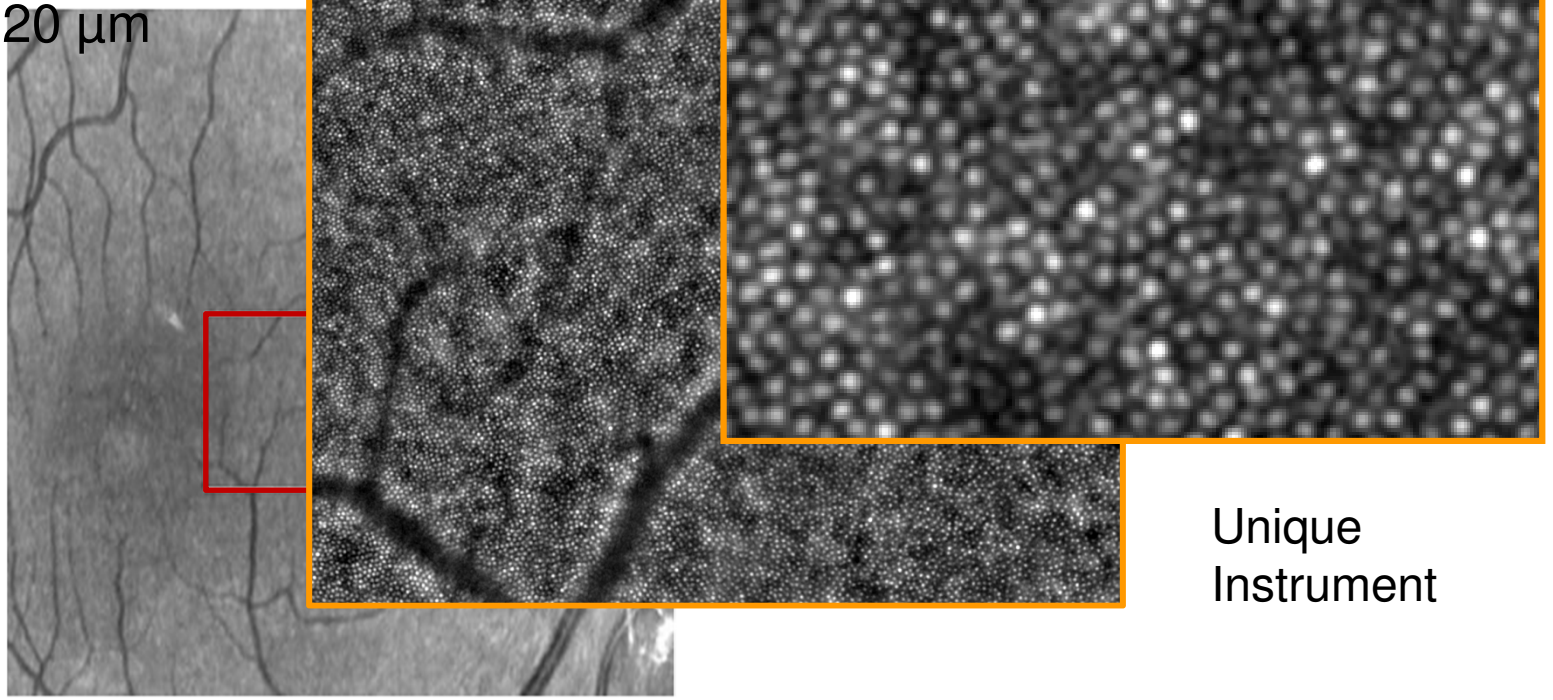
In vivo Cellular imaging

2 um x,y resolution

SLO resolution
20 µm

rtx1 resolution
2 µm

cells are visible



Unique Instrument

Images: courtesy of Gocho, Kameya et al., Nippon Medical School Hokusoh Hospital, Chiba, Japan

2. *In vivo* Arteriolar Live Imaging

rtx1

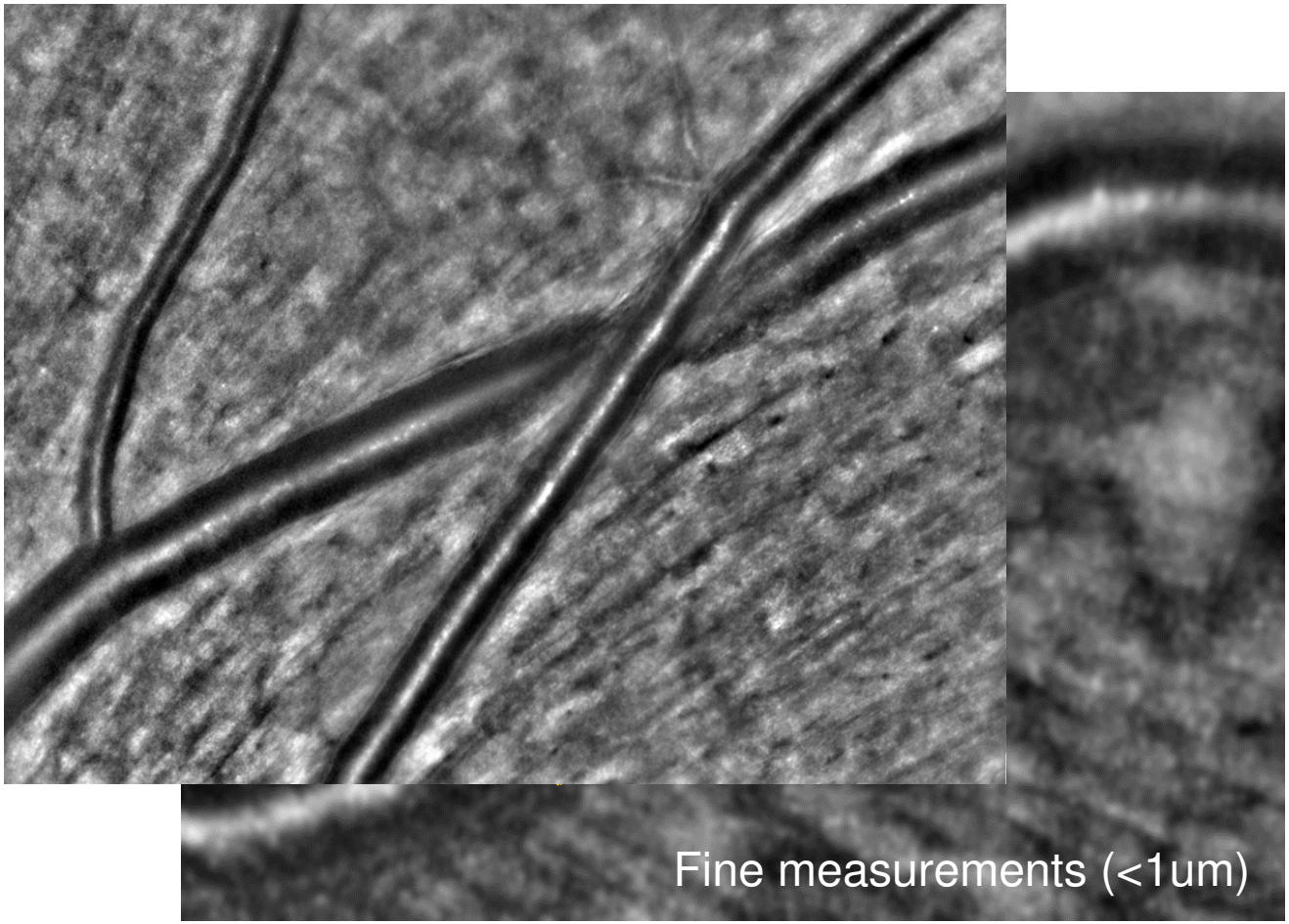
Adaptive Optics retinal camera

Macro-vascular

Non invasive

Live Imaging

Arteriolar walls are visible



Non Invasive Diagnosis on Smaller Bio-probes is possible

High Blood Pressure

Cerebro Vascular Accident

3. CONTACT

+33 (0)1 64 86 15 60

contact@imagine-optic.com

+33 (0)164 86 15 66

contact@imagine-eyes.com

18 rue Charles de Gaulle
91400 Orsay