Imaris

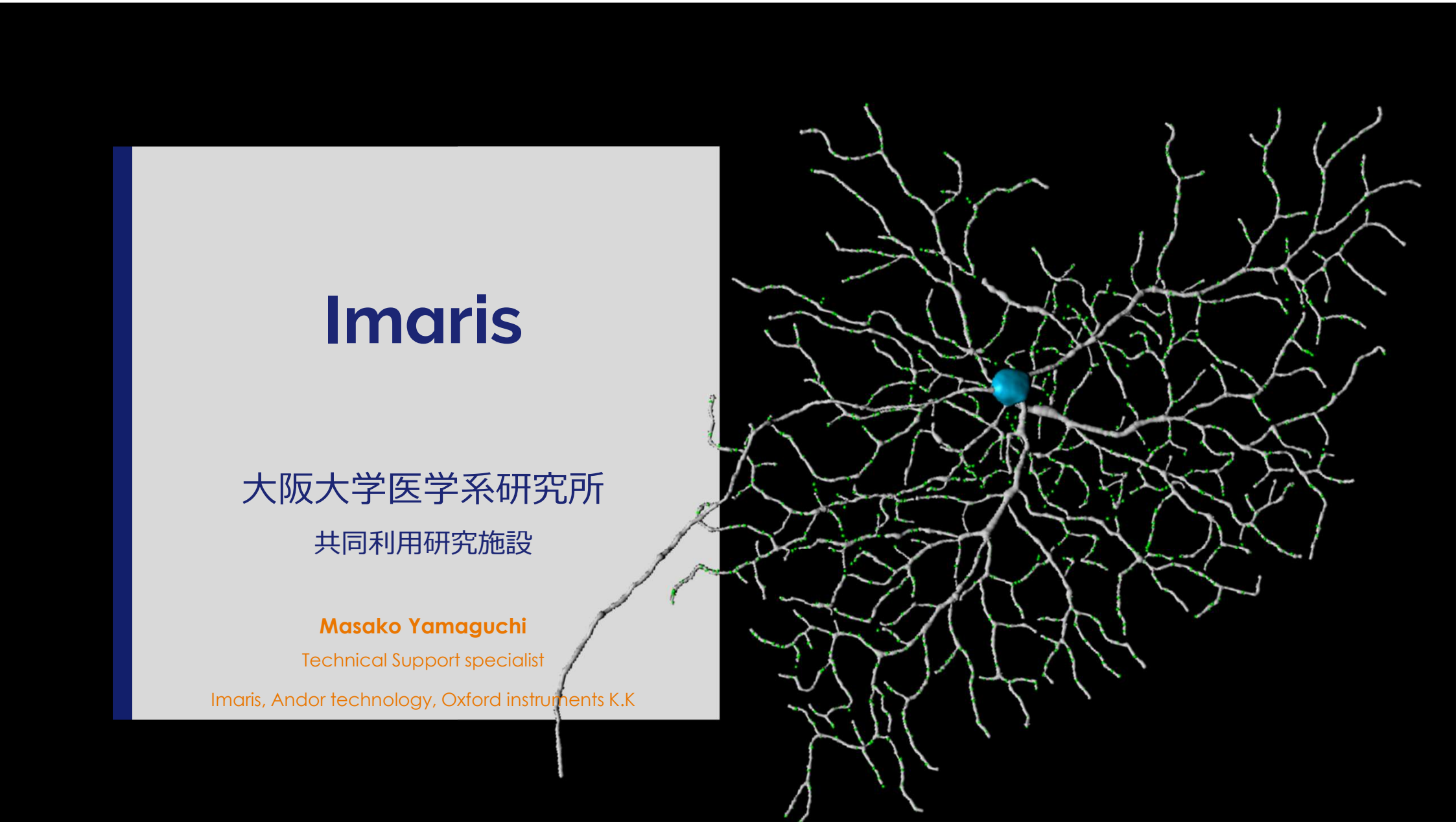
大阪大学医学系研究所

共同利用研究施設

Masako Yamaguchi

Technical Support specialist

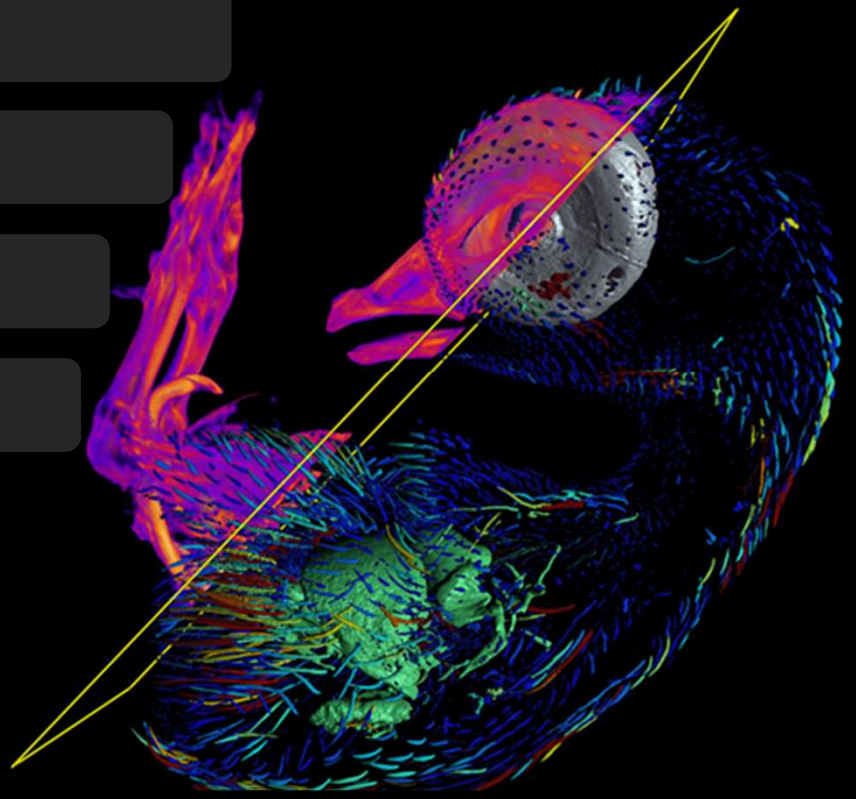
Imaris, Andor technology, Oxford instruments K.K



IMARIS

OXFORD INSTRUMENTS | IMARIS

- Summary
- Difference between before and NOW
- Hands on
- NEW functions - Batch and XT -



Import

Prepare — Visualize — Detect — Analyze

Image formats and sizes

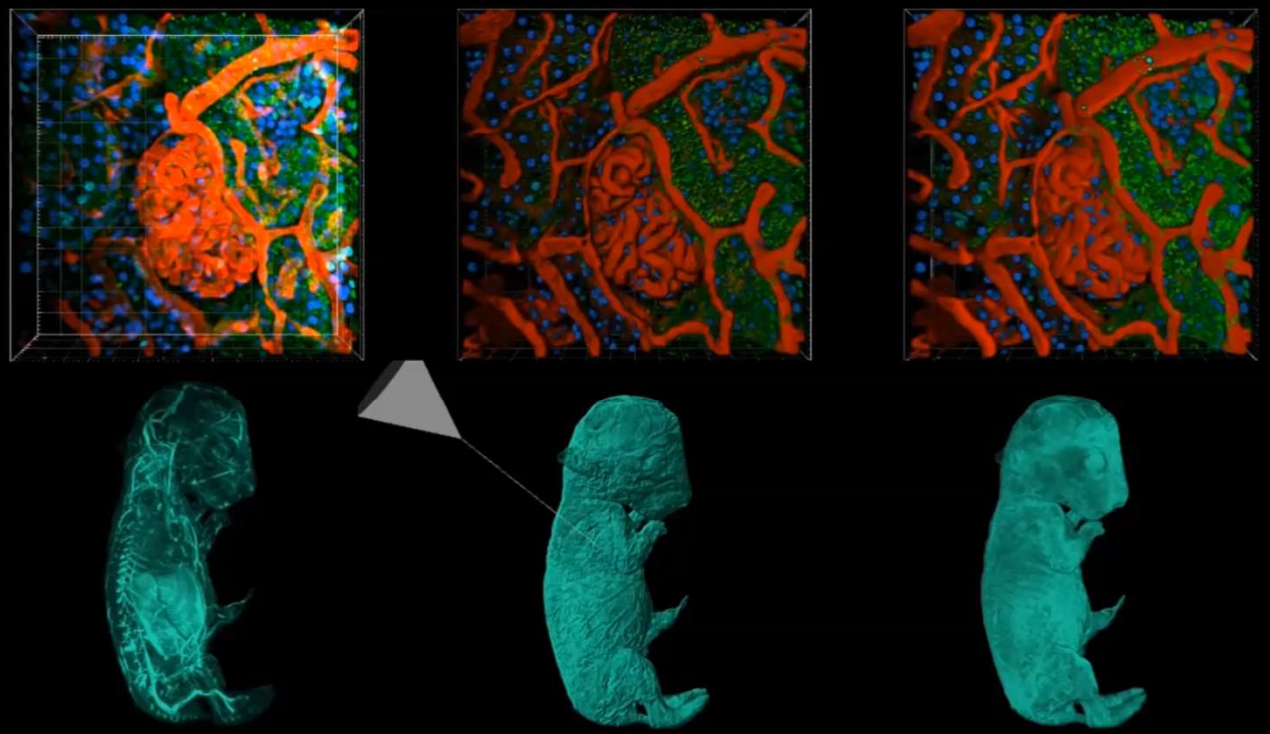
ImarisFileConverter

Developing Zebrafish Embryo: 1.05TB tiff => 291GB .ims
Courtesy of K. McDole, HHMI Jamelia Farm research Campus,
Ref: Amat et al. 2014,Nature Methods

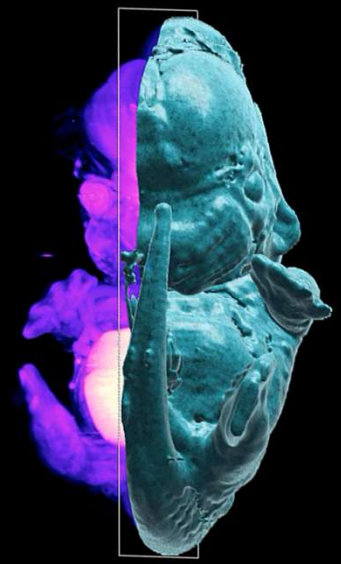
OXFORD INSTRUMENTS | IMARIS

Import | Prepare | **Visualize** | Detect | Analyze | Customize

Rendering



Tools



OXFORD INSTRUMENTS | IMARIS

Import | Prepare | Visualize | **Detect** | Analyze | Customize

Spots

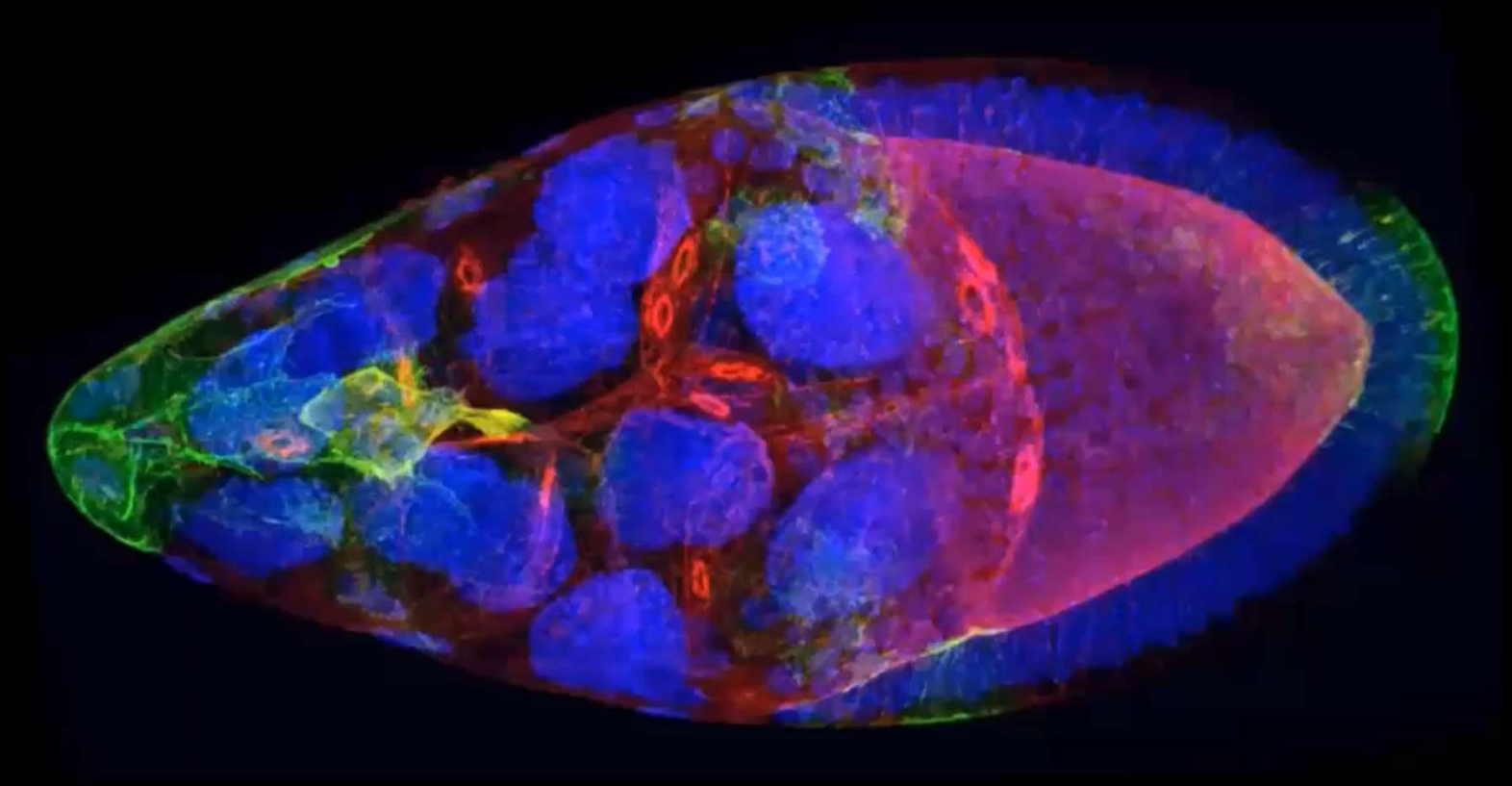
– Source

Drosophila Embryo: Embryology course at Woods Hole, Marine Biological Lab, Mass, USA.

OXFORD INSTRUMENTS | IMARIS

Import | Prepare | Visualize | Detect | Analyze | Customize

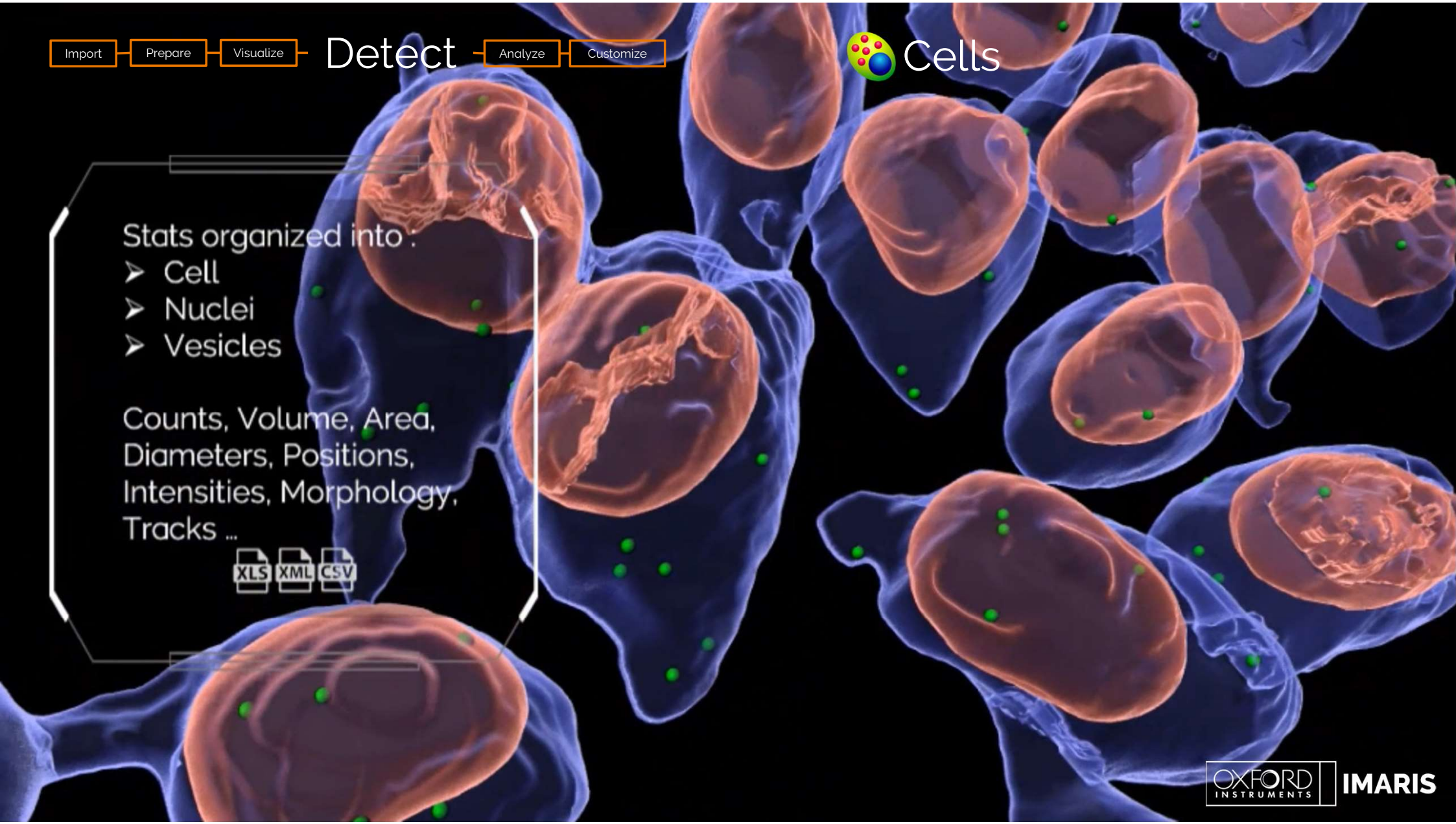
Surfaces



Source

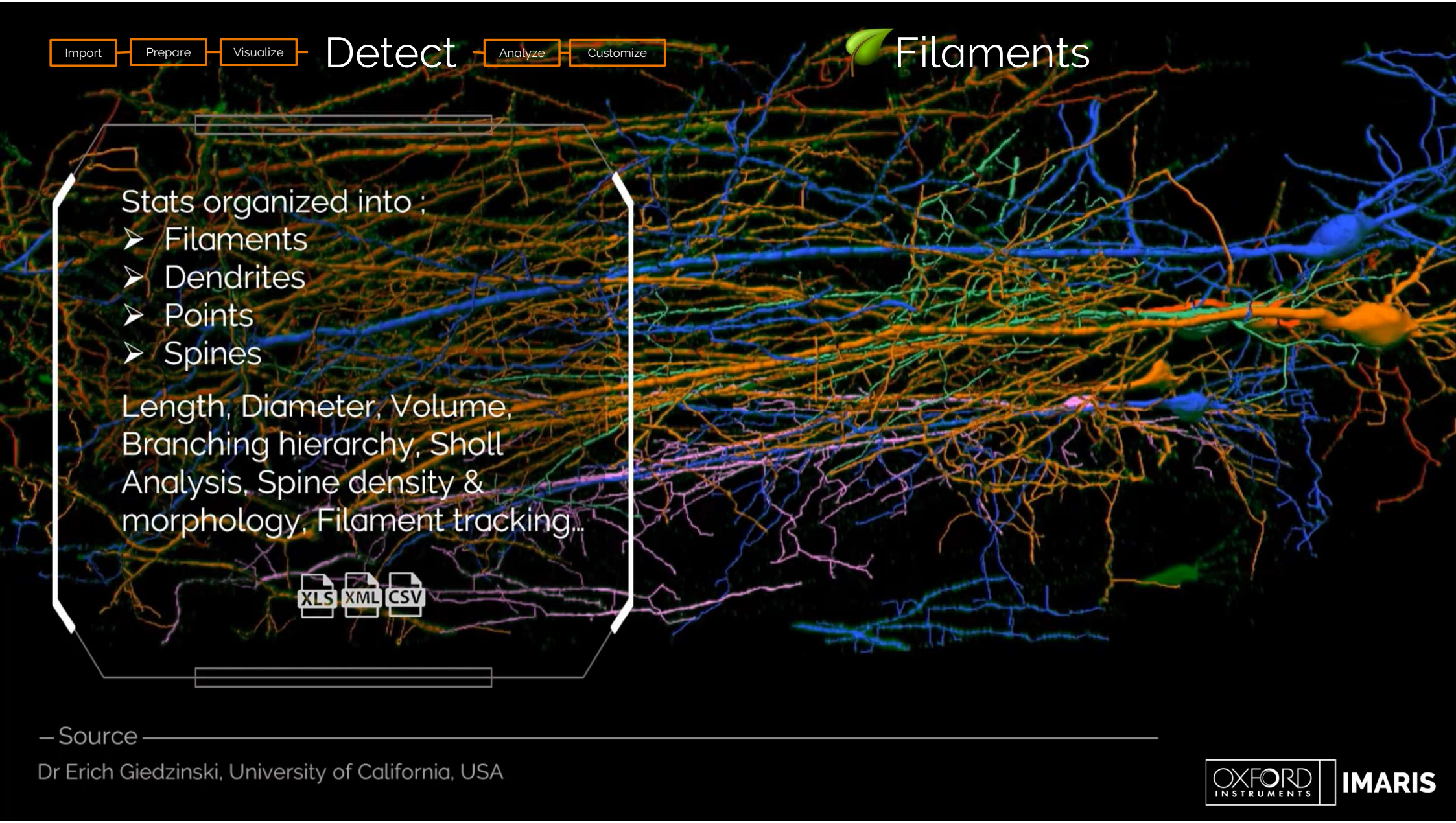
Wei. Dai, Montell's lab, Department of Molecular, Cellular and Developmental Biology, UCSB

OXFORD INSTRUMENTS | IMARIS


Import
Prepare
Visualize
Detect
Analyze
Customize
Cells
Stats organized into :
Cell
Nuclei
Vesicles
Counts, Volume, Area,
Diameters, Positions,
Intensities, Morphology,
Tracks ...
XLS
XML
CSV
OXFORD INSTRUMENTS
IMARIS

Import | Prepare | Visualize | **Detect** | Analyze | Customize

Filaments



Stats organized into ;

- Filaments
- Dendrites
- Points
- Spines

Length, Diameter, Volume, Branching hierarchy, Sholl Analysis, Spine density & morphology, Filament tracking...

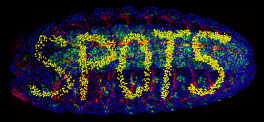
XLS XML CSV

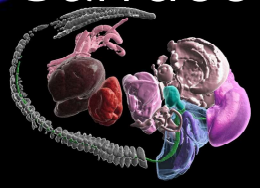
— Source

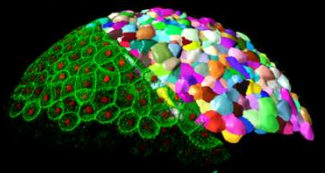
Dr Erich Giedzinski, University of California, USA

OXFORD INSTRUMENTS | IMARIS

Import | Prepare | Visualize | **Detect** | Analyze | Customize





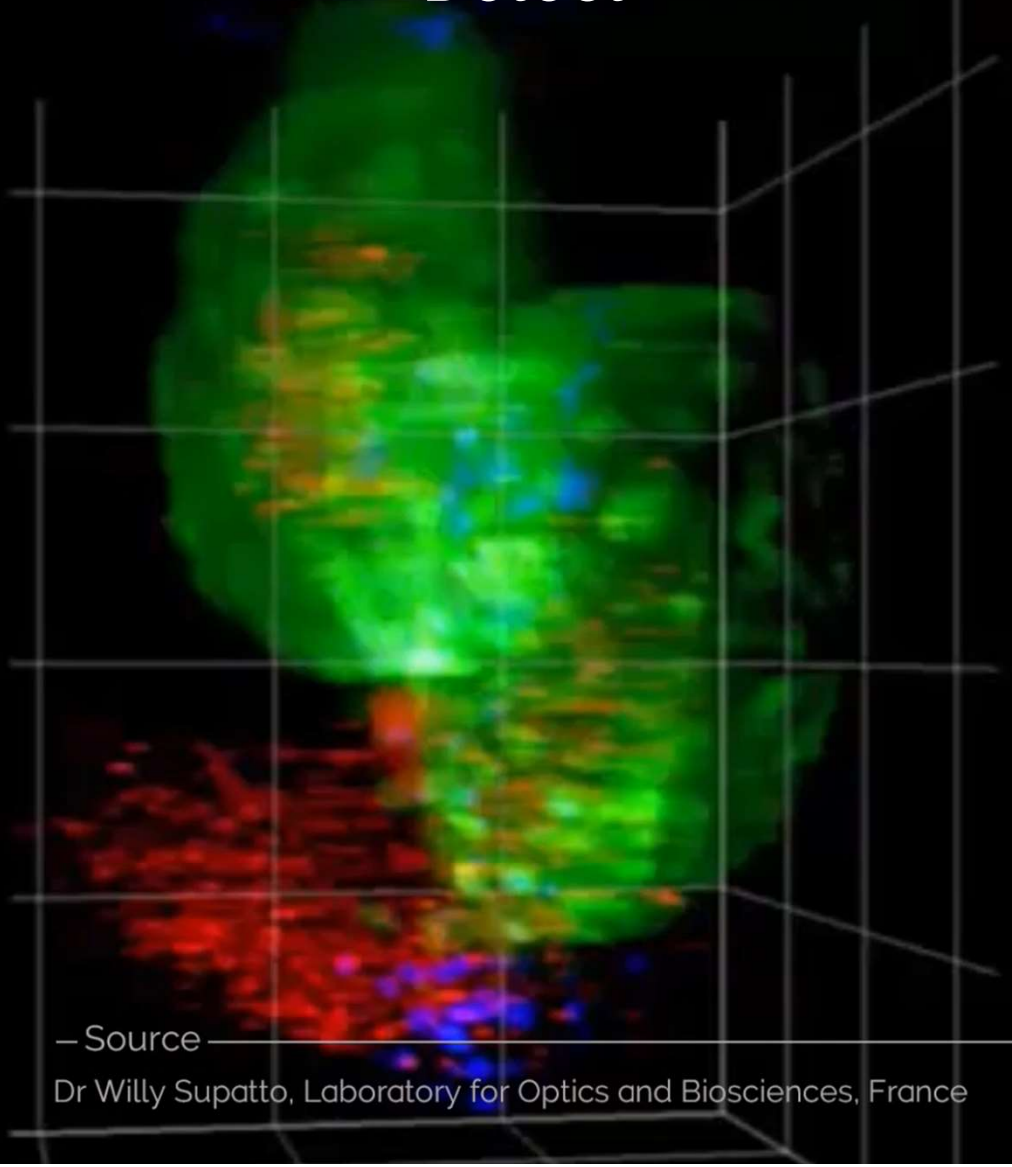


	Spots	Surfaces	Cells	Filaments
Intensity …	✓	✓	✓	X
Counts, Positions	✓	✓	✓	✓
Diameters	✓	X	✓	✓
Volume, Area & Morphology	X Est. Volume	✓	✓	X Est. Volume
Intracellular Component Analysis: Num. Vesicles / Cell&Nucleus Num. Nuclei / Cell	X	X	✓	X
Membrane Staining	X	X	✓	X
Network Complexity: Lengths, Branches, Scholl, Straigntness, Orientation, Spines …	X	X	X	✓

OXFORD INSTRUMENTS | IMARIS

Import | Prepare | Visualize | Detect | Analyze | Customize

Tracking



- Spot properties over time: Diameter, Intensity, Volume, Position, Speed, Acceleration …
- Track poperties: Length, Duration, Straightness

XLS XML CSV

– Source

Dr Willy Supatto, Laboratory for Optics and Biosciences, France

OXFORD INSTRUMENTS | IMARIS

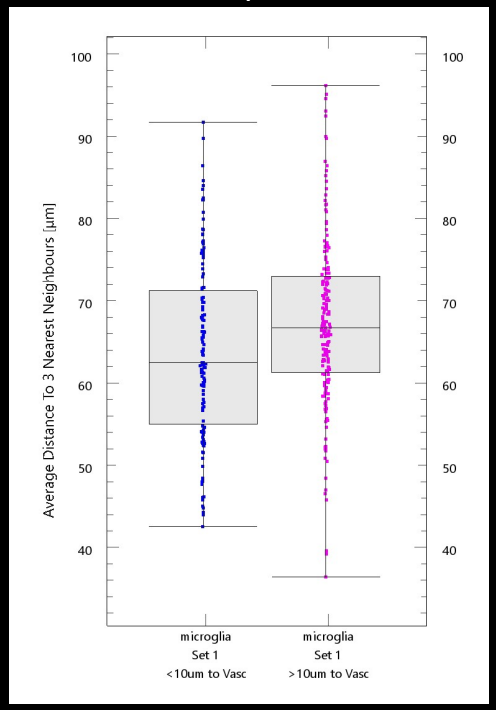
Import | Prepare | Visualize | Detect

Analyze

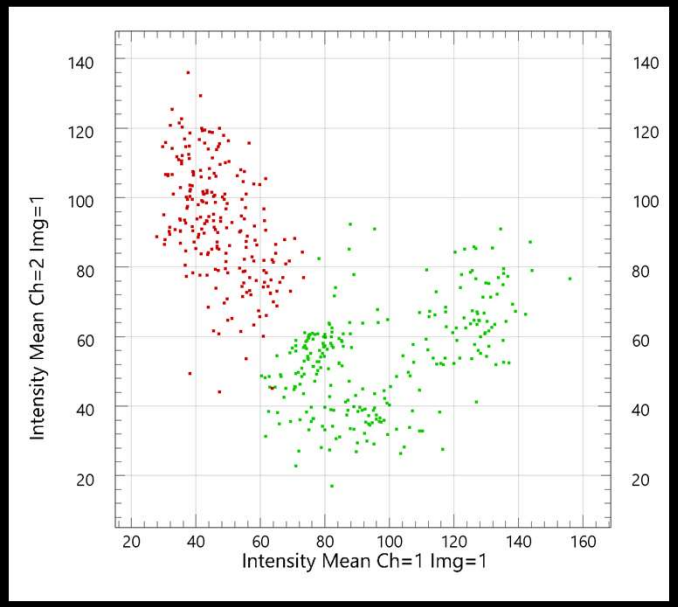
Customize

Vantage

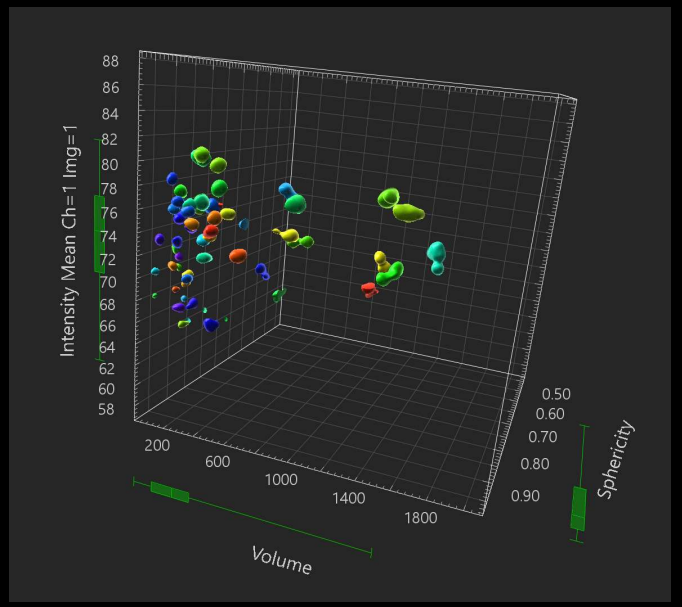
1D plot



2D plot



Object view



OXFORD INSTRUMENTS | IMARIS

Release Notes

v9.3 -> 9.8

Imaris 9.5 (2019 October 17)
- Native Distance Statistics for Surfaces and Spots
- Native Distance Statistics in Batch Processing
- Realistic Rendering of Surfaces
- New Color Tabs

Imaris 9.6 (2020 July 21)
- Classification Step in Creation Wizards of Spots and Surfaces
- New Statistics Values
- Vantage 1D Comparison of Labels

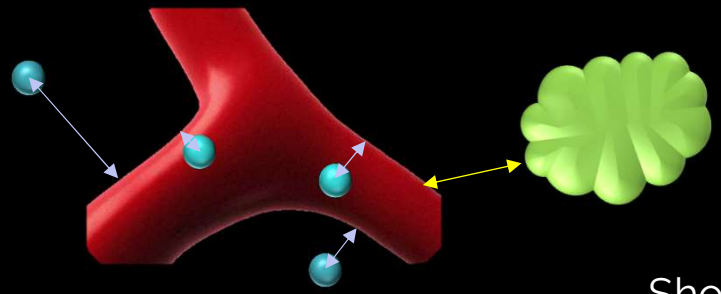
Imaris 9.7 (2021 Feb 09)
- Vantage Time Plots
- Surfaces Overlap Statistics
- Vantage Spatial Statistics
- TrackSplit and TrackMerge Events

Imaris 9.8 (2021 Sep 28)
- Objects on Slicer (Surface/Spots/Filaments/Cells/Tracks)
- Editing Objects with Auto Positioning in Slicer Mode

Release Notes

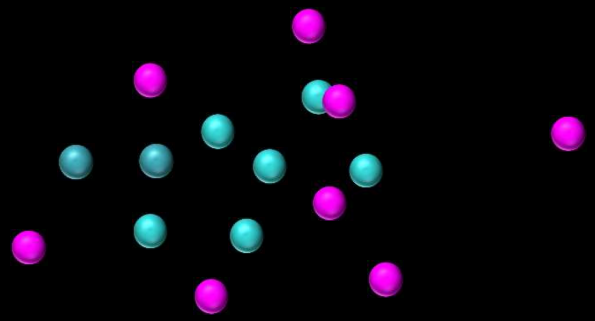
Native Distance Statistics

Surface



Shortest distance btw obj.

Spot



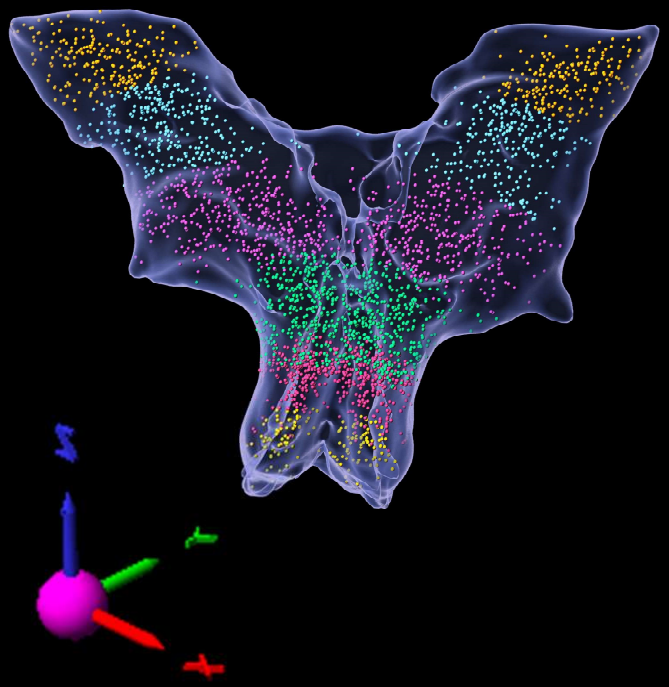
Shortest distance btw obj.
Density inside obj.

Release Notes

Classification

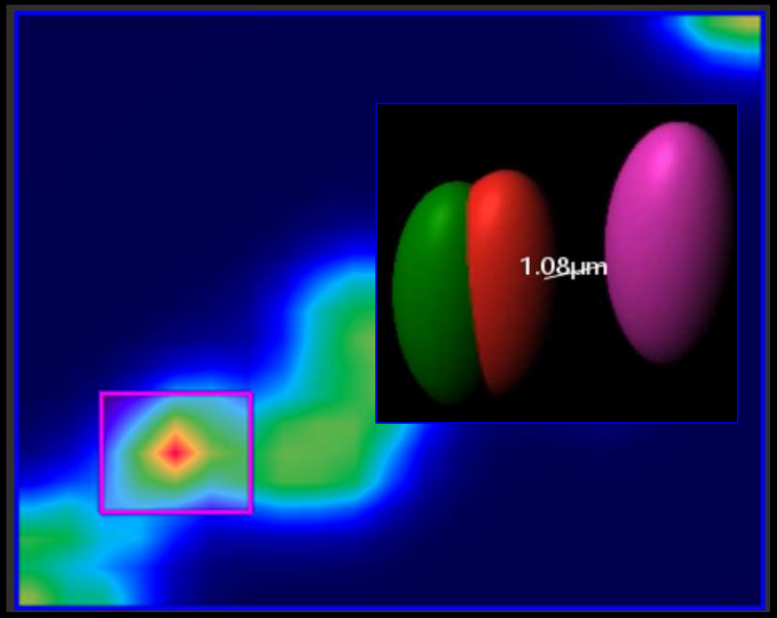
- 1 Parameter

Ex: Cell migration



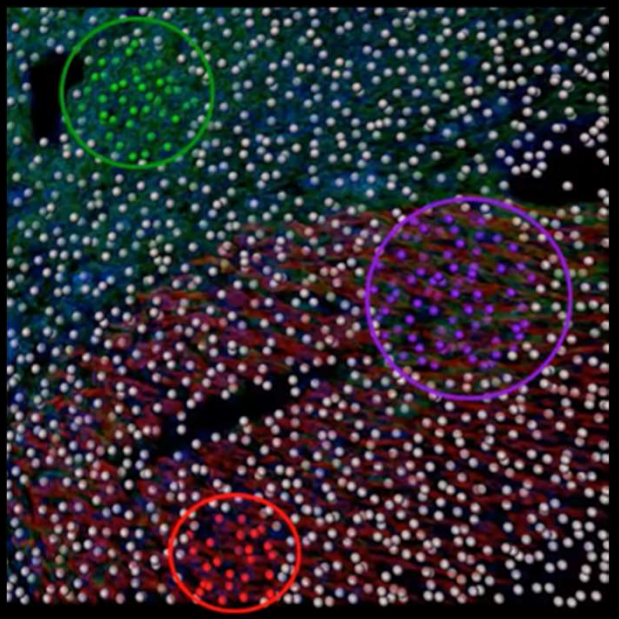
- 2 Parameters

Ex: Triplets colocalization



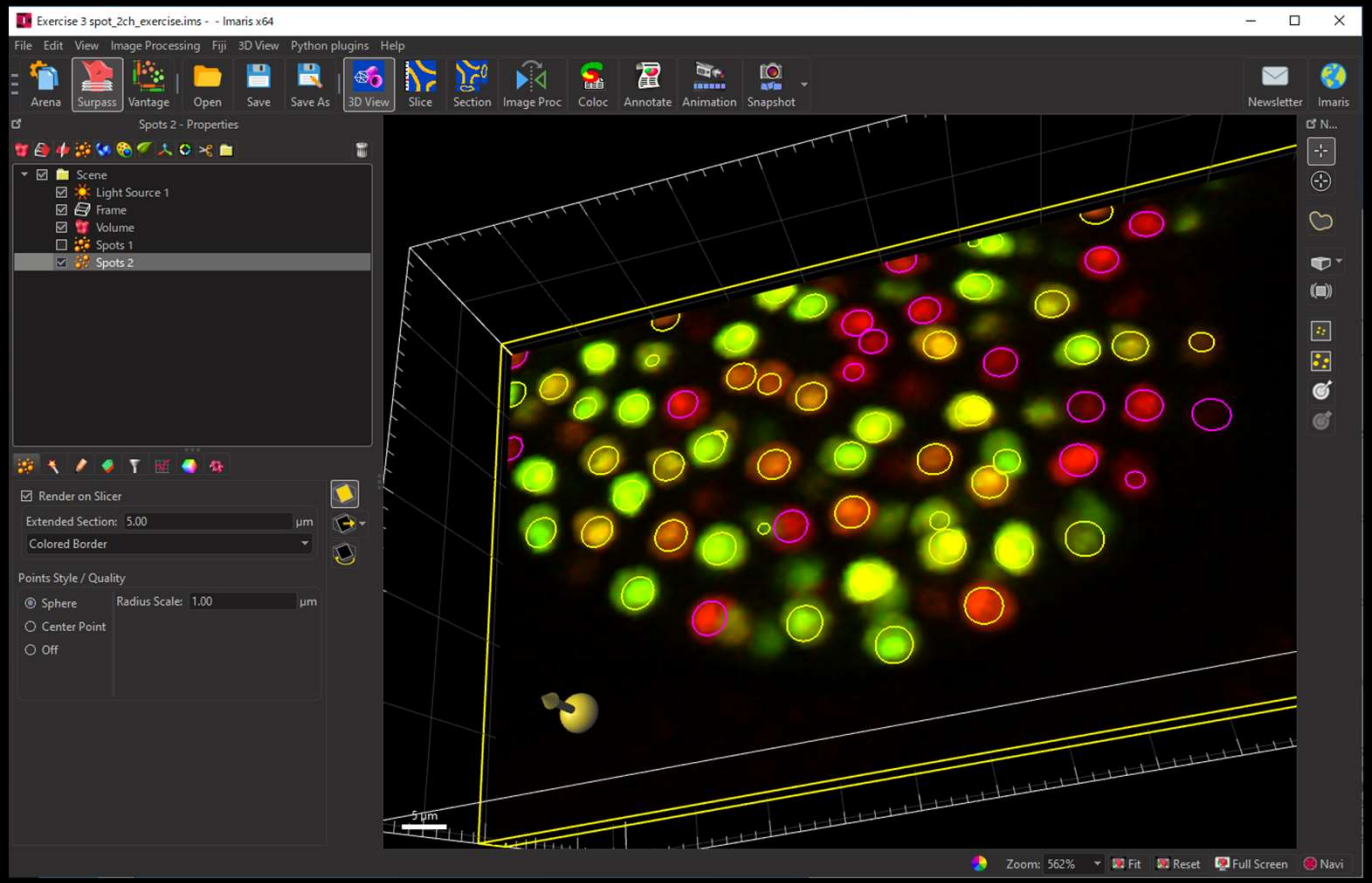
- Machine Learning

Ex: Identification of regions



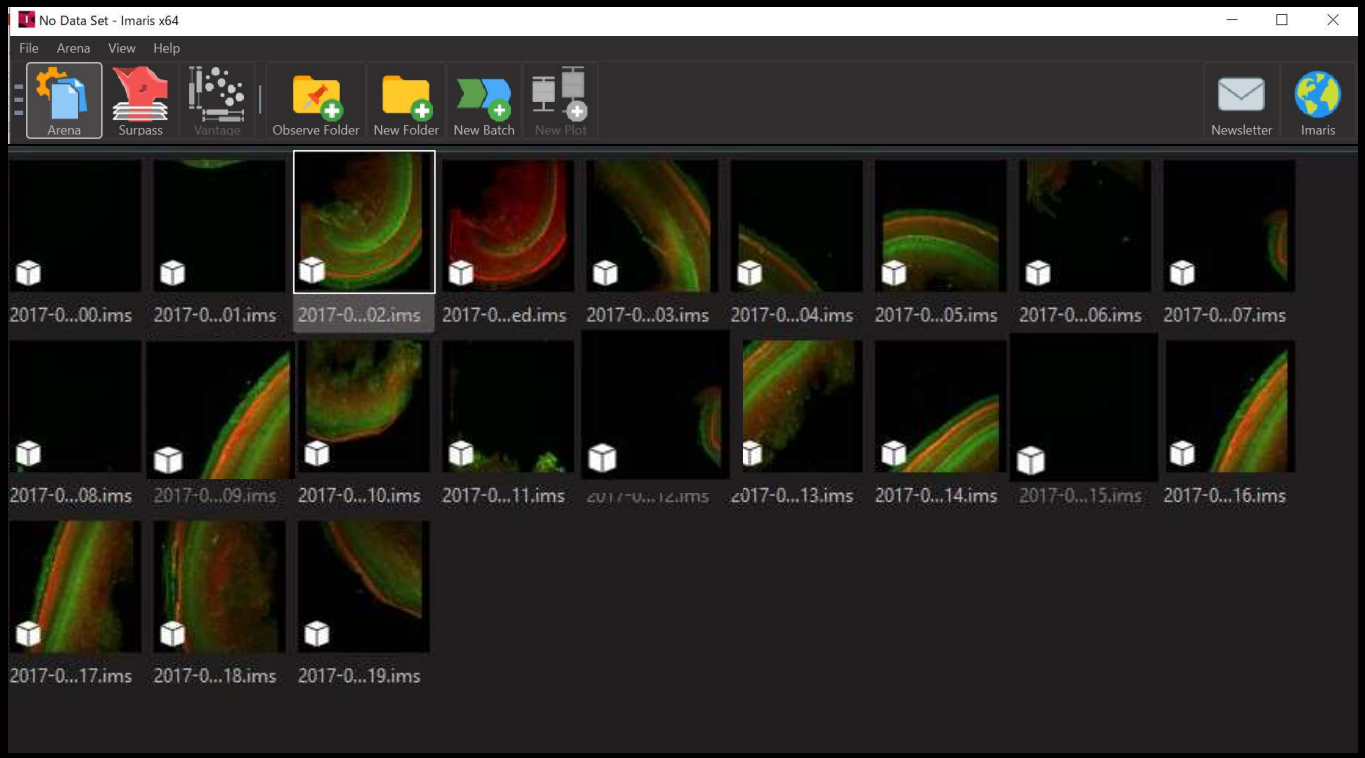
Release Notes

Objects on slicer



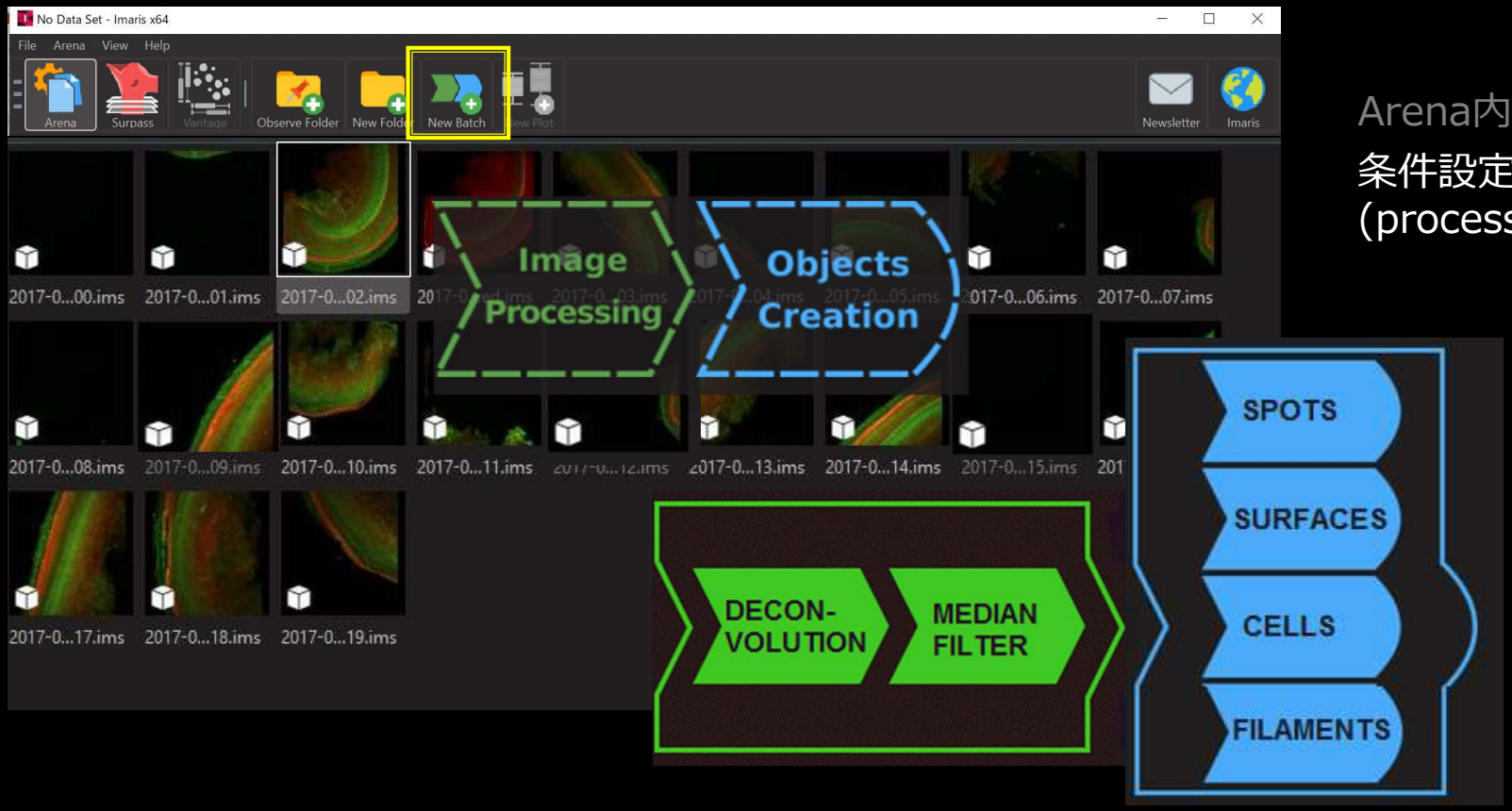

OXFORD INSTRUMENTS
IMARIS
GO TO IMARIS

NEW Function – Batch -



Arena内で例となるデータを選択

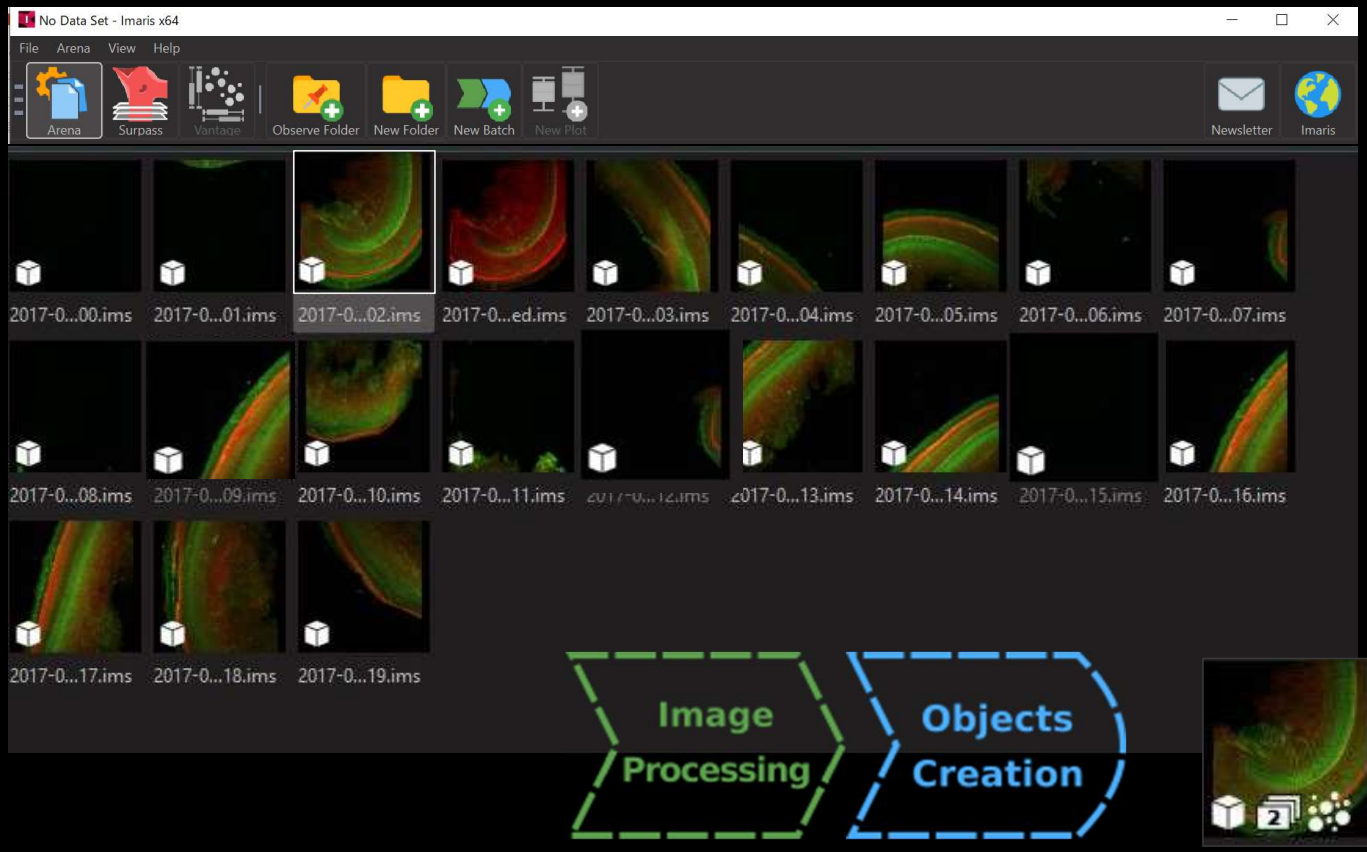
NEW Function – Batch -



Arena内で例となるデータを選択

条件設定
(processing + segmentation)

NEW Function – Batch -



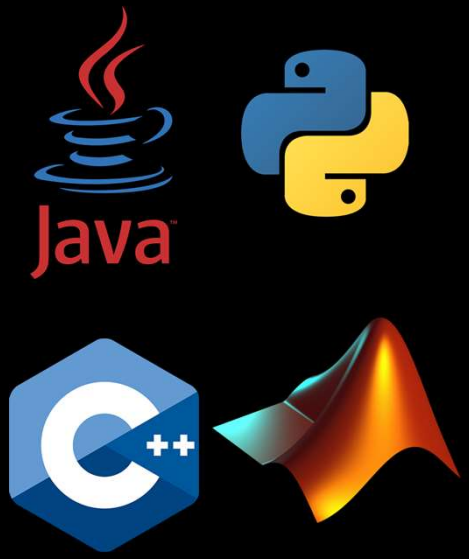
Arena内で例となるデータを選択
条件設定
(processing + segmentation)

RUN Batch !

NEW Function – XT -

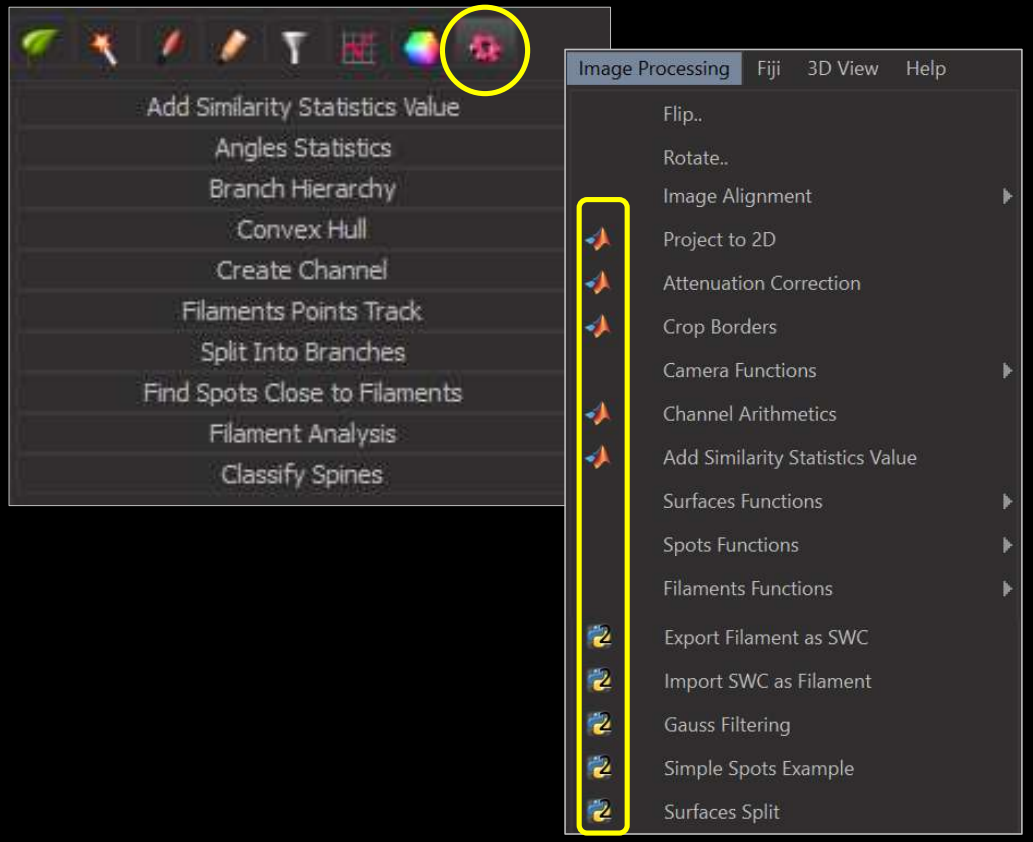
OXFORD INSTRUMENTS | IMARIS

Write Xtensions



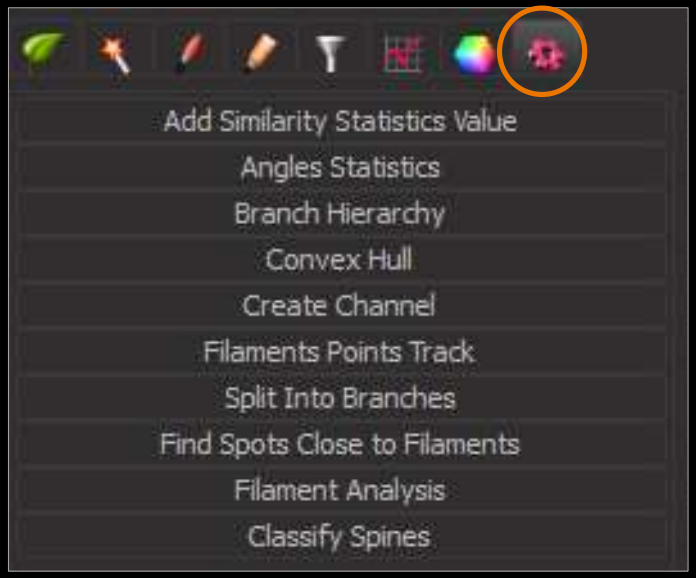
- Java,
- Python,
- Matlab
- C++
- …

Integrate Xtensions

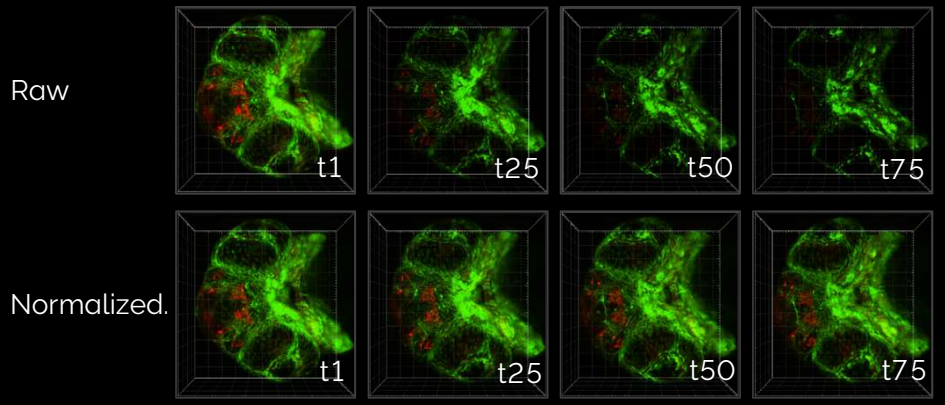


NEW Function – XT -

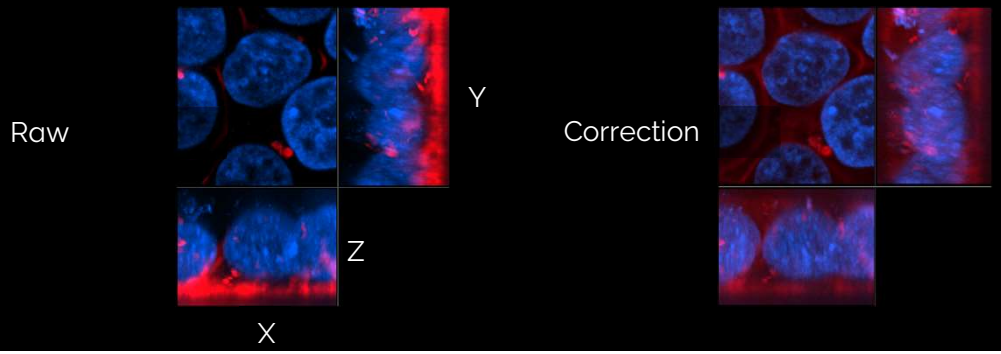
Integrate Xtensions



Normalize Timepoints



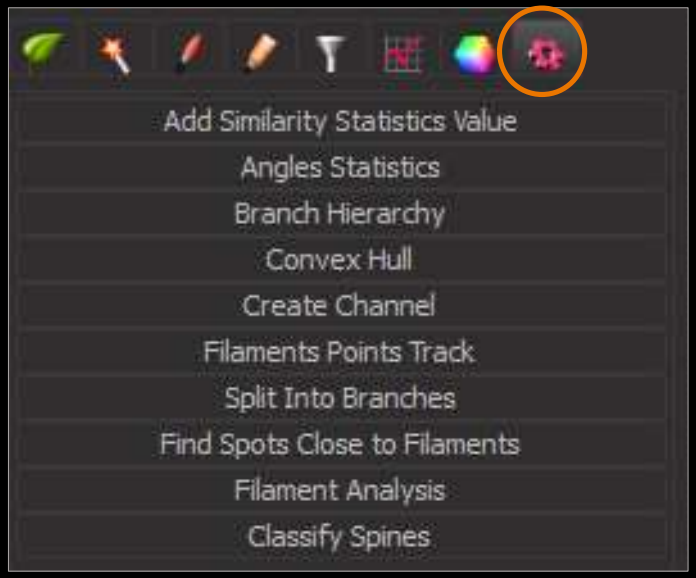
Attenuation correction



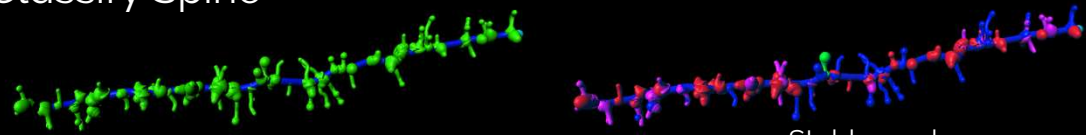
NEW Function – XT -

OXFORD INSTRUMENTS | IMARIS

Integrate Xtensions

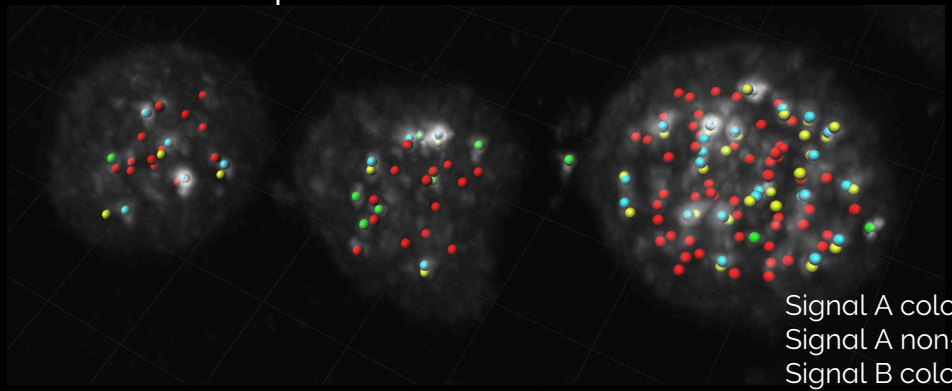


Classify Spine



Stubby: red
Mushroom: green
Long thin: blue
Filopodia/ dendrite : magenta

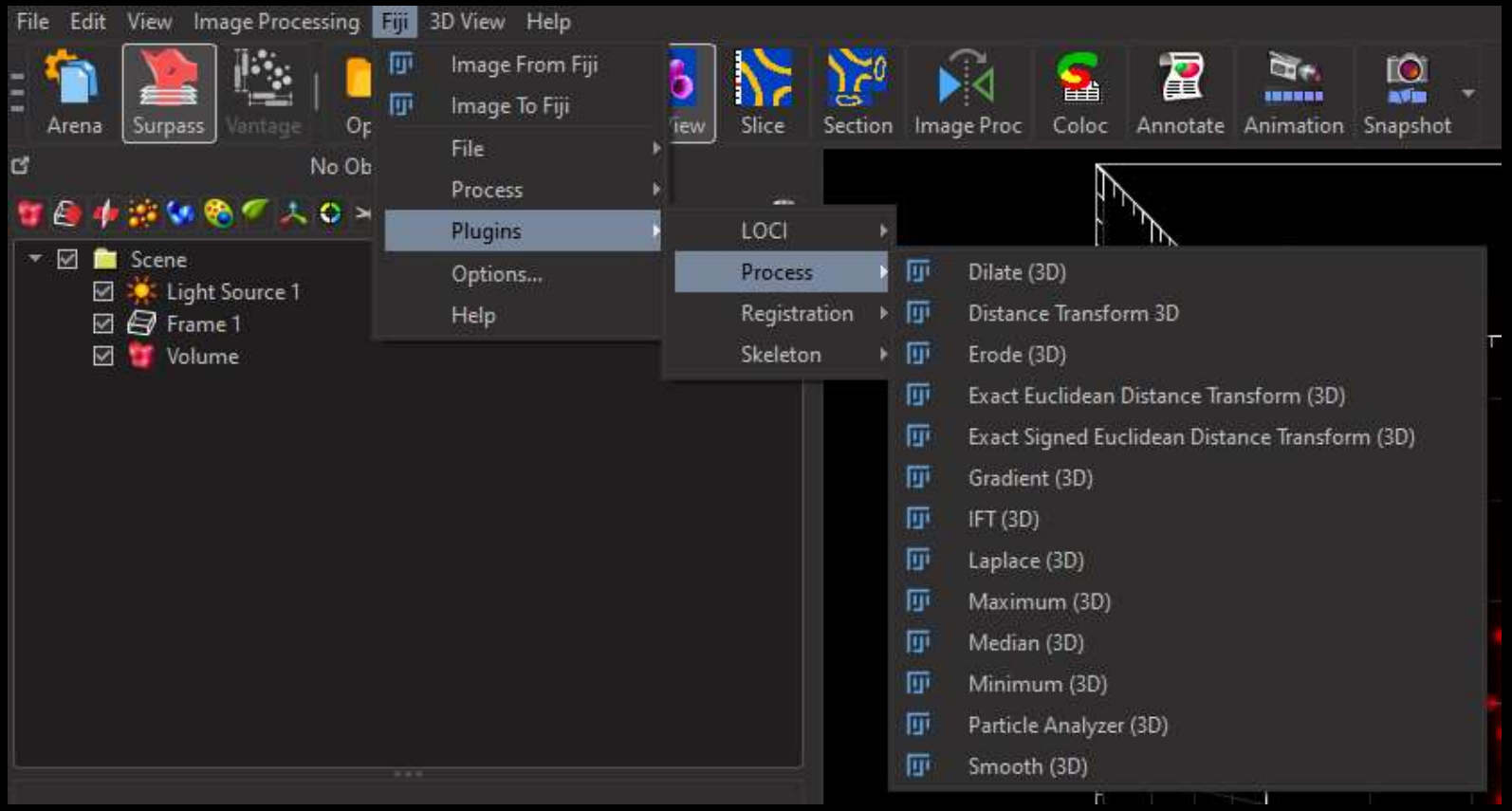
Colocalize Spots



Signal A coloc : cyan
Signal A non-coloc : green
Signal B coloc : yellow
Signal B non-coloc : red

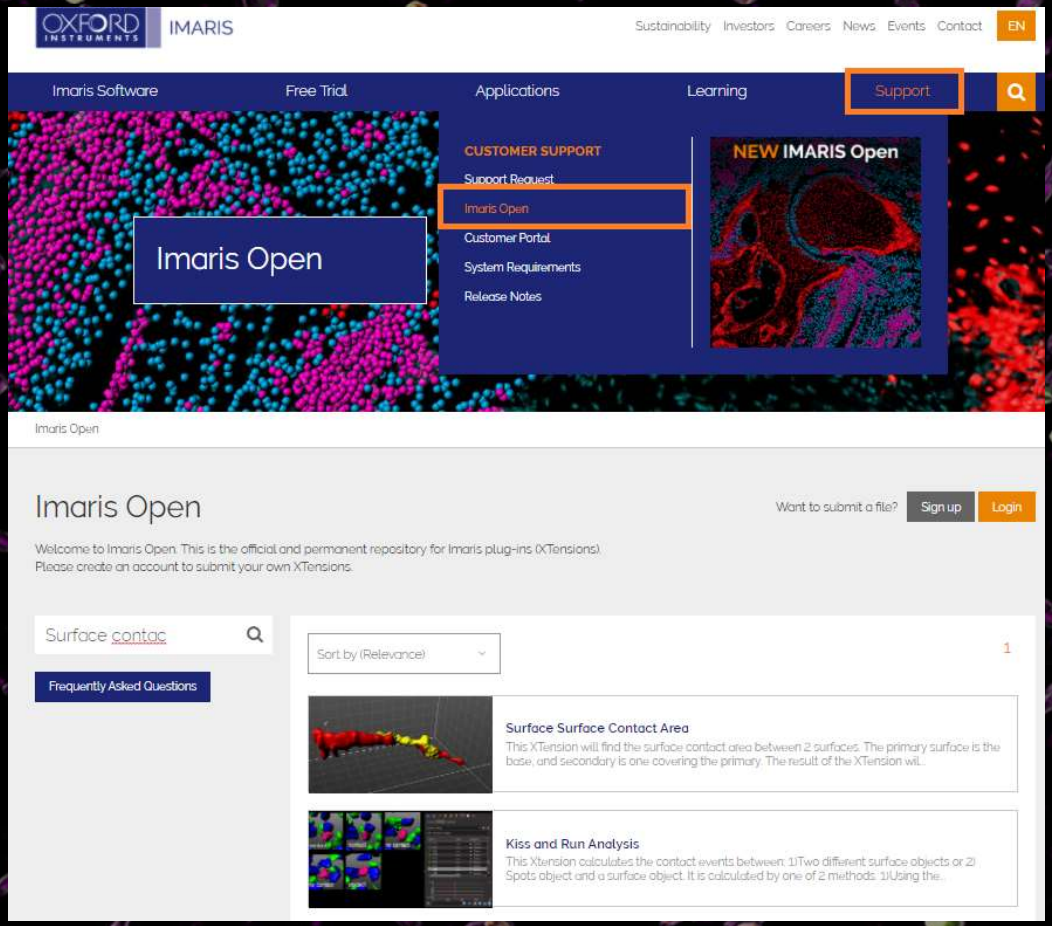
NEW Function – XT -

Fiji & ImageJ



Imaris Open: Imaris Xtensions repository

https://imaris.oxinst.com/open/



asiasupport@bitplane.com

imaris.oxinst.com

11/19 13:00~
Home education series No.4
怖いぞ！画像改ざん

ぜひご参加ください