

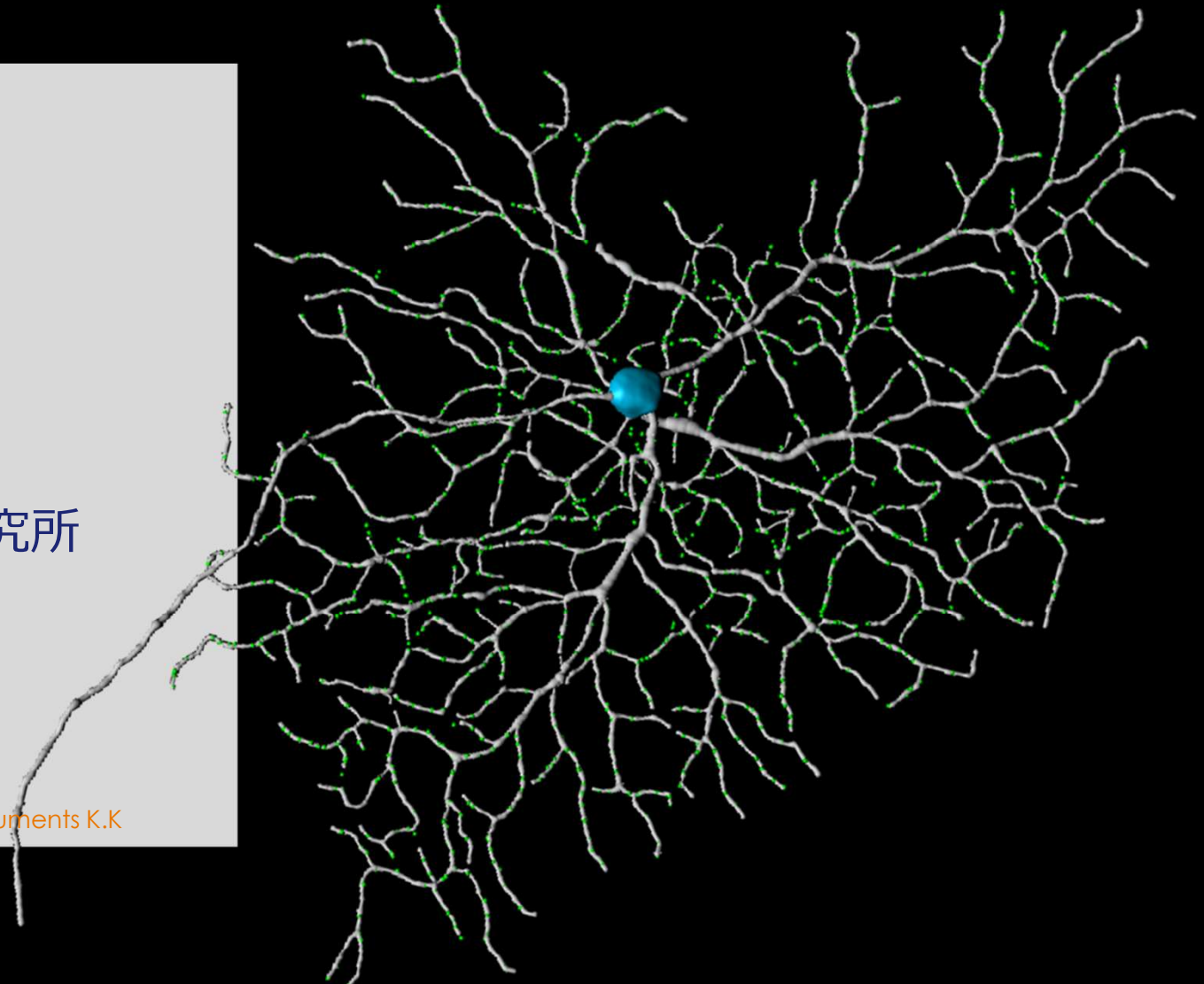
Imaris

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

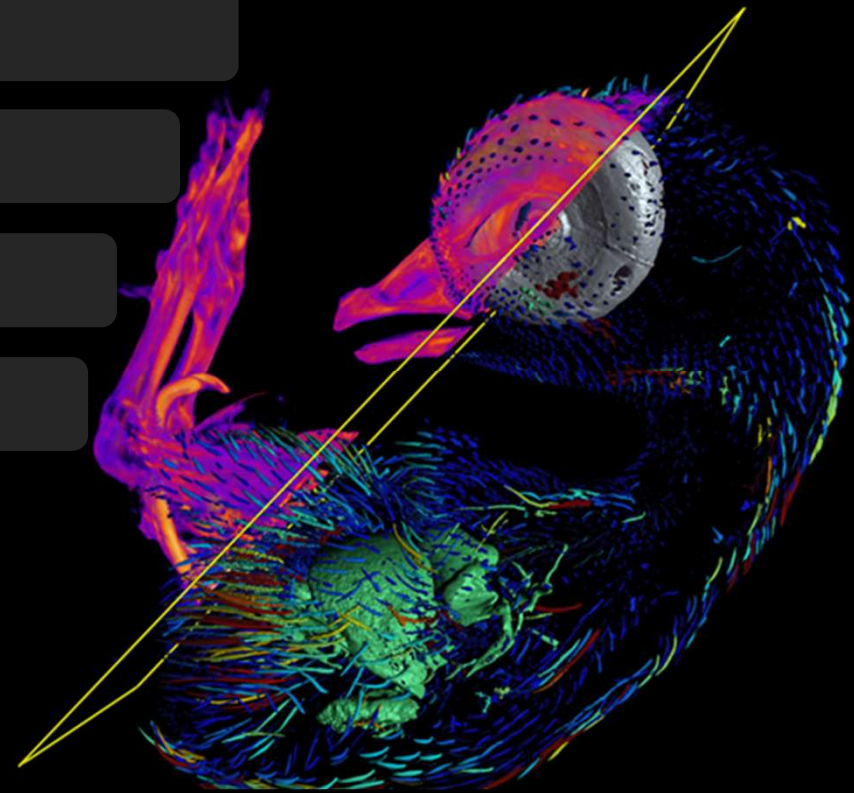


Summary

Difference between before and NOW

Hands on

NEW functions - Batch and XT -



Import

Prepare

Visualize

Detect

Analyze

Image formats and sizes



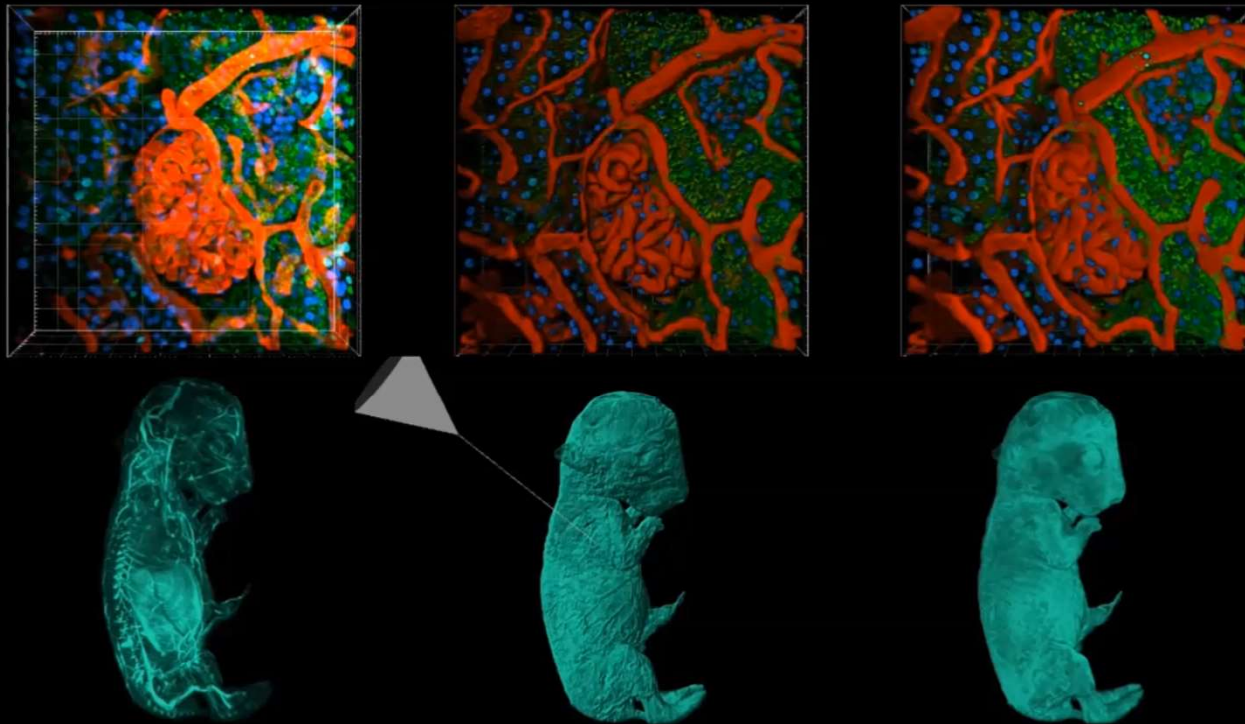
ImarisFileConverter



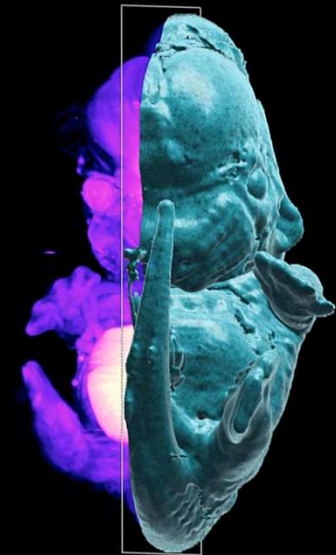
Developing Zebrafish Embryo: 1.05TB tiff => 291GB .ims

Courtesy of K. McDole, HHMI Jamelia Farm research Campus,
Ref: Amat et al. 2014, Nature Methods

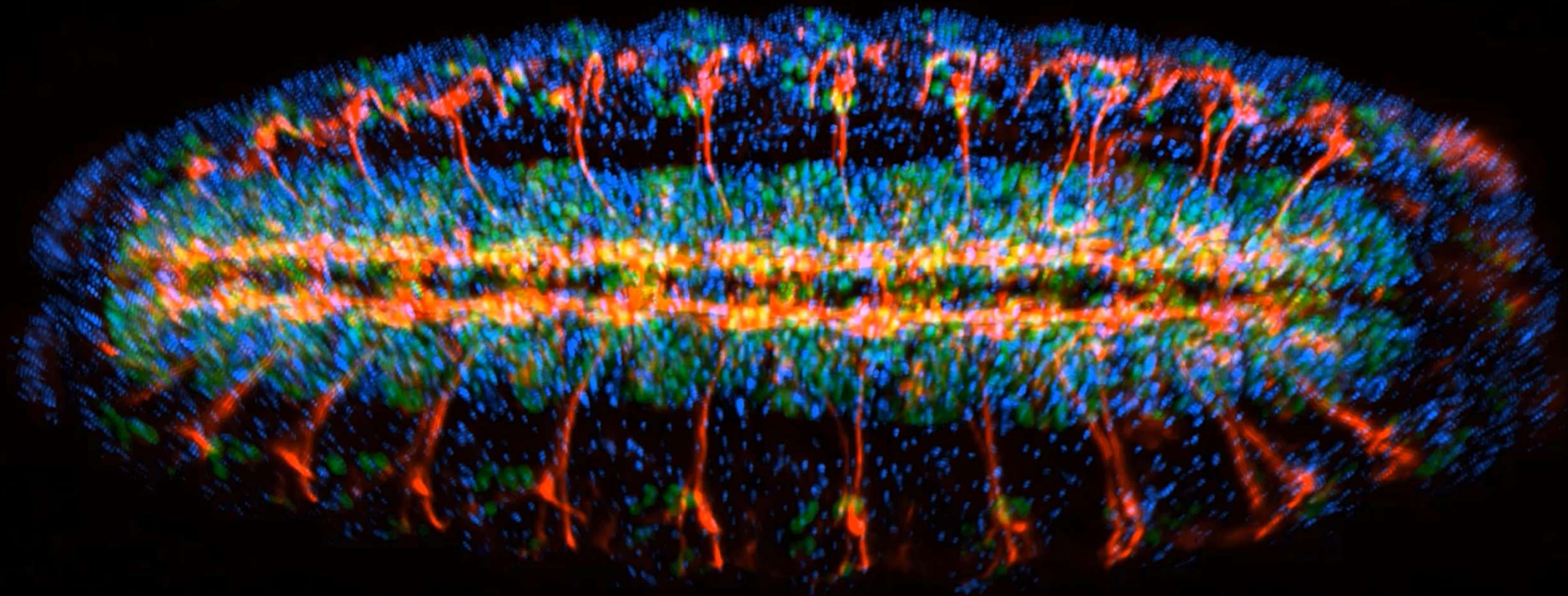
Rendering



Tools



Import — Prepare — Visualize — Detect — Analyze — Customize



— Source —

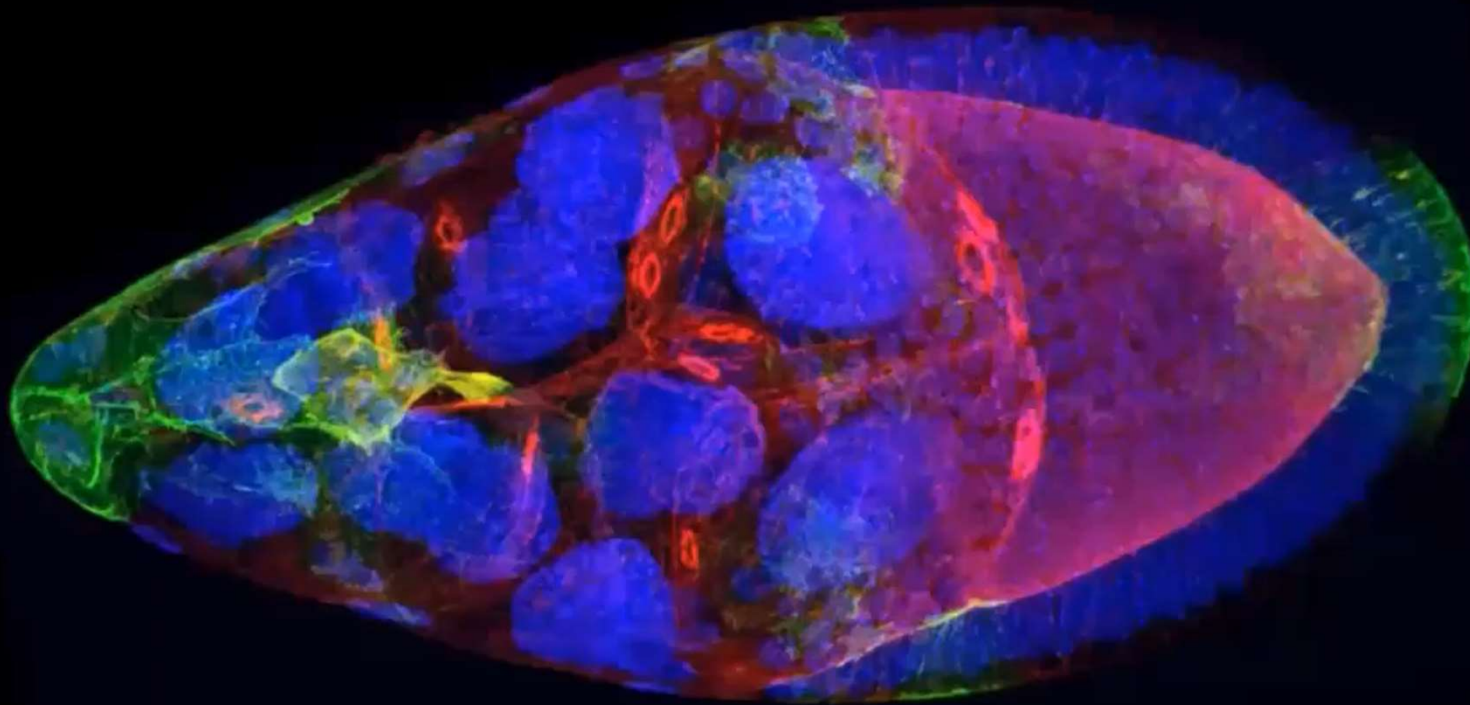
Drosophila Embryo: Embryology course at Woods Hole, Marine Biological Lab, Mass, USA.



IMARIS

Import Prepare Visualize Detect Analyze Customize

 Surfaces



— Source —

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

Import Prepare Visualize Detect Analyze Customize



Stats organized into :

- Cell
- Nuclei
- Vesicles

Counts, Volume, Area,
Diameters, Positions,
Intensities, Morphology,
Tracks ...



Stats organized into :

- Filaments
- Dendrites
- Points
- Spines

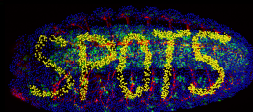
Length, Diameter, Volume,
Branching hierarchy, Sholl
Analysis, Spine density &
morphology, Filament tracking...



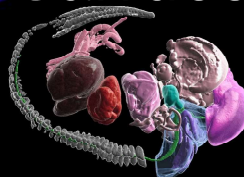
— Source —

Dr Erich Giedzinski, University of California, USA

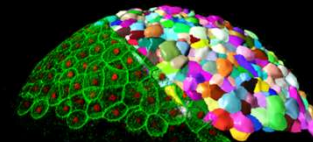
 Spots



 Surfaces



 Cells

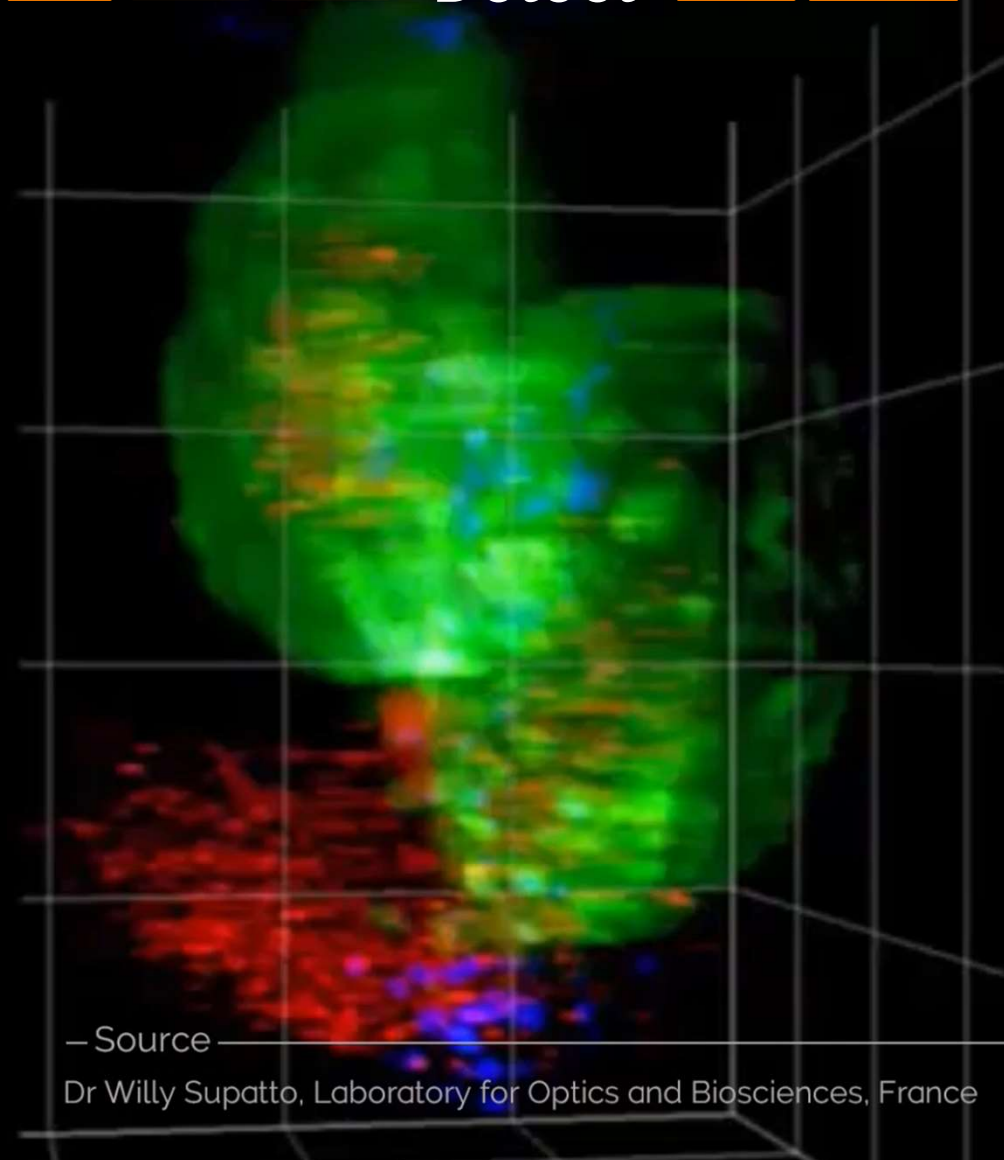


 Filaments



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, Straightness, Orientation, Spines ...	X	X	X	✓

Tracking



— Source —

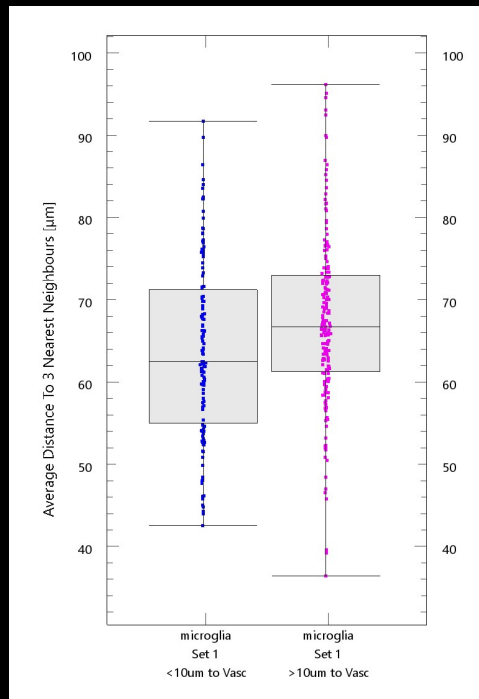
Dr Willy Supatto, Laboratory for Optics and Biosciences, France

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

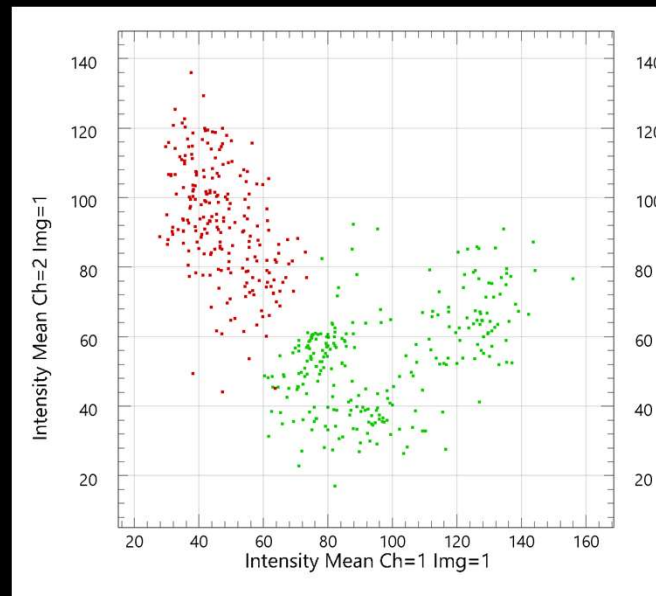




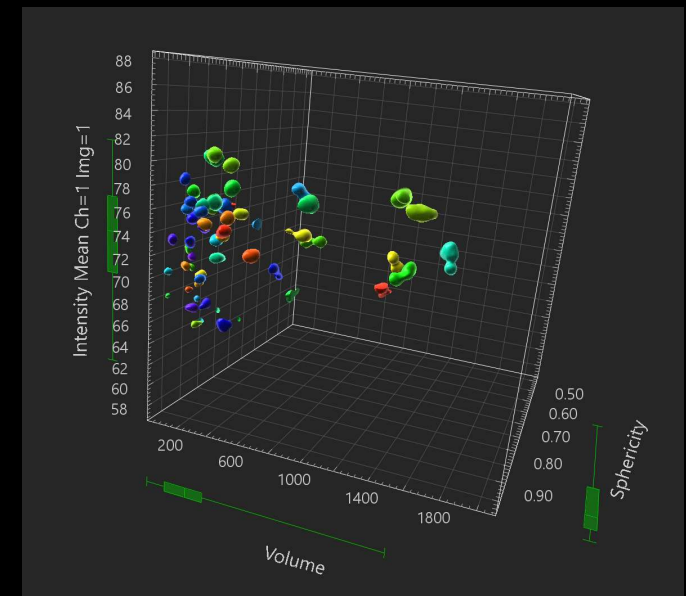
1D plot



2D plot



Object view



Release Notes



IMARIS

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)

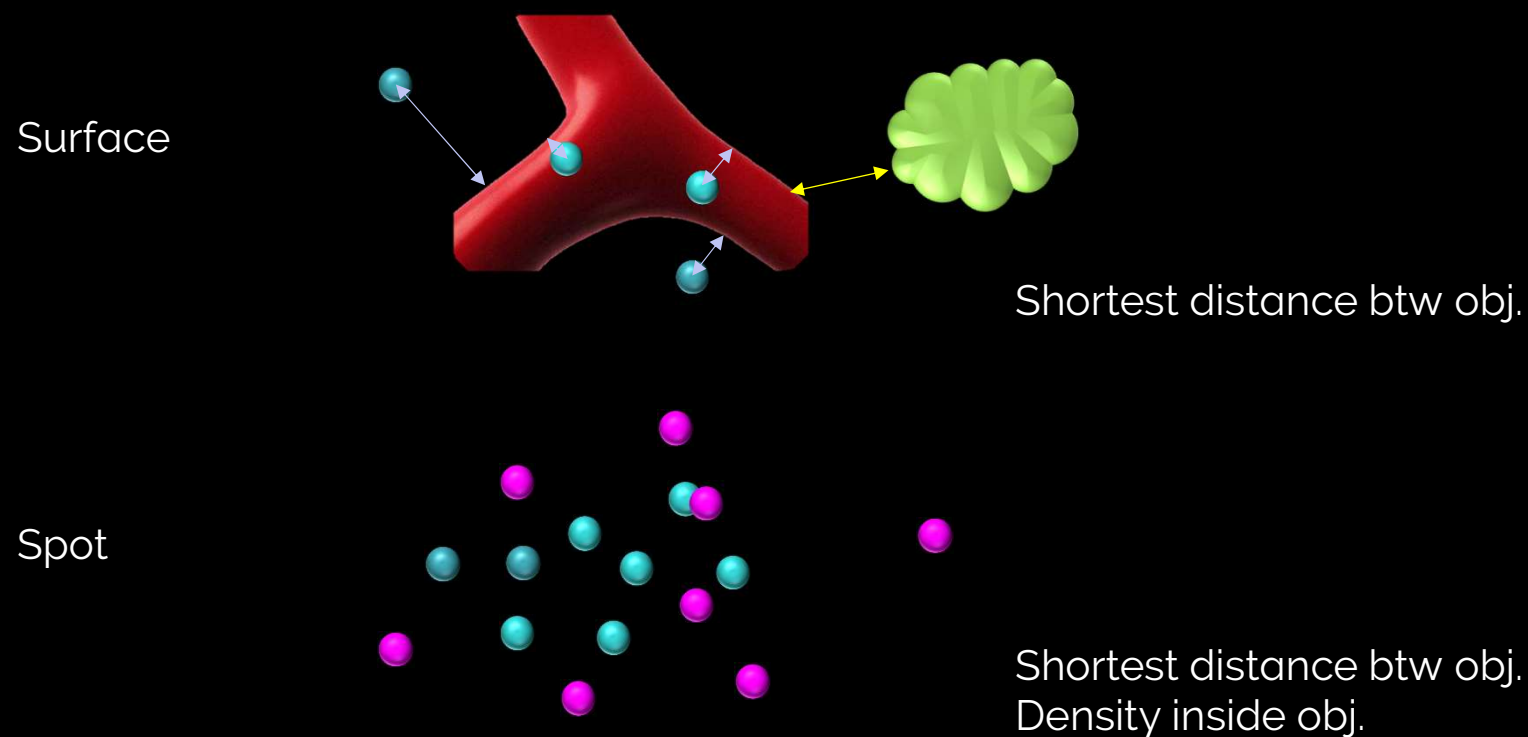
- Objects on Slicer (Surface/Spots/Filaments/Cells/Tracks)
- Editing Objects with Auto Positioning in Slicer Mode

Release Notes



IMARIS

Native Distance Statistics



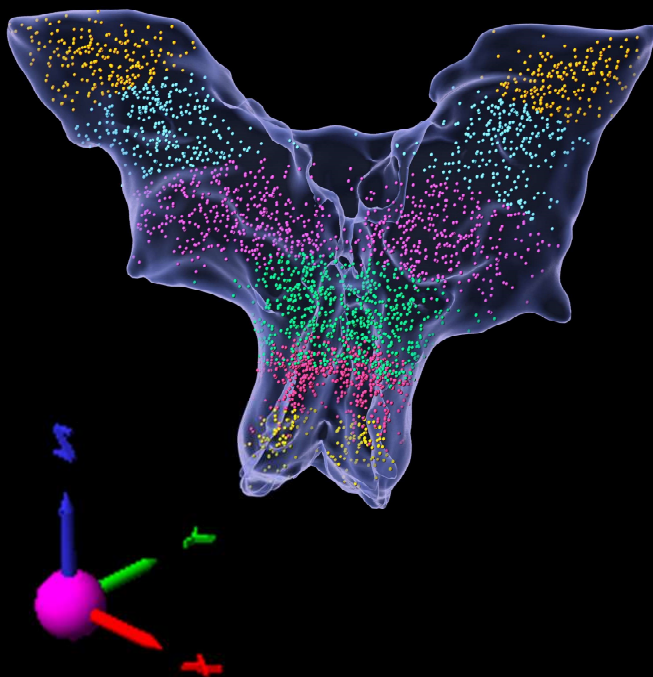
Release Notes



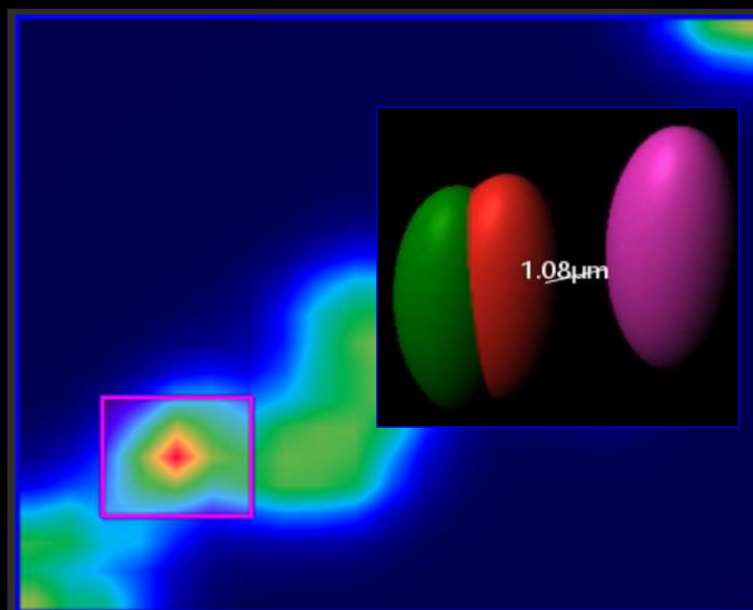
IMARIS

Classification

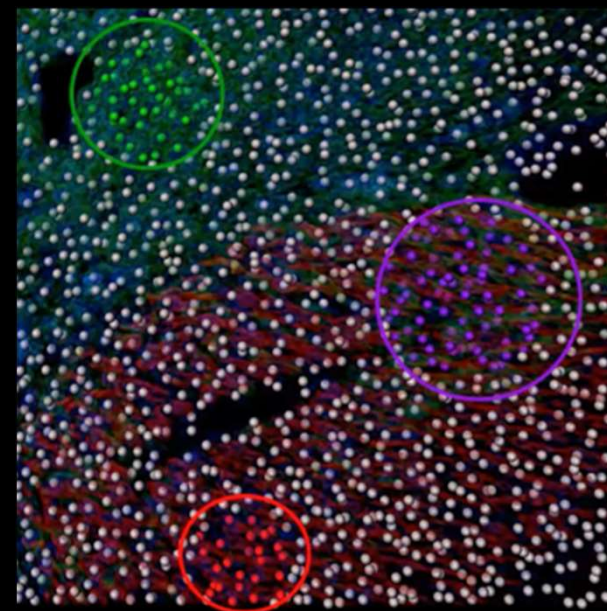
- 1 Parameter
Ex: Cell migration



- 2 Parameters
Ex: Triplets colocalization

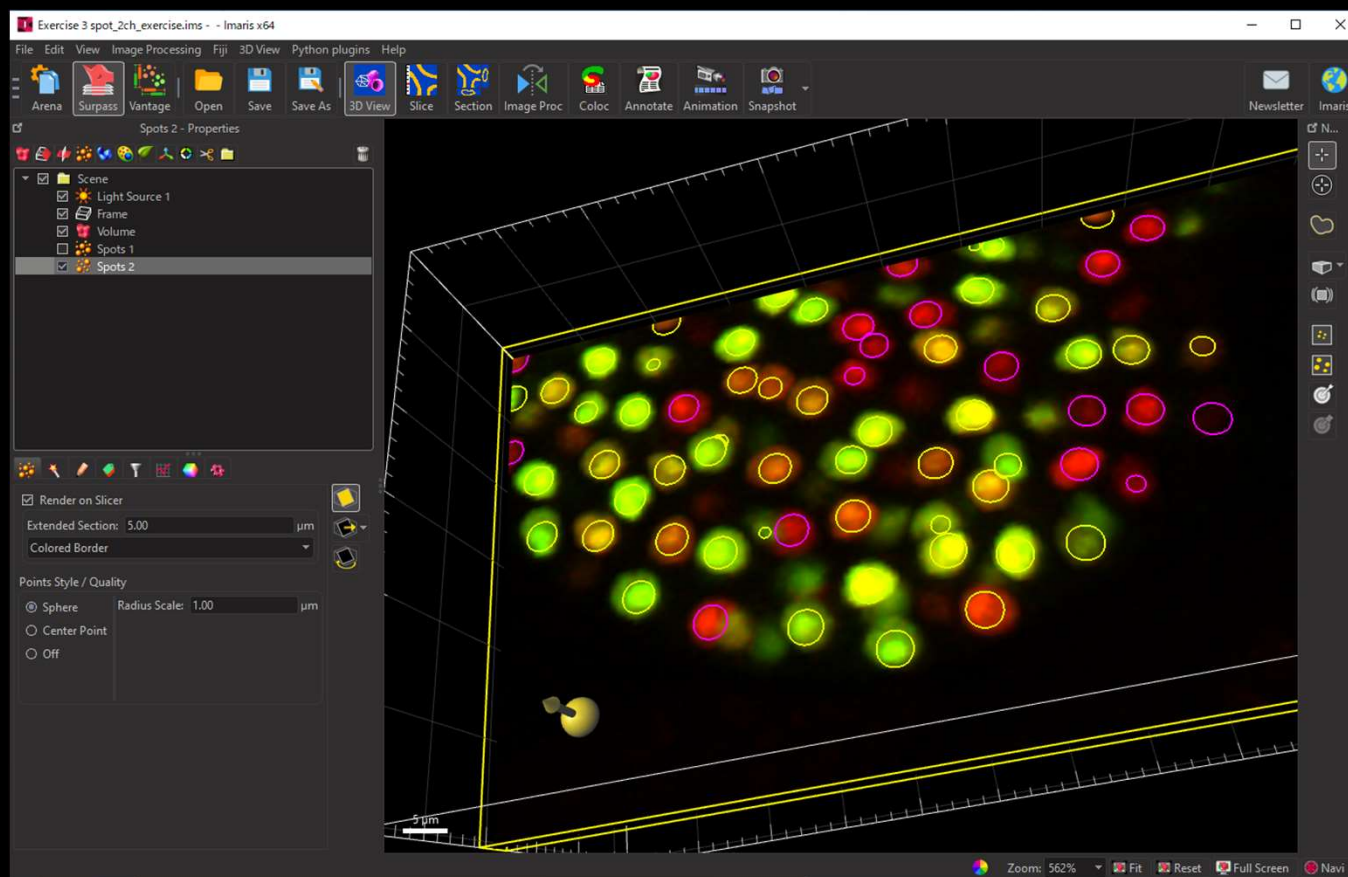


- Machine Learning
Ex: Identification of regions



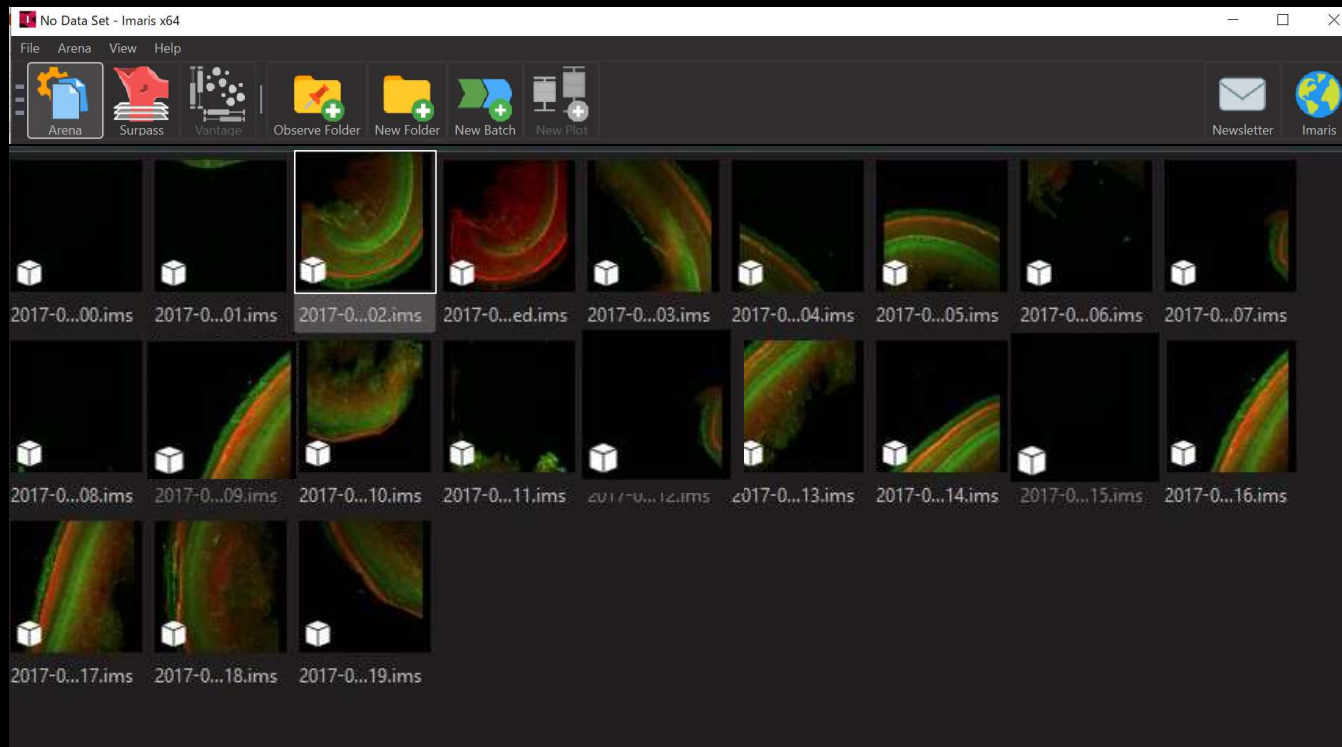
Release Notes

Objects on slicer



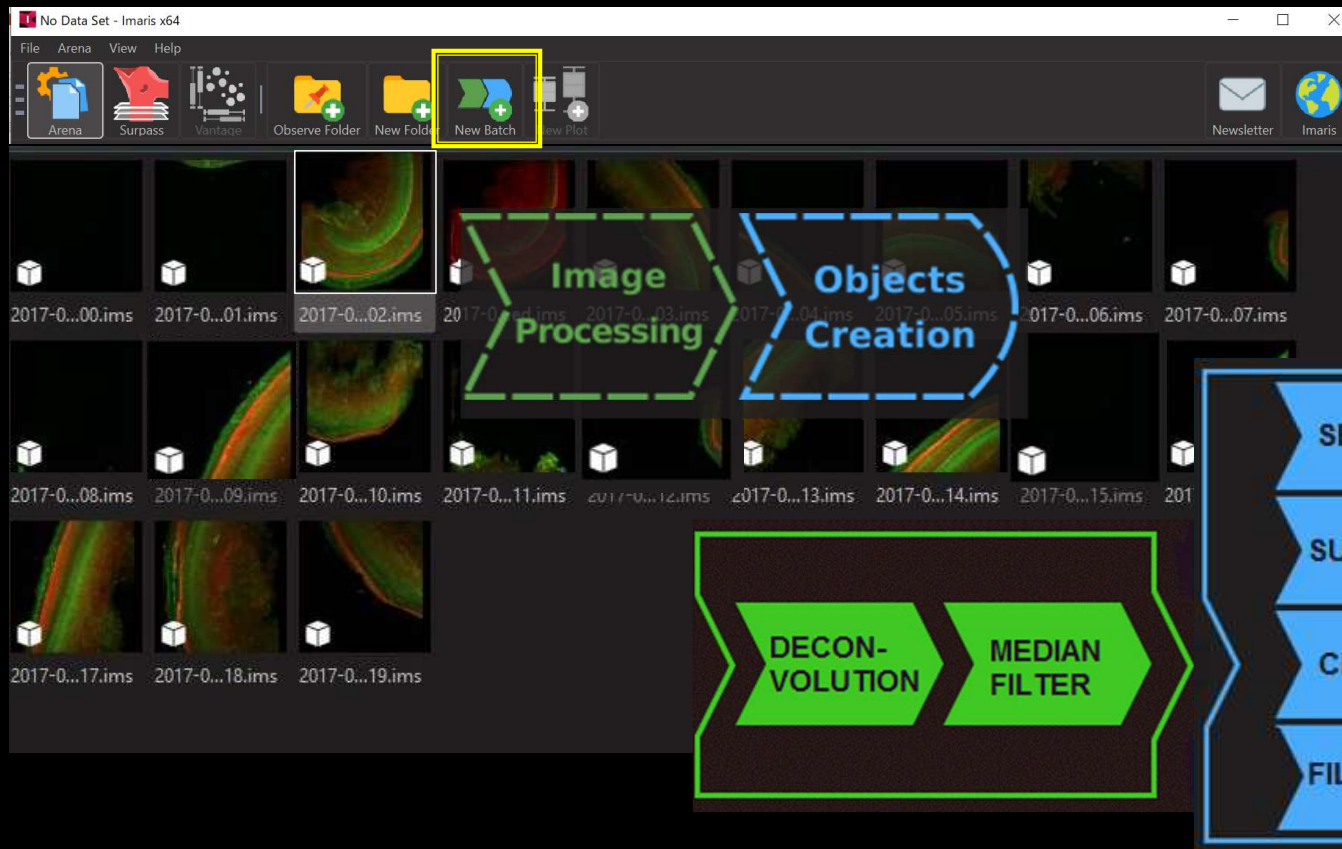
GO TO IMARIS

NEW Function – Batch -



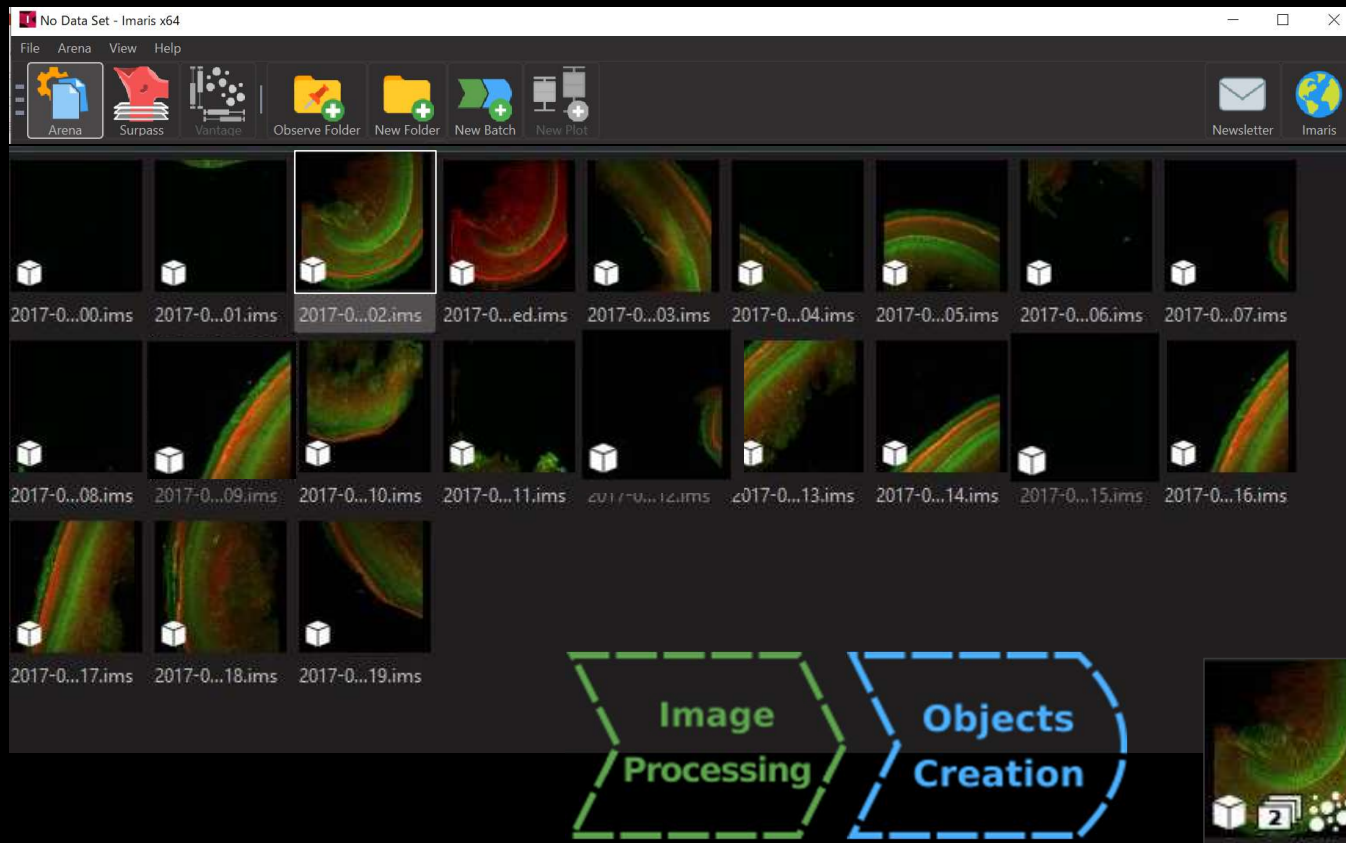
Arena内で例となるデータを選択

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 –



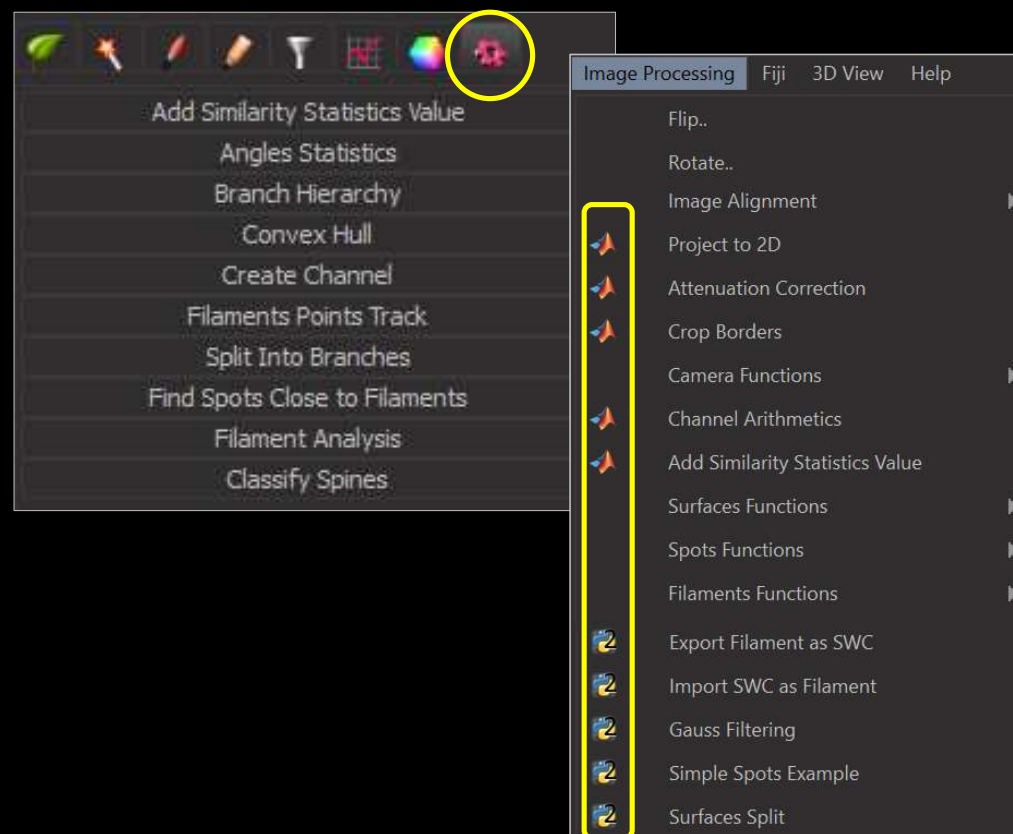
IMARIS

Write Xtensions



- Java,
- Python,
- Matlab
- C++
- ...

Integrate Xtensions

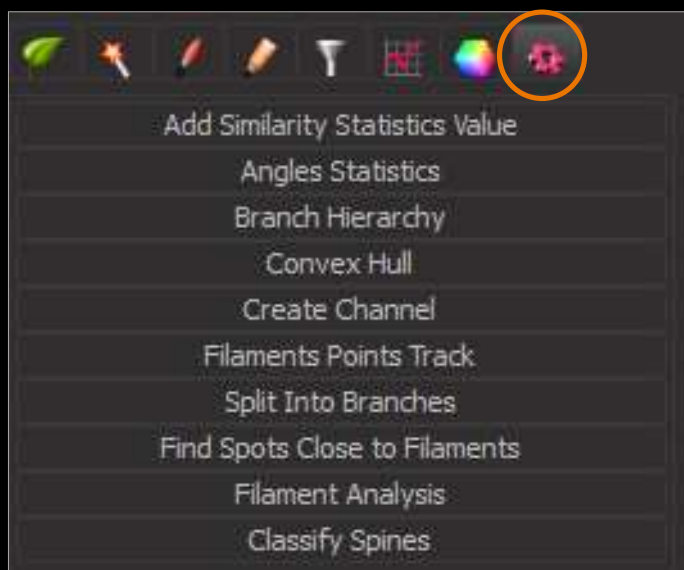


NEW Function – XT –

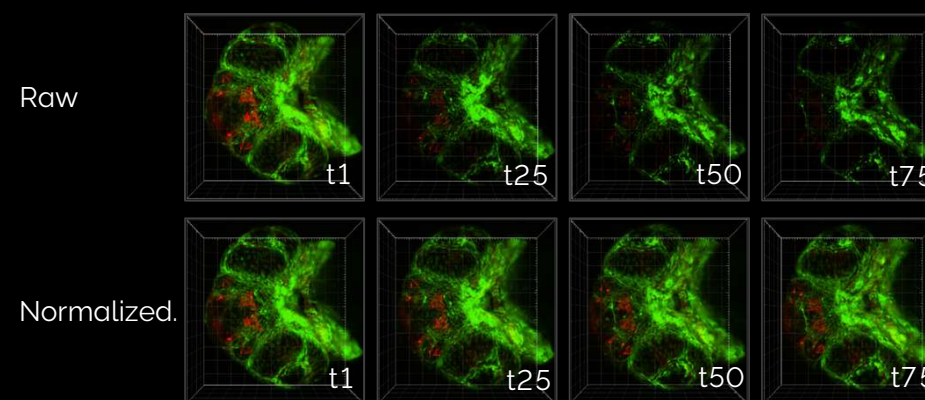


IMARIS

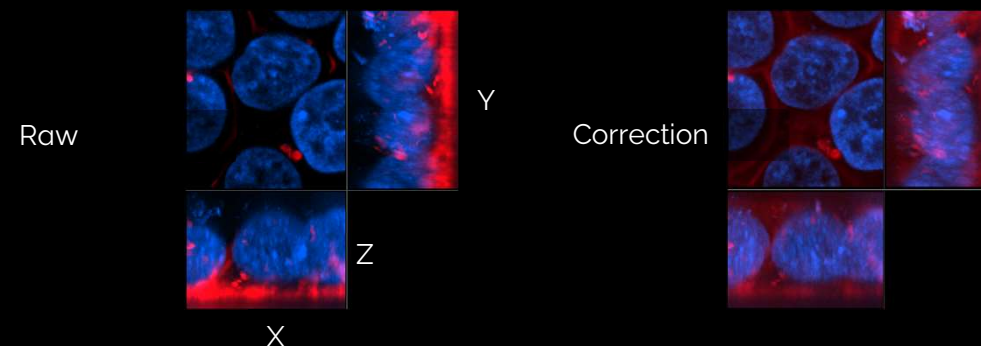
Integrate Xtensions



Normalize Timepoints

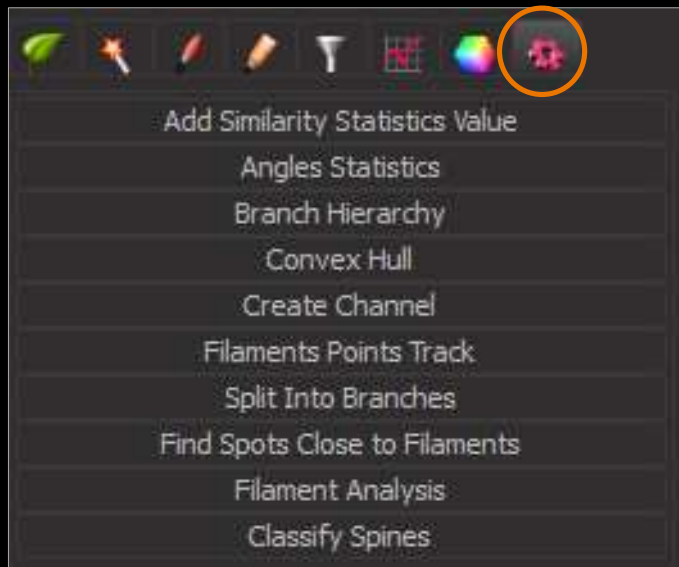


Attenuation correction

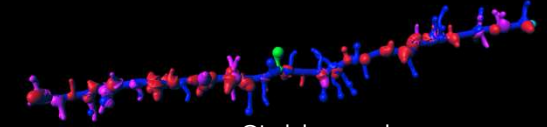
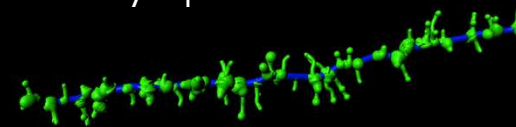


NEW Function – XT –

Integrate Xtensions

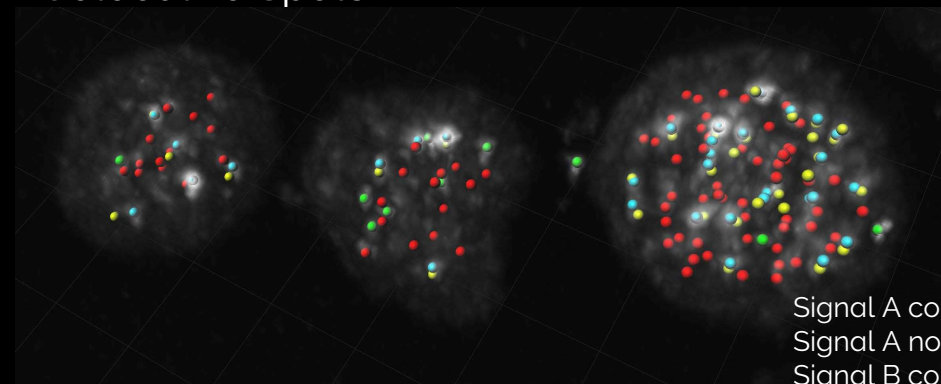


Classify Spine



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

Colocalize Spots



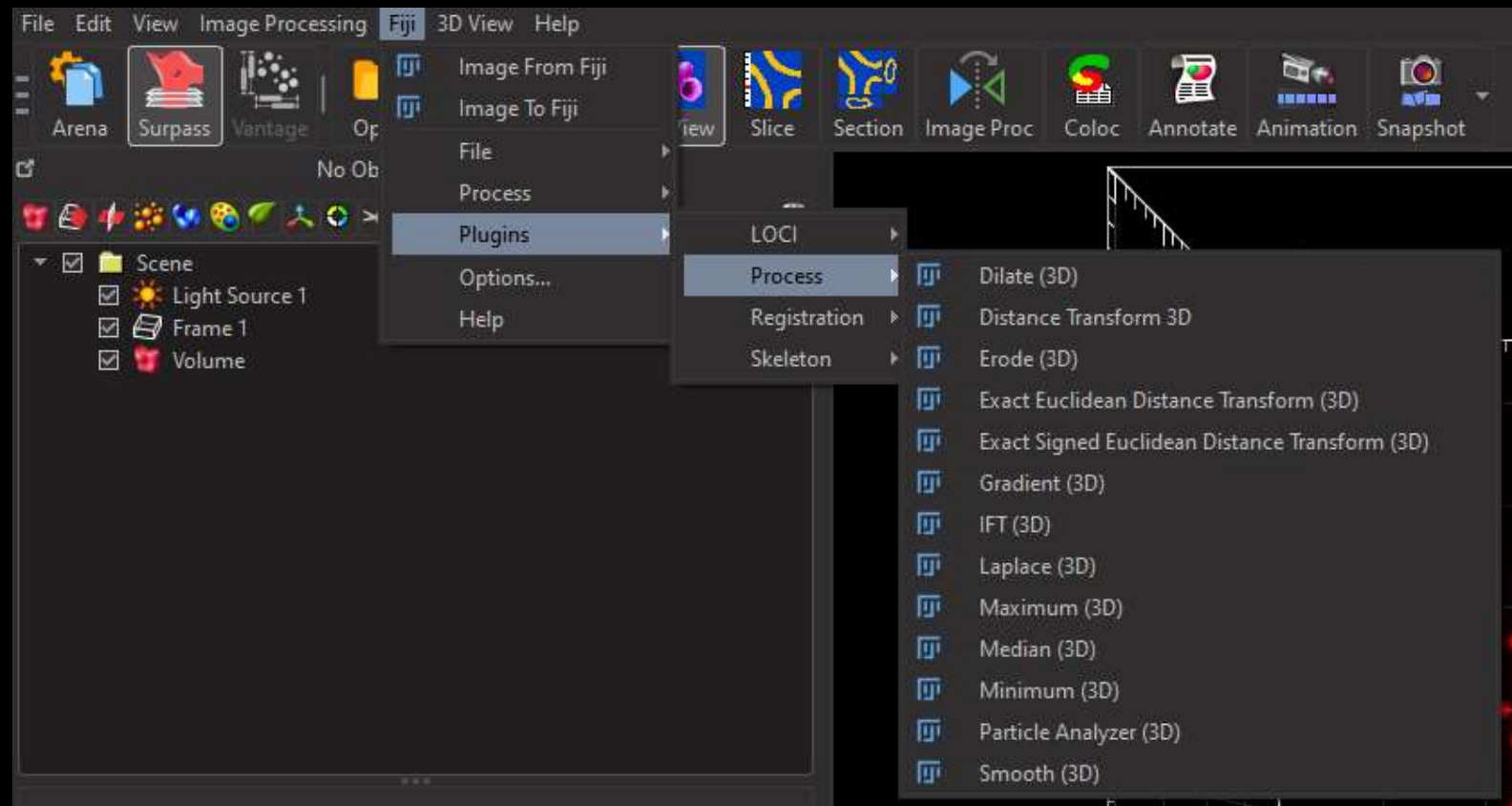
Signal A coloc : cyan
Signal A non-coloc : green
Signal B coloc : yellow
Signal B non-coloc : red

NEW Function – XT –



IMARIS

Fiji & ImageJ



Import Prepare Visualize Detect Analyze Customize



Imaris Open: Imaris Xtensions repository

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

The screenshot shows the Imaris Open website interface. At the top, there's a navigation bar with links for Sustainability, Investors, Careers, News, Events, Contact, and an EN flag. Below this, a secondary navigation bar includes Imaris Software, Free Trial, Applications, Learning, and Support (highlighted with an orange box). A search icon is also present. The main content area features a large image of a 3D point cloud with a blue box labeled 'Imaris Open'. To the right, a 'CUSTOMER SUPPORT' sidebar lists options: Support Request, Imaris Open (highlighted with an orange box), Customer Portal, System Requirements, and Release Notes. Further right, a 'NEW IMARIS Open' section displays a 3D visualization. Below the main header, a 'Welcome to Imaris Open' message states it's the official repository for Imaris plug-ins (Xtensions) and prompts users to create an account. A search bar contains the text 'Surface contac' and a 'Frequently Asked Questions' button. The 'Sort by (Relevance)' dropdown is set to '1'. Two Xtension cards are visible: 'Surface Surface Contact Area' and 'Kiss and Run Analysis', each with a 3D visualization and a brief description.

OXFORD INSTRUMENTS IMARIS

Sustainability Investors Careers News Events Contact EN

Imaris Software Free Trial Applications Learning Support Q

CUSTOMER SUPPORT

- Support Request
- Imaris Open
- Customer Portal
- System Requirements
- Release Notes

NEW IMARIS Open

Imaris Open

Imaris Open

Welcome to Imaris Open. This is the official and permanent repository for Imaris plug-ins (Xtensions). Please create an account to submit your own XTensions.

Want to submit a file? Sign up Login

Surface contac Q

Frequently Asked Questions

Sort by (Relevance) 1

Surface Surface Contact Area
This XTension will find the surface contact area between 2 surfaces. The primary surface is the base, and secondary is one covering the primary. The result of the XTension will...

Kiss and Run Analysis
This XTension calculates the contact events between: 1) two different surface objects or 2) Spots object and a surface object. It is calculated by one of 2 methods: 1) Using the...

OXFORD INSTRUMENTS IMARIS



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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

