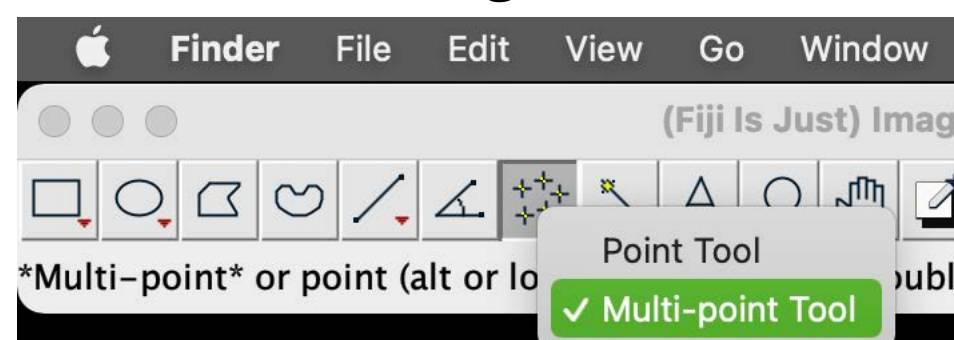# Spot Detection
(Point tool and Find Maxima)
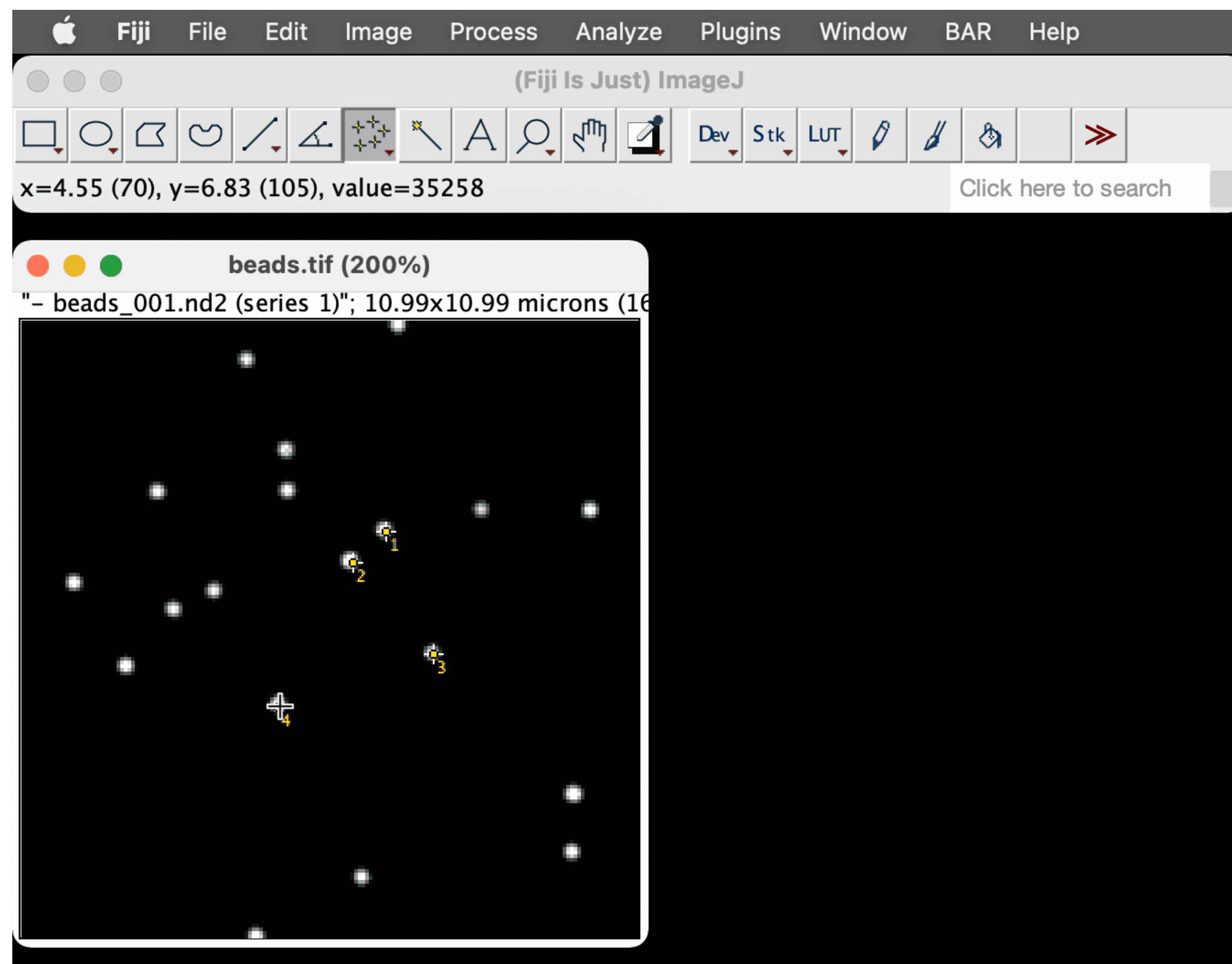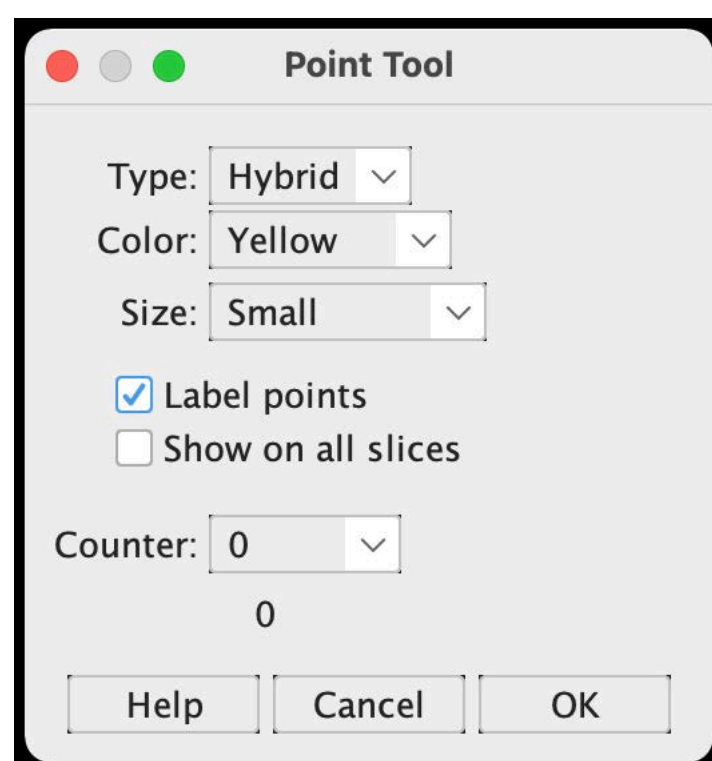
Point and Multi-Point tool

Select and Measure multiple points

Mouse right-click

Mouse double-click

to clear all points:

Edit > Selection > Select None *

(cmd) + shift + a

to measure all points:

Analyze > Measure ******

(cmd) + m
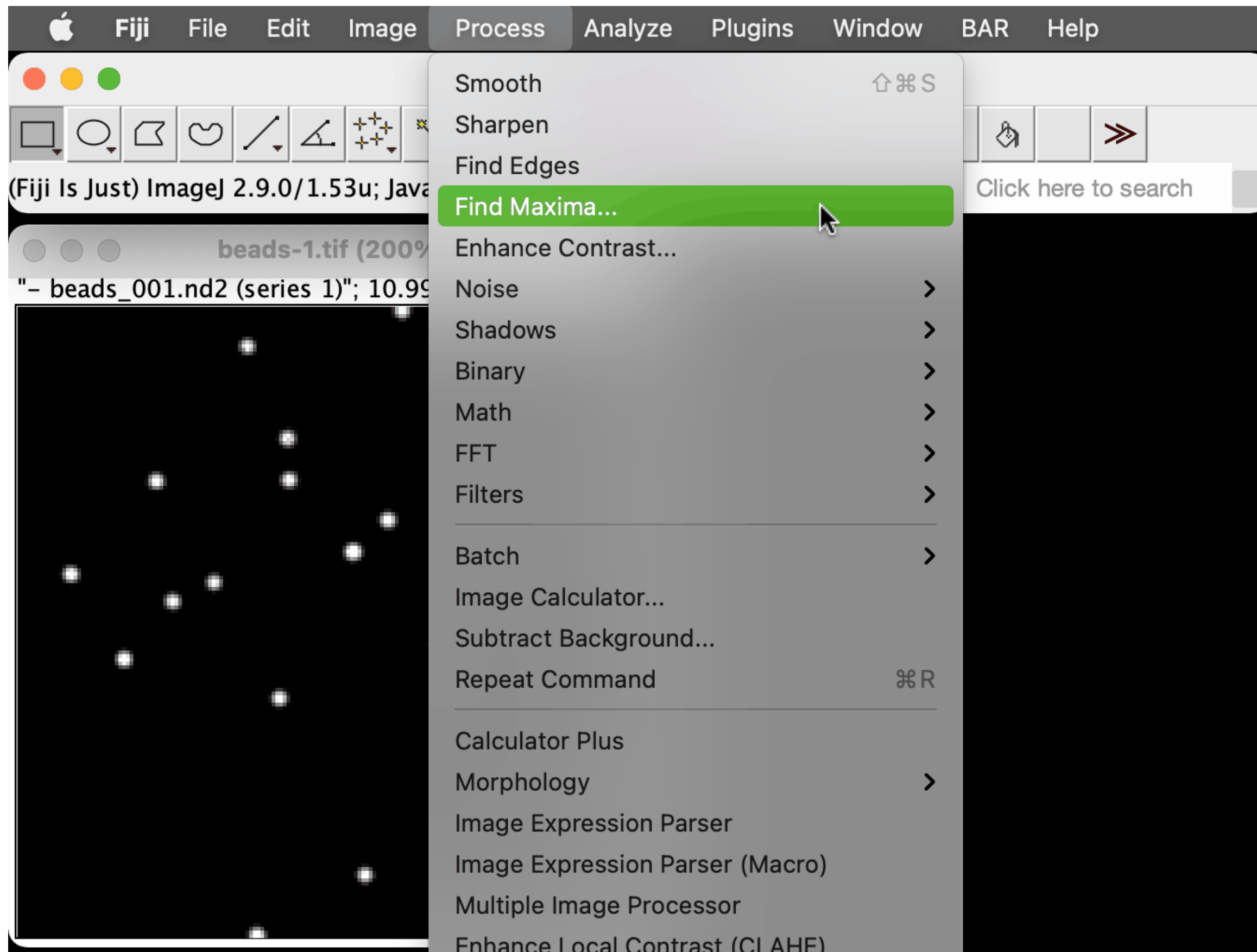
to add point selection to ROI Manager:

t

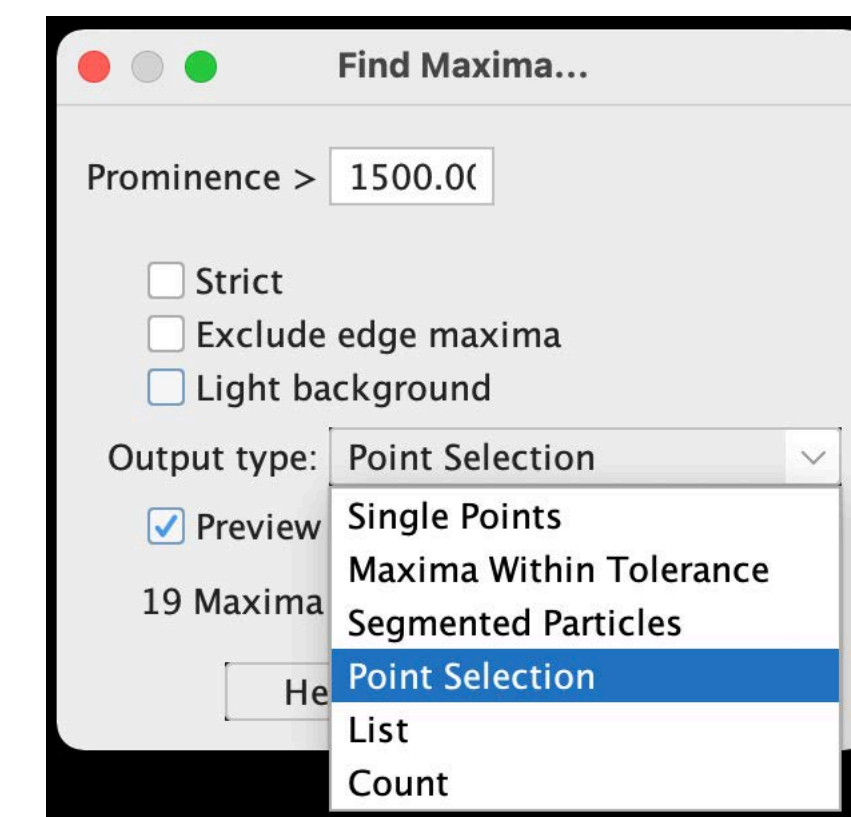**you can also toggle the "Show all" checkbox in the ROI Manager.*   ***you can also use the "Measure" button in the ROI Manager.*

Point and Multi-Point tool

Select and Measure multiple points

Process > Find Maxima…

Segmentation with pixel based classifier—exercises

5.1 - Manual spot detection with the Multi-point Tool
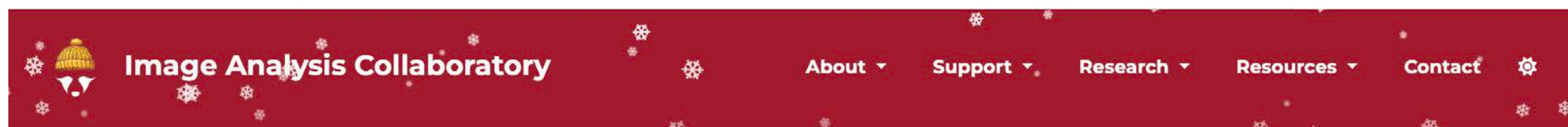
5.2 Algorithmic spot detection with Find Maxima

5.3 Automatic spot segmentation with thresholding

5.4. Spot detection with noise

5.5. Spot detection with variable background

IAC Website - iac.hms.harvard.edu

Image Analysis Collaboratory

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Welcome to the
Image Analysis Collaboratory
at Harvard Medical School

We research, develop, and apply algorithms to analyze scientific images. We also offer workshops, consultations, and project support in matters quantitative bioimage analysis. Funded by the Foundry, we collaborate with any department of the school (though mainly Quad-based pre-clinical) and work closely with the local microscopy facilities.

Announcements
- 🎓 Workshop: Introduction to Image Analysis using ImageJ/Fiji
- 🎓 Workshop: Introduction to Macro writing in ImageJ/Fiji
- 🎓 Workshop: Introduction to Bioimage Analysis using QuPath

Consult with Us
We are here to help you consult regarding your data and data analysis needs.

Collaborate with Us
Come talk to us about how we can work together on a project.

By Collaboratory we mean,

"center without walls, in which […] researchers can perform their research without regard to physical location, interacting with colleagues, accessing instrumentation, sharing data and computational resources, [and] accessing information in digital libraries."
- *(Wulf, 1989)*

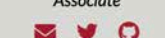### People

Principal Investigator
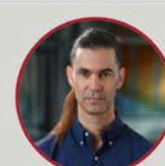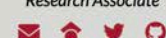
Simon F. Nørrelykke
Director, Faculty

Researchers

Antoine A. Ruzette
Associate

Federico Gasparoli
Research Associate

Maria Theiss
Specialist Postdoc
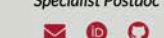
Ranit Karmakar
Specialist Postdoc

Image Analysis Collaboratory

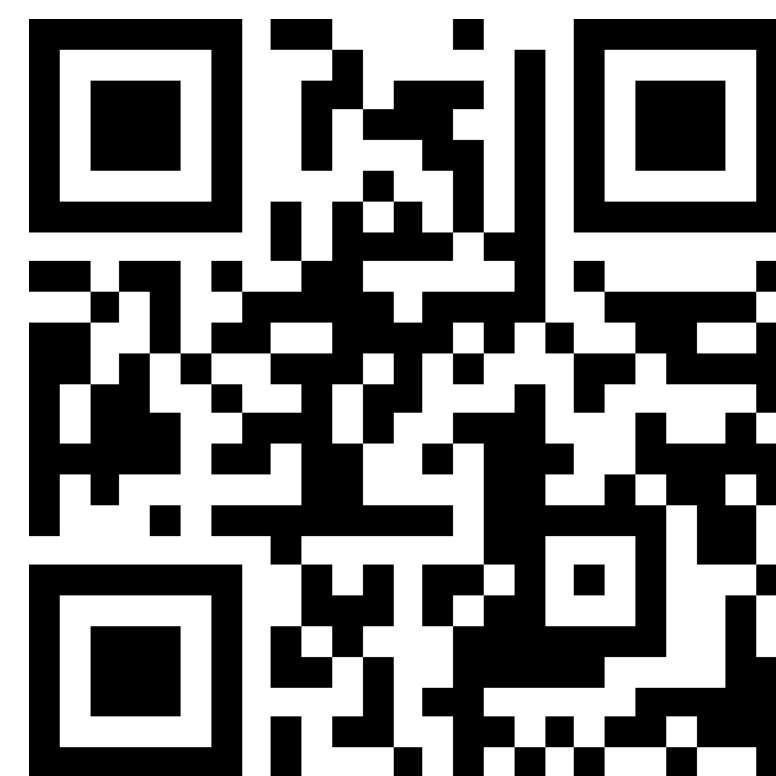🏠 About ▾ Support ▾ Research ▾ Resources ▾ Contact ⚙

💬 Image Analysis Consultation

IAC offers two tailored consultation options for individuals seeking assistance with image analysis. Depending on your needs and affiliation, choose the service that best aligns with your goals.

📋 **Image Clinics:** Comprehensive, hour-long sessions focused on addressing complex image analysis challenges with one or more IAC experts.

🚶 **Walk-ins:** Quick, 20-minute sessions designed to resolve straightforward issues such as script troubleshooting or software installation.

Example 1: I have a set of time-lapse images and need to track each cell to determine the length of the cell cycle. As a beginner in bio-image analysis, I am unsure where to start. --> Book an Image Clinic.

Example 2: I built an image analysis pipeline in Fiji but need help writing a macro to apply the same pipeline to all images. --> Visit a Walk-in.

More details about these services are provided below. These consultations are intended to guide you through your image analysis needs and introduce you to the field of bio-image analysis. While they may not completely solve your issues, they serve as an excellent starting point. For those seeking in-depth analysis or collaboration on long-term projects, please visit our collaborate page.

📋 Image Clinics

Purpose: These clinics are ideal for users who require significant guidance on designing workflows, troubleshooting advanced analysis, or identifying the right tools and techniques for their projects. They are particularly suited for those working on intricate datasets or novel research questions.

Preparation: Participants are expected to prepare a concise presentation outlining their project, key challenges, and goals. Additionally, representative images or datasets should be brought to the session.

Data: Please bring sample data that reflects your project's scope, even if it is not your own. This helps us provide practical and actionable recommendations.

Length: Usually an hour or longer, depending on the complexity of the problem.

Available for: Open to everyone (HMS, Harvard affiliates, and industry partners).

Fees: Varying* (based on affiliation and session requirements).

📅 Book an Image Clinic

🚶 Image Analysis Walk-ins

Purpose: Walk-ins are ideal for resolving straightforward questions, such as setting up software, troubleshooting scripts, or addressing specific image analysis workflows. They are also suitable for users who need assistance with technical challenges like writing Fiji macros or using Python-based tools.

Preparation: Usually, no extensive preparation is needed. However, if it is your first visit, we recommend preparing a brief overview of your problem to make the session more effective.

Data: Bringing representative example data can help us better understand your problem and provide actionable guidance.

Length: Each session is ~20 minutes, allowing for focused and efficient problem-solving.

Available for: HMS Quad A (only).

When: Every Monday to Thursday from 4pm to 5pm

Where: LHRRB Room 105

Fees: Free*

*Note: Thanks to the generous funding provided by the Harvard Medical School Foundry award program, we are able to provide some of these services for free for all HMS Quad A researchers.

Further Learning (https://iac.hms.harvard.edu/resources/)

Forum: Knowledge exchange and support

- https://forum.image.sc/

Online book with code: Introduction to Bioimage Analysis

- https://bioimagebook.github.io/

Online training: NEUBIAS Academy

- https://eubias.org/NEUBIAS/training-schools/neubias-academy-home/

- https://www.youtube.com/c/NEUBIAS

Fiji manual from Monash University

- https://bridges.monash.edu/articles/educational_resource/Fiji_Training_Manual_v6_4_/20033513

BioImaging North America (BINA)

- https://www.bioimagingnorthamerica.org/

Feedback Form - Thanks!