BioImage Analysis

The DCSR offers image analysis support for the FBM community. Whether you're looking to extract quantitative information, automate a manual task, fix a script, or discuss a new project, you're at the right place! Antony Carrard, bioimage analysis and machine learning specialist, will be happy to help you.

What we can work on together

From a quick question to a full pipeline build from scratch, if it involves extracting information from images, we can talk about it. Here is what I can help you with:

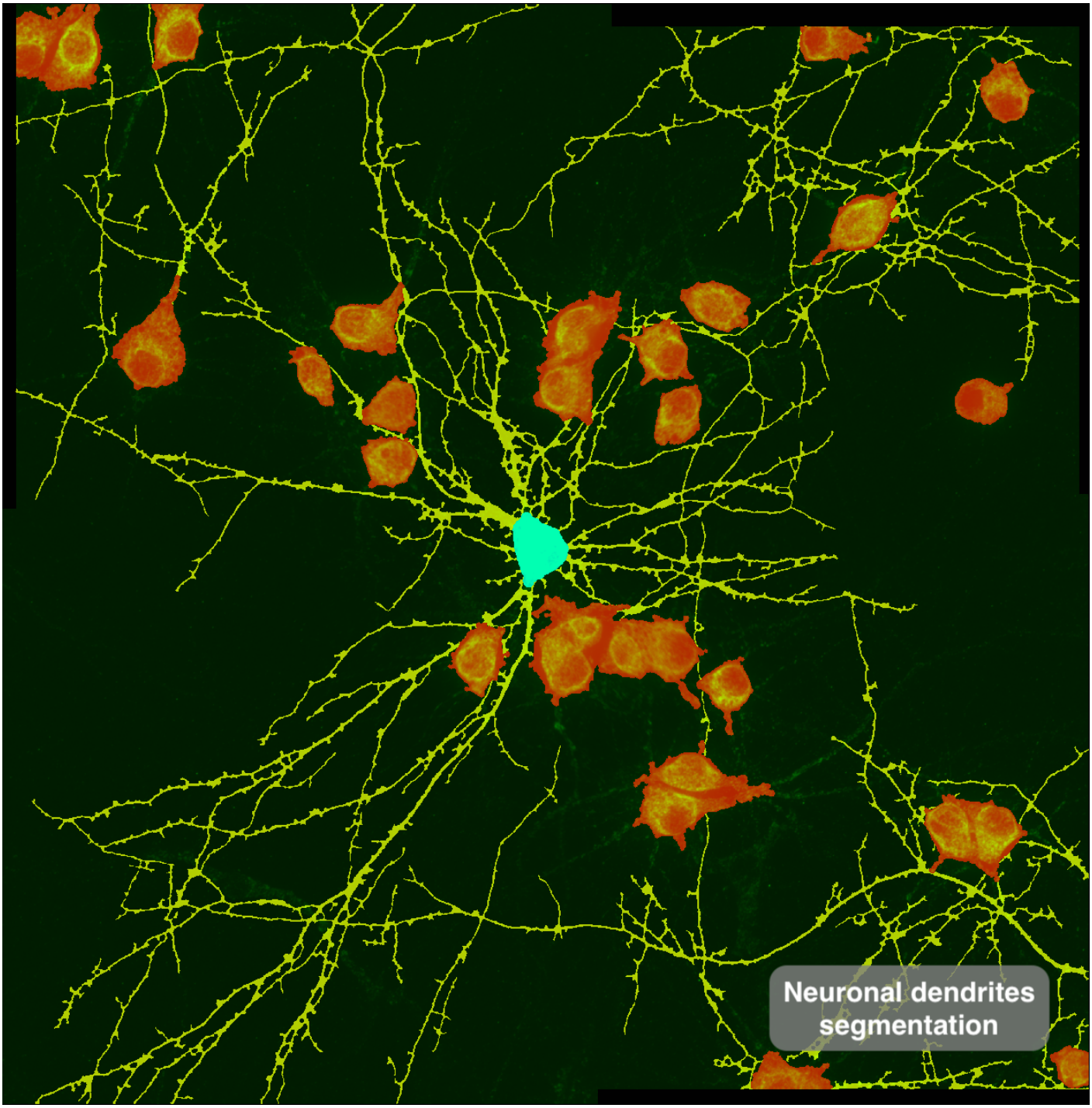
- **Image acquisition & setup** — camera and lighting selection, acquisition protocol, color calibration
- **Pre-processing** — denoising, stitching, channel alignment, flatfield correction
- **Segmentation & detection** — from classical thresholding to deep learning models (SAM, Cellpose, StarDist…)
- **Cell & object identification** — detection, counting, classification by morphology or intensity
- **Colocalization** — spatial co-occurrence analysis, intensity correlation, custom distribution metrics
- **Quantification** — intensity profiles, shape descriptors, color and texture analysis
- **Tracking & behavioral analysis** — object tracking across frames, movement and behavior metrics
- **Large-scale pipelines** — automation, batch processing, HPC when needed
- **Results & visualization** — overlays, plots, summary tables, exportable metrics

Common tools & software

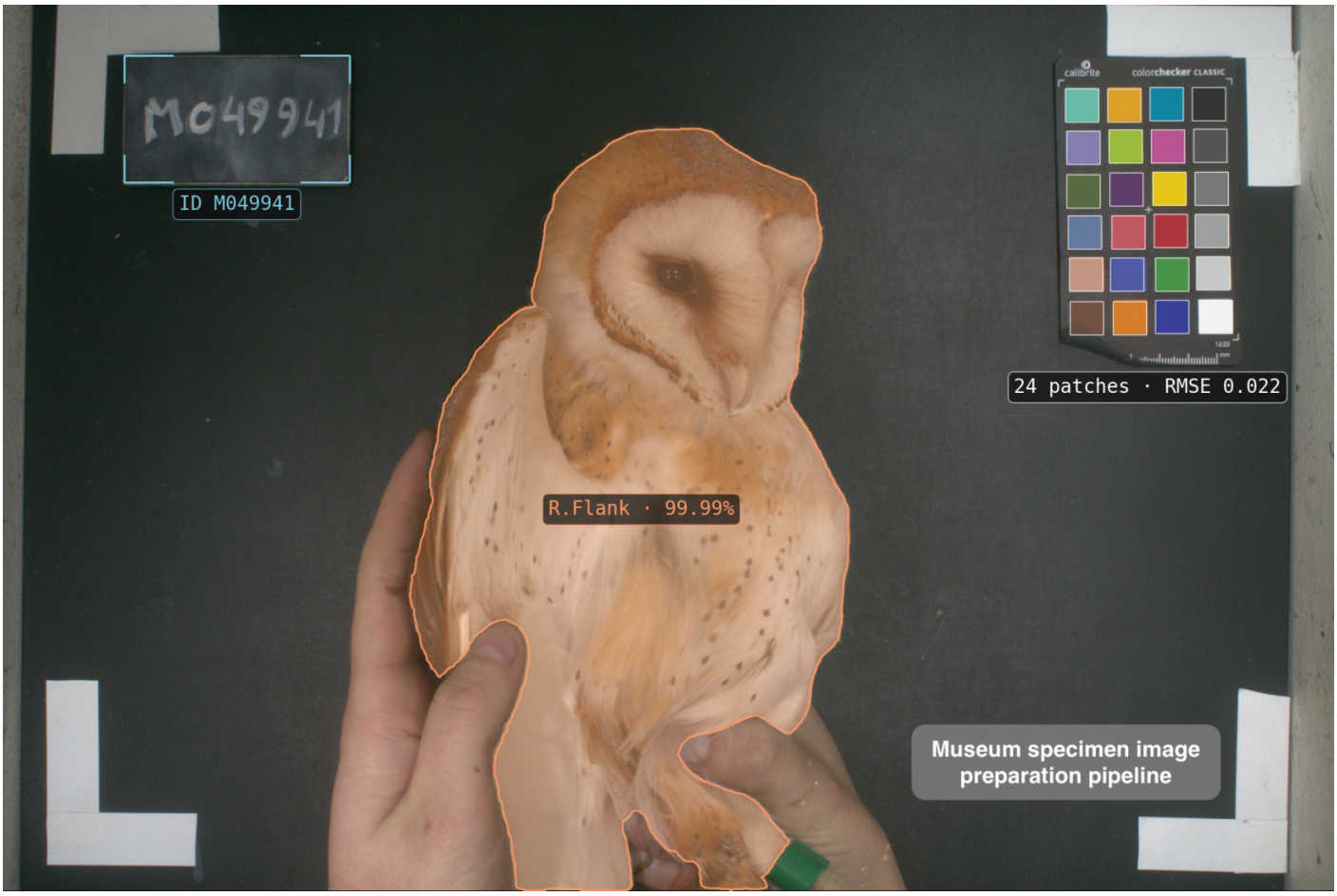
Depending on your needs and existing workflow, we can also work with established open-source bioimage analysis tools:

- **Fiji / ImageJ** — the standard for general image processing and macro automation
- **CellProfiler** — automated quantification pipelines, no coding required
- **QuPath** — whole-slide and multichannel image analysis
- **Ilastik** — interactive machine learning for segmentation and classification
- **Napari** — Python-based viewer for multidimensional images

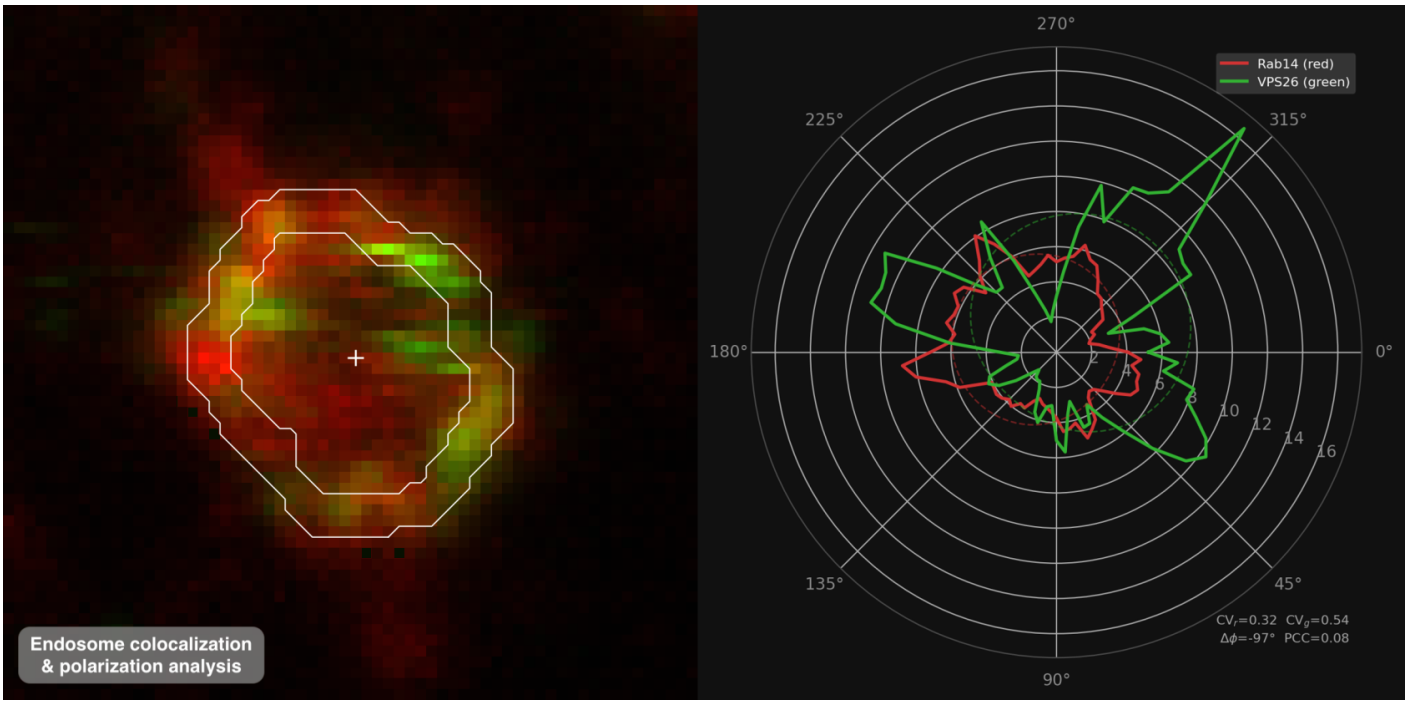
Projects



Automatic dendritic segmentation for intensity extraction — Marianna Pompili, Bagni Lab, DNF



Owl specimen ID extraction and image color correction pipeline — Tristan Cumer, Goudet Group, DEE



Automatic endosome contour identification for colocalization and polarization analysis — Sarah Hornfeck, Widmann Lab, DSB

Contact

Feel free to reach out at research-computing-fbm@unil.ch — briefly describe your project or question and we'll get back to you shortly.

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