PoL
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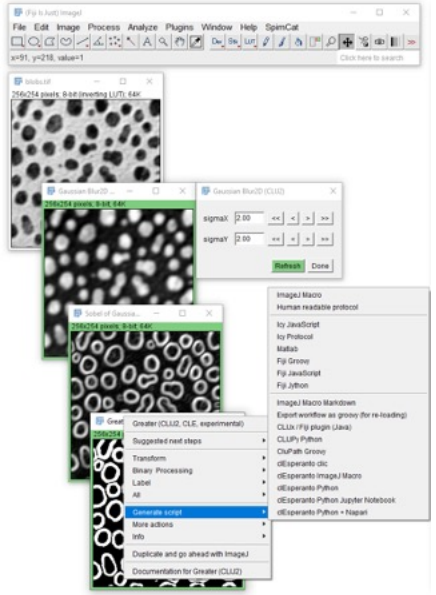
From assistant to notebooks

Till Korten

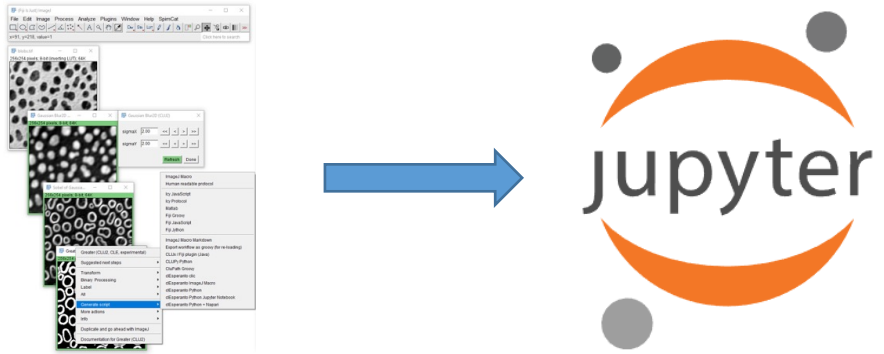


June 2023

@TillKorten

Outline

- Exporting workflows as notebooks



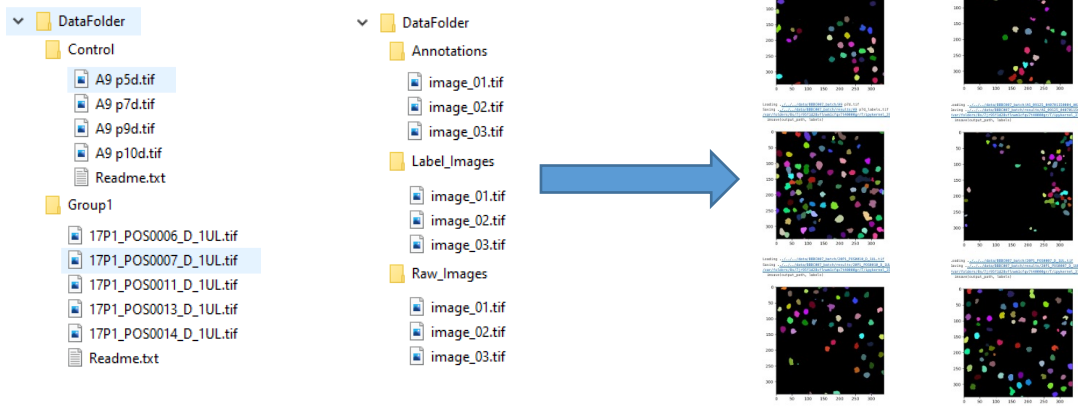
- Python programming basics

```
firstname = "Robert"
lastname = 'Haase'

print("Hello " + firstname + " " + lastname)
```

```
Hello Robert Haase
```

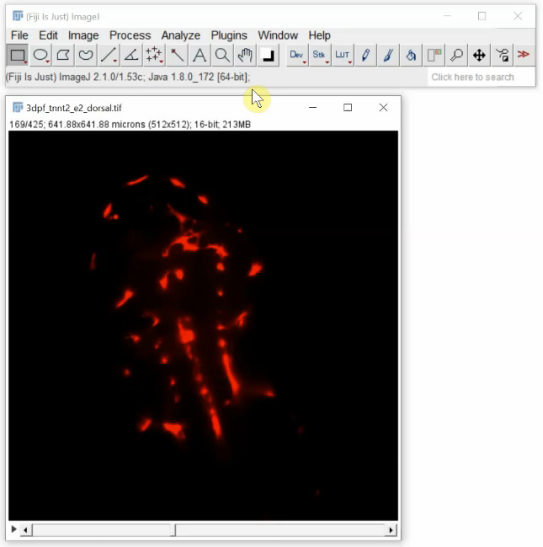
- Processing folders of images

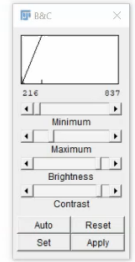


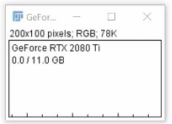
Recap – creating image analysis workflows

GPU acceleration + code generation

- After setting up the workflow, generate code!







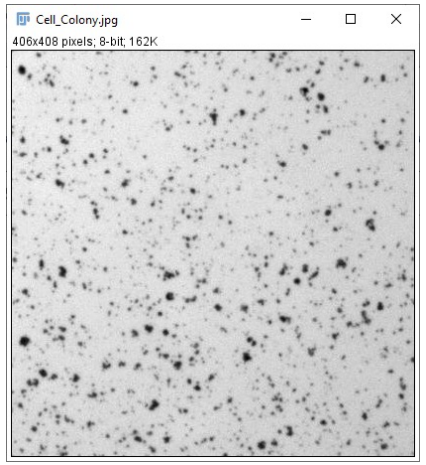
Special thanks to Elisabeth Kugler!

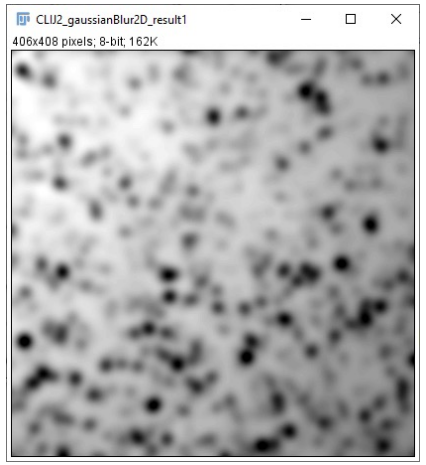
Elisabeth Kugle
@KuglerElisabeth

Image data source: Elisabeth Kugler; labs of Tim Chico and Paul Armitage, The University of Sheffield (UK)" https://zenodo.org/record/4204839#.X8DCRGj7Q2w

CLIJ2: What every ImageJ Macro script must have

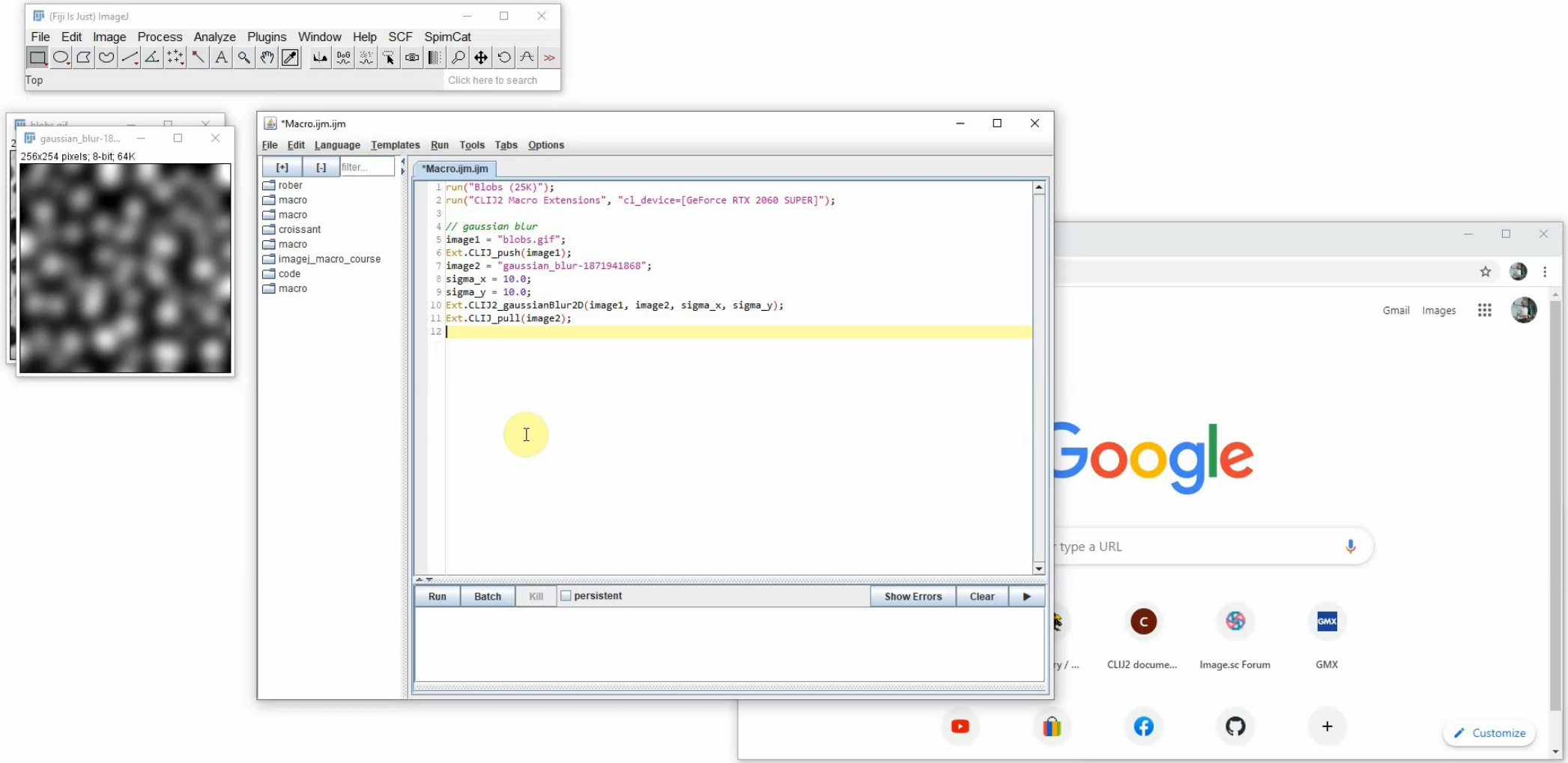
- Load data





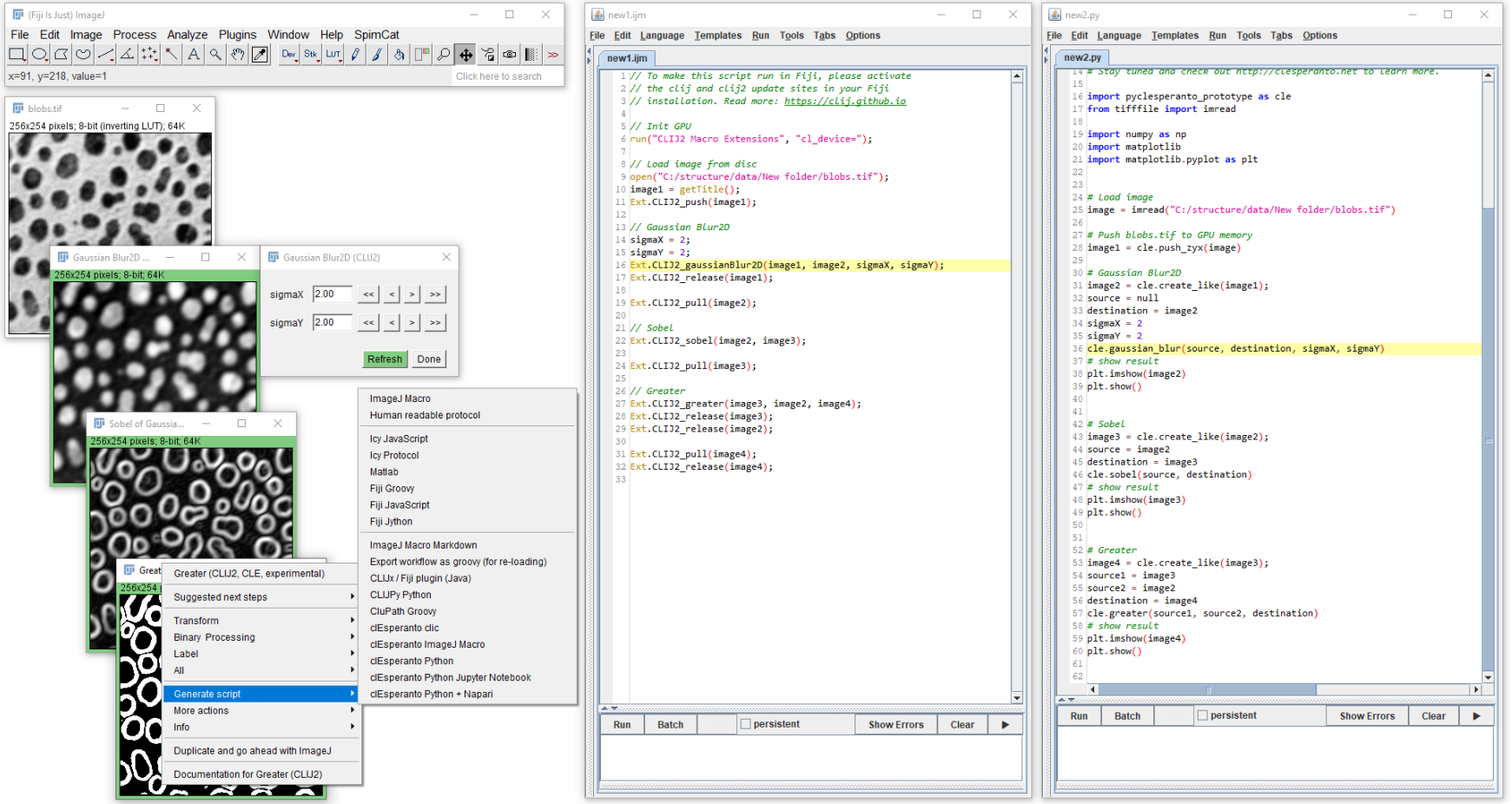
- Cleanup

CLIJ2: Macro editing

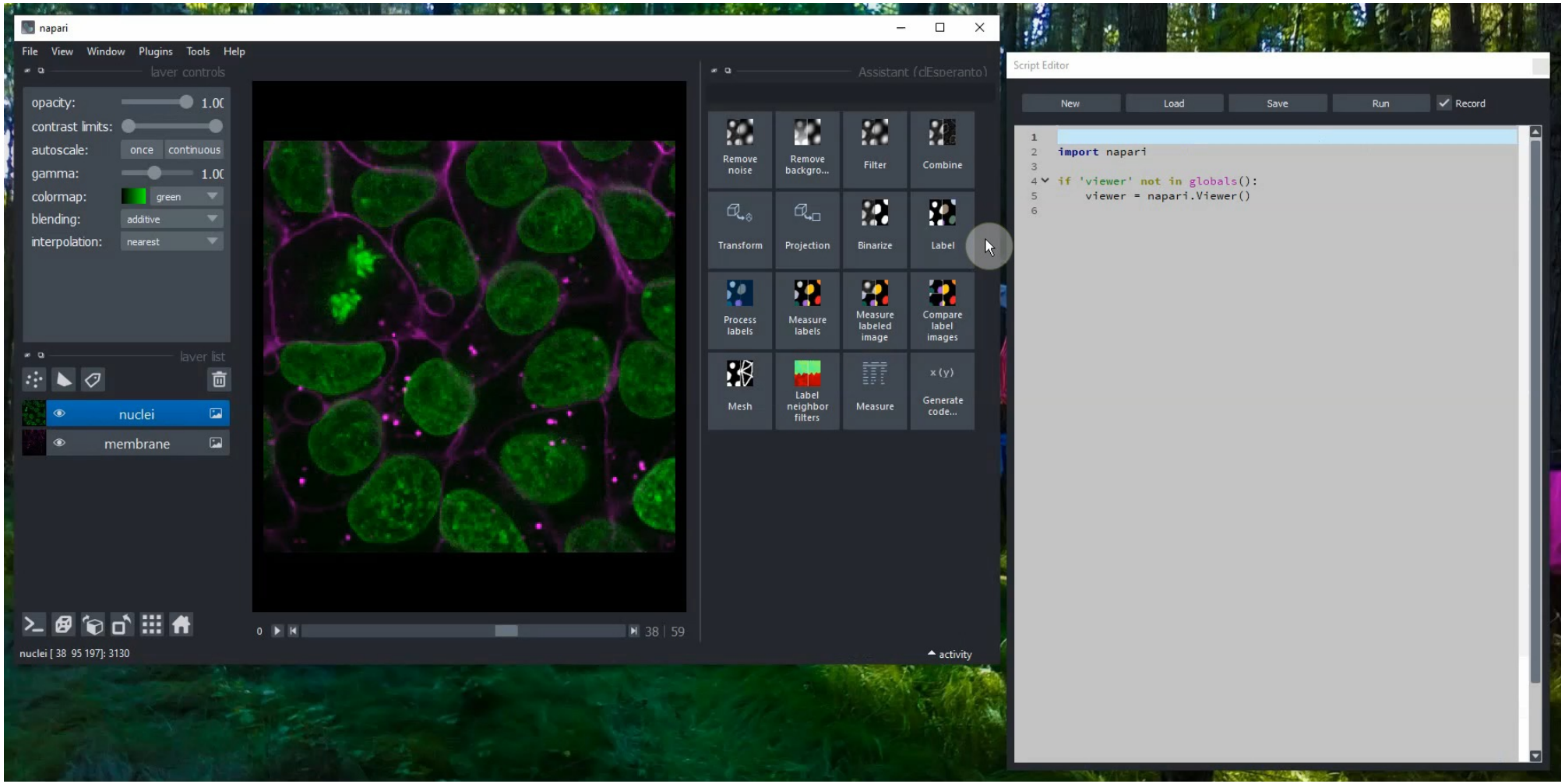


clEsperanto script language comparison

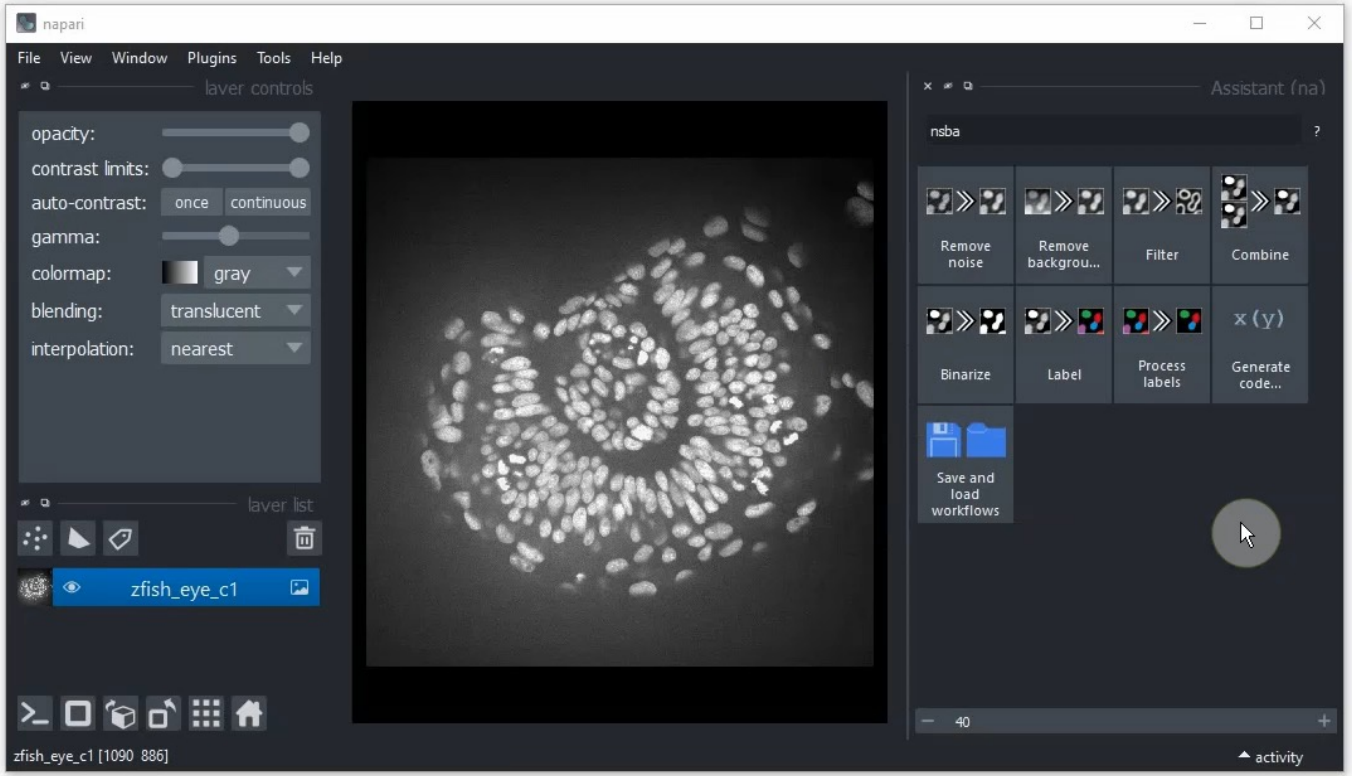
- Generate multiple scripts in multiple languages from a given Image Data Flow Graph



Export code to Python



Export code to Jupyter Notebooks

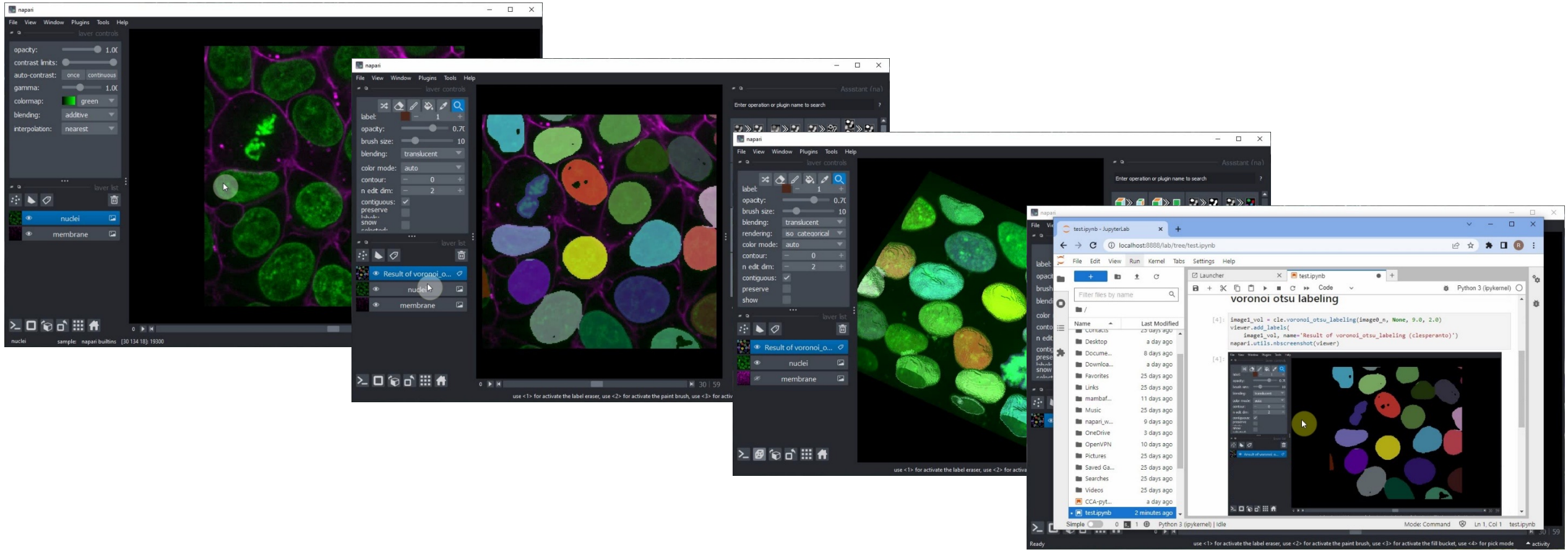


https://github.com/haesleinhuepf/napari-assistant

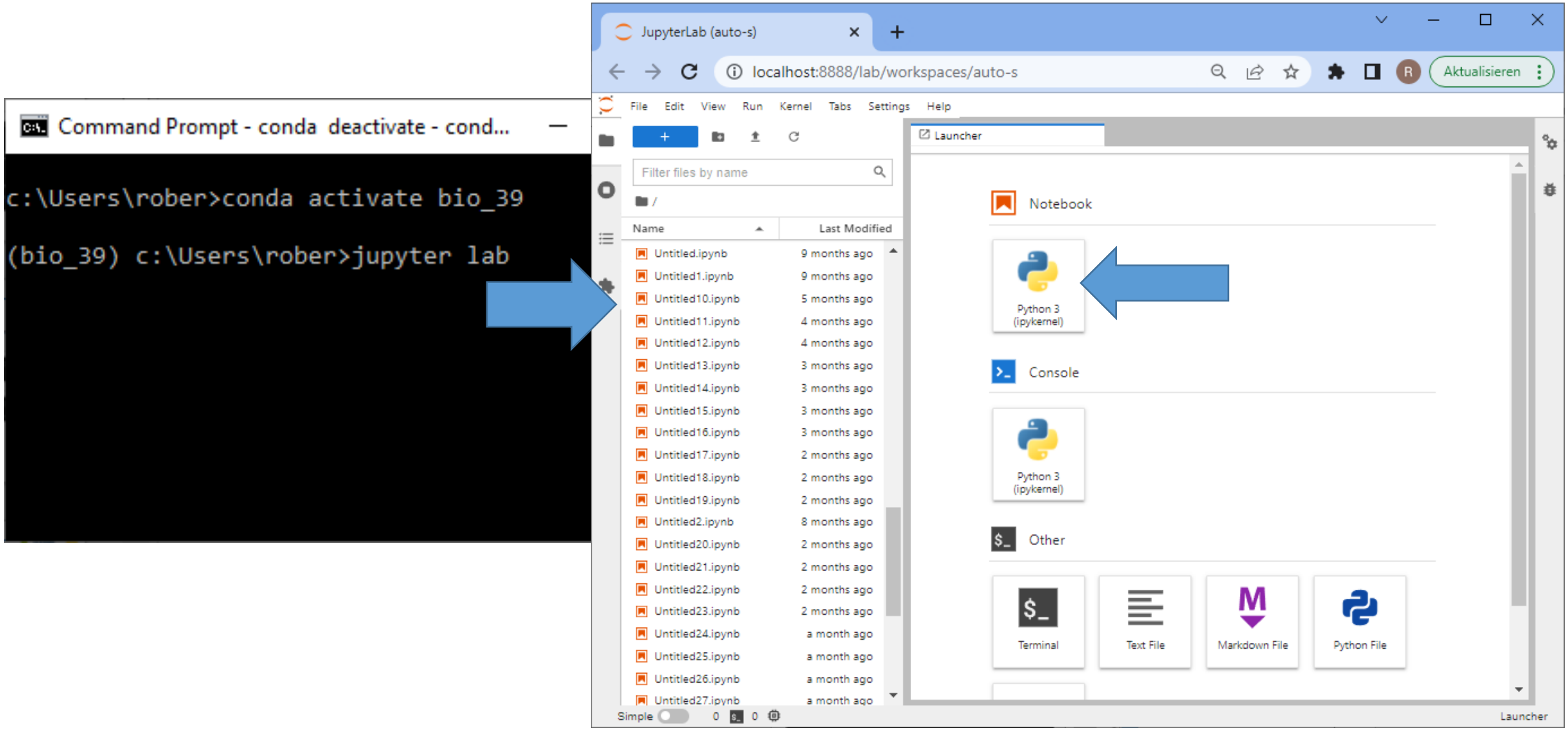
Image data source: Mauricio Rocha Martins, Norden lab, MPI CBG (now at IGC Oeiras)

Summary

- Use the Napari Assistant to generate a Jupyter Notebook

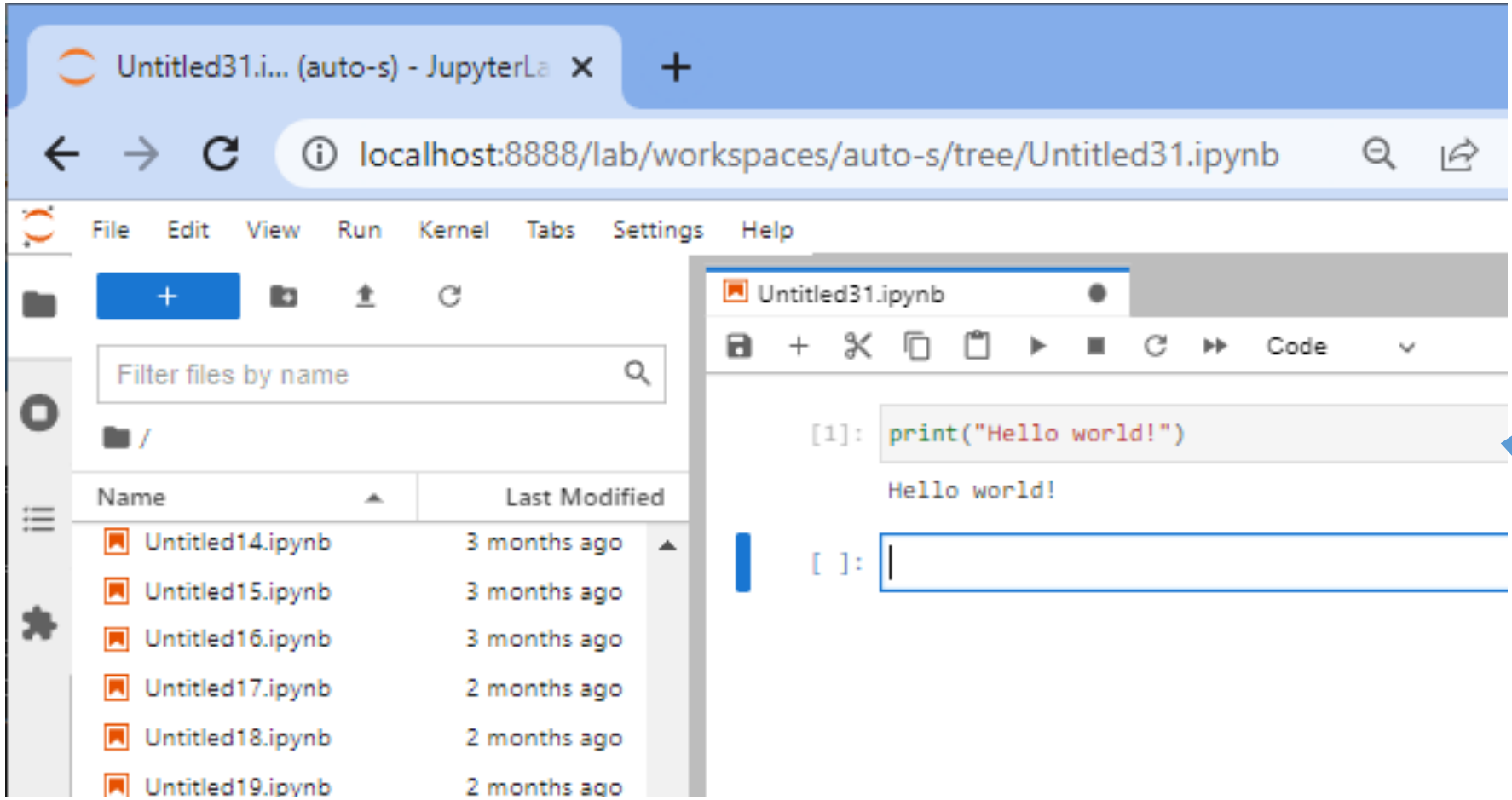


Open the notebook in Jupyter lab



Jupyter lab

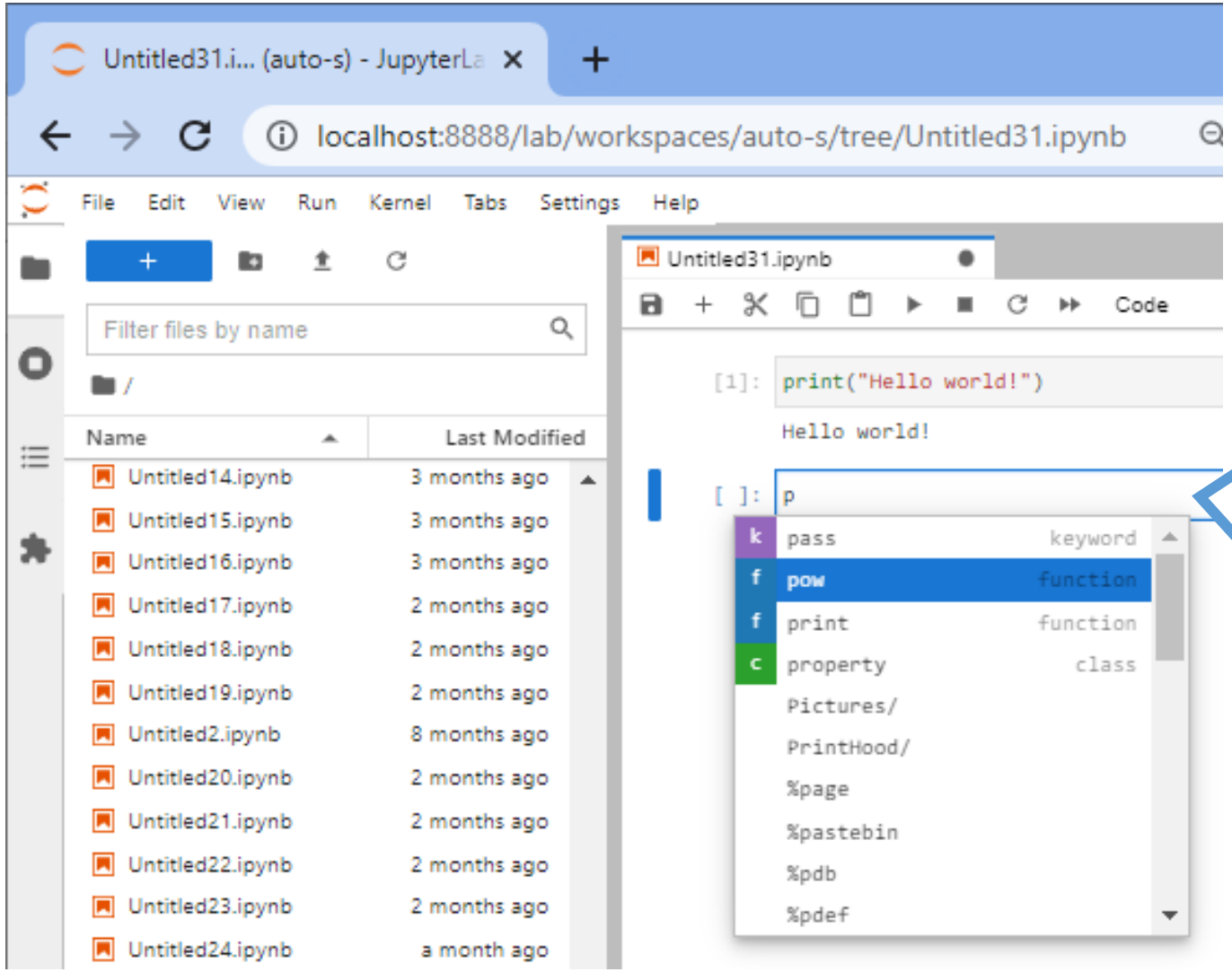
- Execute code cell-by-cell and see results instantaneously



SHIFT + ENTER to execute a code cell

Jupyter lab

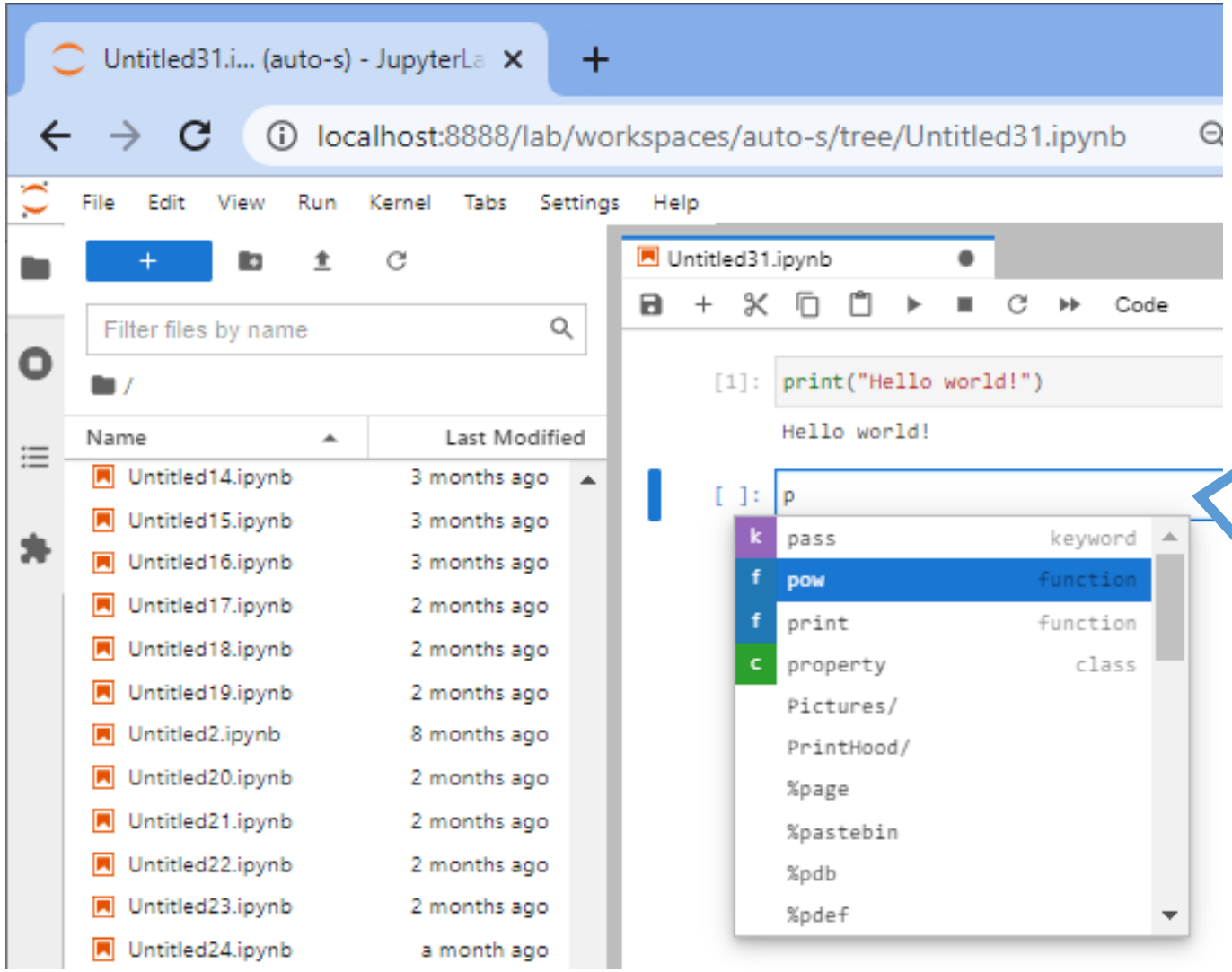
- Context-specific help, auto-completion



TAB
to open auto-completion

Jupyter lab

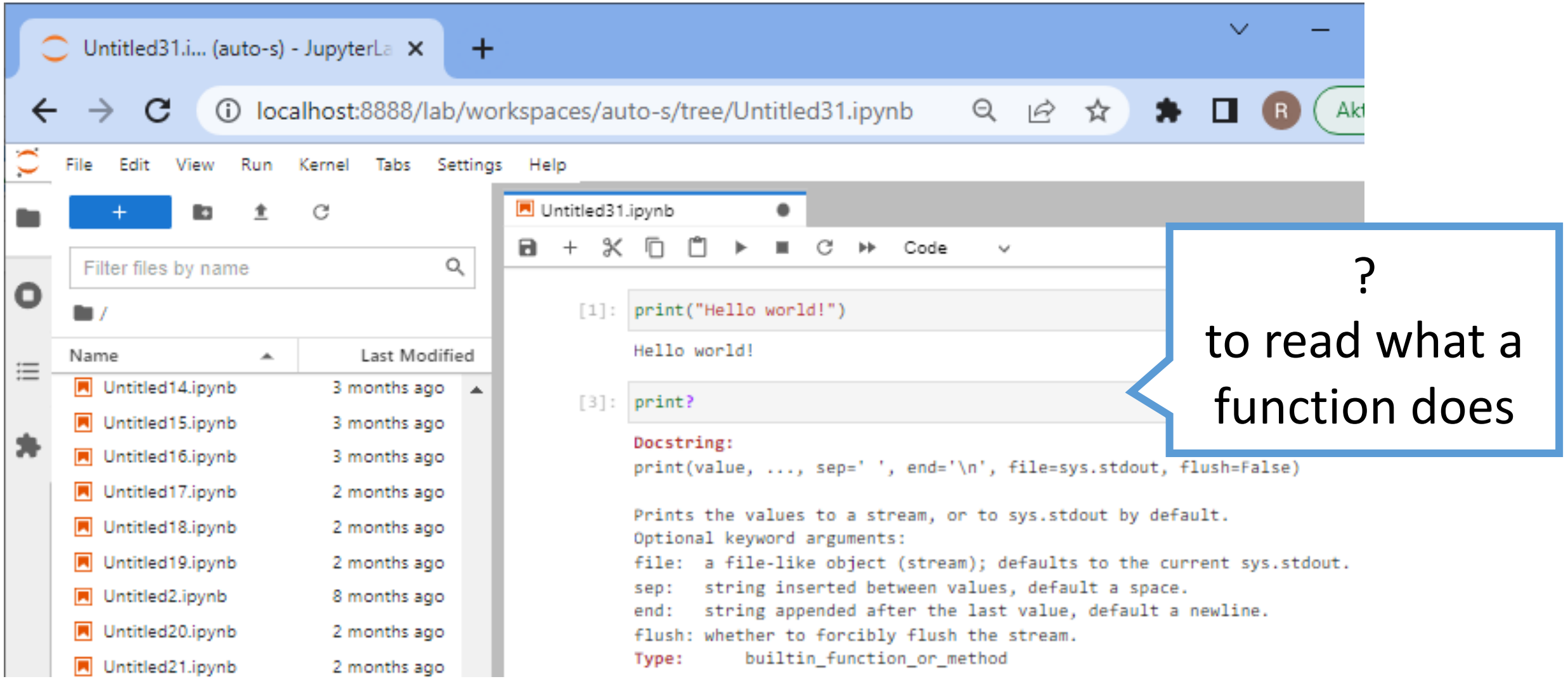
- Context-specific help, auto-completion



TAB
to open auto-completion

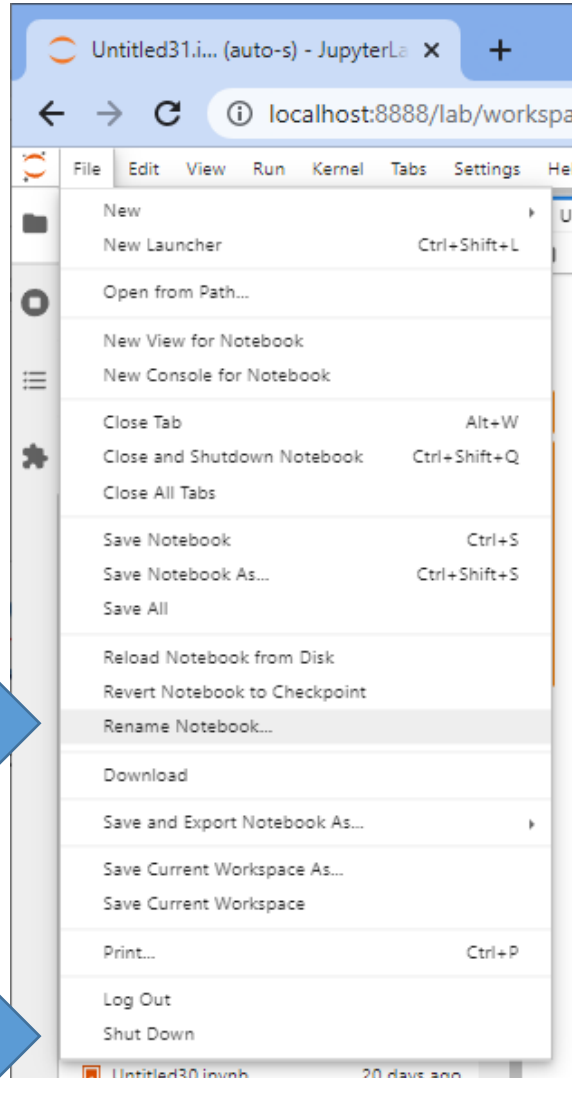
Jupyter lab

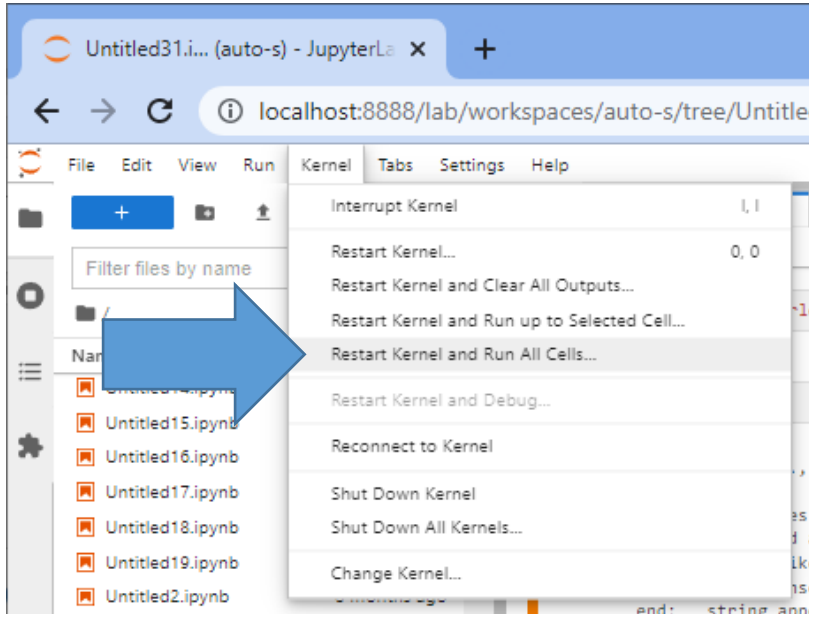
- Help / “docstrings”



Jupyter lab

- Saving / renaming / closing





Enforcing a “clean” execution state is important for ensuring reproducibility and repeatability

Live demo: create workflow notebook using napari