

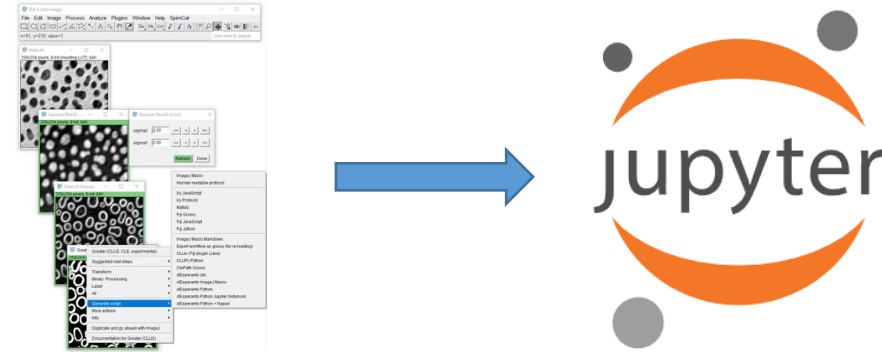
From assistant to notebooks

Till Korten



June 2023

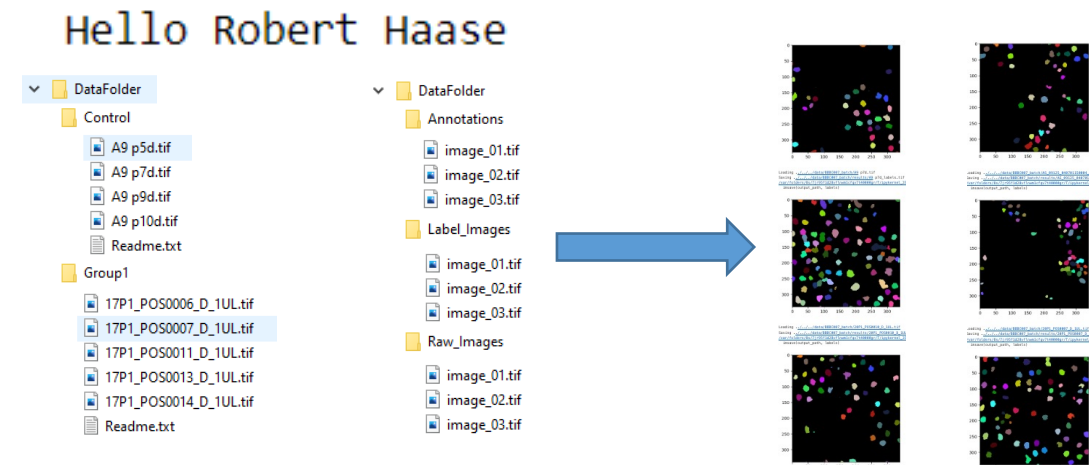
- Exporting workflows as notebooks



- Python programming basics

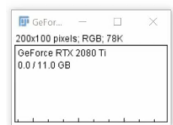
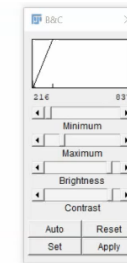
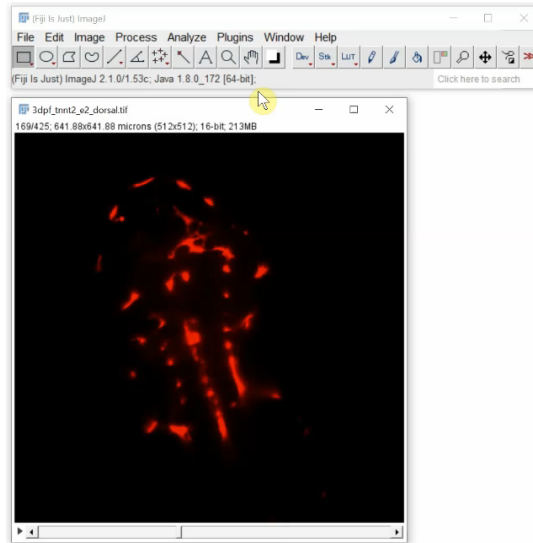
```
▶ firstname = "Robert"  
lastname = 'Haase'  
  
print("Hello " + firstname + " " + lastname)
```

- Processing folders of images



Recap – creating image analysis workflows

- After setting up the workflow, generate code!



Special
thanks to
Elisabeth
Kugler!

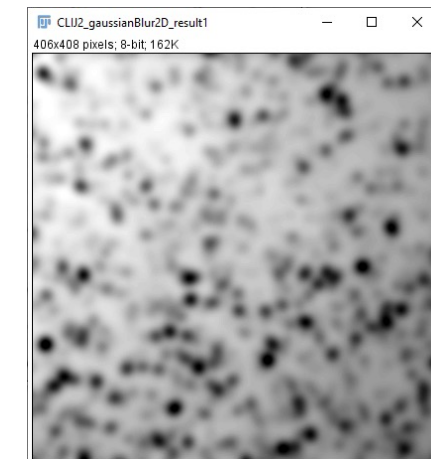
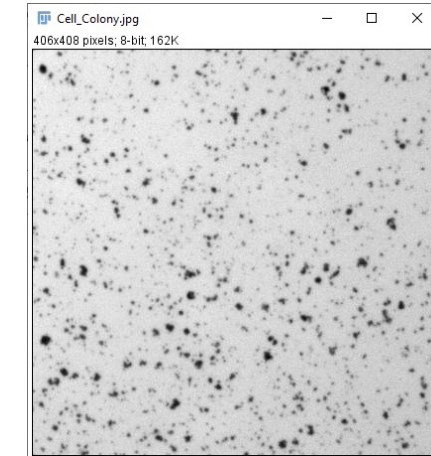


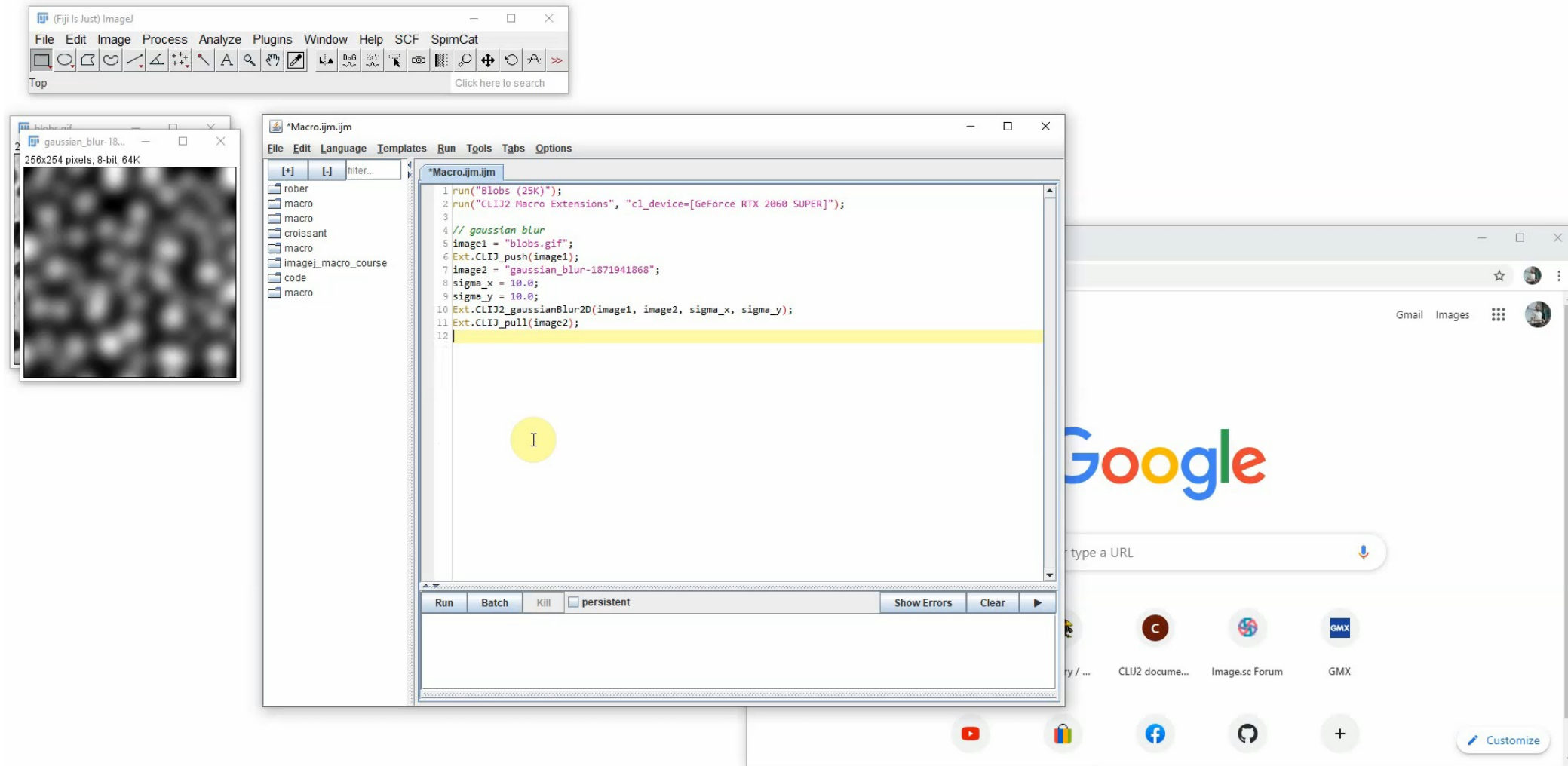
Elisabeth Kugler
@KuglerElisabeth

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

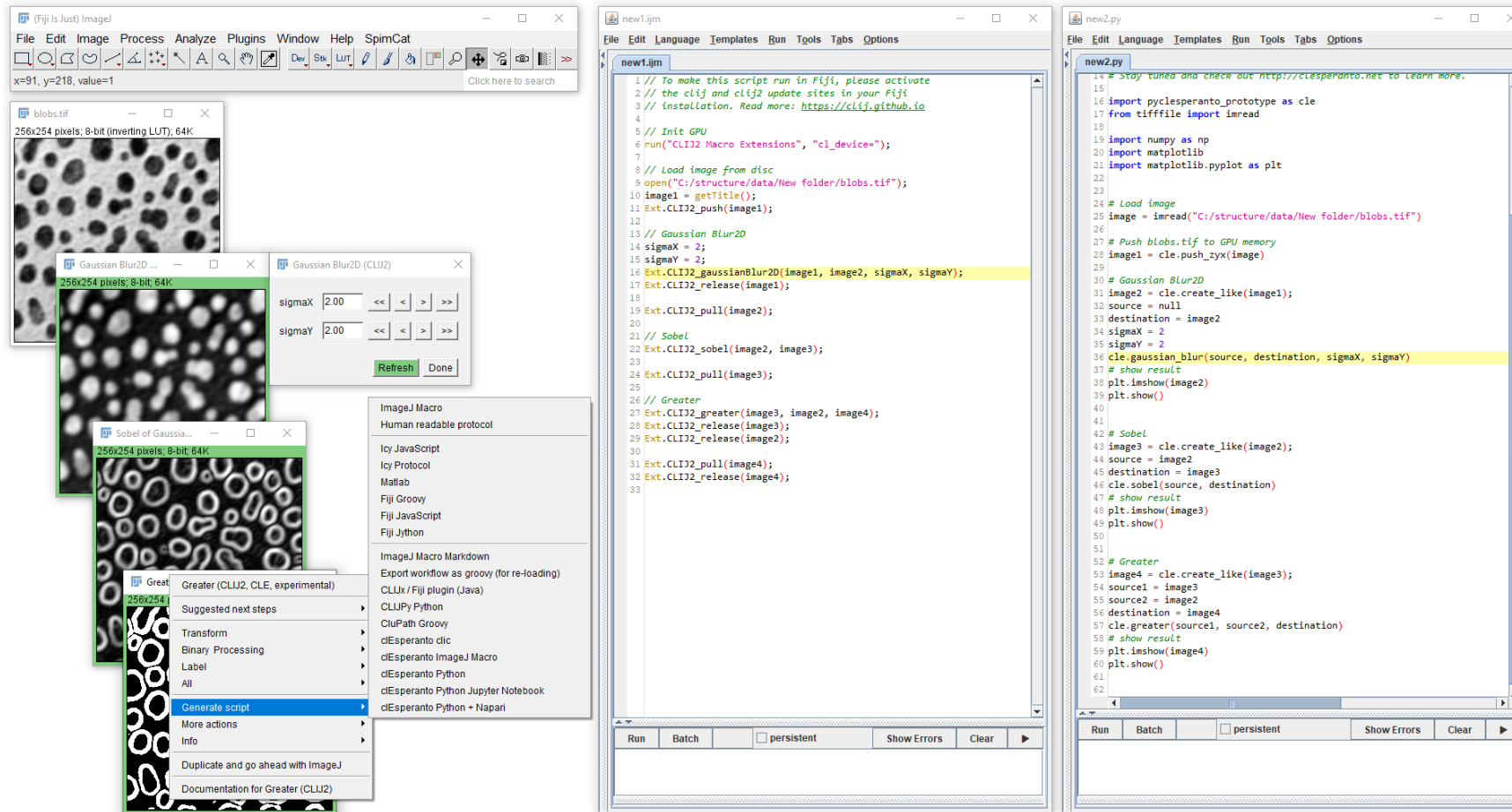
CLIJ2: What every ImageJ Macro script must have

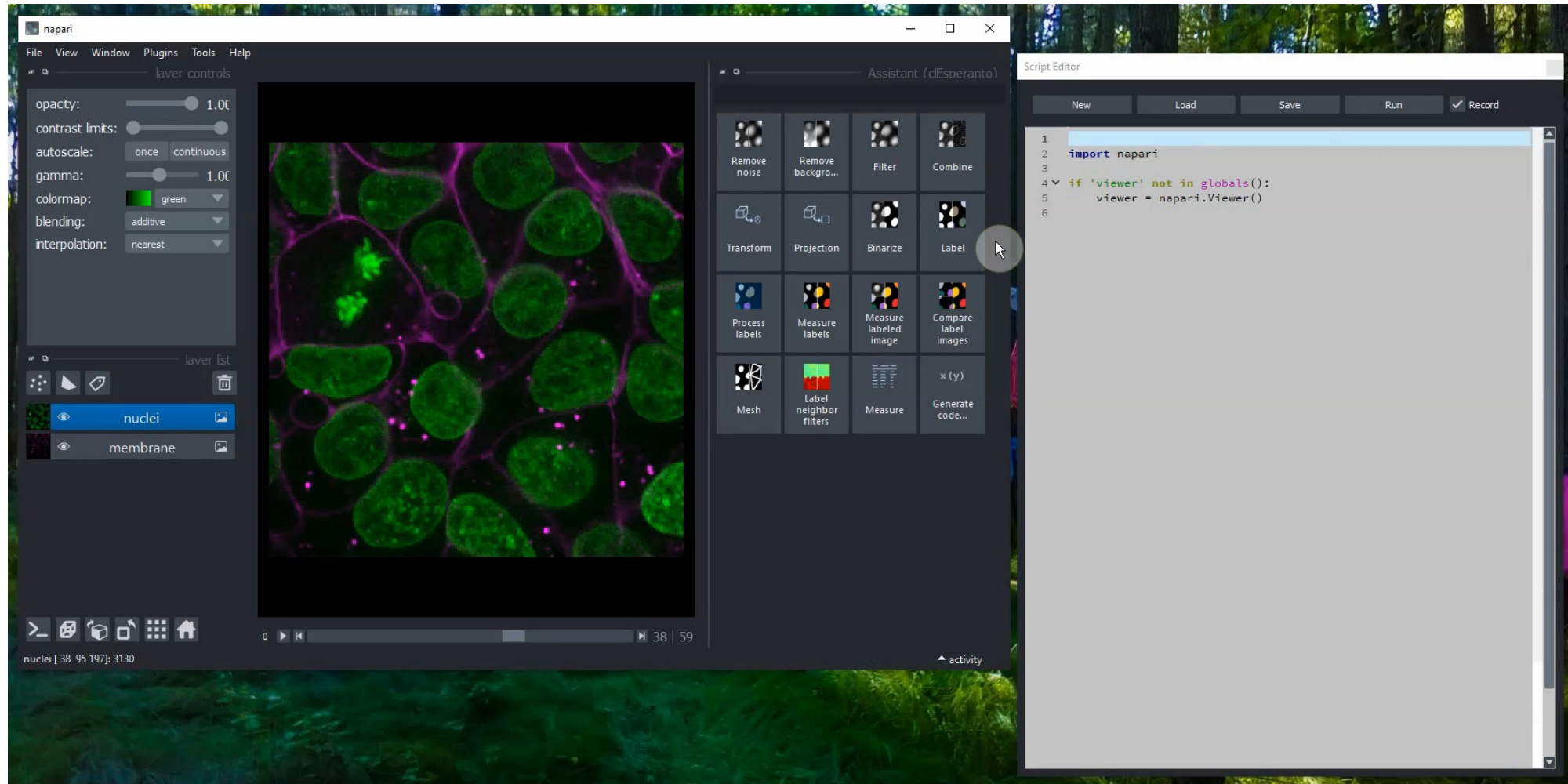
- Load data



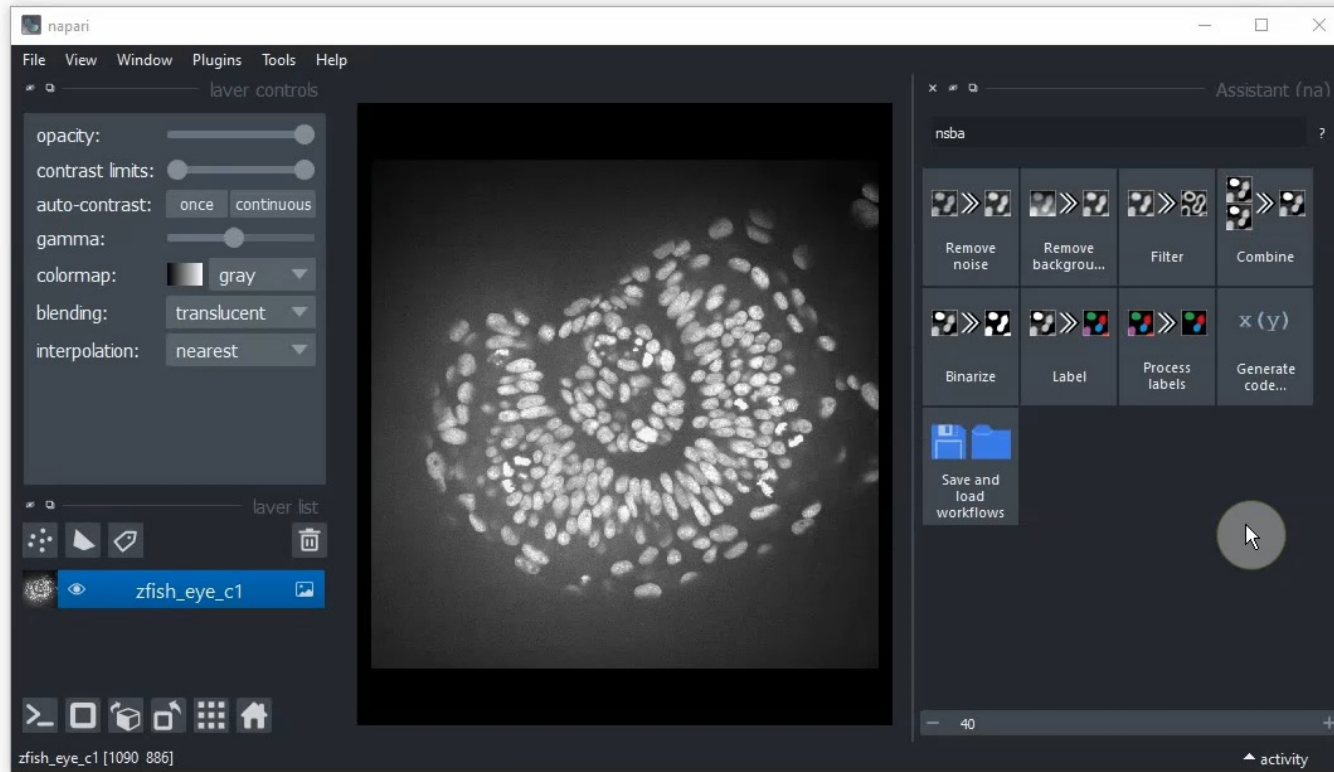


- Generate multiple scripts in multiple languages from a given Image Data Flow Graph



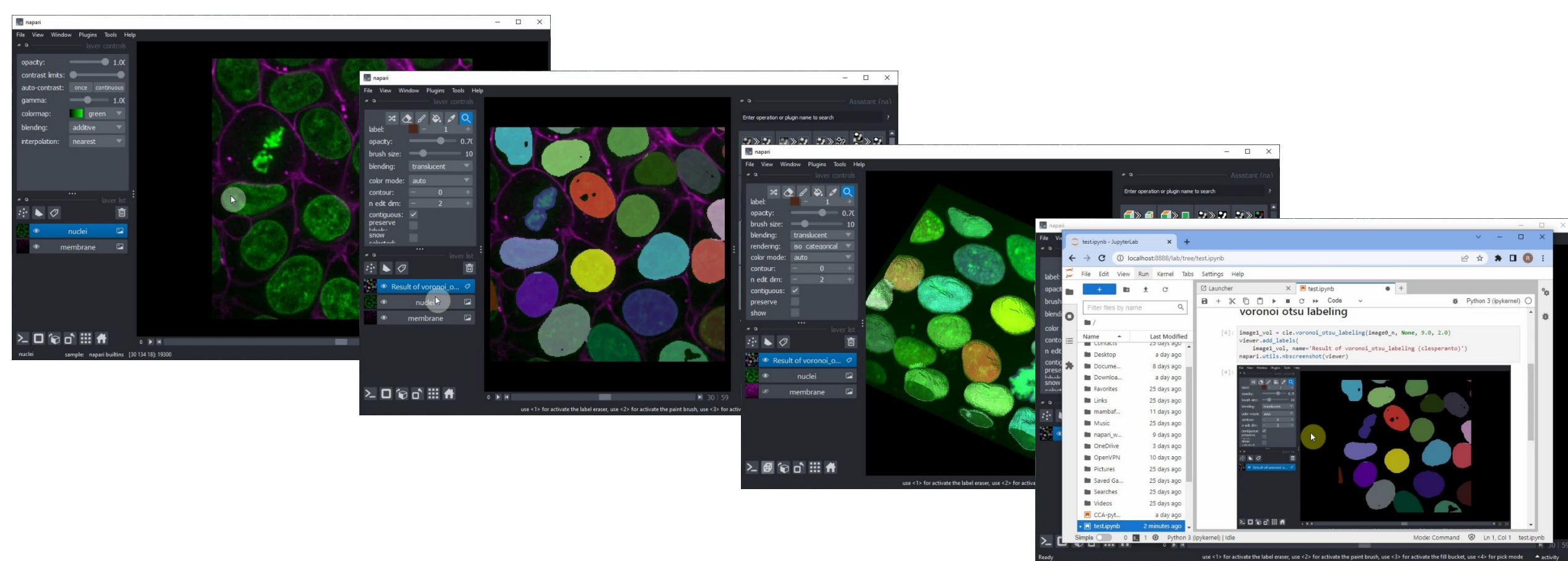


Export code to Jupyter Notebooks



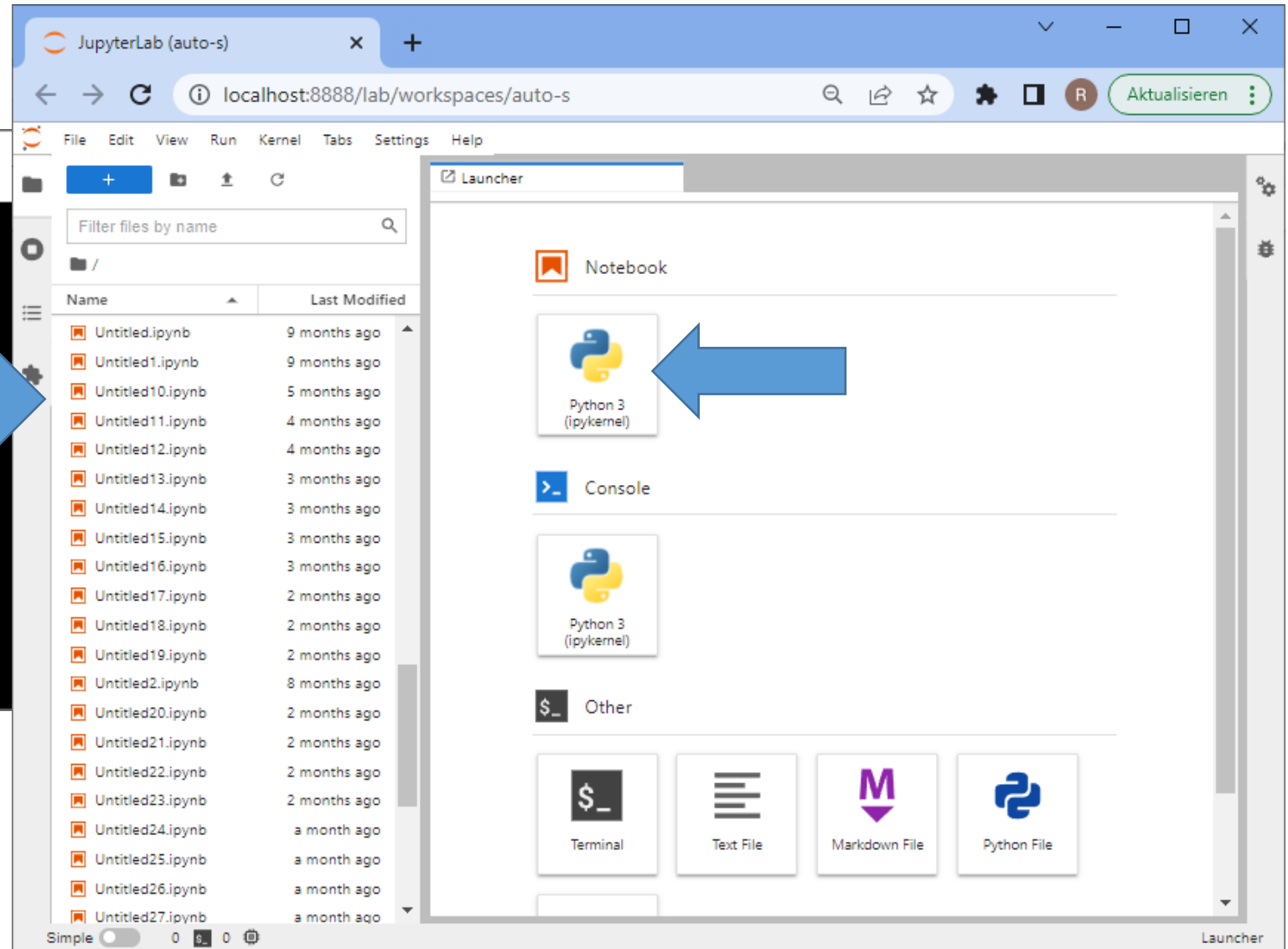
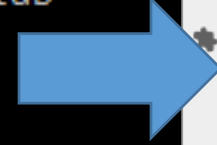
<https://github.com/haesleinhuepf/napari-assistant>

- Use the Napari Assistant to generate a Jupyter Notebook

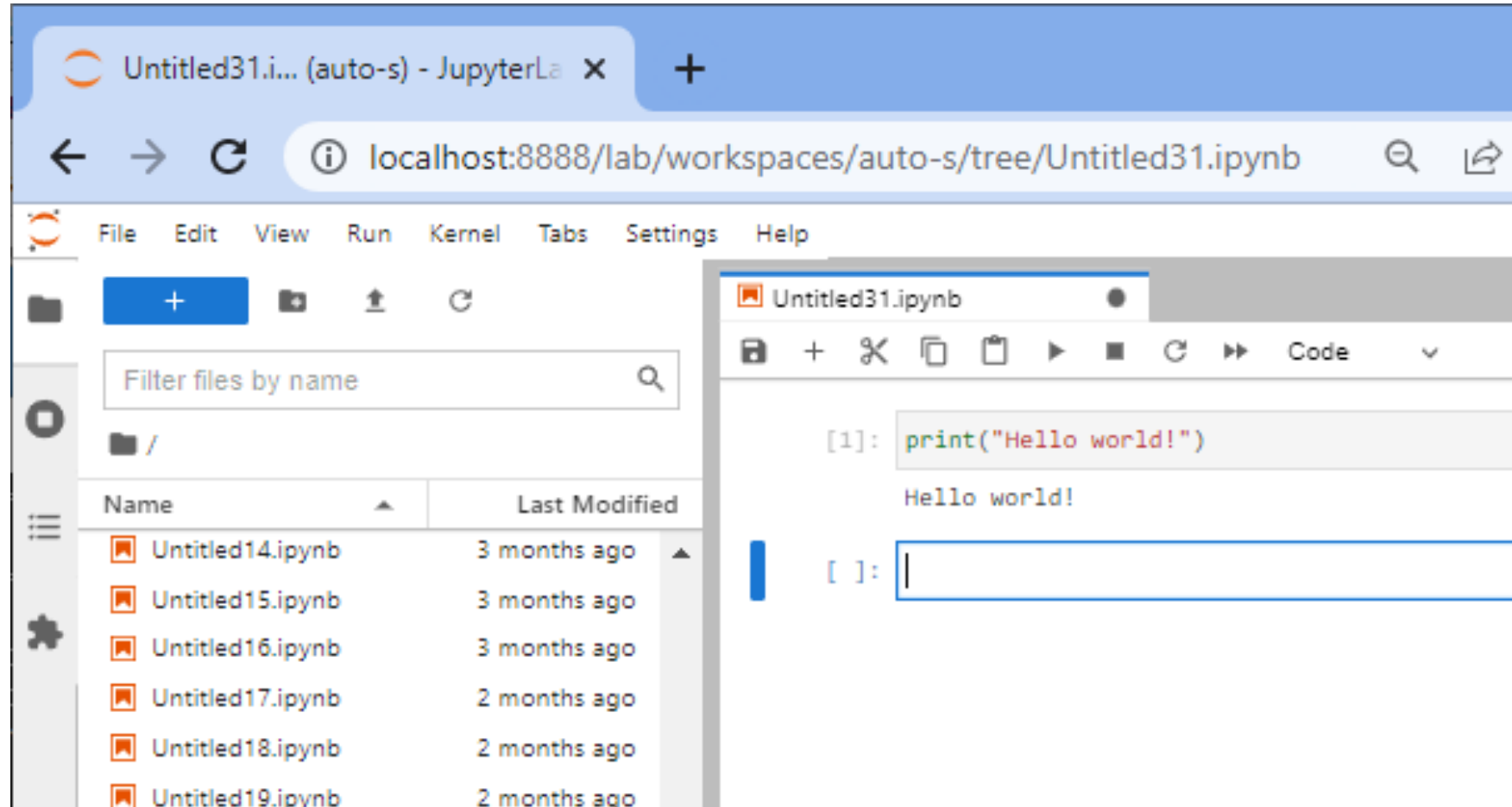


Open the notebook in Jupyter lab

```
C:\> Command Prompt - conda deactivate - cond...  
  
c:\Users\rober>conda activate bio_39  
  
(bio_39) c:\Users\rober>jupyter lab
```

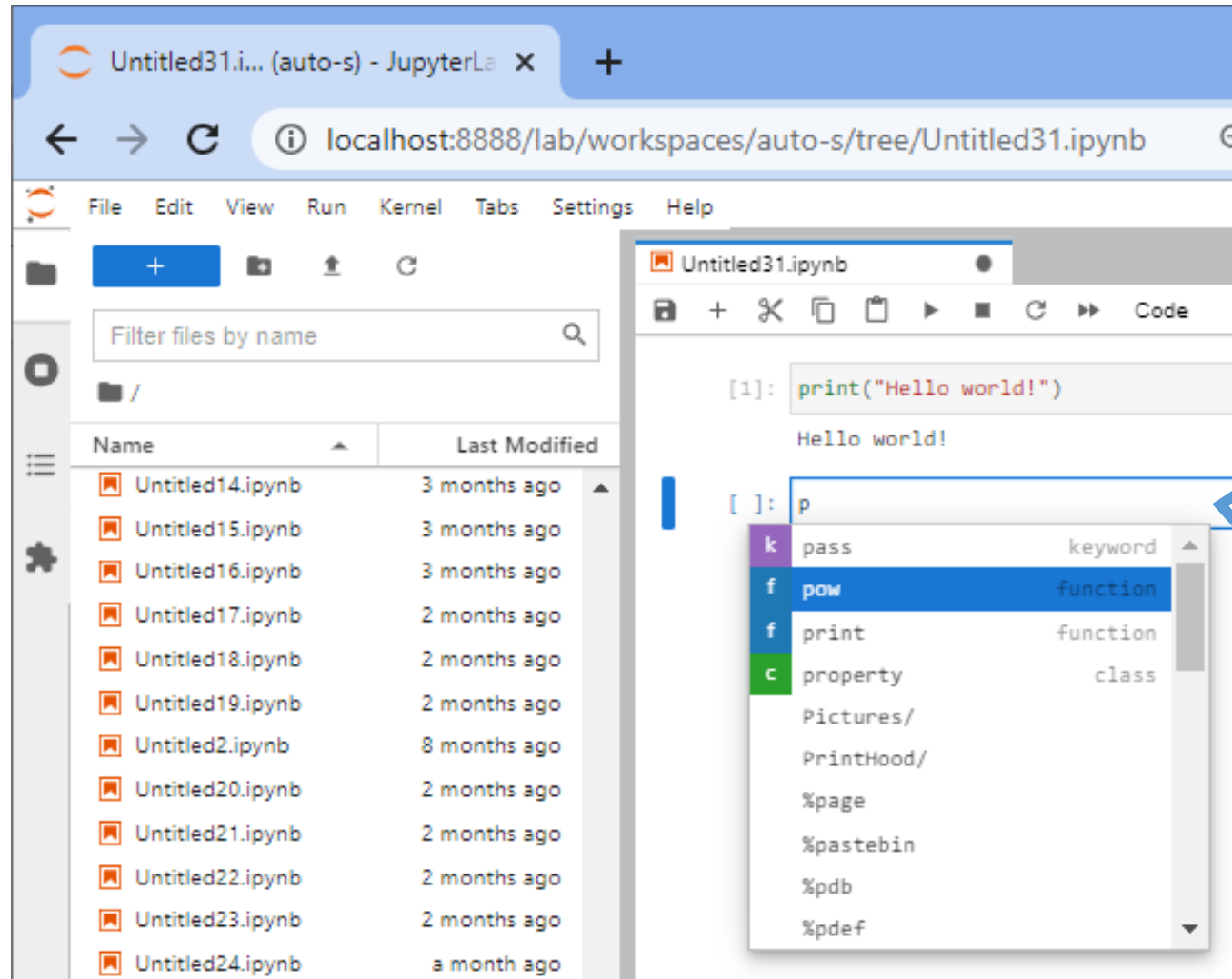


- Execute code cell-by-cell and see results instantaneously



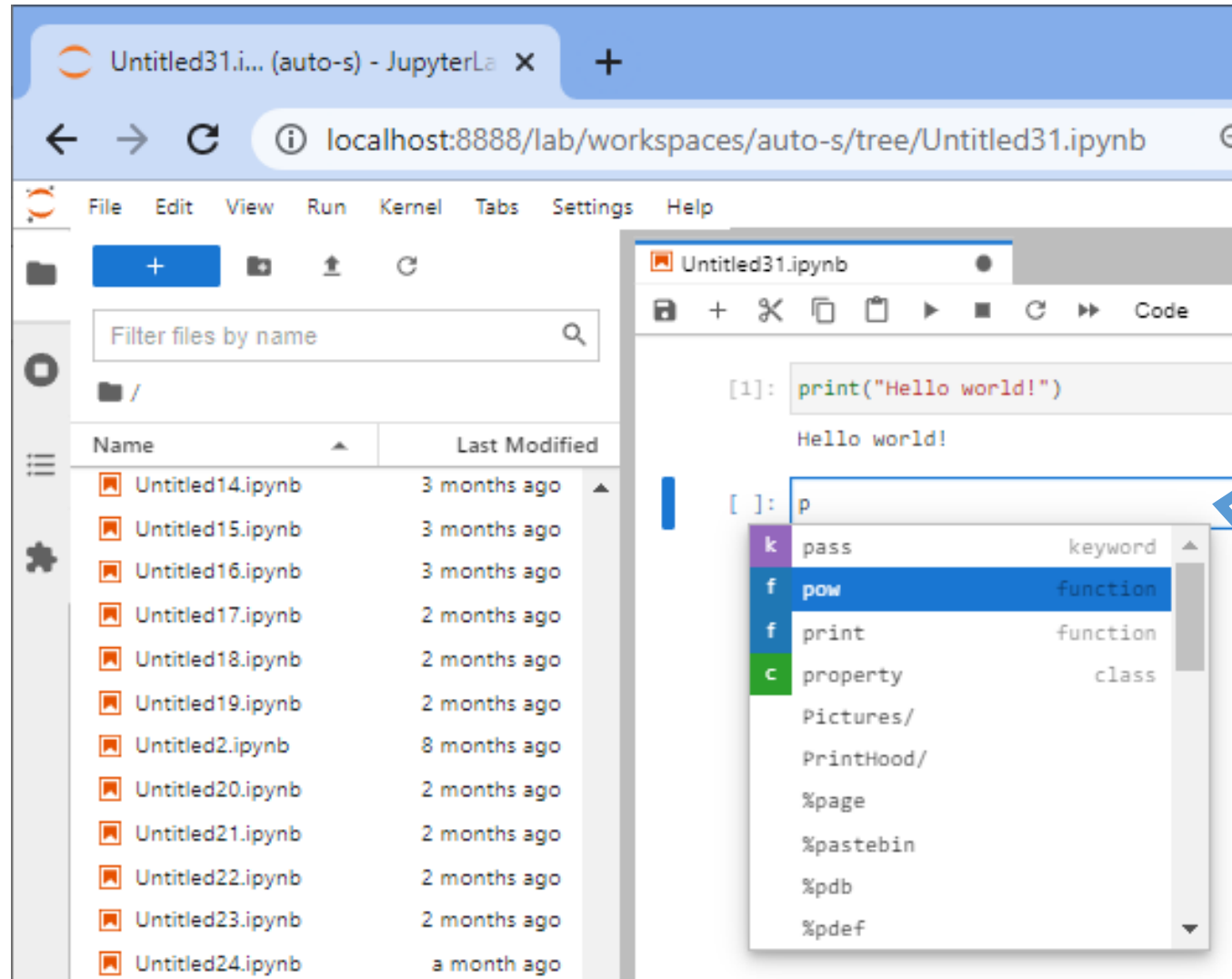
SHIFT + ENTER
to execute a
code cell

- Context-specific help, auto-completion



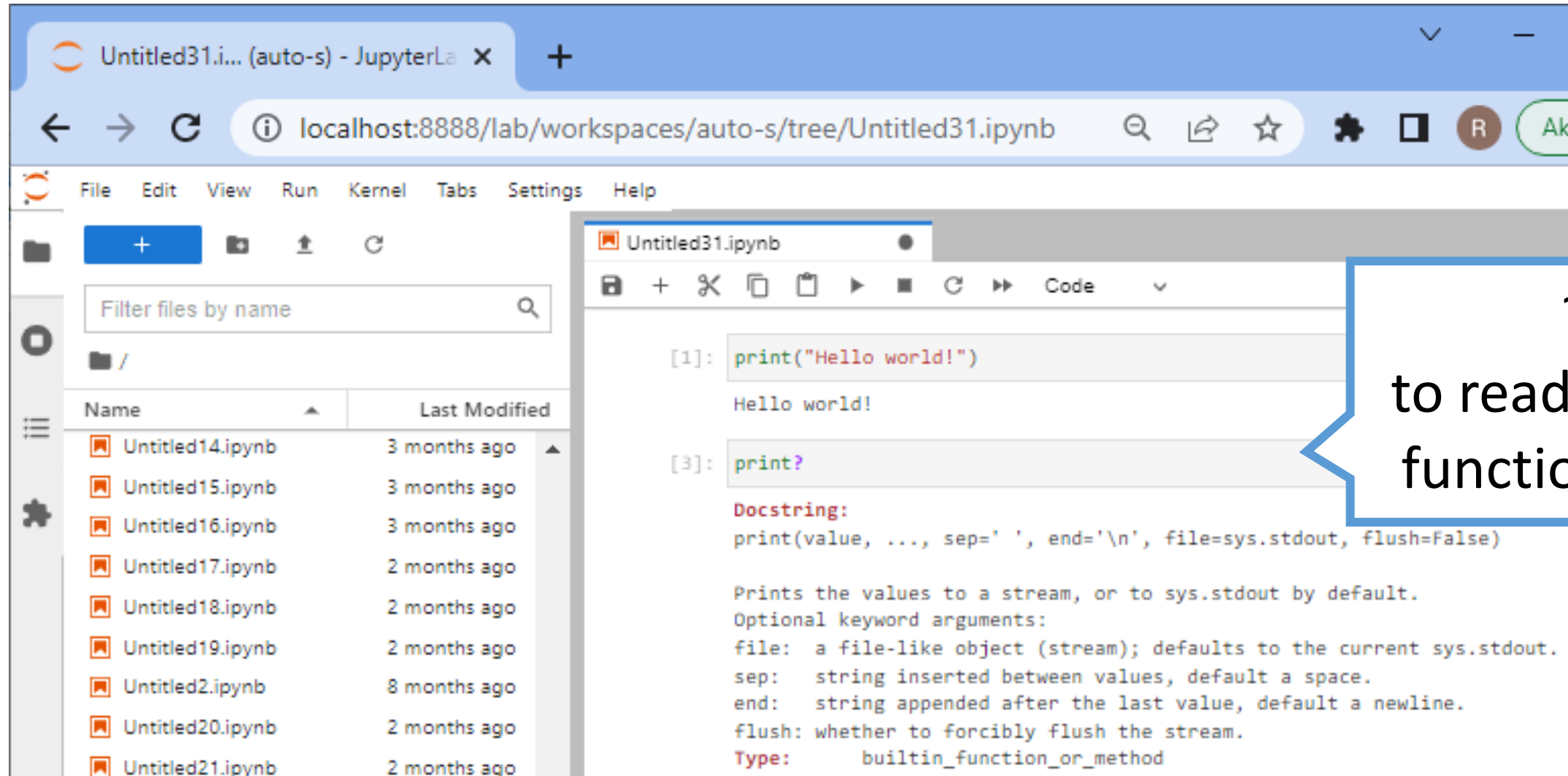
TAB
to open auto-
completion

- Context-specific help, auto-completion



TAB
to open auto-
completion

- Help / “docstrings”

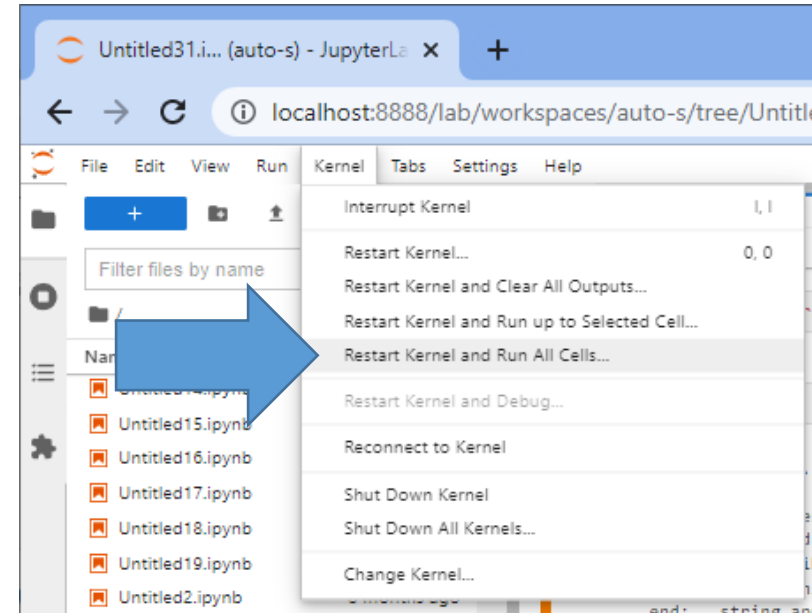
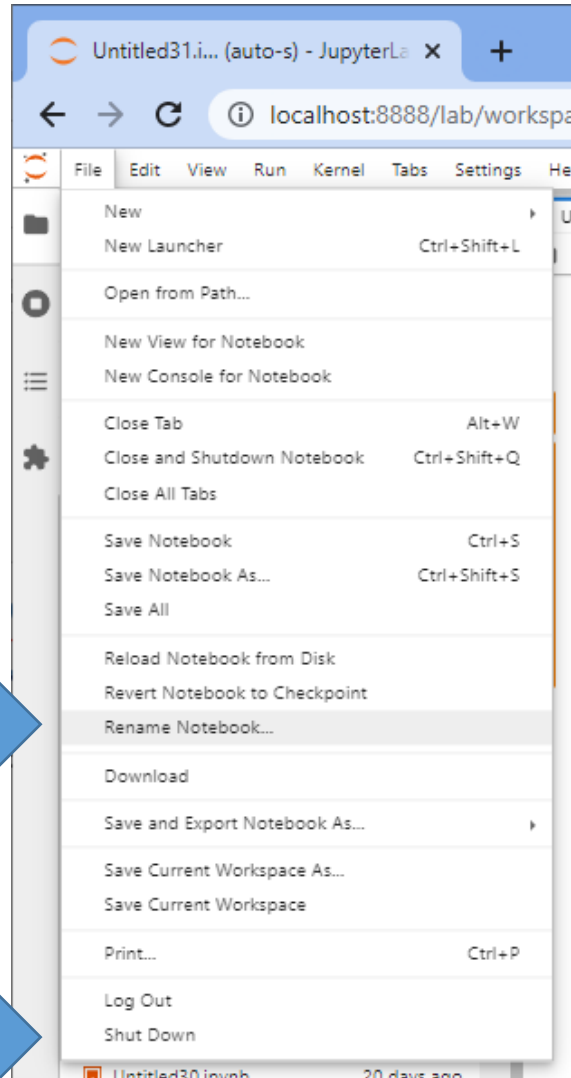


The screenshot shows the JupyterLab interface. On the left is a file browser with a search bar and a list of files. The main area on the right is the code editor, which displays the following code and its docstring:

```
[1]: print("Hello world!")  
Hello world!  
  
[3]: print?  
  
Docstring:  
print(value, ..., sep=' ', end='\n', file=sys.stdout, flush=False)  
  
Prints the values to a stream, or to sys.stdout by default.  
Optional keyword arguments:  
file: a file-like object (stream); defaults to the current sys.stdout.  
sep: string inserted between values, default a space.  
end: string appended after the last value, default a newline.  
flush: whether to forcibly flush the stream.  
Type: builtin_function_or_method
```

A blue callout box with a question mark and the text "to read what a function does" points to the docstring.

- Saving / renaming / closing



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

Live demo: create workflow notebook using napari



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