# Image data science with Python and Napari @EPFL

Till Korten, Robert Haase,

Cluster of Excellence “Physics of Life”, TU Dresden

Support by: Edward Andò, Florian Aymanns, Mallory Wittwer,
Image Analysis Hub, EPFL Center for Imaging

@haesleinhuepf

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# The team

Till Korten

Robert Haase



Credits: Hagen Gebauer

# Course schedule

PoL Physics of Life TU Dresden

| | Monday | Tuesday | Wednesday | Thursday | Friday |
|---|---|---|---|---|---|
| Morning | • Introduction to Bio-image analysis<br>• Python basics<br>• Image data | • Introduction to Napari<br>• Image Filtering | • Machine learning<br>• Deep learning | • Working with tabular data<br>• Plotting | • Writing good code<br>• Licensing |
| Afternoon | • For-loops<br>• Conditions<br>• Functions | • Image segmentation<br>• Feature extraction | Project work in groups | | Group presentations |

# Sessions

- 9:30 Recap discussion
- 10:00 Lecture
- 10:30 Joint exercise

Short break

- 11:00 Lecture
- 12:00 Lunch + homework

Flexible time/place

Monday/Tuesday only

- 14:00 Recap discussion
- 14:30 Lecture

Short break

- 15:30 Homework

Flexible time/place

# Group work

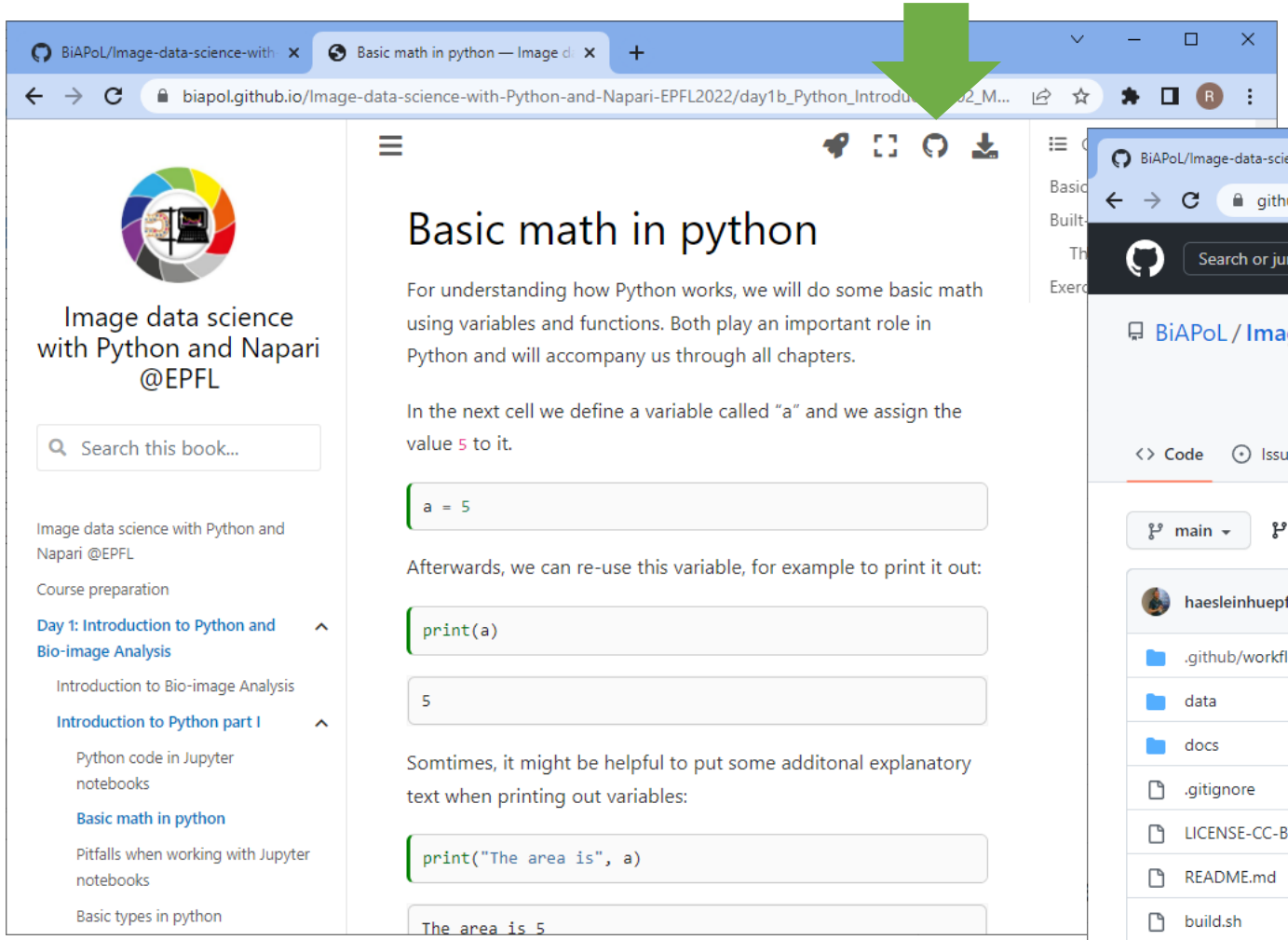
- Wednesday / Thursday: Group projects
  - Group size: 2-5 people
  - Goals:
    - Develop an image analysis workflow
      - Image segmentation
      - Quantification
      - Plotting
      - Statistics
      - Quality assurance
    - Be a brave scientist and document your work well.
      - Hint: Take screenshots!

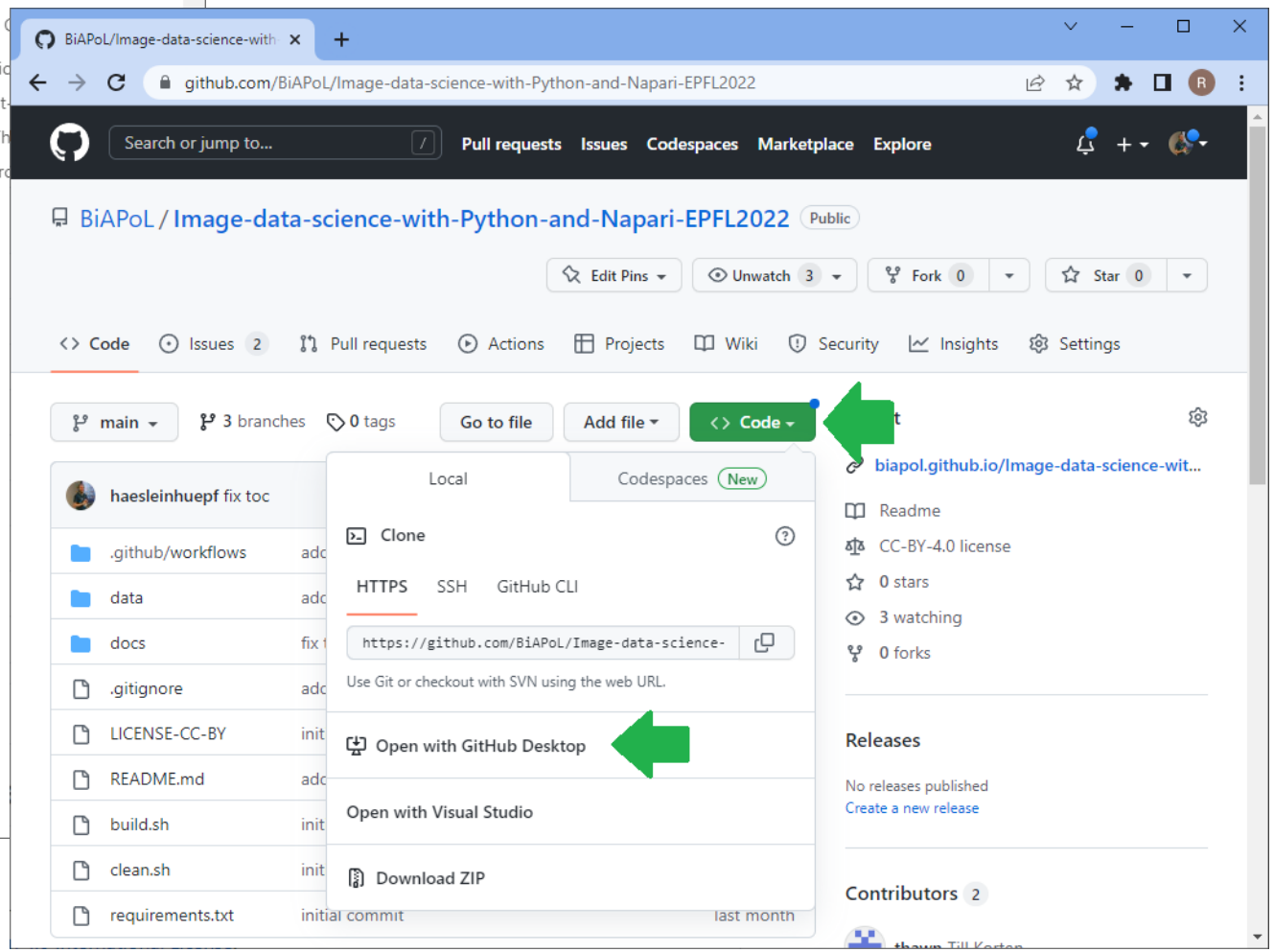
If your group consists of 5 members; divide your project into sub-projects!

# Group work

- Friday afternoon (14:00): Group presentations
  - 3 min presentation time + 2 minutes discussion (per group member)
  - Talk about
    - why you chose certain tools,
    - bottlenecks,
    - troubleshooting,
    - solutions
  - Make sure others could reproduce your analysis
    - installation instructions,
    - documentation,
    - hints

# Download materials from github



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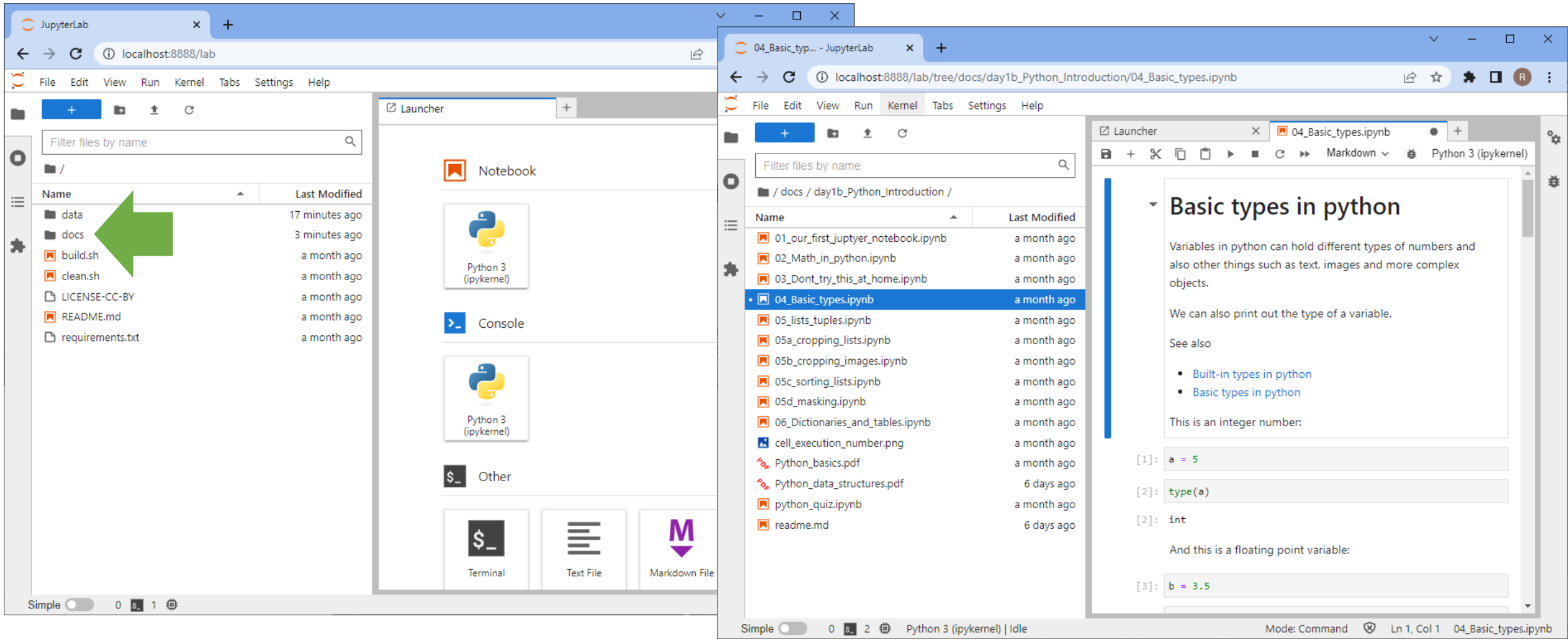
```
conda activate devbio-napari-env

jupyter lab
```