



# 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



Till Korten



Robert Haase

	Monday	Tuesday	Wednesday	Thursday	Friday
Morning	<ul style="list-style-type: none"><li>• Introduction to Bio-image analysis</li><li>• Python basics</li><li>• Image data</li></ul>	<ul style="list-style-type: none"><li>• Introduction to Napari</li><li>• Image Filtering</li></ul>	<ul style="list-style-type: none"><li>• Machine learning</li><li>• Deep learning</li></ul>	<ul style="list-style-type: none"><li>• Working with tabular data</li><li>• Plotting</li></ul>	<ul style="list-style-type: none"><li>• Writing good code</li><li>• Licensing</li></ul>
Afternoon	<ul style="list-style-type: none"><li>• For-loops</li><li>• Conditions</li><li>• Functions</li></ul>	<ul style="list-style-type: none"><li>• Image segmentation</li><li>• Feature extraction</li></ul>	Project work in groups		Group presentations

- 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

- 15:30 Homework

Flexible time/place

Short break

- 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!

- 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