Interdisciplinary Center for Scientific Computing

UNIVERSITÄT HEIDELBERG
ZUKUNFT SEIT 1386

IWR COLLOQUIUM SS 2022

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Cells, computers and microscopy: how can deep learning pave the way to scientific discovery?

Deep learning-based approaches have revolutionized virtually all domains of computer vision, including the field of microscopy image analysis. In image reconstruction and classification, in segmentation and artificial labelling, they have pushed both flagship projects and bread-and-butter everyday tasks, allowing image analysis to keep pace with the recent advancements in imaging technology and instrumentation.
I will talk about the recent work of my group that has enabled the first segmentation of cells in a whole animal imaged with electron microscopy, our collaboration with microscope developers for trusted reconstruction of light field microscopy and our current efforts to reduce the annotation budget for training of segmentation algorithms. I will also show how we strive to make our methods accessible to biologists without computational expertise through our software ilastik and through the emerging community network collection at the BioImage Model Zoo.

May 11, 2022 • 16:15

Mathematikon • Conference Room 5/104 • 5th Floor
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