IWR Colloquium
Winter Semester 2021 / 2022

November 3, 2021 • 16:15
Mathematikon • Conference Room / 5th Floor

Speaker:
Prof. Christophe Zimmer
Head of Imaging and Modeling Unit,
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Title:
"Deep Learning for Advanced Imaging"

Abstract:
Deep learning is fueling advances and breakthroughs in a dizzying array of data-intensive scientific fields. In this talk, I will highlight recent and ongoing work of our lab that leverages deep learning to push the limits of advanced microscopy.

A long-standing challenge in the life sciences is to visualize biological cells at high resolution and with high throughput. Single molecule localization microscopy (SMLM) is among the most powerful and widely used super-resolution imaging methods, but is typically very slow and low throughput. I will present ANNA-PALM, a computational technique based on deep learning that can reconstruct high resolution views from strongly under-sampled SMLM data and widefield images, enabling considerable speed-ups without any compromise on spatial resolution. I will also highlight Shareloc, an online platform to facilitate the sharing and reanalysis of SMLM data, and Imjoy, a computational platform dedicated to facilitating the uptake of state-of-the-art deep learning methods in the biomedical research community.

Throughout, I will emphasize key concepts and techniques in neuroscience, and also highlight existing challenges in data scale and complexity that I hope will pique the interest of the IWR community.

Website Prof. Zimmer:
https://research.pasteur.fr/en/team/imaging-and-modeling

Website IWR Colloquium:
www.iwr.uni-heidelberg.de/events/iwr-colloquium