Neural Networks to Analyze Biological Image Data

Buchholz Tim-Oliver, Jug Florian, Krull Franz Alexander Fabian

**Frequency**

Only this year

**Remarque**

From 21 to 24 October 2019 - Registration by email to isabelle.coke@epfl.ch (Last deadline: 17 October 2019, 18:00)

**Summary**

This course will familiarize students with some state-of-the-art deep learning techniques for microscopy image analysis and will introduce tools and frameworks to facilitate later independent work in this area.

**Content**

The course assumes familiarity with Python programming, although no prior experience with machine learning techniques is required. Students must bring their own laptop. Topics covered include image denoising/restoration, image segmentation, and potentially some image translation. The course will be very hands-on, where next to daily lectures, students will also be given plenty of time to adapt existing deep learning workflows to optimize results for a number of provided microscopy datasets. In fact, we will ask all participants to think outside the box and come up with some alterations to the presented material. Ideally, students will leave the course with an appreciation for the power and limitations of deep learning as well as knowledge of the key tools needed to apply deep-learning methodology to their own microscopy data analysis problems.