UNIVERSITÄT BERN

MIC training: Machine-learning-based image analysis with ilastik

Date:	October 15-16, 2024
Time:	9 am – 5 pm
Location:	Room 216, Mittelstrasse 43, 3012 Bern.
Trainer:	Dominik Kutra, EMBL Heidelberg (DE)
Organizer:	MIC of the University of Bern (www.mic.unibe.ch). Dr. Yury Belyaev, MIC, University of Bern (CH) Dr. Guillaume Witz, DSL, University of Bern (CH) Supported by the PhD specialization Cutting Edge Microscopy.
Number of participants:	minimum 10, maximum 20
Registration:	until October 8, 2024, here.
Target audience:	PhD students, postdocs, and everyone who needs analysis of images in their research. Participants of Cutting-Edge Microscopy specialization program are particularly invited.
Credits:	Certificate of attendance. PhD students can gain 1.0 ECTS from this course by giving a presentation on application of course learning outcome. The date of presentation will be agreed on mutually.
Background:	ilastik (http://ilastik.org/) is a simple, user-friendly tool for interactive image classification, segmentation, and analysis. Using it requires no previous experience in image processing. It works for any type of images: LM, EM, uCT, etc.
Content:	Basics of image analysis. Application of ilastik for object segmentation, classification and tracking with classical and deep learning approaches. Work with own data sets.
Learning outcome:	Participants will learn how to perform automated pixel- and object-level classification, object segmentation and tracking.
Course fee:	Free or charge. Cancelation after October 8, 2024 or no show – administrative fee of 100 CHF.
Schedule:	See next page.

Machine-learning-based image analysis with ilastik

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Time	Day 1 Tuesday, 15.10.24	Day 2 Wednesday, 16.10.24
9:00-12:00	Introduction to machine learning based image analysis with ilastik ilastik workflows: ◦ Pixel Classification ◦ Autocontext ◦ Neural network prediction	ilastik workflows: ◦ Tracking ilastik automation (batch processing, fiji integration, command line usage, jupyter notebook usage)
12:00-13:30	Lunch	Lunch
13:30-17:00	ilastik workflows: ◦ Trainable Domain Adaptation ◦ Multicut ◦ Object Classification ◦ Carving	Work with the own images of participants