

Title: Machine-learning and High-throughput bioimage analysis techniques

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Abstract: Modern microscopes produce massive amounts of bioimage data; either in the form of high-resolution large (stitched) fields of view, or large multidimensional (3D + time) datasets, or even automated acquisition of hundreds or thousands of sparse fields of view. Managing, processing and analysing such large bioimage datasets is a standing challenge. During this practicum the student will learn the basics of bioimage analysis and how to develop workflows to identify cells and tissues within large datasets, including segmentation and classification of cells and tissues using both "classical" processing and analysis (+ automation through scripting), and machine-learning techniques. We will focus on open source software tools such as FIJI, Ilastik, QuPath and CellProfiler. Datasets will be provided by users of the Advanced Imaging Facility.