Automated imaging with the ACQUIFER IM: versatile scripting opportunities

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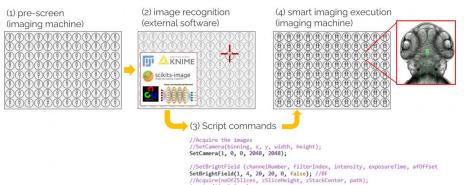
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Abstract

The ACQUIFER IM (Imaging Machine) is a fully automated widefield fluorescence microscope, designed for extensive multi-dimensional imaging and high-content screening. The system features a unique moving optical unit in combination with a static sample holder, rendering it ideal for non-adherent and motion-sensitive specimen.

Besides its intuitive control-software for standard imaging procedures, the IM enables fully customizable acquisition workflows via its internal scripting language, or from external applications via a dedicated communication protocol. Together with the automated design of the microscope, this open interface allows customizable workflows and flexible setups, such as the integration with robotic lab equipment. It also provides enhanced flexibility for complex feedback microscopy experiments or on-the-fly data-processing.

In this workshop, we will discuss the internal scripting modality of the IM, and the targeted imaging enabled by the ACQUIFER Plate-Viewer for pre-screen/re-screen applications. Moreover, we will demonstrate the control of the IM from external applications such as Fiji or Python. We will also show how the open-interface can be coupled with custom ACQUIFER Fiji plugins, to streamline data-visualization and analysis of large image-datasets.