

## Abstract

Modern high throughput microscopy generates huge amounts of image data which inevitably demands appropriate data management and analysis systems. In addition to the handling of raw image data it is also necessary to keep track of protocols, analysis steps and other experiment-related data. All experiment-related information regardless of being protocols, experiment notes or image files build the experimental context which must be consistently conserved over time. The software platform iLAP (**L**aboratory data management, **A**nalysis and **P**rotocol development) addresses this specific task by integrating the data management directly in the experimental workflow.

The primary goal of this theses was the design and implementation of a post-processing toolchain within iLAP. Depending on the type of handled data a post-processing supervisor triggers the asynchronous execution of dynamically loaded post processors.

As a proof of concept implementation one post-processor creates a preview image for every file. Another post-processor performs a transparent synchronization of iLAP data objects in the OMERO microscopy data management system for further image processing.

The second goal of this theses was the development of a search functionality which allows the user to search within projects, experiments and notes for matching keywords.

These software modules have been implemented using the already existing three tier architecture of iLAP consisting of the database backend, the Spring-based application environment and Tapestry web-frontend.

**Keywords:** Microscopy experiment, iLAP, OMERO, JEE, MDA