

Multiview 3D Image Tiling for OPT and SPIM Data

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Abstract

Imaging mesoscopic samples in OPT (Optical Projection Tomography) and SPIM (Selective Plane Illumination Microscopy) has intrinsic optical limits when trying to acquire high resolution for the entire specimen. To reach high resolution without losing the global perspective, we want to achieve automated registration and tiling of our multiview 3D datasets. Automation is the key for processing high throughput data. The idea is to embed existing tools and adapt them to our needs, or develop a new approach in case the previous does not work.

The tools that we are using right now are: a) Matlab, where we have a variety of programs dealing with the data we acquired, such as general processing and reconstruction. b) FIJI/ imageJ and XuVTools to do the semiautomated stitching and blending of our high resolution 3D image data and c) LabView to control our setup and log approximate positions of the tiles.

Keywords

Tiling, stitching, 3D-data, automatization, OPT, SPIM, mesoscopic imaging

