1. Results

In this chapter, we present three aspects of our developed pipeline. Firstly, we will evaluate the accuracy of our chosen cell segmentation and tracking tools with regard to our test data sets. Secondly, we will examine the accuracy of our cell-cell contact detection algorithm which is based upon the above mentioned cell segmentation and tracking tools. Lastly, we will outline the biological implications that can be derived from this pipeline.

1.1 Accuracy of cell segmentation and cell tracking

Discuss

- Accuracy of StarDist (especially on mitotic cells and T cells in a non-regular shape)
- Accuracy of LAP tracker (include photos)?

1.2 Accuracy of cell-cell contact detection

- Setting the parameters
- Detection based on duration of proximity (not consideration of cell shape)
- Figure: Boxplot to demonstrate deviation from ground truth?

1.3 Evaluating computation time

- Compute complexity for the approach with and without grid
- Include benchmarking results

1.4 Detecting tumour cell/T cell contacts

- Olis Data with ground truth
- Olis Data on large scale
- Olis Data - Compare with and without OVA
- Olis Data - Connect to Fix-While-Filming
- Steffens Data with ground truth
- Steffens Data on large scale

- Segmentation and tracking
- Accuracy
- Cell-cell contacts
- Figure: Number of contacts in two conditions (with and without OVA)
- Figure: Duration of contact (with and without OVA)
- Segmentation and tracking
- Accuracy
- Cell-cell contacts
- Figure: Number of contacts in two conditions (with and without OVA)
- Figure: Duration of contact (with and without OVA)