Master thesis 2018

Christian Edsberg Møllgaard

dpj482

22. januar 2018

Segmenting tubular structures in pancreas using deep learning

There is a hypotheses that during pancreatic differentiation, the structure of the lumen network, in which the cells are situated, dictates which cells are turning into beta cells. Finding these structures so they can be studied is the first step in proving this hypotheses. For this analasys, five 3d films of pancreas development have been recorded on mice, and have been annotated with some labels in preperation for this study. The data have already been shown to include some errors, so these have to be fixed or removed before segmentation

Project objectives

- Explore the data, and fix errors in the dataset
- Segment the images using CNN with current labels.
- Try different preprossesing methods and record the impact
- Try different semisupervised learning techniques to include unlabeled data in analasys

Learning goals

- Learn to explore and preprocess data for segmentation
- Make convolutional networks in tensorflow
- Make semisupervised networks in tensorflow