

# ABSTRACT

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## **Human-in-the-loop for efficient training of retinal image analysis methods**

Master's Thesis

2021

80 pages, 24 figures, 17 formulas.

Examiners:      Professor Lasse Lensu  
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Keywords: computer vision, machine vision, retinal image analysis, active learning

Eye-related diseases like diabetic retinopathy can be visually diagnosed by medical experts. However, this is time-consuming work requires much effort. For solving this problem, automated computer-aided solutions have been proposed based on retinal image analysis methods. However, this kind of system generally requires lots of data annotated by experts for training the methods for getting relevant analysis results. For the efficient utilization of expert's time, active learning can be used to achieve good enough image analysis results. The experimental part of the work studies active learning strategies for the segmentation of retinal blood vessels, then compare the results to a benchmark. Based on the experiments, most active learning strategies show better segmentation accuracy than random sampling as the benchmark. In addition, when the number of images available for the training is increased, active learning performs well against the fully supervised learning model.