[CS-8395 Spring 2020]

Deep Learning in Medical Image Computing

* Please print and bring it before each class

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Paper Title: A Survey on Active Learning and Human-in-the-Loop Deep Learning for Medical Image Analysis

Please summarize the paper using your own words: (<100 words)

This paper presents an overview of medical imaging applications of active learning, where humans are involved somewhere in the process. For example, the paper presents several methods that choose which data to train on/annotate next, since the user may have a large amount of data and cannot annotate it all at once, there are methods to choose the next data point that may help improve the network the most. Another method presented is when the user labels more data/corrects network predictions during training to help the network correct incorrect predictions.

Question 1 for the paper: What are the advantages of using this type of human intervention over traditional feature engineering for shallow learning (since it seems like human intervention is desired/needed in either case)?

Question 2 for the paper: Why do segmentation tasks often utilize active learning (such as adding/correcting annotations during training) more than other tasks?