

[CS-8395 Spring 2020]

Deep Learning in Medical Image Computing

*** Please print and bring it before each class**

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Date: 2/25/2020

Paper Title: A Review of Recurrent Neural Networks: LSTM Cells and Network Architectures

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

This paper presents an overview on recurrent neural networks, with a focus on LSTMs since they are the most popular variants. Recurrent neural networks are useful for the memory component, which is able to store information and thus is useful for sequential data. The review begins by showing the mathematical basis for recurrent gates and LSTM gates, which are more complex than recurrent gates and are able to retain long term information better. The authors also present several variations of gate structures and then present different ways individual gates are connected in networks.

Question 1 for the paper: What are the advantages of training a RNN over a CNN on MNIST?

Question 2 for the paper: How efficient are LSTMs compared to CNNs, given that LSTMs have a complicated gate structure?