

CS323: Deep Learning for Visual Computing

Reading Assignment 3

Due Date - 28/03/2023

Welcome to the third reading assignment of CS323. These assignments aim at preparing you for the projects through providing you with important readings. You will be expected to answer questions related to the readings, material provided in class, or both. Good Luck ☞...

1 RNN, LSTM, and GRU

Read the blog post titled "Illustrated Guide to LSTM's and GRU's: A step by step explanation", (<https://towardsdatascience.com/illustrated-guide-to-lstms-and-gru-s-a-step-bystep-explanation-44e9eb85bf21>). This blog can give you a general introduction to LSTM and GRU.

2 Transformer Paper: Attention Is All You Need

You can either read the original paper (<https://papers.nips.cc/paper/2017/file/3f5ee243547dee91fbd053c1c4a845aa-Paper.pdf>), or read the annotated paper by Harvard's NLP group (<http://nlp.seas.harvard.edu/2018/04/03/attention.html>), or the blog post "The illustrated Transformer" by Jay Alammar (<http://jalammar.github.io/illustrated-transformer/>).

Question:

Briefly discuss the contributions of LSTM and Transformer. Compare RNN, LSTM, and Transformer, and discuss whether they can handle extremely long sequences, and if so, how can they achieve this.