CNNs and RNNs

Submit Assignment

Due Apr 16 by 8:59pm **Points** 10 **Submitting** a file upload
Available after Apr 4 at 9am

Task 1

Develop a Convolutional Neural Network for NLP for one of the following tasks:

a. Text Classification

Movie review data:

http://www.cs.cornell.edu/people/pabo/movie-review-data/

If you want to use some alternative data set for this task, feel free to do so, but document it.

Describe your
- architecture and implementation
- training procedure
- evaluation methods and results

There are numerous tutorials online:
https://github.com/oxford-cs-deepnlp-2017/lectures

There are numerous examples and tutorials online how to use Keras for this task, e.g.:
https://cambridgespark.com/content/tutorials/convolutional-neural-networks-with-keras/index.html

b. Sentence Level Classification

Use for example Yoon Kim's approach for a CNN-based sentence level classification approach:

Yoon Kim (2014) Convolutional Neural Networks for Sentence Classification
https://arxiv.org/abs/1408.5882

You might want to use some of these data sets:

- Stanford Sentiment Treebank (https://nlp.stanford.edu/sentiment/code.html)
- https://github.com/AcademiaSinicaNLPLab/sentiment_dataset

Train a CNN for sentence level classification and evaluate your results.

c. Extending the approaches

Describe ways how you could extend the models using NLP to enrich the features (input vectors) and evaluate one method. (Here the idea would be to extend simple input based on word embeddings with distributional or NLP-based feature sets.)

Task 2

Perform the tasks above using Recurrent Neural Networks and compare the results including training complexity and performance results.