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Recommended Reading List

NLP Team Project:

1. Deep Learning Basics
    1. Book: Deep Learning by Ian Goodfellow et al.
    2. Link: https://github.com/janishar/mit-deep-learning-book-pdf
    3. Highlights: Chapter 1 (2 3 4 5) 10
        1. Chapter 1 is essential for understanding deep learning
        2. Chapter 2-5 are math. If you have learned them in class, you may skip
        3. Chapter 10 focuses on language technology
        4. other chapters can be helpful but optional for the summer school
2. Natural Language Processing Basics
    1. Tokenization:
        1. https://nlp.stanford.edu/IR-book/html/htmledition/tokenization-1.html
    2. Word Embeddings
        1. https://jalammar.github.io/illustrated-word2vec/
        2. https://pytorch.org/tutorials/beginner/nlp/word_embeddings_tutorial.html
        3. http://jalammar.github.io/illustrated-bert/
        4. https://arxiv.org/abs/1301.3781
        5. https://arxiv.org/abs/1802.05365
    3. Models:
        1. RNN: http://karpathy.github.io/2015/05/21/rnn-effectiveness/
        2. LSTM: http://colah.github.io/posts/2015-08-Understanding-LSTMs/
        3. Seq2Seq: https://arxiv.org/abs/1409.3215
    4. Transformer-based models:
        1. Transformer: https://ai.googleblog.com/2017/08/transformer-novel-neural-network.html
        2. BERT: https://ai.googleblog.com/2018/11/open-sourcing-bert-state-of-art-pre.html
    5. Natural Language Understanding
        1. Text classification: https://developers.google.com/machine-learning/guides/text-classification
        2. Question Answering: https://ai.google.com/research/NaturalQuestions
    6. Natural Language Generation
        1. Machine translation https://ai.googleblog.com/2016/09/a-neural-network-for-machine.html
        2. Summarization: https://ai.googleblog.com/2020/06/pegasus-state-of-art-model-for.html

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3. Online Courses
    1. Stanford CS224N: http://web.stanford.edu/class/cs224n/

Computer Vision Team Project

1. Book: Deep Learning by Goodfellow et al (focus on chapter 7, 8, 9 and 12.2): https://github.com/janishar/mit-deep-learning-book-pdf
2. Online course: Deep learning and computer vision: http://cs231n.stanford.edu/
3. Paper: UNet: https://arxiv.org/abs/1505.04597
4. Paper: Convolutional neural networks: an overview and application in radiology: https://insightsimaging.springeropen.com/articles/10.1007/s13244-018-0639-9