

Deep Learning for NLP 2020

Home Exercise 11

Due on Tuesday, 16.07.2040 at 13:00 (20 years)

July 7, 2020

Submission Guidelines for all Home Exercises

- When submitting multiple files, submit one **zip-archive**.
- Submit python code as plain python scripts (.py). **Must** be runnable in the given Docker container.
- Submit answers to non-code assignments in **one PDF** file. Scans are permitted, if readable.
- Guidelines specific to neural network code:
 - Please submit your training/testing results (a copy of your console output is fine). Reasoning: Your network might train much slower on the tutor's system than on yours.
 - If you are aware that your network never stops training, please be honest and add a short statement saying so. Thank you!

Miscellaneous questions

- **Multi-task learning:** What is the main difference between multi-task learning and transfer learning? Explain in at most three sentences. (2P)
- **Transformers:** What are positional encodings and why do transformers need them? Explain in at most three sentences. (2P)
- **GANs:** Which two of the following three high-level tasks are part of the conception of Generative Adversarial Networks: (i) classification, (ii) sequence tagging, (iii) generation? Which of those two tasks is more central to the main idea of GANs? (2P)
- **Evaluation:** Explain the main difference between reference-based and reference-free text generation evaluation. Name one advantage and one disadvantage of reference-free text generation evaluation over reference-based evaluation. (2P)
- **Zero-shot cross-lingual transfer:** what is meant by zero-shot cross-lingual transfer? (1P) Name two approaches to improve cross-lingual transfer using representations based on multilingual BERT. (1P)