Diff.zachet syllabus. 4 points of your final grade total

Theoretical Deep Learning course, MIPT

Zabotay-lectures part

2 points of your final grade.

1. Lu & Kawaguchi (2017)[1]: ideas of proofs of theorems 3.1 – 3.3; derivation of theorem 2.1 from theorems 3.1 – 3.3; derivation of theorem 2.3 from theorems 2.1 and 2.2.
2. Yu & Chen (1995)[2]: proof of the main theorem (lemma about the fact that the set of matrices W_1 such that $\sigma(W_1 X)$ is not of full rank has measure zero — without proof).
3. Lee et al. (2016)[3]: proof of the main theorem.
4. Du et al. (2018)[4]: proof sketches of lemmas 3.1 – 3.4; derivation of theorem 3.2 from lemmas 3.1 – 3.4.

Read-the-paper part

2 points of your final grade.

Pick one of the following papers:

1. Allen-Zhu et al. (2018)[5];
2. Soudry & Hoffer (2017)[6];
3. Pennington & Bahri (2017)[7].

These papers are far from easy, so it is ok if you wouldn't understand everything. Start with understanding the general idea (≈ 0.7 points), then try to understand the structure of proofs (≈ 0.7 points), then gradually dive into details (≈ 0.6 points).

[1] https://arxiv.org/abs/1702.08580
[2] https://ieeexplore.ieee.org/document/410380
[3] https://arxiv.org/abs/1602.04915
[4] https://openreview.net/forum?id=S1eK3i09YQ
[5] https://arxiv.org/abs/1811.03962
[6] https://openreview.net/forum?id=Hkfmn5n6W
[7] http://proceedings.mlr.press/v70/pennington17a.html