

Linz, November 2021

Opponent Review of the Bachelor Thesis of Nikita Kolesnichenko

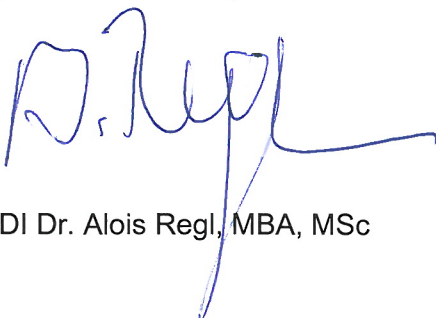
Generative Adversarial Networks and applications in bioinformatics

Part 2 (Foundations and background) provides an excellent introduction into advanced concepts of neural networks. But in some topics a more detailed description would have been helpful. For example, 2.3.2 and Fig. 2.7 is difficult to understand (for me), even after several attempts to read it. Likewise, some terms need more explanation, at least in the form of a box or a footnote. Examples are: „Trace operator“ in ch. 2.3.4 (might easily be mixed up with the much simpler concept of the trace of a matrix), „Gibbs free energy“ in 2.5.1 and „KL divergence“ in the same chapter.

The selection of hyperparameters (ch. 3.3) would have deserved more attention. Nikita refers to „choices [from] different papers“ but it would be interesting to see what drove the selection.

It will be difficult, but the tables in section 4 should have been converted into meaningful graphical images. At the same time, restricting the plots in section 4 (64 in total!) to the more interesting ones would also have been helpful.

Generally, a practical example is missing in my opinion. For example, showing 3D models from predictions with the best-performing methods. But overall, the issues in this review are minor in comparison to the general impression of the quality of the thesis and they do in no way preclude the acceptance of it.



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