Possible seminar topics - IS2021

Optional Seminar

In groups of up to three students, present one of the following topics:

1. Neural language models - an overview (https://arxiv.org/abs/1906.03591)
2. Text representation with BERT models (https://arxiv.org/abs/1810.04805)
3. Winograd Schema Challenge (https://cs.nyu.edu/~davise/papers/WinogradSchemas/WS.html)
4. Text representation with RoBERTa (https://arxiv.org/abs/1907.11692)
5. Transformer-based image segmentation (https://ai.facebook.com/blog/end-to-end-object-detection-with-transformers/)
6. Graph neural networks - an overview (https://arxiv.org/pdf/1812.08434.pdf)
7. Deep Forests (https://www.ijcai.org/Proceedings/2017/0497.pdf)
8. Abstraction and Reasoning Corpus (https://arxiv.org/abs/1911.01547)
9. Feature ranking in the last years (https://www.sciencedirect.com/science/article/abs/pii/S0045790613003066)
10. AutoML - an overview (https://arxiv.org/abs/1908.00709)
11. Auto-sklearn (https://automl.github.io/auto-sklearn/master/)
12. Explainable AI - an overview (https://arxiv.org/pdf/1907.07374.pdf)
13. SHAP (https://arxiv.org/abs/1705.07874)
14. Multimodal learning - (https://arxiv.org/abs/1705.09406)
15. Tumor detection (https://link.springer.com/article/10.1007/s11042-020-08898-3)
16. Time series analysis - anomaly detection (https://arxiv.org/abs/2002.04236)
17. Language generation (https://arxiv.org/pdf/1703.09902.pdf)
18. Word2vec, FastText, ELMo, BERT (https://arxiv.org/abs/1901.09069)
19. Few shot learning - images (https://arxiv.org/abs/2007.15484)
20. Long short-term memory cells - (https://direct.mit.edu/neco/article-abstract/9/8/1735/6109/Long-Short-Term-Memory?redirectedFrom=fulltext)
21. Graph embeddings (https://arxiv.org/abs/1709.07604)
22. Representation learning (embeddings) for electronic health records (https://arxiv.org/abs/1909.09248)
23. Counterfactual explanation (https://arxiv.org/abs/1911.07749)
24. GPT-3 language generator: hype and usability (https://arxiv.org/abs/2005.14165)
25. Ethical considerations and biases in machine learning (https://arxiv.org/pdf/1903.03425.pdf)
26. Recent developments in reinforcement learning (https://arxiv.org/pdf/cs/9605103.pdf)
27. Machine learning in combinatorial optimization (https://www.semanticscholar.org/paper/Machine-Learning-for-Combinatorial-Optimization%3A-a-Bengio-Lodi/3f13a5148f7caa51ea946193d261d4f8ed32d81a)

28. Generative adversarial networks (GANs) (https://papers.nips.cc/paper/2014/file/5ca3e9b122f61f8f06494c97b1afccf3-Paper.pdf)
29. Explanation methods for neural networks (https://www.semanticscholar.org/paper/Global-Explanations-of-Neural-Networks-Modarres-Paisley/3ed894ecc3f4f38dcc06062b3bff35417367b3db)
30. Autoregressive multilingual text generation (https://arxiv.org/pdf/2112.10668.pdf)
31. Measuring rationality in a language (https://www.pnas.org/content/pnas/118/51/e2107848118.full.pdf)
32. Robust explanation methods are on-manifold (http://proceedings.mlr.press/v119/anders20a/anders20a.pdf)
33. Self-attention with less resources (https://arxiv.org/abs/2112.05682)
34. Measuring biases in pretrained language models (https://arxiv.org/pdf/2112.07447.pdf)
35. Behavioral testing of NLP models (https://arxiv.org/pdf/2005.04118.pdf)
36. Benchmarking in NLP (https://arxiv.org/pdf/2104.14337.pdf)
37. Knowledge graph extraction from neural networks (https://arxiv.org/pdf/2111.08546.pdf)