Deep Convolutional Generative Adversarial Networks

- Explorative project
- Practical implementation is given using Tensorflow
- Using this example, implement your own DCGAN for some dataset
- Invent your own GAN analysis (to do together)
- Learn GAN and DCGAN
- Literature review

Literature

1. Tensorflow tutorial: https://www.tensorflow.org/tutorials/generative/dcgan
2. https://medium.com/@girish9851/step-by-step-introduction-to-deep-convolutional-generative-adversarial-networks-709ab83da7ea
3. https://towardsai.net/p/l/generative-ai-gans
4. …
5. Goodfellow, Ian; Pouget-Abadie, Jean; Mirza, Mehdi; Xu, Bing; Warde-Farley, David; Ozair, Sherjil; Courville, Aaron; Bengio, Yoshua (2014). *Generative Adversarial Nets* (PDF). Proceedings of the International Conference on Neural Information Processing Systems (NIPS 2014). pp. 2672–2680.
6. Radford, Alec, Luke Metz, and Soumith Chintala. "Unsupervised representation learning with deep convolutional generative adversarial networks." *arXiv preprint arXiv:1511.06434* (2015).

History

The concept of GAN was initially developed by Ian Goodfellow and his colleagues in June 2014.

Time plan

- Thesis submission: 2 October
- Presentation: 27 September (20+5 min)
- Whatsup group created
- Work plan:
    - Learning literature and other sources: 3 weeks
    - Running and understanding the tensorflow example: 3 days
    - Finding your “own” dataset and implementing it with tensorflow: 2 weeks
    - Thinking about additional research questions on the analysis of the obtained results, e.g. embedding of the generated images/text and comparing them with the training data.Implementing it. 1 month

    - Start writing in August. For writing: > 1.5 months
- Kai: 18 June in Cork
- Jiaxue: 11 August in Cork
- Online meetings ~weekly about 1 hour (max 2 hours)
- Time shift: +7 for China

Next meeting:

21 May 10am Irish time using zoom (discussion of GANs and the literature)

TODO

- Github initialisation (KD)
- Copy general doc file to github (SY)
- Copy PDFs of the papers to github (all)
- Read the sources, look for important references (all)