**Text Summarization of WikiHow Data using GANs**

**Project description:**

A lot of endeavours have already been devoted to NLP text summarization techniques, and abstractive methods have proved to be more proficient in generating human-like sentences. At the same time, GANs has been enjoying considerable success in the area of real-valued data such as an image generation. Recently, researchers have begun to come up with ideas on how to overcome various obstacles during training GAN models for discrete data, though not a lot of work seemed to be directly dedicated to the text summarization itself. We, therefore, would like to pursue to tackle the issue of text summarization using the GAN techniques inspired by sources enlisted below.

**Model:**

* **Generator:** a variation of LSTM/LSTM-attention /// maybe pointer-generator //// CNN-based encoder-decoder
* **Discriminator:** CNN model as in [4]

**Measurability of projects:**

* mainly BLEU / ROUGE metrics

**Data:**

* WikiHow dataset - <https://arxiv.org/pdf/1810.09305.pdf?fbclid=IwAR22xaM5JtRTHq-EMaBqSN30DaxhqF7dllK_8T47mOsnl8IY0ikM0VX3VKQ>
* Potentially extension by some other publicly available dataset used for training text summarization NLP models – this should again be a priori discussed

**Sources:**

[1] <http://www.deeplearningbook.org/contents/generative_models.html?fbclid=IwAR2eax3JfuHQGz3P_dqAWFnjcAk1urROKp5cU-QVprdyGOADzj-GsolZ7D4> – Chapter from the Goodfellow’s Book

[2] <https://www.aaai.org/ocs/index.php/AAAI/AAAI18/paper/view/16238/16492?fbclid=IwAR03Oz3WLtukvCJEV56_tLVSVodDubeGiFDq9ccJxPdHMm_ozPkMfhUvKRM> – GAN for Abstractive Text Summarization

[3] <https://www.aaai.org/ocs/index.php/AAAI/AAAI17/paper/view/14344/14489> - SeqGAN

[4] <https://dl.acm.org/doi/pdf/10.5555/3305890.3306095?download=true&fbclid=IwAR2ebHZ38aeho95EvcCx88wM89F1jxMwE93VGuxpmr82mwRolzZ6-RQsudA> – Adversarial Feature Matching for Text Generation

[5] <https://www.aaai.org/ocs/index.php/AAAI/AAAI18/paper/view/16360/16061> – Long Text Summarization via Adversarial Training with Leaked Information

[6] <http://papers.nips.cc/paper/6125-improved-techniques-for-training-gans.pdf> - Improved techniques for training GANs

[7] <https://arxiv.org/pdf/1812.02303.pdf> Neural Abstractive Text Summarization with seq2seq Models: A Survey

[8] <https://arxiv.org/pdf/1704.04368.pdf> Summarization with Pointer-Generator Networks