אלגוריתמים בראייה ממוחשבת

046746

Quiz 6

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1. “Mode Collapse” describes a state in which after training a GAN, the generated samples are not diverse and distributed and the wanted distribution (as we planned for a wide variety of samples and the GAN keeps generating the same samples as it managed to fool the discriminator well with these samples). We saw an example of several gaussians distribution when the GAN mode collapsed to generate only one gaussian instead of having uniform distribution between the gaussians.
2. In MNIST it would look like creating the same digit (for example 0), in which it managed to fool the discriminator, instead of generating all the numbers in a uniform distribution.
3. We can run unsupervised state of the art clustering methods that will cluster the generated samples to some centers that will reflect the true digit (like k-means/EM or spectral clustering), or we can run a state of the art MNIST classifier on the generated samples and classify them to some digit.
   Natasha can then check if the distribution between each 10,000 samples is uniform based on the number of samples generated per digit. There are ways to accept (“not reject” is more accurate) this zero hypothesis in a high significance level (95% or 99%) based on the statistics collected.
   A weak point might be the fact that we don’t have a true label for these generated samples.
   Another weak point might be the small number of seeds taken. It should be done on a big amount of trainings with random seeds to assure the hypothesis.