Spring 2022 Machine Intelligence EN.520.650

1. Discuss the mode collapse issue in GANs and propose a solution to mitigate this problem.
2. Consider a Generative Adversarial Network (GAN) which successfully produces images of apples. Which of the following propositions is **false**?
3. The generator aims to learn the distribution of apple images.
4. The discriminator can be used to classify images as apple vs. non-apple.
5. After training the GAN, the discriminator loss eventually reaches a constant value.
6. The generator can produce unseen images of apples.
7. Which of the following is a non-iterative method to generate adversarial examples?
8. Non-Saturating Cost Method
9. Input Optimization Method
10. Adversarial Training
11. Logit Pairing
12. Fast Gradient Sign Method (vi) Real-time Cryptographic Dropout Method
13. Prove that Class Activation Map method is a special case of GRAD-CAM.
14. Analyze the performance vs explainability tradeoffs for the following machine learning/AI algorithms.
    1. Bayes nets
    2. Deep learning networks
15. What is the best way to combine the performance of deep learning methods and the interpretability of older methods?

Due April 27, 2022