Short Story Assignment-Deep Learning
A Survey on GANs for Anomaly Detection

Abstract

Anomaly detection is a technique used to identify unusual patterns that do not conform to expected behavior, those are called outliers. Anomaly detection is an important task in data mining.

Anomaly detection using GANs is an intensive research field nowadays. Generative Adversarial Networks (GANs) and the adversarial training framework (Goodfellow 2014) have been successfully applied to model complex and high dimensional distribution of real-world data. This GAN peculiarities describes that it can be used for anomaly detection successfully, although their application has been newly explored. Using GANs for Anomaly detection is the task of modeling the normal behavior and it uses the adversarial training process and then detecting the anomalies measuring an anomaly score.

In the published article, we will see the GANs framework and in detail, its most innovative extensions called as conditional GANs and BiGAN following this we will thoroughly go through the state of the art architectures for anomaly detection with GANs and an analysis of the considered architecture. We can detect Anomalies using GAN in wide range of domains but in all the analyzed architecture here will focus on images. Further article will include empirical evaluation of all the analyzed architectures followed by conclusion and future research directions.

Survey Papers for reference:

- https://arxiv.org/pdf/1906.11632.pdf
- http://papers.nips.cc/paper/5423-generative-adversarial-nets.pdf

More Reference: https://www.henryailabs.com/GenerativeAdversarialNetworks.html

Some GAN Related Topics: https://arxiv.org/pdf/1912.00583.pdf
https://arxiv.org/pdf/1906.01529v3.pdf