

Short Story Assignment-Deep Learning Sparse GAN for Anomaly Detection in retinal OCT image

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.

In the age of continuous development of convolutional neural network, deep learning has been successful in retinal disease detection from optical coherence tomography (OCT) images. And Deep Learning relies on large scale labelled data for training, which is sometimes challenging mainly for rare or low occurrence diseases. Also system trained from one or few diseases data set is unable to detect unseen diseases, which mainly limits usage of the system in disease screening. To address this kind of limitation, the below mentioned survey paper has proposed a novel anomaly detection framework termed Sparsity-constrained Generative Adversarial Network (Sparse-GAN) for disease screening where only healthy data are available in the training set.

As a part of this short story assignment we will see the evaluation of proposed Sparse-GAN on a publicly available dataset, and the results that show the proposed method outperforms the state-of-the-art methods.

Survey Papers for reference:

- <https://arxiv.org/pdf/1911.12527.pdf>
- <http://papers.nips.cc/paper/5423-generative-adversarial-nets.pdf>

Reference: <https://www.henryailabs.com/GenerativeAdversarialNetworks.html>