Cloud Detection Literature Review

Chia Chye Yee, Yves Atchadé

February 23, 2020

This is a literature review

Keywords: cloud detection, full convolutional neural networks

1 Introduction

asdfdsf

2 Introduction to Convolutional Neural Networks

In this section, we will go over the basic concept of convolutional neural networks (CNN). For further reference, Deshpande (2016) provides a very informative introduction. Simply, the problem statement is the task of assigning a class or a vector class probabilities given an image as an input. The image can be represented by a group of pixels. Each pixel can be represented as a vector of values for their red, green, blue (RGB) expressions which can range from 0 to 255. For instance, a red pixel can be represented by $(255, 0, 0)$, blue is $(0, 0, 255)$ etc. Based on this formulation of a digital image, we can represent an image by a data cube of values. As an example, an image with 32×32 pixels is a $32 \times 32 \times 3$ data cube. This is taken as the input for the first convolutional layer.

2.1 Convolutional Layers

For simplicity, suppose we consider only the red value from the array (ie. taking only the top layer of the aforementioned data cube - a 32×32 matrix).

References

A. Deshpande. A Beginner's Guide to Understanding Convolutional Net. https://adeshpande3.github.io/A-Beginner%27s-Guide-To-Understanding-Convolutional-Neural-Networks/, 2016.