

Object Recognition in Images

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Summary

In modern day technology, object recognition became a popular topic. We can clearly see this trend in every day technology ranging from our smart phones to maps. Furthermore, our interest in this topic is for we could understand how this algorithm is implanted and used so we could implement it on a drone that would have a camera mounted on it. Thus, giving us the opportunity to be used for a lot of real-life applications such as: tracking, building, mapping, classifying terrains or space.

Background

For this project we will be studying and building a neural network to recognize object in images. A neural network is a computational model that works like neurons in the brain, hence its name. Each neuron takes input performs some operations then passes the output to other neurons and so on as stated in the article “Image Classification using Deep Neural Networks”. The construction of neural networks has allowed such advancements in deep learning that it is possible to recognize voice as well apart from object in images. However, a deep neural network recognizes images with an accuracy of 78.4% leaving a lot of room for improvement. For, this will be a task to challenge as we will be building the deep neural network.

Goal and Objectives

The big goal and sole objective of this project is for us to understand and build a work object recognition algorithm that we will be implanting on a drone’s camera for a future project. In order to achieve this goal, we will have to commence by looking at pre-existing deep neural networks people have built to understand how it works. After we have fully analyzed and debugged the function and implementation of a deep neural network, we will start building one of our own looking to improve pre-existing networks. Finally, we would implement and test the network on actual images to see the functionality and if it all goes to plan, we will begin to test it on a drone as it is up in the air.

Data and Methods

The data we would be using would be from pre-existing and on plan unfinished neural networks to fully understand and improve the algorithm. We would be looking as what images are recognized easily and what images are hard to recognize to provide us a guide on what we could change about our view.

Reference

<https://medium.com/@tifa2up/image-classification-using-deep-neural-networks-a-beginner-friendly-approach-using-tensorflow-94b0a090ccd4>

<http://cs231n.github.io/classification/>

<https://www.analyticsvidhya.com/blog/2019/01/build-image-classification-model-10-minutes/>

<https://opencv.org/>