

18CS3074S – Deep Learning

PROJECT BASED REPORT

ON

PARKING OCCUPANCY AND PATTERN ANALYSIS

Submitted in partial fulfillment of the requirement for the award of the degree of

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By

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ABSTRACT

Parking issues have been receiving increasing attention. An accurate parking occupancy prediction is considered to be a key prerequisite to optimally manage limited parking resources. However, parking prediction research that focuses on estimating the occupancy for various parking lots, which is critical to the coordination management of multiple parks (e.g., district-scale or city-scale), is relatively limited. This project aims to analyse the performance of different prediction methods with regard to parking occupancy, considering different images of busy and free where busy means there's no place and free means there's place to park the vehicle. We want to implement this using CNN and Mobilenet v2 architecture as parking occupancy can be easily checked using mobile.

INTRODUCTION

Convolutional Neural Networks (CNNs / ConvNets):

Convolutional Neural Networks are very similar to ordinary Neural Networks from the previous chapter: they are made up of neurons that have learnable weights and biases. Each neuron receives some inputs, performs a dot product and optionally follows it with a non-linearity. The whole network still expresses a single differentiable score function: from the raw image pixels on one end to class scores at the other. And they still have a loss function (e.g. SVM/Softmax) on the last (fully-connected) layer and all the tips/tricks we developed for learning regular Neural Networks still apply.

In this project, the dataset contains images and using these images we must predict whether there's parking available or not. The dataset contains Full , Free images and we need to find occupancy of the parking.

Sample Images :

Free:



Full :



METHODOLOGY

We are using Convolutional Neural Networks and MobileV2NET architecture to solve this project

WHERE DO THE DATASET COLLECTED

We collected the dataset from “[www.kaggle.com](https://www.kaggle.com/daggysheep/find-a-car-park)”. The dataset link is “<https://www.kaggle.com/daggysheep/find-a-car-park>”

PREPROCESSING THE TRAIN AND TEST DATA

Because it is all about images, it is enough to standardize images and using imagedatagenerator we can create some more images.