A Survey on "Image Based Food Classification & Volume Estimation for Dietary Assessment"

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Abstract: *The manual work is that people have to get knowledge or in- formation from different kind of sources regarding food from books, people, etc. But it is very difficult to find out information regarding various foods their macros, nutrients and recipes. So from this Food Classification System project we are giving ultimate solution for all of them that is we are making application where each and every user can give input as image of food. And out system will show the macros, nutrients and the recipe of the food. This application has username and password. For security purpose. And our application contains about all the food items irrespective of the region or country. So our application is open for anyone irrespective of country and region. To resolve the issues of the previous things we are not providing any restriction for the user to access the application.*

Keywords: CNN, Preprocessing, Feature Extraction

I. INTRODUCTION

Cooking is the most talented skill that no one can master. Cooking is a hobby for some and a way to pass the time for others. Preparing new items is an experimental process because only a few of th have existed previously. however, now everyone was regardless of region or country, attempting to prepare new items In addition, some Cooking is a business that allows them to run a hotel or restaurant. For others, One of them enjoys experimenting with new foods. And for a wide range of people. above need to do manual labour to learn how to prepare new food items and to those who want to try new things and sample a variety of flavours.

II. MOTIVATION

The astonishing success of deep learning methods in data science has led their applications to food data science in a promising way. Towards this we have proposed a unique way to model recipe cooking instruction in to order pre- serving compressed embeddings which can handle variable lengthwords) of instructions and variable number of instructions(steps). Our system predicts ingredients as sets by means of a novel architecture, mod- eling their dependencies without imposing any order, and then generates cook- ing procedures by attending to both image and its inferred ingredients simultaneously.

III. LITERATURE SURVEY

Paper Name: Food Category Representatives: Extracting Categories from Meal Names in Food Recordings and Recipe Data
Author: Sosuke Amano, Kiyoharu Aizawa
Abstract: FoodLog is a multimedia recording tool for producing food records for many individuals. In one year of operation, FoodLog has produced more than one million food records for meals eaten by users. We found nearly 70,000 unique food records among these data. In analyzing them, one of the challenges is to extract meal categories from such a large number of records. In this paper, we propose a method for compressing a meal name into a shorter representation

Paper Name: Simultaneous Estimation of Food Categories and Calories with Multi- task CNN
Author: Takumi Ege and Keiji Yanai

Abstract: In this paper, we propose simultaneous estimation of food categories and calories for food photos. Since there exists strong correlation between food categories and calories in general, we expect that simultaneous training of both brings performance boosting compared to independent single training. To this end, we use a multitask CNN.

Paper Name: Suggestion Analysis for Food Recipe Improvement
Author: Pakawan Pugsee, Monsinee Niyomvanich

Abstract: Suggestion analysis for food recipe improvement is to identify helpful suggestions from user comments to improve the recipes. Consequently, user comments about food recipes are classified into two groups that are comments with suggestions or without suggestions.

Paper Name: Food Image to Cooking Instructions Conversion Through Compressed Embeddings Using Deep Learning
Author: Madhu Kumari Tajinder Singh

Abstract: The image understanding in I lie era of deep learning is burgeoning not only in terms of semantics but also in towards the generation of a meaningful descriptions of images, this requires specific cross model training of deep neural networks which must be complex enough to encode the fine contextual information related to the image and simple enough to cover wide range of inputs.

3.1 Algorithm

A. Convolutional Neural Network

CNN offers a modern way of image recognition. A multi-horizontal neural network, whose neurons take up small fragments of the previous layer as implants. It is strong against small shifts and rotations. The CNN system includes a convolution layer and a composite layer (or small samples). In the convolution layer, unlike fully connected neural networks, weights can be considered as $n \times n$ (n woku input sizes) filters. Each input includes these filters. Each layer has many filters that produce different output. In the image recognition function, different features are extracted by these filters. Filters are often called (convolution) kernels. The composite layer produces the output by activating the rectangular areas. There are several ways to activate it, such as upper and middle openings. This makes CNN results less consistent in terms of position. Conventional CNN incorporates multiple flexibility and integration layers, with a fully integrated layer to produce the final result of the work. In classifying images, each unit of the final layer reflects the possibilities of the class. CNN has advanced parameters that include a number of intermediate layers, convolution size, and active functions. In this project, we compare the performance of some of these parameters. For our project, we use Python (ML), which is the launch of the CNN Python CPU, in the CNN library.

B. Image Processing

Image processing is a method to convert an image into digital form and perform some operations on it, in order to get an enhanced image or to extract some useful information from it. It is a type of signal dispensation in which input is an image, like video frame or photograph and output may be image or characteristics asso- ciated with that image. Usually Image Processing system includes treating images as two dimensional signals while applying already set signal processing methods to them.

VI. CONCLUSION

The proposed one has become a solution for ordinary people, businesses and hotels as well. We are creating an application to be hosted. so that everyone can access information anywhere in the world. So this makes it easier for everyone. The Food Recipe Management System app is an application to be hosted. So the user or visitor can visit the recipe recipes application using image processing.

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