LITERATURE SURVEY ON THE SELECTED PROJECT & INFORMATION GATHERING

[1] A New Deep Learning-based Food Recognition System for Dietary Assessment on An Edge Computing Service Infrastructure

A deep learning-based visual food recognition algorithms to achieve the best-in-class recognition accuracy. A design of food recognition system employing edge computing-based service computing paradigm to overcome some inherent problems of traditional mobile cloud computing paradigm, such as unacceptable system latency and low battery life of mobile devices.

Algorithms Used:

- K-means clustering algorithms
- Convolutional Neural Network
- Deep learning

Challenges:

Using this simple cropping-based approach will not work well if the food is scattered on different parts of the image

[2]AI in dietary assessment of nutritional system

Mobile applications based on systems using AI are of significant importance in the field of nutritional prophylaxis. In 2008, Sun et al. proposed an electronic photographic approach and associated image processing algorithms to estimate food portion size. Lu et al., in a recent publication, offered go FOODTM as a dietary assessment system based on AI. It can estimate the calorie and macronutrient content of a meal, on the sole basis of food images captured by a smartphone.

Algorithm Used:

- Iterative closest point algorithm

- Clustering algorithm

Challenges:

Significant costs, time burden, technical complexity, and limited investment in dietary research infrastructure, including the necessary tools

[1]Deep Food : Food Image Analysis and Dietary Assessment via Deep Model.

This system will analyze the nutritional ingredients based on the recognition results and generate a dietary assessment report by calculating the amount of calories, fat, carbohydrate and protein.

Algorithms Used:

- Region-based Convolutional Neural Network
- Convolutional Neural Network
- Non-maximum suppression
- Bounding Box Regression
- Deep learning

Challenges:

Three main challenges in real food image recognition and analysis are addressed as follows:

1. Region of Interest
2. The Delay of Food Recognition
3. Insufficient Information of Nutrition Content for dietary assessment

[4] Precision Nutrient Management Using Artificial Intelligence Based on Digital Data Collection Framework

Nutritional intake is fundamental to human growth and health, and the intake of different types of nutrients and micronutrients can affect health. The content of

the diet affects the occurrence of disease, with the incidence of many diseases increasing each year while the age group at which they occur is gradually decreasing.

Algorithm Used:

- Okapi BM25
- TF-IDF
- Levenshtein
- Jaccard
- Synonyms

Challenges:

This model has very little error and can significantly improve the efficiency of the analysis.

[5]Calculating Nutrition Facts with Computer Vision

People are becoming more health-conscious than before. However, there is a lack of knowledge about different fitness and wellness aspects of food. Thus, I come up with Foodify.ai—a deep learning-based application that detects food from the image and provides information of food such as protein, vitamins, calories, minerals, carbs, etc.

Algorithm Used:

- Deep learning
- Machine learning
- Image Processing

Challenges:

1. This is to collect images to create a huge dataset.
2. It is an extremely computationally expensive and time-consuming task to train the model again and again. This can be solved by using cloud-based services.