LITERATURE SURVEY

Team ID : PNT2022TMID38600

Team Title : AI-powered Nutrition Analyzer for Fitness Enthusiasts

College Name : Adhiparasakthi Engineering College

Team Leader : Sandhiya K

Team Member : Lavanya gowri M

Team Member : Sandhya K

Team Member : Sathiya Priya S

1	**Paper title**	A review on vision-based analysis for automatic dietary assessment - Wei Wang , Wei Qing Min , Tian Hao Li , Xiao Xiao Dong , Hai Sheng Li , Shu Qiang Jiang - April 2022.
	Problem definition	This review presents Vision-Based Dietary Assessment (VBDA) architecture, including multi-stage architecture and end-to-end one. The multi-stage dietary assessment generally consists of three stages: food image analysis, volume estimation and nutrient derivation
	Methodology/ Algorithm	In this paper they divide existing VBDA methods into two types of architectures. One is a multi-stage VBDA architecture, which mainly consists of three parts: food image analysis, portion estimation, and nutrient derivation. Each stage has its own specific task and is linked to each other for nourishment
	Advantages	The end-to-end VBDA architecture emphasize specifying the original input and nutritional output without multiple steps
	Disadvantages	• Model Complexity • Data Collection

2	**Paper title**	An Artificial Intelligence System for Dietary Assessment - Ya Lu , Thomai Stathopoulou ,Maria F. Vassioglou ,Lillian F. Pinault ,Colleen Kiley ,Elias K. Spanakis and Stavroula Mougiakakou - July 2020
	Problem definition	In this paper, the system can estimate the calorie and macronutrient content of a meal, on the sole basis of food images captured by a smartphone. (e.g., captured by smartphone). This system requires an input of two meal images or a short video
	Methodology/ Algorithm	The deep neural networks (Mask-RCNN framework) which are used to process the two images and implements food detection, segmentation and recognition, while a 3D reconstruction algorithm estimates the food's volume
	Advantages	The embedded food segmentation algorithm used in this project has proved to be superior to its previous version and accurately recognized different foods, depending on how common and fine-grained they were.
	Disadvantages	The most recent addition to the set of functionalities is the development and integration of a bar-code scanner, so that packaged consumed products can also be accounted for

3	**Paper title**	Application Of Artificial Intelligence On Nutrition Assessment And Management - Dr. Kavita Sudersanadas - May 2021.
	Problem definition	In this paper, we enable precise and personalized medical nutrition care by assessing food and nutrient intake, nutritional evaluation
	Methodology/ Algorithm	In this Proposed system, the computer draws a rectangle surrounding the classified objects for detecting them and the identified parts/segments of the object and it understands what object they belong to and their nutritional value.
	Advantages	Maintenance of nutritional status by adequate food and nutrient intake which prevents the Malnutrition
	Disadvantages	• Data Collection. • Wide variety of Cuisine

4	**Paper title**	Deep Food: Food Image Analysis and Dietary Assessment via Deep Model - Landu Jiang, Bojia Qiu , Xue Liu , Chenxi Huang , Kun Hui Lin - February 2020.
	Problem definition	In this paper, we develop a deep model-based food recognition and dietary assessment system to study and analyze food items from daily meal images (e.g., captured by smartphone).
	Methodology/ Algorithm	A three-step algorithm to recognize multi-item (food) images by detecting candidate regions and using deep convolutional neural network (CNN) for object classification
	Advantages	Applied Tate-of-the-art Faster R-CNN model to generate Roi's and used deep neural network to extract the feature map for food item recognition
	Disadvantages	• Model Complexity • Data Collection

5	**Paper title**	Virtual Nutritionist using AI - Siddarthan Chitra Suseendran, Nanda Kishore B, Josephus Andre M.S.Rajyashree - June 2020
	Problem definition	In this paper, we propose a model for a sustenance master framework which point is to give its clients the nourishment skill. It creates solid dinners for people in various ages as indicated by various criteria including their development stage, sexual orientation, and their wellbeing status
	Methodology/ Algorithm	This system has an application that has already recode and stored several researches in its server based on: - Diets Food profile medical conditions Lifestyles Body Type and provide feasible dietary plan.
	Advantages	This system allows the user to follow a specific diet with the appropriate macro and micro nutrient necessary for their specific lifestyle and medical conditions
	Disadvantages	This system does not Inbuilt personalized customization of meals depending upon one's preferred foods.