

AI – POWERED NUTRITION ANALYZER FOR FITNESS ENTHUSIASTS

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LITERATURE SURVEY

1. ARTIFICIAL INTELLIGENCE OFFERS PERSONALIZED NUTRITIONAL GUIDANCE: ARTIFICIAL INTELLIGENCE APPROACH

Food is essential for human life and has been the concern of many healthcare conventions. Nowadays new dietary assessment and nutrition analysis tools enable more opportunities to help people understand their daily eating habits, exploring nutrition patterns and maintain a healthy diet. Nutritional analysis is the process of determining the nutritional content of food. It is a vital part of analytical chemistry that provides information about the chemical composition, processing, quality control and contamination of food.

Food pattern is an important factor to prevent diseases and improve lifestyle. Studies show that changes in diet affect the evolution of chronic non-communicable diseases (CNCD) like cardiovascular diseases, obesity, and depression. It is highly recommended to change eating habits to prevent non-communicable diseases. Artificial Intelligence in nutrition is becoming popular for prevention and treatment. The main aim of the project is to building a model which is used for classifying the fruit depends on the different characteristics like colour, shape, texture etc. Here the user can capture the images of different fruits and then the image will be sent the trained model. The model analyses the image and detect the nutrition based on the fruits like (Sugar, Fibre, Protein, Calories, etc.). Nutrigenomics refers to the integration of genomic science with nutrition which is becoming increasingly popular in the field of nutrition-based AI.

2. AI FOR DETERMINING PEOPLE'S HEALTH METRICS: A REVIEW OF MULTITUDE OF FACTORS INFLUENCING DIETARY RECOMMENDATIONS

By understanding the multitude of factors influencing dietary recommendations, it becomes clear that the idea of a universal diet for everyone is flawed and biologically impossible. That is where artificial intelligence comes in. Randomized trials have become difficult to conduct in the field of nutrition because they require subjects to stick to diets for years while these studies have high chances of human error involved. However, the advent of artificial intelligence has allowed researchers to analyze big data sets resulting in a complete portrait of an individual's health metrics including the factors that influence their respective nutritional needs.

Analysis of personal health metrics has become possible because of advances in Artificial Intelligence. Two scientists, Eran Segal and Eran Elinav, in an institute of Israel, recently conducted a study on the variability of glucose levels post-meal by using personal and microbiome features to predict glucose responses in patients lowering post-meal glucose levels as a result. The researchers, with the help of machine learning, gathered and analyzed a data set of 1.5 million glucose measurements with various external factors to see what drove the glucose response to specific foods for each individual. An algorithm was built that way. Several factors were found to be involved in the glycemic response, but the food wasn't the key determinant. Instead, it was the gut bacteria.

As the world is growing more fitness-conscious with time, there is an increasing demand for advanced technological solutions to cater to it. Lately, many applications worldwide are using predictive analytics artificial intelligence as well as natural language processing to help scores of fitness enthusiasts to monitor their nutrition and calorie intake. Artificial Intelligence and its subsets have been leveraged by these platforms to identify the calorie intake and then make food recommendations for a healthy diet.