

AI-POWERED NUTRITION ANALYZER FOR FITNESS ENTHUSIASTS

Literature Survey

Paper 1: AI-Powered Nutrition Apps That Help Fitness Enthusiasts With Their Calorie Intake (Author: AKSHAYA ASOKAN – 2019)

As the world grows more fitness-conscious with passing time, the demand for technological solutions to cater to this burgeoning demand is diversifying. In India, this global trend has had a positive impact on scores of startups and websites catering to this segment. AI and its various subsets have been leveraged by these platforms to identify the calorie intake and also to make food recommendations for a healthy diet. In most cases, what we see is that these platforms act as a data repository where while providing real-time information to its users, it also makes available to numerous clients who work in this field for a determined rate. Lately, a number of startups in India and worldwide are using predictive analytics artificial intelligence and natural language processing to help scores of fitness enthusiasts to track and monitor their nutrition and calorie intake. We take a look at the top AI-based online platforms which make use of AI and other deep learning technologies to provide a real-time update about nutrition intake.

Paper 2: Calculating Nutrition Facts with Computer Vision (Author: Durgesh Samariya – 2022)

Indian cuisine consists of a variety of traditional cuisines native to the region. Given the diversity in soil, climate, culture, ethnic groups, and occupations, these cuisines vary substantially and use locally available spices, herbs, vegetables, and fruits. Stages: Image Collection Application Train Deep Learning Model and Develop Prototype Application. Create a nutrition Database. Develop Mobile App. In this era, 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. It is difficult to distinguish some items such as Naan, Butter Naan, Cheese Naan, and Garlic Naan. Similarly, it is difficult to identify Dal, Dal Fry, Dal Tadka, or let's

consider Paratha, Aloo Paratha, Gobi Paratha, and Paneer Paratha. Thus, I created a single category for Naan, Dal, Paratha, and many more.

Paper 3: The Design and Implementation of an Ingredient-Based Food Calorie Estimation System Using Nutrition Knowledge and Fusion of Brightness and Heat Information (Author: Sumana Bhattacharya – 2018)

Health as the original purpose of food seems to be gradually ignored, and thus, people in civilized societies increasingly become obese and die at a young age. To measure food calories in order to calculate daily consumption of calories, food is baked, and burnt as the destructive way in five-hours and eight-minutes time, respectively, and the calories are subsequently measured by the decreased weight. To apply our proposed method in reality, users should first consider selecting software and hardware approaches that are already proved by our experiments, by trading off between accuracy and computational speed. Currently, the calories of food evaluated by the aforementioned destructive way are popularly used as a reliable standard for consumers to count and accumulate their daily-consumed calories. Some researchers have worked toward this research problem for the final goal of food calorie measurement and estimation in each meal

Paper 4: AI in Nutrition: Top 10 Fitness Apps and Startups (Author: Think ML Team – 2022)

AI in nutrition optimizes four core operations as discussed: Food Science, Distribution and Supply Chain, Customer Experience, Manufacturing. In the 21st century, artificial intelligence (AI) and machine learning are becoming commonplace. Both are becoming more important components of current workout routines. AI has become intrinsically connected to health and fitness. AI, according to technologists, improves everything. When it comes to fitness, it has the potential to empower the app by dramatically increasing engagement, which may lead to long-term income. The AI-enabled apps can give users a variety of advantages. It may save money for a fitness enthusiast, for example, because an artificial intelligence fitness trainer is less expensive than a human trainer, but joining a gym might be expensive or impossible to integrate into our busy life. In addition, AI-powered fitness software may make a workout more interesting and enjoyable.

Paper 5: Artificial Intelligence in Nutrients Science Research (Author: Jarosław Sak et.al – 2020)

In the area of biomedical nutrients research, there were identified studies in which advanced AI methods and systems were applied in relation to the study of the composition of food products, optimization of nutrient production, the effects of nutrients on the functioning of the human body in health and disease and research on the gut microbiota. The use of AI techniques in studying the composition of food products and testing their originality dates back to the 1990s. AI techniques also appear to be useful in estimating the risk of health problems based on the analysis of dietary or supplementation patterns. AI techniques have found their application not only in monitoring the quality and quantity of nutrients, but also in terms of the level of their expenditure. One of the main problems in analyzing publications on the use of AI in nutrient research is the range of research areas to be considered. The development of dietary systems using AI technology may lead to the creation of a global network that will be able to both actively support and monitor the personalized supply of nutrients.

Paper 6: The Growing influence of Ai-Powered Fitness Applications (Author: Atif.M - 2020)

Each person's body and fitness goals are unique. Therefore, one workout plan cannot be suitable for every individual. With the power of AI, ML and other top technologies, these applications can tailor exclusive workout plans for each user. One of the biggest advantages of using these fitness apps is that they allow you to work out anywhere and anytime. All the user has to do is enter the required details, such as body measurements, their current fitness level, their fitness goals, and more. One of the biggest advantages of using these fitness apps is that they allow you to work out anywhere and anytime. The only requirements are your mobile phone and an internet connection. Whether you're on a business trip, family vacation, or away from your permanent residence for any reason, you have no excuse to skip your workout session. Eating right is essential to achieve any fitness goal. In fact, studies reveal that diet is more important than exercise for good health. Therefore, some of the best at-home workout apps provide you personalized diet charts. Also, you can select the right option to get a vegetarian, non-vegetarian, protein-rich, carbs-rich, or any other type of diet plan.