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| S.NO | TITLE | AUTHOR | ABSTRACT | CONCLUSION |
| 1 | Diagnosis of Nitrogen Nutrition of Rice Based on Image Processing of Visible Light. | Yuan Yuan, Lei Chen, Miao Li, Na Wu, Li Wan | A field experiment was carried out to explore the feasibility of visible image processing technique in rice nitrogen non-destructive diagnosis. Based on the image processing technology of visible light, this study investigated the relationship between the nitrogen status of rice and the greenness of rice leaves, which are captured by digital camera. | A field experiment was conducted with different nitrogen treatments. The visible images of rice leaves were obtained with a digital camera. Meanwhile, NRI, NGI, NBI and other colour feature parameters of images were extracted. The correlation between these parameters and the SPAD values were analysed. Finally, the best position and the colour parameters of rice nitrogen diagnosis were established. |
| 2 | Nutrition Counselling System and Food Menu Planning | Yanisa Usthasopha, Suphakant Phimoltares, and Nagul Cooharojananone | In recent years the effects of industrial growth have resulted in drastic changes in consuming behavior, standard of living, and lifestyles. In particular there has been a significant rise in the number of people who eat out regularly. | The results from the eight user volunteers suggest that the NCS is capable of generating individual menus for three meals (breakfast/lunch/dinner) and also offering a variety of foodstuff choices. Overall the users were satisfied with the program and its interface with many willing to consider using it again. |
| 3 | Food Clustering Analysis for Personalized Food Replacement. | Huan-Chung Li, Wei-Min Ko and Hung-Wen Tung | Everybody needs a balanced diet to maintain a healthy body. An unbalanced diet may lead to disease and sickness. Medical nutrition therapy (MNT) is important in preventing diabetes, managing existing diabetes, and preventing, or at least slowing, the rate of development of diabetes complications. | This personalized food recommendation will be helpful to nutritionists in creating new food classes (groups) and a more personalized food replacement and recommendation plan. |
| 4 | Hospital Dietary Planning System Using Constraint Programming. | Noppon Choosri, Sathita Anprasertphon. | Due to the fact that proper dietary planning will maintain the healthiness of patients, plus a food consumption control is an important clinical treatment of certain diseases of medical healthcare. This paper is aimed at proposing a practical solution to generate an automated schedule for both the In-Patient Department (IPD) and Out-Patient department (OPD) for a hospital. | Hospital diet planning is difficult and can lack efficiency when it is manually operated. This paper contributes to the proof that the concept of Constraint Programming can be applied to the diet planning system effectively. |
| 5 | Optimizing Nutrition using Machine Learning Algorithms-a Comparative Analysis | [Asmabee Khan](https://ieeexplore.ieee.org/author/37087225001), [Sachin Deshpande](https://ieeexplore.ieee.org/author/37085904547), [Amiya K. Tripathy](https://ieeexplore.ieee.org/author/37950187800) | - Nutrition is an essential support of human body development. Poor nourishment can result in reduced immunity, increased vulnerability to various diseases, weakened physical and mental development. Good nutrition is significant for healthy wellbeing. It is one of the facts that an individual must be aware of the current scenario for its own nutrition requirement. | The most common nutritional deficiencies are of Iron and Vitamin A. All of these issues are because of lack of knowledge about proper nutrient-content diet. The literature study has been carried towards the development of the proposed Web/App based nutrition recommendation system. |
| 6 | A Healthy Nutrition Expert System for Children | [Maryam Hazman](https://ieeexplore.ieee.org/author/37085390276), [Amira M. Idrees](https://ieeexplore.ieee.org/author/37085647613) | Healthy food is one of the most critical aspects for the family, especially for their children as healthy diet for children results in better life including the increase of their ability to learn, exercise, and even behaving. Therefore, a need for a full support for providing the children with healthy food is a vital target to reach. It generates healthy meals for children in different ages according to different criteria including their growth stage, gender, and their health status. | A case study is presented to prove the accuracy and applicability of the system. However, validating the knowledge for the proposed system and completing the knowledge base are two of the main future directions. Since, the proposed prototype is a first step towards a complete expert system for a broader target which is providing a whole nutrition plan for children with explanation facilities and different varieties of food based on their preferences. |
| 7 | A Study of the Electronic Healthy Diet and Nutrition Assessment System Applied in a Nursing Home | Lan-Hsin Hung, I-Wen Chang, Han-Wei Zhang, Heng-Shuen Chen | Malnutrition has been a well-known risk factor of disease in elderly population, however, the welfare and quality of life can be reached for the elder with the implementation of information technology among a rapidly aging society. t does not only provide the elderly with more enjoyable and flexible pre-order meal services but also enable self-management of diet control. | As long as the prevalent of diet-related chronic disease, demand for providing a diet environment with nutrition information would be urged day by day. The Elderly living in nursing home depend on the food provided by nursing home mostly. By using the electronic food composition nutrient database, eHDNAS can provide a variable diet with accurate nutrition information. |
| 8 | Food Calorie and Nutrition Analysis System based on Mask R-CNN | Meng-Lin Chiang, Chia-An Wu, Jian-Kai Feng, Chiung-Yao Fang, Sei-Wang Chen | Abstract—Over the past few decades, obesity has become a  serious problem. Obesity is associated with many of the leading  causes of death, such as chronic diseases including diabetes,  heart disease, stroke, and cancer. The most effective way to  prevent obesity is through food intake control, which involves  understanding food ingestion, including the nutrients and  calories of each meal. To assist with this issue, this study  develops a food calorie and nutrition system that can analyze  the composition of a food based on a provided image. Further,  we introduce a newly collected dataset, Ville Cafe, for food  recognition. This dataset contains 16 categories with 35,842  images, including salad, fruit, toast, egg, sausage, chicken  cutlet, bacon, French toast, omelet, hash browns, pancake, ham,  patty, sandwich, French fries, and hamburger. The system is  based on a Mask Region-based Convolutional Neural Network  (R-CNN) with a union postprocessing, which modifies the  extracted bounding boxes and masks, without the nonmaximum suppression (NMS), to provide a better result in  both analytics and visualization. The recognition accuracy for  the combination of Ville Cafe and the Food-256 Datasets was  99.86%, and the intersection over union (IoU) was 97.17%.  The food weight estimation experiment included eight classes:  salad, fruit, toast, sausage, bacon, ham, patty, and French fries.  These classes respectively had 40, 40, 44, 40, 41, 49, 26, and 40  data points, adding up to 320 data points for the linear  regression model. In the experimental results, the average | The proposed system aims to help users manage their diet  through food recognition and calorie nutrient analysis. This  study uses food images as input to the system, based on  Mask R-CNN to detect and recognize food class and food  masks. The proportion of food in the image is obtained  through the food mask, and the weight of the food is  estimated by linear regression. The combination of food  calories and estimated weights allows the |
| 9 | Decreases Circulating LDL and Total  Cholesterol Concentrations in Adults | Sonia Blanco Mejia,1,2 Mark Messina,3 Siying S Li,1,4 Effie Viguiliouk,1,2 Laura Chiavaroli,1,2 Tauseef  A Khan,1,2 Korbua Srichaikul,1 Arash Mirrahimi,1 John L Sievenpiper,1,2,5,6,7 Penny Kris-Etherton,8 and  David JA Jenkins1,2, | Background: Certain plant foods (nuts and soy protein) and food components (viscous fibers and plant sterols) have  been permitted by the FDA to carry a heart health claim based on their cholesterol-lowering ability. The FDA is currently  considering revoking the heart health claim for soy protein due to a perceived lack of consistent LDL cholesterol reduction  in randomized controlled trials | Soy protein significantly reduced LDL cholesterol by approximately 3–4% in adults. Our data support  the advice given to the general public internationally to increase plant protein intake. This trial was registered at clinic |
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