DEPARTMENT OF COMPUTER SCIENCE ENGINEERING
IBM – LITERATURE SURVEY

AI-POWERED NUTRITION ANALYZER FOR FITNESS ENTHUSIASTS
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LITERATURE SURVEY

LIST OF BOOKS - PUBLICATION

Author	Title	Topic	No of Studies	Nutrients	Domains	Algorithms	Name of the Journal/ Conference	Years
Tingting Shen, Weijiao Li	High-Sensitivity Determination of Nutrient Elements in Panax notoginseng by Laser-induced Breakdown Spectroscopy and Chemometric Methods	Food composition	6	Proteins, Minerals (K, Ca, Mg), Trace elements	ANN, ML	SVM, LS-SVM, SVR, GA-RBFN, PLS, GA-PLS, KohNN, LASSO, CLAs	Multidisciplinary Digital Publishing Institute	1996, 2013, 2016,
Shang-Ming Huang, Hsin-Ju Li	An Efficient Approach for Lipase-Catalyzed Synthesis of Retinyl Laurate Nutraceutical by	Production of nutrients	3	Retinol, Benzoquinones, Phycobiliproteins	ANN, FLM	LM, GA, ANN-GAR, FFD, GA-Fuzzy	Multidisciplinary Digital Publishing Institute	2017, 2020

	Combining Ultrasound Assistance and Artificial Neural Network Optimization							
Ping Yu	Vitamin D (1,25-(OH) 2 D 3) regulates the gene expression through competing endogenous RNAs networks in high glucose-treated endothelial progenitor cells	Influence of nutrients on phys./path. functions	3	Proteins, Vitamins (A,B,C,D,K)	ANN, FLM, ML	SVM, BN, NB, RF, CLAs	Public/Publisher Medline(NLM journal articles database)	2013, 2014

LIST OF PROJECTS

S.NO	TITLE OF THE PROJECT	ADVANTAGES	DISADVANTAGES	TECHNOLOGY
1	Improved health and fitness plans	analyse the details entered by the users, body parameters, and goals. Once the analysis is complete	It becomes difficult to get a 100% customised routine in physical classes or gyms. AI-based apps have eradicated this problem	Apps & Applications
2	Impeccable nutritional evaluation	These new-age apps have the feature of analysing the entire content of your meal by simply scanning a picture of your plate	Based on your body's requirements and Health	Fitness apps
3	Fitness and Physical Activity	has produced an increase in the number of studies that try to evaluate consumer behaviours	It reduces the man power requirements, It's required only for AI	sport application

4	Health care Chatbots	Chatbots can provide a tireless, constant source of interaction for patients with the healthcare system	Despite the obvious pros of using healthcare chatbots, they also have major drawbacks. Increased costs	Chatbots
5	AI- in health Care	These technologies can identify patterns and deliver automated insights that help with common applications such as health monitoring, managing medical records, treatment design and even digital consultations	it can be difficult to access some of the data necessary to provide AI learning with the breadth and depth of information it needs	Using algorithms and data
6	Health monitor using sensor	Health monitoring from using a smart sensors. It can identify and monitored	It doesn't accurately Monitoring	Breathing Sensors

7	Fitness exercise	improve your physical fitness, well being and quality of life, exercise can be part of the equation.	Overdoing it and neglecting to rest can expose you to the negatives of exercise. In addition to being more likely to sustain injuries, exercising too much can leave you feeling weak,	Fitness equipment
8	Physical exercise during COVID-19 pandemic	increasing day by day make the situation alarming. Exponential growth in covid-19 cases has led to the isolation of billions of peoples	during the initial phase of lockdown, The participants had a negative situational perception and a lack of motivation for fitness exercise.	Physical equipment
9	Physical activities	an increase in the number of studies that try to evaluate consumer behaviour towards the use of sports applications	This systematic review is a critical evaluation of the evidence from quantitative studies in the field of assessment of consumer behaviour	Physical activities, sports app
10	Nutrition updates-plant based diets	The goal of our diet should be to improve our health. That include vegan, vegetarian and Mediterranean diets.	Generally, patients on a plant-based diet are not at risk for protein deficiency Proteins are made up of amino acids,	Physical mode

11	Recommender System with Artificial Intelligence for Fitness Assistance System	It has an ability to learn, analyze, predict, and make a suggestion as well as communicate to human through AI.	It predicts and train data to give the suggestion for the fitness workout but it was not more accurate and appreciable in risk cases.	The Artificial Neural Network with Logistic Regression
12	IntelliDoctor – AI based Medical Assistant	This application tracks the user physical activities like periodic step count and their calories intake and calculate BMI.	Though it has lot of facilities it can lag due to internet connection and it doesn't track the user performance activity.	Natural Language Processing (NLP).
13	Efficient Fitness action Analysis based on Spatio-Temporal feature Encoding	It recognizes fitness actions from image sequences and propose an action evaluation method, which can be applied in artificial intelligence (AI) fitness system.	Recognition accuracy of complex dynamic movements are direction less.	A geometrical registration metric ianalysis

14	Endurance based Personalized Fitness Planner	It provides a device to predict future endurance of a test subject for particular exercise regime.	It doesn't capture the subtle effect of various other personal and environmental factors. It focuses on only few parameters.	statistical technique to model endurance
15	Personalized Nutrition Solution based on Nutrigenomics	This application provides nutrition recommendation by findings of nutrigenomics at the population sub-groups and even individual level.	It has an able to Provide with more precise and Personalized nutritional advice to individuals but supplement for various parameters were missing.	Intelligent algorithms, they able to analyze people's DNA
16	Information Technology in the Mobile Application of Analysis and Correction of the Diet of Individual Healthy Nutrition	It is socially important and relevant for ensuring public health.	minimal deviation from the norms of healthy nutrition with possible interchangeability and compatibility of food products.	Algorithm and mathematical formulation of the

17	Computer Optimization of Food Nutrition Formula Based on the Consideration of Adaptive Genetic Algorithm	A kind of computer optimization method for the food nutrition formula based on the consideration of the adaptive genetic algorithm	The algorithm was difficult to Understand but provide good accuracy.	Computer Optimization (COFNF algorithm)
18	Intelligent computer Service system for public fitness based on Fusion of Entropy weight Matter element extension model	The Intelligent Computer service System for public Fitness operates and applies the entropy weight matter element extension model.	It is used for Theoretical references but it is not as much accurate.	Entropy weight -Degree Resolution Principle.
19	The iFit: An Integrated Physical Fitness Testing System to Evaluate the Degree of Physical Fitness of the Elderly	It represents an integrated physical fitness testing system (iFit) that evaluates the physical fitness of older adults.	A standard deviation for balance time is needed to instruct elderly users to retest in the case of unexpected accidents.	wireless transmission (AWT) module, a Game-based Evaluation (GBE) module, a Personal Health Management (PHM) module.

| 20 | Fitness Tracking and Advisory Application | This application enables a user to track his/her fitness and also get advices and fitness related information in the form of a report at the end and it will enable the users to calculate their heart rate, blood pressure, and other health related parameters. | It doesn't matter in high risk situation and need to consult doctors. | Image processing and GPS. |