



MILITARY SPORTS TRAINING PREDICTION MODEL USING DEEP LEARNING

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ABSTRACT

Military sports training is an important part of military training, which is an important training means to strengthen the physique of officers and soldiers, strengthen personal quality, and improve individual skills, and is the basic work to win the future war. Military sports training is guided by actual combat, guided by task, guided by scientific theory, and carried out physical training according to combat needs and post requirements. Military sports training in military academies aims at the future post demand, combines the rigid requirements of military physical fitness and military sports training plan, and organizes a large number of targeted physical fitness training from two aspects of basic physical fitness training and military skill training every academic year. With the in-depth application of intelligent technology in various fields of military construction, we should actively explore the effective application of artificial intelligence technology in a large number of historical military sports training performance data, and excavate the key factors affecting the effectiveness of military sports training, so as to optimize the implementation of training organization and enhance the training effect.

Key Concept: Deep Learning, prediction

Introduction

Soldiers are physically and emotionally prepared for war through military sports training. Running, swimming, completing obstacle courses, practising martial arts, lifting weights, and participating in team sports are common examples. Strength, stamina, agility, coordination, as well as the growth of leadership and collaboration, are prioritized. Soldiers are frequently required to push themselves over their perceived limitations as a result of the intense and demanding nature of military sports training. The objective is to help unit members establish a sense of camaraderie and esprit de corps as well as a degree of fitness and resilience that will assist them in challenging circumstances.

Literature Survey

[1] Paper Name: Research and Analysis of Sport Medical Data Processing Algorithms Based on Deep Learning and Internet of Things

Author Name: Hongmei Ma; Xiaofeng Pang

Description: With the development of computer and information technology, more and more data and image information are generated in medical field. Sports medicine, as an important branch of medical cause, is responsible for ensuring national sports safety and rehabilitation after injury. How to use a large number of sports medical data and cases to accurately analyze and mine useful data and information has become an important research direction of sports medical data processing and mining. This paper will focus on the information mining and analysis of large sports medical data, focusing on the loss of training mode and the accuracy of convolution algorithm

[2] Paper Name: Implementation of SVM broken prediction notification system with park sport equipment

Author Name: Wei-Chen Sun; Jui-Chung Hung; Chih-Peng Huang

Description: Outdoor sports equipment without maintenance usually caused injury to users. This paper proposes to design an App notification system combine with IoT to monitor the equipment status. We converted our action signal into frequency domain for analysis. But the useless signal might decline classifier efficiency. Therefore, we propose an empirical support vector machine (SVM) to reduce the useless signal. We compare our method with the other method. Our method has better efficient and use this method apply on notification App

[3] Paper Name: Intelligent Prediction System of Sports Tourism Destination Demand Based on the Integration of Tourist Ecological Footprint Model

Author Name: Jun Yue; Xianzhi Xie; Zongkeng Li; Jiaqi Chen

Description: In view of the fact that the prediction of traditional sports tourism destinations is affected by the excessive entities and large dynamic changes of economic structure, this paper proposes a method of prediction of demand intellectualization for sports tourism destinations integrating tourist ecological footprint model (TEFM). It uses tourist ecological footprint model (TEFM) to optimize the non-linear characteristic indexes

that affect the demand for sports tourism destinations, and then obtain the initial data for predicting the demand for sports tourism destinations. Then it adopts the multi-objective decision-making theory to conduct trade mediation for the long-term conflict of sports tourism destinations. Finally, through TEFM it makes compensation for sports tourism destinations for long-term conflicts.

Motivation

The motivation of development of this technology as a practical application for the benefit of military sports admirer.

It will be useful for military sports training systems and designed to improve classification of sports.

Analysis Model

The SDLC model can be applied as effective System Development Life Cycle (SDLC) which, should result in a high quality system that meets customer Expectations reaches completion within time and cost evaluations, and works effectively and efficiently in the current and planned Information Technology infrastructure.

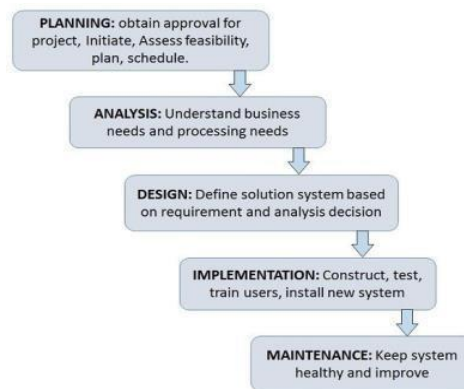


Fig. Analysis Model

Stage1: Planning and requirement analysis

The SDLC's planning phase is its most critical and essential. At this point, planning is also done for the needs for quality assurance and for the identification of project-related hazards. The project manager scheduled a meeting with the client to collect all the necessary information, such as what the customer wants to construct, who would be the end user, and what the product's goal is. A fundamental knowledge or understanding of the product is crucial before constructing it.

Stage2: Analysis

The process of representing, documenting, and getting the project stakeholders to approve the software requirements follows the completion of the requirement analysis. This is done through the "SRS" document, or software requirement specification, which contains all the product requirements that must be created and developed throughout the project life cycle.

Stage3: Designing the Software

The knowledge about the software project's needs, analysis, and design will all be revealed in the upcoming phase. This phase is the result of the previous two, such as requirement collection and client feedback.

Stage4: Deployment

When the program has been certified and no defects or mistakes have been reported, it is put into use. The program may then be delivered as is or with proposed improvements in the object portion depending on the assessment. The maintenance process begins once the program has been delivered.

Stage5: Maintenance

When the customer begins utilizing the technologies that have been designed, the true problems and ongoing needs become apparent. Maintenance is the process where a developed product is looked after.

System Architecture

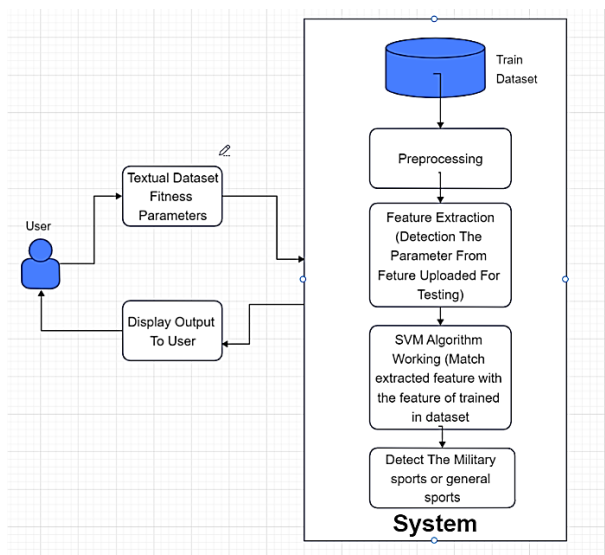


Fig. System Architecture

Methodologies

Below are several methodologies detailing certain project job areas. The description covers several important subjects that highlight some of their shortcomings, which encourage finding more solutions, as well as some of their advantages, which explains why these topics and their characteristics are used in this project.

What is Deep Learning?

Machine learning's area of deep learning uses multiple-layered artificial neural networks to learn from and extract complicated characteristics from **input**. **Without** the need for explicit programming, deep learning models can handle huge and complicated information and automatically learn to find patterns and connections within the **data**. **Natural** language processing, driverless cars, image and audio recognition, and other areas have all made use of deep learning. Additionally, it has demonstrated outstanding performance in **several** industries, including computer vision, robotics, healthcare, finance, and gaming, among others.

How Does SVM Work?

A well-liked supervised machine learning approach for classification and regression issues is called Support Vector Machines (SVM). Finding a hyperplane that divides the data points into two groups is the fundamental tenet of SVM. In SVM, we first apply a kernel function to the data to create a high-dimensional feature space. Then, based on the distance between the hyperplane and the nearest data points for each class, we choose the hyperplane that maximizes the margin. The term "support vectors" refers to these data points.

What is Military sports training?

A sort of physical training programme called military sports training is intended to help military personnel become more physically fit and capable. It also aids in the development of crucial military abilities including resilience, endurance, and collaboration. The majority of physical training for military sports simulates the rigours of military operations. Running, swimming, obstacle courses, weightlifting, combat training, and other vigorous exercises may be included in this list. Military sports training aids in the development of critical mental and emotional abilities including mental toughness, stress management, and emotional control in addition to enhancing physical fitness. For military troops to function well in demanding and stressful conditions, these qualities are essential.

Conclusion

Military sports training is an important item of our army's basic physical fitness and military skill training. It is necessary to dig out the inherent law of military sports. Training results, so as to optimize the implementation of military sports training guidance and improve the effect of military physical training. In view of the current development status of military sports training intelligence, based on the study of the existing military sports training system, combined with the general steps of feature selection ensemble learning model.

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