

Video Shot Boundary Detection and Sports Video Classification Algorithm Based on Particle Filter

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Abstract

INTRODUCTION: Sports video is an essential information resource. Classifying sports videos with high accuracy can effectively improve users' browsing and query effect. This project intends to study a motion video classification algorithm based on deep-learning particle filters to solve the problems of solid subjectivity and low accuracy of existing motion video classification algorithms. A critical box extraction method based on similarity is proposed. The moving video classification algorithm is studied based on a deep learning coding model. Examples of various types of sports videos are analyzed. The overall performance of the motion video classification algorithm proposed in this paper is much better than other existing motion video classification algorithms. This algorithm can significantly improve the classification performance of motion video.

Keywords: Deep learning, Particle filter, Sports video, Categorize, Edge detection, Key frame, Encoding mode

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1. Introduction

With the rapid development of multimedia and Internet technology, video data on the Internet shows an explosive growth trend. For a considerable amount of video, it is impossible to annotate it artificially. In addition, because of the subjective nature of artificial marks, text-based information retrieval has been unable to meet users' needs. Therefore, it is essential to realize the effective processing and query of video and to classify it automatically. In medical care, network supervision, intelligent video surveillance, and other fields, automatic video classification are also of great significance: for example, classifying videos to screen out harmful videos to meet network supervision needs and ensure online video quality [1]. An image classification algorithm is used for wireless endoscopy images in medical treatment. The image is divided into four parts: entrance, stomach, small

intestine and colon, which can reduce the workload of medical staff. In 2001, a group of researchers proposed a new approach to multimodal monitoring. This method proposes an algorithm for pedestrian detection and classification based on multi-view and applies it to long-distance environments.

Fisher first proposed the content-based classification of video types in 1995. It divides video into categories such as news, sports, commercial advertising and animation and puts forward three steps to classify video: extracting visual and audio features of video frames [2]. The image segmentation, camera motion and target motion obtained in the first step are analyzed in the second step. The third step is to classify the image according to its features. Since then, researchers have continuously improved and innovated in several fields, such as classifiers and video features, which have enabled the development of classification-based videos. Some scholars extract the text based on the data generated by users. Some researchers have recently proposed an acyclic support vector machine

