

基於深度學習之駕駛動作辨識系統

A driving behavior recognition system based on deep learning

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摘要

近年來駕駛的不當動作總是會造成交通事故的發生，像是講電話或用手機等行為，這些不專心的動作時常造成意外。本研究針對駕駛在車內時常會做的十大動作，利用人體關節點偵測系統 OpenPose 和不同角度的鏡頭來拍攝辨識人體關節點的位置並進行探討。我們利用深度學習裡的捲積神經網路訓練辨識系統，在左右兩邊架設一台攝影機建立不同角度的照片以及不同人的骨架，在這套系統產生圖像的描述並加以訓練，賦予系統記憶可以辨識駕駛當時的動作，實驗結果證實此套系統可以達到不錯的辨識正確率。

關鍵詞：OpenPose、駕駛動作辨識、深度學習

abstract

The divers' inappropriate action has always caused traffic accidents in recent years, for example, talking on the phone, looking video etc. These distracted actions often cause traffic accidents. In this paper we focus on ten kinds of actions that divers often make in a car. Images are captured from side views and are explored by identifying the location of human skeleton joints. We use the Convolutional Neural Network to train the recognizable system, and set up two cameras on both sides to take the photos from different views and skeletons of distinct people. The description of the photos in this system is generated to recognize the actions drivers had done at the time. Experimental results show that our system can achieve a good recognition rate.

Keywords: OpenPose, driver behavior recognition, deep learning