博士论坛

基于机器视觉的驾驶员换道行驶检测研究

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摘要　 为自动检测驾驶员行车路线，通过车载CCD图像传感器获得序列图像，利用计算机视觉技术，建立摄像机的透视投影模型和汽车换道行驶检测模型，应用改进的Hough变换识别道路标线，确立直线方程，采用逆透视投影变换对车辆在当前位置的横向距离和横向偏转角做出估计，进而对汽车行驶状态做出判断。实验证明，该方法能够正确检测和判断驾驶员是否处于压线行驶和换道行驶状态。

关键词　　交通安全　计算机视觉　道路标线　换道行驶

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Detection for driver's changing line based on computer vision

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Abstract

　Aiming to automatically judge driving routes at real time，this paper discusses detection of driver's changing line based on images taken by an on-board CCD image sensor.By use of image understanding and computer vision techniques，perspective projection model and vehicle detection model have been established.Traffic marking lines are recognized using improved Hough transform and the equation of straight line is achieved.Lateral distance between the left-front wheel and lane marker and the vehicle's deviation angle are deduced so as to detect driving states.The experimental results show that the distance from calculation is coincident with reality and can correctly decide driver's some peccancy behaviors such as driving across the central line，driving along the central-line.

Key words　traffic safety　computer vision　lane markers　driver's changing line

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