Near Real-Time Face Recognition in Mobile Vehicle Cameras using Face Embedding and Deep Learning

Eyup Said Karasu

Department of Electronics and Telecommunications Engineering, Kocaeli University, İzmit, Türkiye

Prof. Dr. Sarp Erturk

Research and Development Centre, PARS AR GE BILGI LTD., İzmit, Türkiye

Abstract

This paper presents an approach for near real-time face recognition in mobile vehicle cameras using face embedding. The approach can be used for driver recognition as well as identifying wanted persons. The system can receive image streams from multiple vehicle cameras in concurrent time. Initially faces are detected in the image frames of the video streams. Then the face embedding algorithm and deep learning is used to identify the faces using a pre-stored and pre-trained database. Experimental results show that about 150-250 ms is required to get the video stream from the mobile camera, 200-500 ms is required for face detection using CNN, 50-100 ms is required for face embedding and 10-30 ms is required for database comparison and matching. Hence, the system can perform face detection in only 400-900 ms in total.

Keywords

Face Recognition, Mobile Cameras, Vehicle Cameras, Embedded Faces.