VISTA – Automatic headlight detection

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Problem definition

Vehicle headlight detection

- the vehicle light detection and tracking is still an open problem, and the reported results of suggested solutions can be improved

Vehicle headlight tracking

- in order to improve accuracy are remove the false positives vehicle light tracking is the natural extension

Potential applications

Automatic vehicle headlight control or dimming

- in only 25% of all allowed situations high-beam lights are used which represents one of the factors for traffic accidents

Forward collision warning

- driver distractions and unpredictable preceding vehicle movements may lead to accidents especially during the night
- the number of rear-end collisions of all night-time collisions is more than 30% in the USA

Techniques

Image processing

- improving the input image
- extracting image features

Machine learning

- based on numerous examples of headlights, appropriate features are chosen and a set of classifiers is learned
- detectors – discriminate light blobs representing vehicle lights from other nuisance lights such as street lights

Results

On-road Night-time Vehicle Headlight Detection and Tracking

The proposed approach shows to be adequate for both urban environment, which is composed of many nuisance lights, and rural environment where early detection is needed.

Contact

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