

Use of multispectral information in safety relevant applications (Review Lecture)

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Scattering of electromagnetic waves depends strongly on the frequency of the wave. Each frequency delivers another "look" onto the same object and generates different information. Sensors for advanced driver assistance systems (ADAS) make use of this different information provided from different spectral bands of the electromagnetic spectrum. The combination of this multispectral information is the task of multisensor data fusion which is the emphasis of his paper.

Due to safety relevant applications the scenario interpretation around the car has to deliver a high systems performance. Most applications need a very low false alarm rate and a good detection rate which can not be guaranteed by one sensor. This is the reason why different sensors are combined.

ADAS -sensors are 77 Ghz long range radar, 24 GHz short range radar, multilayer Lidar, Far- and Near- Infrared cameras as well as cameras within the visible spectral region and a 3D-camera. A number of combinations of different sensors is discussed in several ADAS-applications.