

Speaker Abstracts Karlsruhe Days of Optics & Photonics



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Stereo Vision and Object Tracking in Self-Driving Cars

This talk will give an introduction to stereo vision for self-driving vehicles. Stereo vision has a long history in advanced driver assistance systems. It has proven useful for many tasks such as obstacle detection, pedestrian classification, and traffic light recognition and it has been used in many autonomous vehicle prototypes.

This presentation will review the fundamentals of stereo vision and describe state-of-the-art stereo 3D reconstruction methods. It will outline benefits and shortcomings of stereo vision in environmental perception. Selected capabilities for autonomous driving that rely on stereo vision will be elaborated. Special focus will be put on tracking objects in stereo image sequences. Tracking algorithms based on 3D motion models and object tracking inspired from monocular vision (such as e.g. discriminative correlation filters) will be discussed.