**Review paper**

“Depth estimation using stereo vision and structured light”

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1. Efficient Depth Estimation Using Sparse Stereo-Vision With Other Perception Techniques

This chapter is about the basics of stereo vision systems and their use in depth estimation. It discusses challenges involved in using stereo vision and some solutions to overcome them, such as using pre-built stereo vision systems or custom hardware.

1. Depth Estimation by Combining Binocular Stereo and Monocular Structured-Light

In this paper, we present a new stereo system. This system includes a monocular structured- light subsystem and a binocular stereo subsystem. These two subsystems are combined to gain robust depth estimation. Our system is unique in that it has only two cameras, an RGB camera and an IR camera. The RGB camera is used both for depth estimation and texture accession.

This paper proposes a new way to measure depth using a computer program called DMCNN. This method uses a type of camera called structured light, which is easy to use and cheap. Normally, structured light cameras need a lot of computer power to work well, but DMCNN does not.

1. Structured Light Based Depth and Pose Estimation

The project aimed to investigate and implement algorithms for constructing depth maps using structured light for accurate estimation of head pose and distance to the driver. The resulting algorithm was evaluated to have an accuracy of less than one centimeter and was invariant to head characteristics.

1. Learning Depth from Structured Light with Branching Neural Networks

This paper introduces a new algorithm that can accurately extract depth information from structured light-based depth sensors. The algorithm combines a Convolutional Neural Network (CNN) with a regressor consisting of weight-adaptive layers, which enables the implementation of a neural decision tree with specialized regressors. This approach outperforms existing methods in terms of precision and sensitivity on both artificial and real-world data.

The project aimed to develop an algorithm for estimating head pose and distance using structured light, which is important for active safety systems. The algorithm was evaluated for accuracy and invariance to head characteristics. The project also investigated the impact of using depth maps as input to convolutional networks for pose and depth estimation. The resulting algorithm accurately estimated depth using structured light and was invariant to head characteristics.

1. Depth Estimation using Monocular and Stereo Cues

This paper explores the use of monocular visual cues for depth estimation in computer vision and robotics. Typically, depth is estimated using stereo vision, but there are other visual cues that can be used. The authors use a Markov Random Field learning algorithm to capture these monocular cues and incorporate them into a stereo system.

1. . Efficient Depth Estimation Using Sparse Stereo-Vision with Other Perception Techniques

Stereo vision is a popular computer vision technique that uses parallax error to estimate depth by recording a single scene from two different angles. This technique has been around for over a century and is widely used in various applications, particularly in robotics, as it provides a 3D understanding of the scene. This chapter discusses the efficient estimation of object depth in stereo systems and suggests that coupling stereo with other perception techniques can enhance its efficiency. The chapter emphasizes that not all pixels in an image need stereo depth estimation, allowing room for more complex and accurate depth estimation techniques for regions of interest in the image scene. The subtopics that follow provide further details about this idea.

1. Depth Estimation Using Stereo Matching

Stereo matching is a technique used to estimate the depth of objects in a scene using two cameras with a horizontal displacement. By finding corresponding pixels on the left and right camera frames, we can calculate the distance between them and estimate the depth of the object in the scene. This distance is known as the disparity.

10.

This paper talks about two methods used in computer vision for shape recovery: active stereo vision and structured-light vision. The paper compares the strengths and weaknesses of these methods in terms of accuracy, cost, and other factors.

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