Light Field Research

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Abstract

abstract

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Chapter 1

Introduction

What is your hypothesis

2 Review of Light Field Research

The concept behind the light field goes back hundreds of years, stemming from *da Vinci(?)s work with pinhole cameras that allowed him to understand light at a point, a pencil However, it was still not referred to as such. Plenoptic function [1] is a function that describes all of the light in a scene

Methods for Collection

The light field camera, shown in [11] is an interesting device that makes use of modern CCDs(acronym?) Insert image of one here

Minimizing the amount required to collect(cite review and actual article) Move on to the more recent papers of Sparse lightfields and learning based view synthesis

Unstructured light fields paper also shows a method for collection utilizing a single camera and a SLAM algorithm known as PTAM(cite PTAM paper). Of course, this research is now a bit aged and can be improved in a number of ways, potentially expanding it significantly with the addition of a more robust and wide-ranging(?) SLAM method such as ORB-SLAM2(cite)

Chapter 2

Work Done

2.1 Comparison of Platforms

2.2 SLAM

Chapter 3

Proposed Research

3.1 steps

Looking at the work utilizing SLAM in unstructured light fields and improving upon it by initially using the superior ORB-SLAM technique, then further by applying the methodology to

Bibliography

[1] Adelson, Edward H. (1991). *The Plenoptic Function and Elements of Early Vision*

[2] *Plenoptic Sampling*

[3] *Unstructured Light Fields*

[4] *The Lumigraph*

[5] *Principles of Light Field Imaging*

[6] *Dynamically Reparameterized Light Fields*

[7] *Real-Time Surface Light-field Capture for Augmentation of Planar Specular Surfaces*

[8] *A Viewpoint Dependent Stereoscopic Display Using Interpolation of Multi-Viewpoint Images*

[9] *Light Field Rendering*

[10] *Plenoptic Modelling: An Image-Based Rendering System*

[11] *Digital Light Field Photography*

[12] *Time-Lapse Light Field Photography With a 7 DoF Arm*

[13] *Light Field Reconstruction in the Continuous Fourier Domain*

[14] *A Review of Image-based Rendering Techniques*