SOFTWARE REQUIREMENT SPECIFICATION FOR HDR IMAGE CREATION SYSTEM

1 . INTRODUCTION:

This system is intended created to produce high dynamic range images from low dynamic range images by using Generative Adversial Networks.
This system takes in ldr images as input and produces hdr images as output.

2.PURPOSE

This SRS Document contains the complete software requirements for the hdr image creation system and describes the design decisions, architecturaldesign and the detailed design needed to implement the system. It provides the visibility in thed esign and provides information needed for software support

3.SCOPE

This project is developed with intend to provide ability to low powered devices not having the capibility to take hdr images .this can also be used for hdr dataset creation for further research in this field .this can also be used to convert previously taken ldr images to hdr images .It also improves the efficiency of traditional imaging pipelines by reducing the hardware requirements as well as time required to create a true hdr image stack.

4 DEFINITIONS, ACRONYMS, AND ABBREVIATIONS

HDR- High Dynamic Range

LDR - Low Dynamic Range

SRS - SOFTWARE REQUIREMENT SPECIFICATION

5. REFERENCES

1.http://openaccess.thecvf.com/content_ECCV_2018/papers/Siyeong_Lee_Deep_Recursive_HDRI_ECCV_2018_paper.pdf

2. http://www.pauldebevec.com/Research/HDR/debevec-siggraph97.pdf

3. https://en.wikipedia.org/wiki/High-dynamic-range_imaging

6. FUNCTIONS:

Create image stack: this function takes a ldr image as input and generates a multi exposure stack recursively through the previously trained network.

Create radiance Map : this function creates a radiance map of images from the multi exposure stack and this function is the first step in the reconstruction of hdr image from multi exposure stack .

EV value: this function calculates a list containing the Ev values of respective images . This function is crucial to create a Relative Ev value scale

Weights: this weighting function is to create weight map from pixels

Sample pixels : This function samples random pixels from training image stack to input into compute response curve functions

Compute Response Curve : This function is used to calculate the Response curve of the camera used for data collection which is crucial to build radiance map

Radiance Map : This Function is used to Create Radiance Map from the Response Curve function which is crucial for the reconstruction of images

7. Description :

This system is intended created to produce high dynamic range images from low dynamic range images by using Generative Adversial Networks.This System uses Inverse Tone Mapping to display Hdr imags on devices with Ldr displays

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