

CS 4670/5670: Computer Vision, Spring 2024

Project 1: Stereo

Brief

- Assigned: Friday, March 8th, 2024
- Due: Tuesday, March 19th, 2024 at 10 pm (turn in via CMSX)
- Teams: This assignment should be done in a group of 2 students.

Synopsis

This assignment is meant to exercise concepts of stereo and photometric stereo. There are two parts to this assignment, please complete the TODOs in the following files.

- `stereo.py`
- `photometric_stereo.py`

Getting Started

Python Packages

Please use python3 for this assignment. We recommend creating a [virtual environment](#) and installing all the necessary packages to limit issues with setup.

Make sure you have the following python packages installed:

`numpy, matplotlib, Pillow, scipy`

Dataset

The link to the datasets is here:

<https://drive.google.com/file/d/14U12oqvS6SwRQuaBpMQVO8FHcYOfSfKU/view>

Please download and unzip manually into the data folder.

Part 1 - Stereo:

For this part of the assignment there are 3 functions to complete:

`get_ncc_descriptors`, `compute_ncc_vol`, and `get_disparity`.

Please refer to `stereo.py` for instructions.

Part 2 - Photometric Stereo:

For this part of the assignment there is 1 function to complete:

`photometric_stereo`. Please refer to `photometric_stereo.py` for instructions.

Demo:

There are two demo notebooks that you can use to test your implementation of stereo and photometric stereo. These are called `stereo_demo.ipynb` and `photometric_stereo_demo.ipynb` respectively.

We have also provided a version of our notebooks as html files which can be used to compare your implementation with ours. The html notebooks are called ***stereo_demo.html*** and ***photometric_stereo_demo.html***.

Turn in:

To recap, you must submit:

- `stereo.py`
- `photometric_stereo.py`

done 😊



Last Modified 3/08/2024, 2:20 pm