

16-682 - MRSD Project II | ILR #11
Individual Lab Report #11 | April 18, 2017

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1. INDIVIDUAL PROGRESS

1.1 Overview

In this report I don't have much to discuss about. As of now, the Image generation pipeline with data import/export capabilities is ready and ahead of schedule.

The virtual environment is being modeled in an open source platform: Blender 3D 7.68a. It is a Maya based platform and is programmable by Python 3.

Topics covered have been listed below for a quick overview.

1.2 Increased FOV(Field of View) & Restricted Rendering

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As discussed in PR#12, the blender pipeline is ready and all the bugs have been figured out. The only remaining part is using GPU farms to render large image datasets in a time efficient manner. To tackle the problem of large Images with somewhat empty frames in between renders (due to limitation of Field of View of the cameras) a more optimized path has been chosen as to reduce number of images per camera. This was realizable by increasing the focal length of the cameras to 128mm instead of the standard 30mm. This won't affect the validation of the geometric calibration algorithm in any manner.

Figure 1.2.1 shows the cameras with increased focal length and Figure 1.2.2 shows the smaller trajectory with less number of points (17 in total) positioned at the center of the dome.

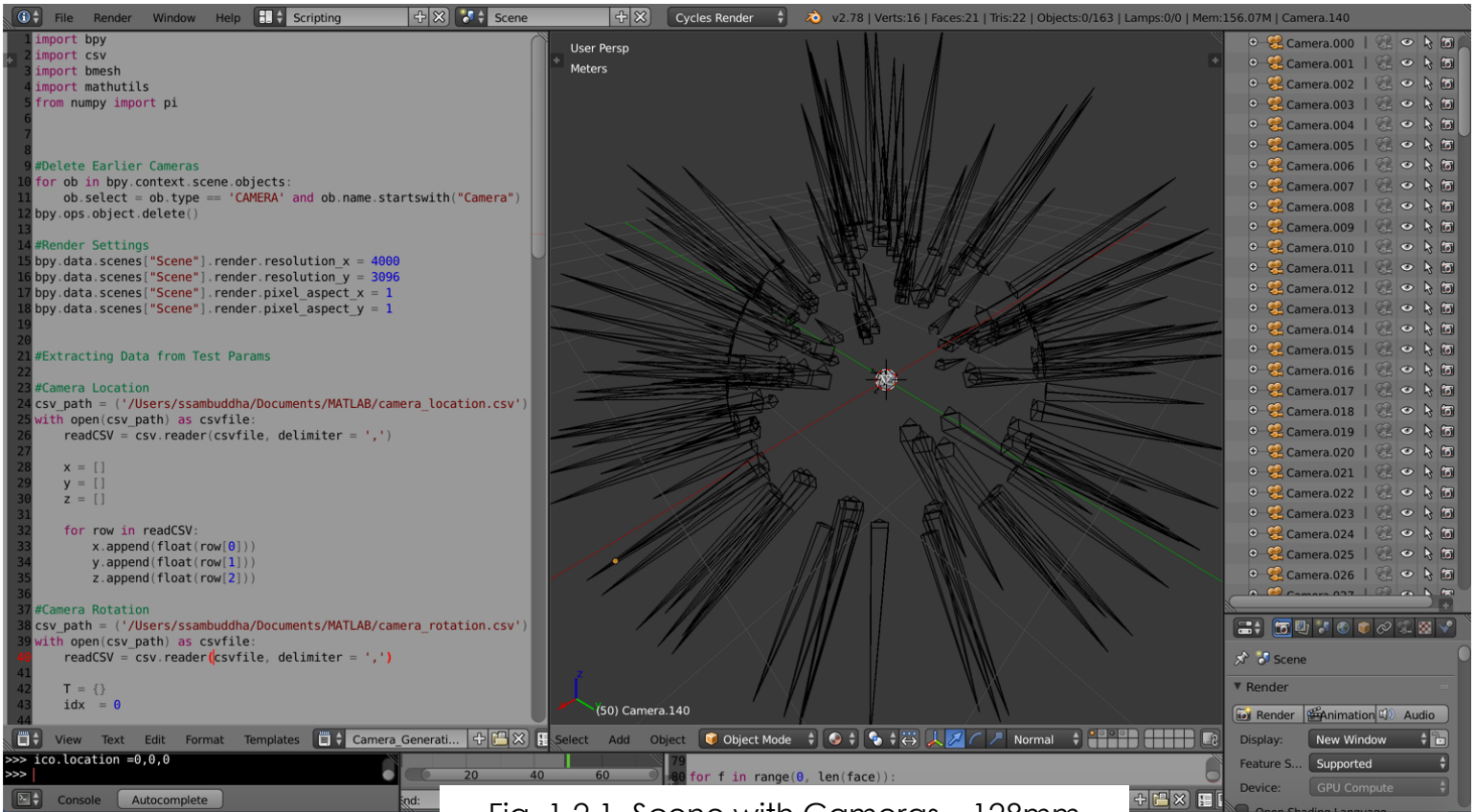


Fig. 1.2.1, Scene with Cameras – 128mm

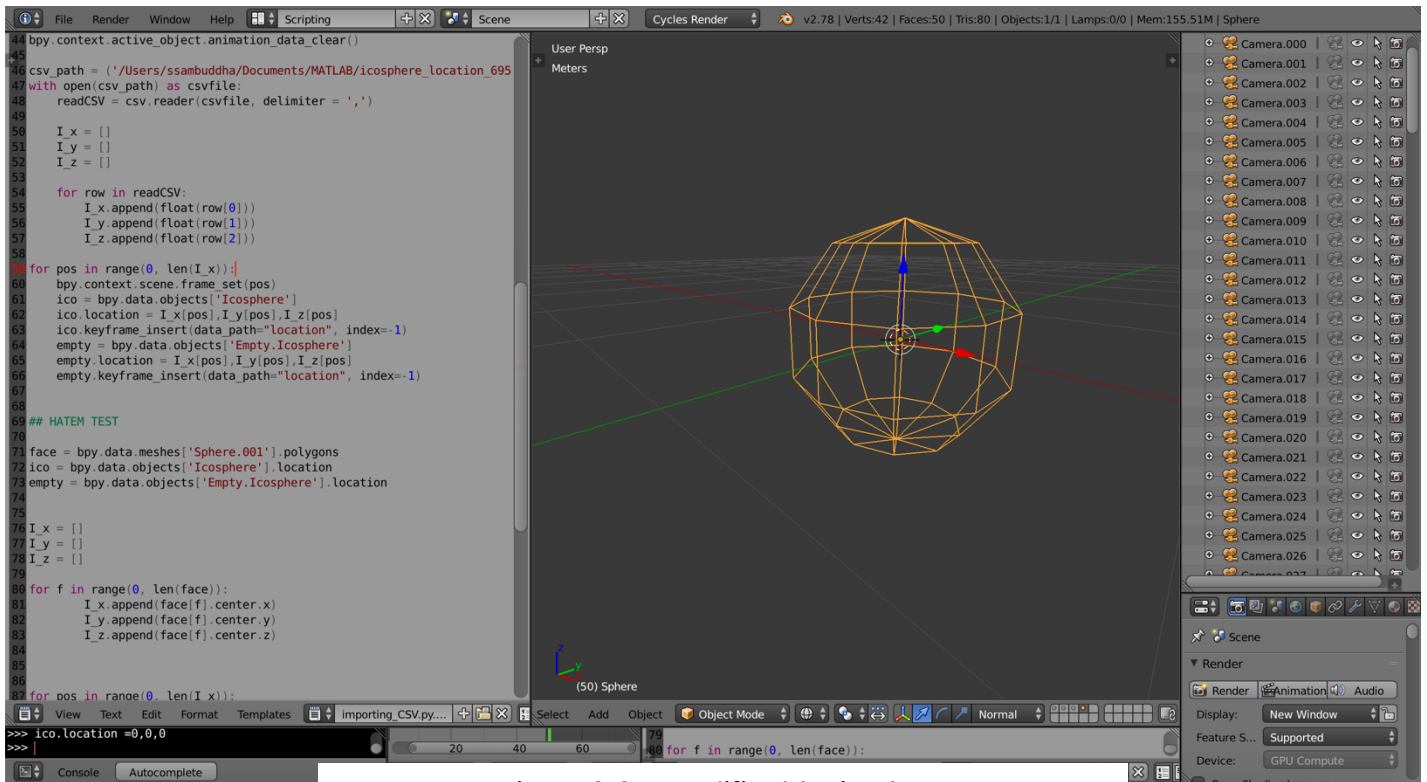


Fig. 1.2.2, Modified trajectory

2. CHALLENGES

There is no challenge right now. The only foreseeable challenge would be the demo of the simulation. I have to come up with a way to concisely and comprehensively demonstrate the functionalities and results in stipulated time.

3. TEAM WORK

The project work was divided among the team members and the task was assigned according to the strengths of the team members. The task division has been listed below in Table 3. The divided tasks can be completed in parallel; hence others can pitch in when some team members fall behind in their work.

Team Member	Task
Huan-Yang Chang	ABB Physical Operation
Siddarth Raina	Sensor Noise Calibration Pipeline Refinement
Man-nig Chen	Color Calibration Pipeline Refinement
Yiqing Cai	ABB Physical Operation & Repurposing test trajectory for SVE & SVE Encore
Sambuddha Sarkar	Blender Calibration Pipeline Refinement & Geometric Calibration Validation

Table 3, Task Division.

4. FUTURE PLANS

My future plans is to prepare for the SVE and SVE Encore demos.