

Milestone Progress Evaluation

Synthetic Data Pipeline for Pose Estimation

Members:

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Faculty advisor and Client: Dr. Ryan White (rwhite2009@fit.edu)

1. Progress of current Milestone (progress matrix)

Task	William	Nate	Stephane	Hanibal	To Do
1. Validate that the angles generated are correct	28.95%	0%	33%	.05%	
2. Meet with Dr. White's team to get their opinions and test functionality for users.	50%	50%	0%	0%	
3. Start learning neural networks	0%	0%	0%	0%	No longer necessary
4. Add another function for flightpath in the TOML file so we can support non-linear changes in x.	0%	100%	0%	0%	
5. Incorporate linux compatibility	100%	0%	0%	0%	
6. Add position data to COCO file	0%	0%	0%	80%	Bug fixing

2. Discussion (at least a few sentences, ie a paragraph) of each accomplished task (and obstacles) for the current Milestone:
 - Task 1: We verified the position and angle of the satellite by extracting the positions in Blender. We also checked it with the equation we used to see if it's correct.
 - Task 2: We had a very long meeting with Dr. White's team. We learned a lot about their work and got a lot of feedback from them. We also showed them a demo of our code and ran some tests for them. They gave us a few things they want us to change or add for the next milestone.
 - Task 3: Due to the stuff that we are going to do for Milestone 5, we decided that Neural Networks are not necessary right now and that we should focus on improving our project in other ways.
 - Task 4: We changed the flight path equation so that it's based on time rather than being based on the x position. This allows for non-linear movement along the x plane.
 - Task 5: We set up a linux VM so we could test to see if the program worked on Linux. It worked great! The only difficulty was setting up the VM and installing blender and the code.
 - Task 6: We added the position data for each frame in the COCO file. However, there are some bugs that need to be fixed in the next milestone. It crashed under some conditions, but we will investigate and fix these issues.
3. Discussion (at least a few sentences, ie a paragraph) of contribution of each team member to the current Milestone:
 - William Stern: I verified that the code was working on the linux operating system. I also met with the other team to demo the code and get their feedback. I also added a progress bar that shows how much time remains in the rendering.
 - Nate Pichette: I changed the flight path function. We originally based our functions on x. Now the function is based on the frame number(time). Also met with the research team.
 - Stephane Baruch: I was able to help with verifying the angle and position of the satellite. I was also able to implement my code from Milestone 3 into our demo with William's help.
 - Hanibal Alazar: I added the current position of the satellite to the coco file.
4. Plan for the next Milestone (task matrix)

Task	William	Nate	Stephane	Hanibal
1. Add additional lighting features	demo	dev	Test	test
2. Refactor code to change moment from the satellite to the camera	Dev	Test	Dev	test
3. Attempt to implement .stl files for satellite model	Dev	Test	Test	Dev
4. Make background pannable	Dev	Test	dev	demo

5. Discussion (at least a few sentences, ie a paragraph) of each planned task for the next Milestone
 - Task 1: Right now we have one working lighting mode, point. There are a lot more though and we want to go through them and test to make sure that they are all working correctly with the configuration file. This will add a lot more lighting options.
 - Task 2: Currently the satellite moves around and the camera is static. The research team wants the camera to move around and the satellite to move around but only a little bit. This works better for their research.
 - Task 3: As of this moment, the code works with obj filetype for 3d objects. We found this was the easiest to use. The other team wants us to test if .stf files can also be used because that is what they usually work with. These are also more common.
 - Task 4: In the next milestone we are moving the camera. Currently the background is glued to the camera position. If the camera is moving we also want it to pan across the background so that it looks like the camera is moving.
6. Date(s) of meeting(s) with Client during the current milestone:
 1. 2/7/2023

7. Client feedback on the current milestone
 - see Faculty Advisor Feedback below
8. Faculty Advisor feedback on each task for the current Milestone
 - Task 1: The team checked our output and our test for the angles and position and they said that it looks good and accurate. They actually want to add a small uncertainty to the satellite as a noise.
 - Task 2: He said that the meeting was very good and that the team really enjoyed the project and that we got some great feedback.
 - Task 3: He said that since the research team wants us to make some changes we should no longer focus on the neural network and start focusing on implementing the changes they want.
 - Task 4: He said that this was great and very important since the satellite needs to be able to move non-linearly so it can do things like circle.
 - Task 5: He said that this looks good. Their lab machines run linux so it is great that it can run on linux.
 - Task 6: He said that this looks good but might need to be changed to the location of the camera or using some math since after the next milestone the satellite will be mostly static and the camera will be moving.

Faculty Advisor Signature: _____ Date: _____

9. Evaluation by Faculty Advisor

- Faculty Advisor: detach and return this page to Dr. Chan (HC 214) or email the scores to pkc@cs.fit.edu
- Score (0-10) for each member: circle a score (or circle two adjacent scores for .25 or write down a real number between 0 and 10)

William Stern	0	1	2	3	4	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
Nate Pichette	0	1	2	3	4	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
Stephane Baruch	0	1	2	3	4	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
Hanibal Alazar	0	1	2	3	4	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10

■ Faculty Advisor Signature: _____ Date: _____
