

## Milestone Progress Evaluation

### Synthetic Data Pipeline for Pose Estimation

Members:

Nathan Pichette ([npichette2018@my.fit.edu](mailto:npichette2018@my.fit.edu))

William Stern ([wstern2019@my.fit.edu](mailto:wstern2019@my.fit.edu))

Stephane Baruch ([sbaruch2019@my.fit.edu](mailto:sbaruch2019@my.fit.edu))

Hanibal Alazar ([halazar2019@my.fit.edu](mailto:halazar2019@my.fit.edu))

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

#### 1. Progress of current Milestone (progress matrix)

Task	William	Nate	Stephane	Hanibal	To Do
1. Complex movement along path	5%	0%	90%	5%	
2. Enable movement interaction through configuration file	100%	0%	0%	0%	
3. Implement compatibility among os	0%	66%	0%	0%	Add linux compatibility
4. Extract poses as coco type annotations	0%	0%	0%	100%	

2. Discussion (at least a few sentences, ie a paragraph) of each accomplished task (and obstacles) for the current Milestone:

- Task 1: The generated path of the satellite is now able to receive nonlinear movement. Start and end x values are received along and with functions for y and z that are used to create the path.
  - Task 2: The TOML configuration file has been updated to be more thorough. The user can now enter a complex path using functions as well as all previous features. Additionally,
  - Task 3: There are a few differences in mac os and windows that had to be understood. We solved the inadequacies between the two and were able to run the demo on mac os.
  
  - Task 4: We return produced frames in a coco styled json file. This is done to show meta data for each frame. The data includes which frame number we are on, the file path to the image in the output dir and lastly the Pose Estimation information.
3. Discussion (at least a few sentences, ie a paragraph) of contribution of each team member to the current Milestone:
- William Stern: I made changes to the configuration file to make it much more configurable. I added an option for inputting the flight path as a function or when given two points. I also added more camera controls and output parameters. I also helped Stephane implement his code into the demo.
  - Nate Pichette: I worked to make our code compatible with operating systems other than windows. This was able to be done on mac os.
  - Stephane Baruch: I was able to figure out the movement of the satellite and have it simulate a satellite's rotation around the earth from point A to point B. I first made a separate file to figure out how it works, and then I converted what I had into the main project file.
  - Hanibal Alazar: I developed the code block that allowed us to return the Json file with all of the coco annotation frames and their metadata. The file contains all of the pose-information and the image file paths for each of the frames of the animation.

4. Plan for the next Milestone (task matrix)

Task	William	Nate	Stephane	Hanibal
1. Meet with other satellite work team to discuss improvement	demo	demo	Participate	test
2. Implement compatibility on linux	demo	dev	Test	test
3. Refactor code to make future improvements easier and create simple user guide	Dev	Test	Dev	test
4. Add another function for flightpath in TOML file so we can support non-linear changes in x.	Dev	Test	Test	demo

5. Discussion (at least a few sentences, ie a paragraph) of each planned task for the next Milestone

- Task 1: Dr.White has another team who may be going to be using our product. We will demo our current code and discuss things that they would like to see going forward.
- Task 2: As of this moment our code is working well on both Windows and Mac os. The last operating system that we want to support is Linux. This is because a lot of server computers including the computers that Dr. White lab uses runs on Linux so it is very important that our code supports that OS.
- Task 3: As of this moment, the code works well, but it could use a cleanup. There are many old fragments of code that could probably be

removed. The could could also include some revamped comments explaining how everything works.

- Task 4: The user imputed functions in the code are currently based on the x axis. It would be a lot better to add a variable T and change the functions to be based on T. This would allow x to be based on a user imputed function too, and allow for non-linear x movement.

6. Date(s) of meeting(s) with Client during the current milestone:

1. 11/28/2022

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: We currently have functions for our y and z coordinates based on x. He wants a change to make all functions based on time. We also need to add a function for x then.
- Task 2: He would like the current TOML file to be able to adjust the framerate. For the future he wants a description of how to use the TOML when we give it to the neural network team. We should also add a function for x so that it is based on time.
- Task 3: He said that his lab uses Linux computers so it is very important that our code is able to run on them. We should also try to ssh into the lab computers and test it there.
- Task 4: He would like the xyz coordinates to be represented in the coco file, in addition to the quaternions currently represented by each frame.

9. Faculty Advisor Signature: \_\_\_\_\_ Date: \_\_\_\_\_

10. 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](mailto: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: \_\_\_\_\_

\_\_\_\_\_