

The following trajectory was generated by taking the output from graph\_search.py and combining it with my waypoint\_traj.py implementation. Improvements to the gains were made in se3\_control.py and re-tested on the grading rubric to validate results. Then updates were made to the trajectory generator. First, the controller was improved, allowing a higher threshold velocity value of 2.522 m/s before causing collisions. Then a sparse trajectory was generated by removing the middle waypoint in the set of every three points greater than a threshold angle. An attempt was made to institute a variable velocity trajectory by upscaling and downscaling the velocity value as a function of waypoint orientation, but this approach did little to mitigate flight time. The other approaches above improved the algorithm by decreasing flight time. Furthermore, decreasing the margin from 0.5 to 0.38 and decreasing the resolution from 0.25 to 0.23 for x, y, z axes further decreased flight time while maintaining performance. The approaches above allowed my algorithm to perform well, achieving all time points with the exception of switchback, where 5.67/ 6.00 time points were achieved.

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MEAM 620, SPRING 2021  
PROJECT I PHASE 3

