

# Project 3 Reflective Essay

## Modelling & Simulation

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### Model

The strengths of our model are that the system is well defined by the three forces exerted on the glider: lift, drag, and gravity. This made our equations simpler and removed a lot of room for error. The weakness was that we had used equations from a physics paper as the basis of our model, making it hard to expand on it and make it more accurate due to the predefined nature of our project.

If we had more time, we would figure out how to supply the simulation with more accurate values and constants to characterize the behavior of the glider, such as using the measured coefficients of lift and drag by the angle of attack for a specific airfoil or using a quadratic equation to approximate the speed polar of a specific glider to make our model more accurate.

### Teaming

Jackie and I worked well as a team. We worked efficiently and quickly in creating our project and presentation. We split up our work, with Jackie focusing mostly on the QMRI and me focusing on the code, but also taking some time to switch and double check each other's work.

The only thing that did not work well is that we didn't have a lot of time to work on this, due to having only one week before thanksgiving break and one week after, and the fact that we didn't work on the project over the break.

### Looking Back

In my Project 2 reflection, these are the goals that I set for Project 3:

1. Start with a clearer picture of what needs to be accomplished, by writing out a task list in a shared document in order to figure out the details.
2. Frontload the work/get an early start so that we don't end up working on the project on the day that it is due.

During this project, I didn't make much progress on these goals. Due to my partner being gone for half of the first day of class and still figuring out our project proposal on the second class day, we were unable to define a clear task list for this project. On the second goal, I would say that I made a little bit of progress, considering how we finished the majority of our code before thanksgiving break.

### Looking Ahead

In this course, I learned the basics of modelling systems, including how to define a model using equations, code, and diagrams, make assumptions to simplify models, document my work in the form of a computational essay, and present the results to others. I also learned more about python and the matplotlib and pandas libraries as well as how to use python notebooks.

As a Computing major, these skills will be useful for me in future classes such as Software Design as well as for my own personal projects. For example, I may even revisit some of my ModSim models and make improvements on them, such as making my own glider flying simulator or use my python knowledge to help me write code for IARC, the drones project team.