

AERE Final Lab

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Introduction

This was not a fun lab. This lab wasn't really a coding assignment. The code was fairly easy to write. The equations for the Kutta-Runge were not. First of all the equation had to be based off of our specific system, therefore this is a fairly ineffective ODE solver. In the future it would be better to write an ODE that took any amount and its initial conditions and solved it, or to not do this at all. This is a numerical methods class and I am getting tripped up on the constants and not the programming. If I had been in class this week I might have been able to ask Brian enough questions so that I could have figured it out, but I was in Detroit with my robotics team. I have done fairly well on all the other labs, and thus didn't feel like I needed to kill myself over this lab during finals week.

The Code

The algorithm for the code was pretty straightforward. The Runge-Kutta was developed by people far smarter than I will ever be, so implementing their algorithm was straight-forward and easy. Plus Jianwen, had already created some code for us to use that cleaned a few things up. I think I got the correct values for the k constants but things still seem a bit off. Also my plot is not working correctly even though I have code that matches exactly with someone's whose does work. I am not entirely sure why the values won't store plot file, and why only the first values get stored. I don't have time to fully figure out the plots and wish I could have spent some more time on the plotting because I know it isn't that hard to do.

Conclusion

In conclusion I think the lab manual could have been a little more informative on how to construct the k values for our given system. I would have been able to get the code working while I was in Detroit without constantly having to bug my peers. Once I got back home I wanted to focus on my finals, because they

were all weighted far more than one lab was. My track record was pretty good. This is the only code I feel bad turning in. I am not remotely proud that this is my word, but due to me being gone in combination with it being finals week I just didn't have the motivation or time to put into it. Sorry Brian.