Bryce Bagley

CS172 Final Project Individual Summary

I've quite enjoyed the opportunity to improve upon the physical accuracy of the prion simulator we created last semester. While I did much of the coding throughout the time since, having the deadline certainly ramped up productivity levels. It's immensely satisfying to have acquired a level of C++ proficiency where the creation of a fully-functional, research-quality computational physics simulation is an entirely reasonable project.

While I understand he was quite busy, it was somewhat stressful to have Luke wait until the last minute to get his Runga-Kutta ODE solver up and running. Still, it was ready in time, and his work was generally quite good. I fully expected to take the lead in both design and implementation given complex systems and biophysics are very much more my area of expertise, and I believe the occasional communication issues we experienced during the design process were very much a learning experience for the both of us.

It continues to amaze me how after numerous significant errors have been fixed, a piece of code will suddenly begin working - as if by magic - after some seemingly trivial change. This has happened repeatedly during the implementation of our final project code both semesters, to the point that it's become a running joke between Luke and I. Code is a fickle mistress. So far we've seen plenty of logic errors whose gunking up the code is quite understandable, but some of the incredibly minor syntax errors have been a little baffling. Still, once all the logic is sound and the code operates exactly as desired, I'm perfectly happy to modify syntax to Visual Studio's preferences.

While the version we presented as last semester's final project was a pitiful approximation (so far as physical accuracy is concerned. I'm still quite pleased with our prior work in terms of its quality), this second iteration is for all intents and purposes complete. All that would be required to utilize this sort of simulation to improve our understanding of prion pathology is experimental data to which the simulation could be compared. Indeed, this is exactly the intent of the software: to produce data which can be compared to experimental observations so that various physical properties involved in the spread of prions may be mathematically determined. Though I have no idea when I will be able to find such data or convince biologists to procure it, the simulation is now ready for that day.