

Project Milestone 4

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1 Progress Report

I have not done much this past week. Although I have had a lot of work on my plate (especially since P3 came out over this milestone section), I should have been more on top of my work. I plan to remedy this over spring break. Also, I found out that the person who I thought was my advisor's advisee was actually not, and was the other professor's, so I need to find someone else to help advise me on my project.

Even so, I did work on some things. Running some beginner tests using a framework using the compiled binary in python, I have experimented with writing some code on running the program. Also, I have ran some tests on my own manually. It actually appears as if the local satisfiability is very inconsistent. Printing out the number of "breaks" remaining, it appears as if sometimes, YalSAT gets stuck on a local optimum.

I have some ideas on how to improve this. For one, we can set the restart timer to be earlier. While this may improve this, the negative from doing this is that obviously, we have the possibility of declaring that it is not satisfiable if we restart too many times and cannot make progress.

Another potential way is to adjust the c_b lower, i.e. making it more random. While this could work in making it perform a locally suboptimal flip leading to the global optimum, in my preliminary tests, it has not had a substantial difference.

2 Reflection on Initial Plan

Major Changes:

So far, no major changes have been made to my research plan. I intend to still study ProbSAT, and to modify YalSAT in order to improve performance of the stochastic local search solver. The restarts that I have manually tested seem quite effective, and that they may work better than changing the c_b value.

Meeting your Milestone:

Again, I have made progress, but balancing my OS class, as well as the number of midterms I had to prepare for, is quite difficult. I will need to make more progress over spring break, but the kernel project is quite hard.

Surprises:

As mentioned previously, was that the source code was a little bit hard to understand at time. Furthermore, I have had a hard time with some of my other classes, so it has been hard to pace myself for this class.

Revisions to your 07-400 milestones:

I may have to push back my milestones by one or two weeks due to the slow start I have had. Many of the aspects of the YalSAT program are still unclear to me, so I will discuss this further with my mentor.

Resources needed:

I have obtained the source code for my required resources, and will be looking to modify this. On top of this, I may need more powerful computing hardware, but this will be more important later. For now, I can just run the binaries on my local machine or on the Andrew clusters.