Daily Log

Monday December 9

Today I realized that the Keras API requires x and y inputs for the training on batch function to be the same shape. This weird because the input and output shapes are almost never the same. I guess you supply the "true" value and it forward propagates the input you pass. Even after going back and changing these things, it still gave some shape errors. I had to print out the shape of various arrays/tensors to see why python was not happy. The q functions have an output shape of [4,n] the value function [1,n] and the policy [2,n] where n is the number of input samples. All the equations for finding the gradient of the policy had to be modified.

Wednesday November 20

After trying to fix the shape issues I had on Monday for an hour, I realized two things. First one is that all this time I have been working on an old version of soft actor-critic. The newer version doesn't use a value function, so it has less parameters to train. The second is that I don't have time to implement soft actor-critic. I should just use the best implementation out there and try to adapt it to the environments I want.

Friday November 22

Over Friday and Saturday, I tested HAC, and the soft actor-critic models. Apparently breakout is a discrete environment. There are 4 options for the model to choose. This means it won't work with soft actor-critic. HAC is also sort of restrictive because you need to specify and end goal state, so it's kind of hard to do for some Atari games where you just want to maximize your score. I guess breakout still works for this.

Timeline

Date	Goal	Met
Today minus 1 week	try to make HAC to run on my laptop (install dependencies and dual-boot linux on my new laptop)	No I'm going to do it later on the sys-lab computers
Today minus 1 week	Implement soft actor critic and its discrete version. Test it on cart-pole and some discrete environment	No, this will probably take another week
Today	Implement DIAYN	No, I downloaded the papers implementation of DIAYN, but haven't tested it because I was working on HAC and soft actor-critic
Today plus 1 week	Get DIAYN Running	
Today plus 2 weeks	Find common environments that work with all 3 models	
Winter goal	Run soft actor critic, HAC, and DIAYN on MuJoCo environments	

Reflection

Since the winter goal was approaching fast, I decided to focus on trying to finish the other parts of my winter goal. Implementing soft actor-critic is beyond my ability right now. Maybe over winter break I will finish it as well as creating the discrete version.

I worked over the weekend on my winter goal and now I am caught up. I should be able to show you HAC, soft actor-critic, and DIAYN working on Wednesday or Friday

I'm not setting good goals. I kind of use it just to say what's next rather than what I should accomplish each week because I rarely am meeting these lofty goals. I think for next time I will try to make smaller goals. I also just decide to do something else because it is easier, so I should keep that in mind

Since I am comparing against three different implementations, they each have different dependencies, so it's going to be a challenge to seamlessly make everything work. I might have to use something like docker so the package management is cleaner.