Evolutionary Robotics Final Project

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Does robot joint an limb morphology affect evolutionary response to the same distance based fitness function?

Time Line:

3) Work on the hillclimber algorithm.

This week I worked on connecting up the ANNs and got the genetic algorithm up and running. I opted to use the genetic algorithm instead of switching back to the parallel hillclimber. The resultant robots have behaved as expected and since beginning the class, I haven't seen an evolved controller do as well. The fitness function is simply the distance from the light sensor as it heads towards the light emitting block. I think I will leave the function simple as I want to control distance and direction while allowing evolutionary freedom for all robot morphologies to better understand the rate of evolution on these different robots.

Video of resultant robot:

https://www.youtube.com/watch?v=tJtaYfHrdz0&feature=youtu.be

Consol Output and Constants:

```python
# length of leg
L = 0.3

# radius is length divided by 5
R = L/5

# length of video
evalTime = 700

# size of population
popSize = 10

# number of generations
numGens = 200

# number of environments
numEnvs = 1
```