In this assignment, you are to evolve your own CTRNN pattern generators for single leg walking.

If you wish, you may use my C++ code for evolutionary search, CTRNNs and the leg model. Alternately, you may use your own or any public domain EVA code along with your own implementation of CTRNNs and the leg model in any language that you choose. As a performance measure, you can use the total forward distance traveled by the body in a fixed amount of time.

You are to evolve walking agents with 4-neuron CTRNNs under two different conditions: (1) sensory feedback never available and (2) sensory feedback always available. Once you have everything working, you should run at least 5 experiments with different random seeds for each condition. For the best agent evolved with sensory feedback, examine its response to loss of this feedback.

You should turn in a written report containing the following:

1. Two sets of 5 superimposed best performance vs. generation plots, one for each condition.
2. Plots of the neuron outputs and forward velocity over time for several steps of the best circuit you evolved under each of the two conditions. For the pattern generators evolved with sensory feedback, show plots both with and without that feedback available.
3. A discussion of the results you obtained
4. A commented source code listing of your main program