Hello to all, depict the fact that I am not even a computer science student, this project is accomplished during the first summer at McMaster University on my own initiatives and efforts. It is a great exploration in searching the values and potential power of ARS algorithm.

This project involves the application of latest and the most superior algorithm that is used to create and implement AI-ARS-the argument random search. Simply put, comparing to the existing algorithm, the ARS has following advantages:

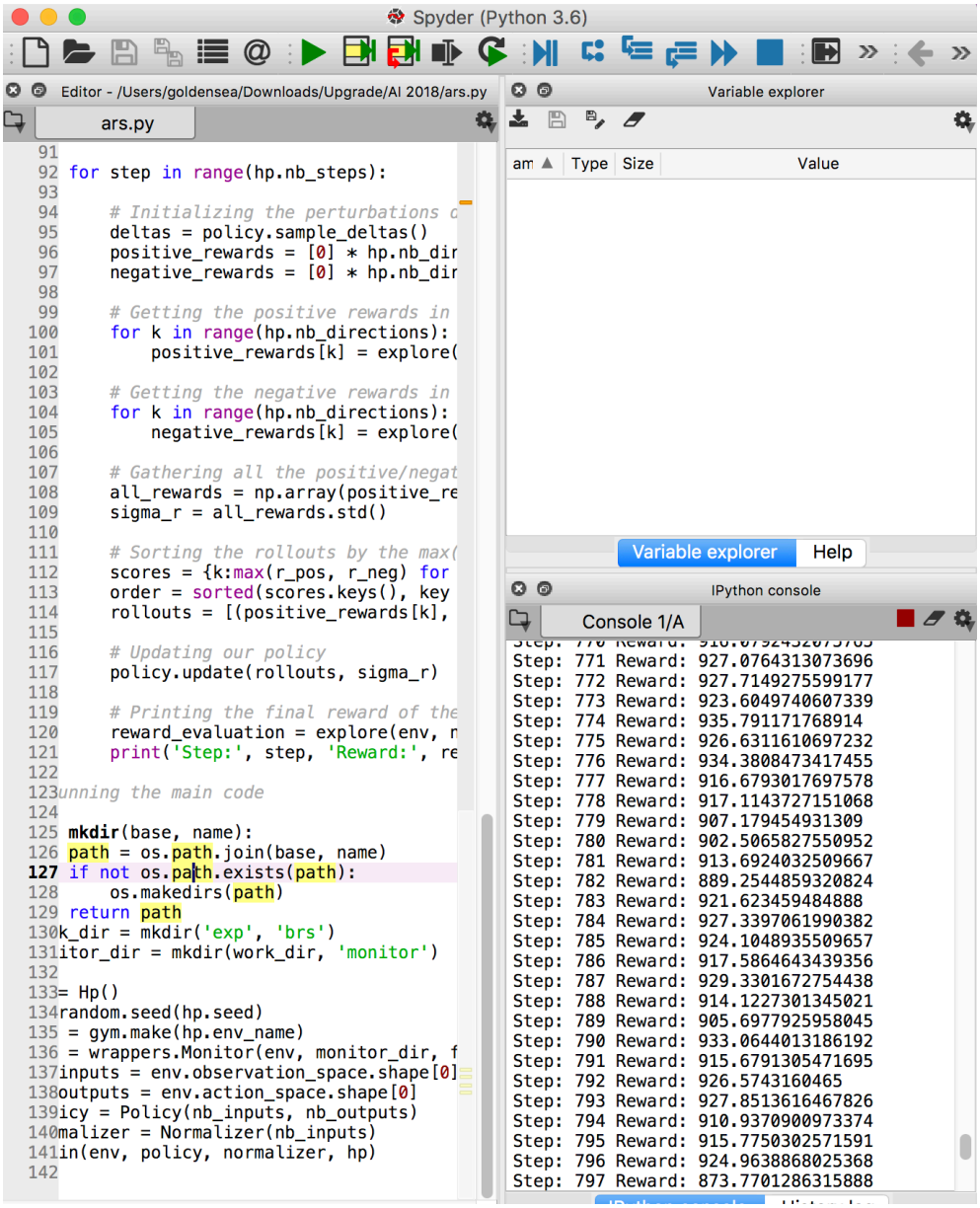
Firstly, its exploration takes place in the Policy Space while the other AI algorithm has exploration in the Action Space.

Secondly, it embedded the method of finite differences(*) while the gradient-descent-algorithm is usually found out in other AI algorithm.

*what is method if finite difference? Well, basically let's say that we have a small point, a positive shift ,a negative shift or a positive delta, negative delta we have the rewards and based on that we can calculate how to adjust our weights.

Lastly, ARS-shallow learning(*) vs Other AI-deep learning(a typical deep learning modules has many hidden layers, my other project is accomplished with deep learning modules & algorithm)

(*) the uniqueness of art perceptron: where you have lots of inputs and lots of outputs, each input is connected to multiple outputs, yet, there is no hidden layer.



As image shows, it took about 35 min to reach the maximum reward which was 927.85...., up to this stage, the dog is fully capable to run straightly without causing failure or falling off like it did in early stages(before reaching reward of 300, the video that records the movement of dog is also available, please check out the .mp4 file if you are interested.