# CS 294: Deep RL: HW 1
## http://rll.berkeley.edu/deeprlcourse/f17docs/hw1fall2017.pdf

visp

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## 3. Behavior Cloning

### 3.1: Part 1

Run behavioral cloning (BC) and report results on two other tasks – one task where a behavioral cloning agent achieves comparable performance to the expert, and one task where it does not. When providing results, report the mean and standard deviation of the return over multiple rollouts in a table, and state which task was used. Be sure to set up a fair comparison, in terms of network size, amount of data, and number of training iterations, and provide these details (and any others you feel are appropriate) in the table caption.

**Solution:**

1. Fully connected neural net with 2 hidden layers of size 100 dimensions.

2. Training samples: 50000

3. Training epochs: 500

| Task | Mean Return | Stddev Return |
|:---:|:---:|:---:|
| **Ant-Expert** | 4828.02 | 103.33 |
| **Ant-Cloned** | 4764.67 | 98.63 |
| **Humanoid-Expert** | 10410.67 | 52.963 |
| **Humanoid-Cloned** | 5393.57 | 4197.71 |

### 3.2: Part 2

Experiment with one hyperparameter that affects the performance of the behavioral cloning agent, such as the number of demonstrations, the number of training epochs, the variance of the expert policy, or something that you come up with yourself. For one of the tasks used in the previous question, show a graph of how the BC agent's performance varies with the value of this hyperparameter, and state the hyperparameter and a brief rationale for why you chose it in the caption for the graph.