Quadcopter_Project

January 31, 2019

1   Project: Train a Quadcopter How to Fly

Design an agent to fly a quadcopter, and then train it using a reinforcement learning algorithm of your choice!

Try to apply the techniques you have learnt, but also feel free to come up with innovative ideas and test them.

1.1   Instructions

Take a look at the files in the directory to better understand the structure of the project.

- `task.py`: Define your task (environment) in this file.
- `agents/`: Folder containing reinforcement learning agents.

    - `policy_search.py`: A sample agent has been provided here.
    - `agent.py`: Develop your agent here.

- `physics_sim.py`: This file contains the simulator for the quadcopter. **DO NOT MODIFY THIS FILE**.

For this project, you will define your own task in `task.py`. Although we have provided a example task to get you started, you are encouraged to change it. Later in this notebook, you will learn more about how to amend this file.

You will also design a reinforcement learning agent in `agent.py` to complete your chosen task.

You are welcome to create any additional files to help you to organize your code. For instance, you may find it useful to define a `model.py` file defining any needed neural network architectures.

1.2   Controlling the Quadcopter

We provide a sample agent in the code cell below to show you how to use the sim to control the quadcopter. This agent is even simpler than the sample agent that you'll examine (in `agents/policy_search.py`) later in this notebook!

The agent controls the quadcopter by setting the revolutions per second on each of its four rotors. The provided agent in the `Basic_Agent` class below always selects a random action for each of the four rotors. These four speeds are returned by the `act` method as a list of four floating-point numbers.

For this project, the agent that you will implement in `agents/agent.py` will have a far more intelligent method for selecting actions!

```
In [1]: import random

        class Basic_Agent():
            def __init__(self, task):
                self.task = task

            def act(self):
                new_thrust = random.gauss(450., 25.)
                return [new_thrust + random.gauss(0., 1.) for x in range(4)]
```

Run the code cell below to have the agent select actions to control the quadcopter.

Feel free to change the provided values of runtime, init_pose, init_velocities, and init_angle_velocities below to change the starting conditions of the quadcopter.

The labels list below annotates statistics that are saved while running the simulation. All of this information is saved in a text file data.txt and stored in the dictionary results.

```
In [2]: %load_ext autoreload
        %autoreload 2

        import csv
        import numpy as np
        from task import Task

        # Modify the values below to give the quadcopter a different starting position.
        runtime = 5.                                        # time limit of the episode
        init_pose = np.array([0., 0., 10., 0., 0., 0.])     # initial pose
        init_velocities = np.array([0., 0., 0.])           # initial velocities
        init_angle_velocities = np.array([0., 0., 0.])     # initial angle velocities
        file_output = 'data.txt'                            # file name for saved results

        # Setup
        task = Task(init_pose, init_velocities, init_angle_velocities, runtime)
        agent = Basic_Agent(task)
        done = False
        labels = ['time', 'x', 'y', 'z', 'phi', 'theta', 'psi', 'x_velocity',
                  'y_velocity', 'z_velocity', 'phi_velocity', 'theta_velocity',
                  'psi_velocity', 'rotor_speed1', 'rotor_speed2', 'rotor_speed3', 'rotor_speed4'
        results = {x : [] for x in labels}

        # Run the simulation, and save the results.
        with open(file_output, 'w') as csvfile:
            writer = csv.writer(csvfile)
            writer.writerow(labels)
            while True:
                rotor_speeds = agent.act()
                _, _, done = task.step(rotor_speeds)
                to_write = [task.sim.time] + list(task.sim.pose) + list(task.sim.v) + list(task.
                for ii in range(len(labels)):
```

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```
                results[labels[ii]].append(to_write[ii])
            writer.writerow(to_write)
        if done:
            break
```
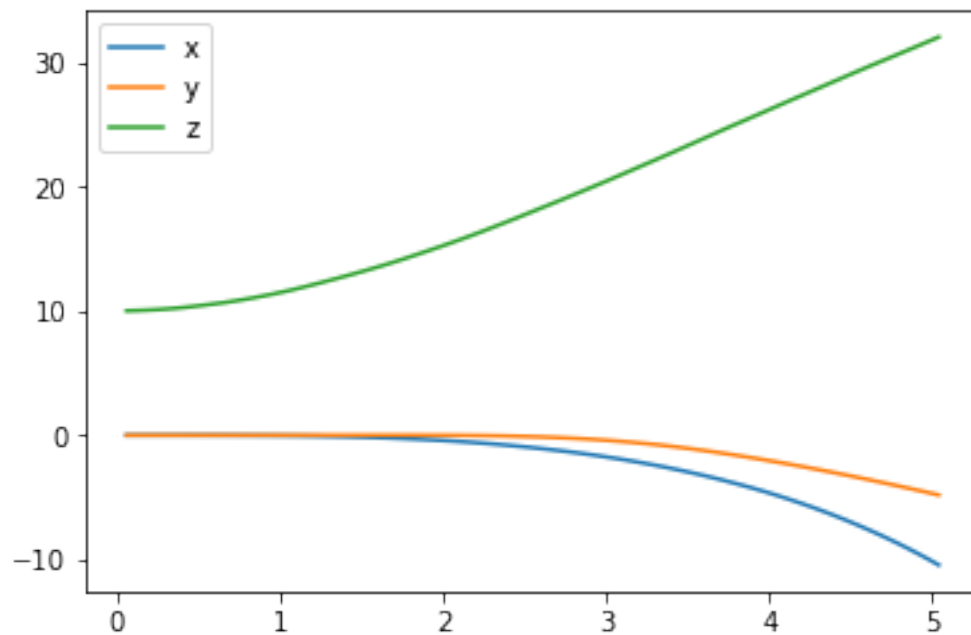
Run the code cell below to visualize how the position of the quadcopter evolved during the simulation.

```
In [3]: import matplotlib.pyplot as plt
        %matplotlib inline

        plt.plot(results['time'], results['x'], label='x')
        plt.plot(results['time'], results['y'], label='y')
        plt.plot(results['time'], results['z'], label='z')
        plt.legend()
        _ = plt.ylim()
```
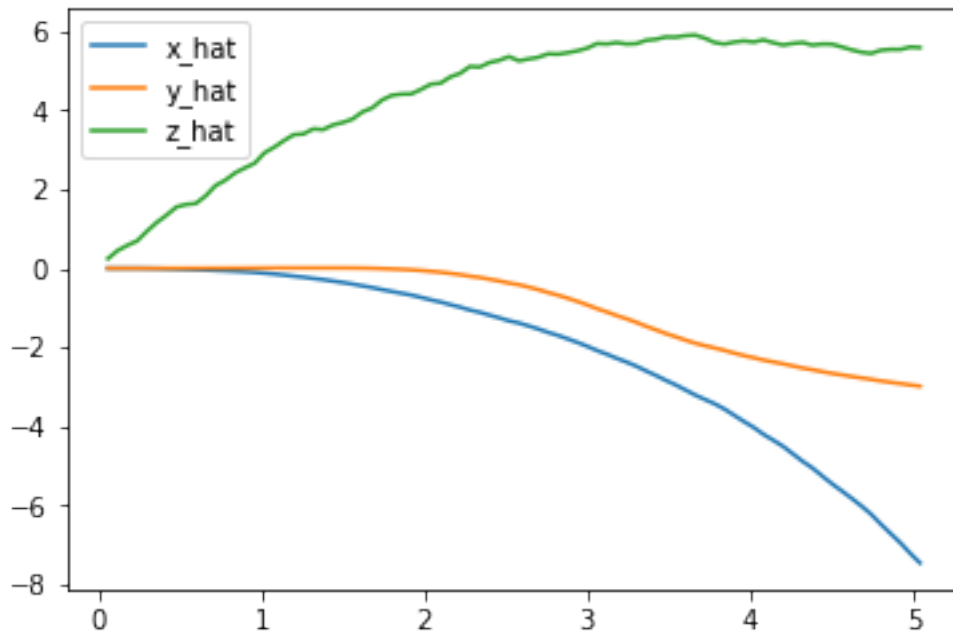

The next code cell visualizes the velocity of the quadcopter.

```
In [4]: plt.plot(results['time'], results['x_velocity'], label='x_hat')
        plt.plot(results['time'], results['y_velocity'], label='y_hat')
        plt.plot(results['time'], results['z_velocity'], label='z_hat')
        plt.legend()
        _ = plt.ylim()
```

Next, you can plot the Euler angles (the rotation of the quadcopter over the x-, y-, and z-axes),

```
In [5]: plt.plot(results['time'], results['phi'], label='phi')
        plt.plot(results['time'], results['theta'], label='theta')
        plt.plot(results['time'], results['psi'], label='psi')
        plt.legend()
        _ = plt.ylim()
```
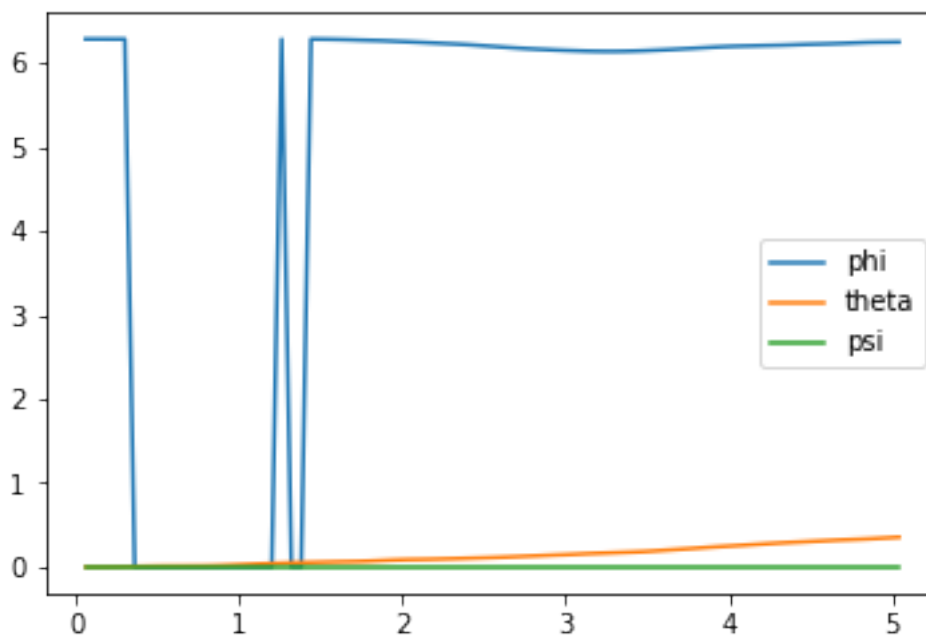
before plotting the velocities (in radians per second) corresponding to each of the Euler angles.

```
In [6]: plt.plot(results['time'], results['phi_velocity'], label='phi_velocity')
        plt.plot(results['time'], results['theta_velocity'], label='theta_velocity')
        plt.plot(results['time'], results['psi_velocity'], label='psi_velocity')
        plt.legend()
        _ = plt.ylim()
```
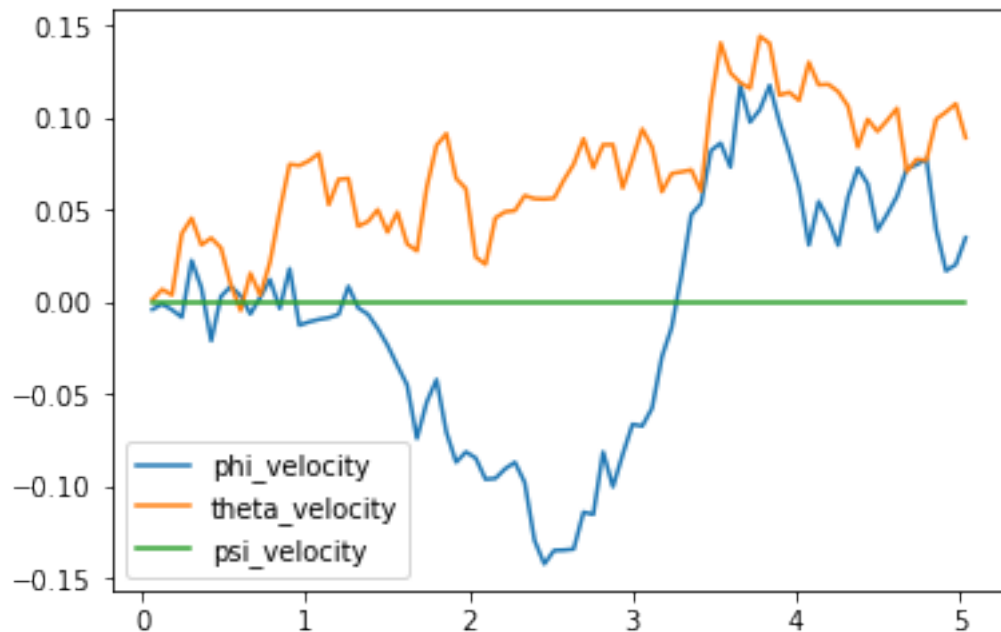

Finally, you can use the code cell below to print the agent's choice of actions.

```
In [7]: plt.plot(results['time'], results['rotor_speed1'], label='Rotor 1 revolutions / second')
        plt.plot(results['time'], results['rotor_speed2'], label='Rotor 2 revolutions / second')
        plt.plot(results['time'], results['rotor_speed3'], label='Rotor 3 revolutions / second')
        plt.plot(results['time'], results['rotor_speed4'], label='Rotor 4 revolutions / second')
        plt.legend()
        _ = plt.ylim()
```
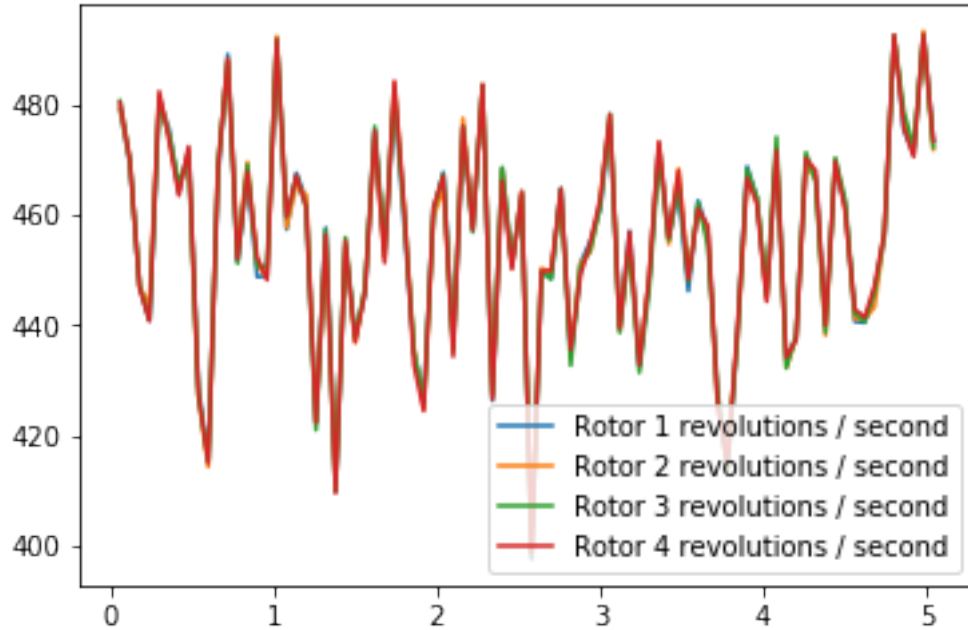
When specifying a task, you will derive the environment state from the simulator. Run the code cell below to print the values of the following variables at the end of the simulation: - `task.sim.pose` (the position of the quadcopter in (x, y, z) dimensions and the Euler angles), - `task.sim.v` (the velocity of the quadcopter in (x, y, z) dimensions), and - `task.sim.angular_v` (radians/second for each of the three Euler angles).

```
In [8]: # the pose, velocity, and angular velocity of the quadcopter at the end of the episode
        print(task.sim.pose)
        print(task.sim.v)
        print(task.sim.angular_v)

[-10.43004059  -4.80268404  32.01448065   6.24851812   0.35361885   0.          ]
[-7.45791525 -2.98433957   5.58413976]
[ 0.0350284    0.08926844  0.          ]
```

In the sample task in `task.py`, we use the 6-dimensional pose of the quadcopter to construct the state of the environment at each timestep. However, when amending the task for your purposes, you are welcome to expand the size of the state vector by including the velocity information. You can use any combination of the pose, velocity, and angular velocity - feel free to tinker here, and construct the state to suit your task.

1.3   The Task

A sample task has been provided for you in `task.py`. Open this file in a new window now.

The `__init__()` method is used to initialize several variables that are needed to specify the task.

- The simulator is initialized as an instance of the `PhysicsSim` class (from `physics_sim.py`).
- Inspired by the methodology in the original DDPG paper, we make use of action repeats. For each timestep of the agent, we step the simulation `action_repeats` timesteps. If you are not familiar with action repeats, please read the **Results** section in the DDPG paper. - We set the number of elements in the state vector. For the sample task, we only work with the 6-dimensional pose information. To set the size of the state (`state_size`), we must take action repeats into account.
- The environment will always have a 4-dimensional action space, with one entry for each rotor (`action_size=4`). You can set the minimum (`action_low`) and maximum (`action_high`) values of each entry here. - The sample task in this provided file is for the agent to reach a target position. We specify that target position as a variable.

The `reset()` method resets the simulator. The agent should call this method every time the episode ends. You can see an example of this in the code cell below.

The `step()` method is perhaps the most important. It accepts the agent's choice of action `rotor_speeds`, which is used to prepare the next state to pass on to the agent. Then, the reward is computed from `get_reward()`. The episode is considered done if the time limit has been exceeded, or the quadcopter has travelled outside of the bounds of the simulation.

In the next section, you will learn how to test the performance of an agent on this task.

1.4 The Agent

The sample agent given in `agents/policy_search.py` uses a very simplistic linear policy to directly compute the action vector as a dot product of the state vector and a matrix of weights. Then, it randomly perturbs the parameters by adding some Gaussian noise, to produce a different policy. Based on the average reward obtained in each episode (`score`), it keeps track of the best set of parameters found so far, how the score is changing, and accordingly tweaks a scaling factor to widen or tighten the noise.

Run the code cell below to see how the agent performs on the sample task.

```
In [9]: import sys
        import pandas as pd
        from agents.policy_search import PolicySearch_Agent
        from task import Task

        num_episodes = 1000
        target_pos = np.array([0., 0., 10.])
        task = Task(target_pos=target_pos)
        agent = PolicySearch_Agent(task)

        for i_episode in range(1, num_episodes+1):
            state = agent.reset_episode() # start a new episode
            while True:
                action = agent.act(state)
                next_state, reward, done = task.step(action)
                agent.step(reward, done)
                state = next_state
                if done:
                    print("\rEpisode = {:4d}, score = {:7.3f} (best = {:7.3f}), noise_scale = {}
                        i_episode, agent.score, agent.best_score, agent.noise_scale), end="")  #
```

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```
            break
        sys.stdout.flush()

Episode = 1000, score =   -1.644 (best =    0.429), noise_scale = 3.2625
```

This agent should perform very poorly on this task. And that's where you come in!

1.5 Define the Task, Design the Agent, and Train Your Agent!

Amend `task.py` to specify a task of your choosing. If you're unsure what kind of task to specify, you may like to teach your quadcopter to takeoff, hover in place, land softly, or reach a target pose.

After specifying your task, use the sample agent in `agents/policy_search.py` as a template to define your own agent in `agents/agent.py`. You can borrow whatever you need from the sample agent, including ideas on how you might modularize your code (using helper methods like `act()`, `learn()`, `reset_episode()`, etc.).

Note that it is **highly unlikely** that the first agent and task that you specify will learn well. You will likely have to tweak various hyperparameters and the reward function for your task until you arrive at reasonably good behavior.

As you develop your agent, it's important to keep an eye on how it's performing. Use the code above as inspiration to build in a mechanism to log/save the total rewards obtained in each episode to file. If the episode rewards are gradually increasing, this is an indication that your agent is learning.

1.6 Deep Deterministic Policy Gradients (DDPG)

You can use one of many different algorithms to design your agent, as long as it works with continuous state and action spaces. One popular choice is Deep Deterministic Policy Gradients or DDPG. It is actually an actor-critic method, but the key idea is that the underlying policy function used is deterministic in nature, with some noise added in externally to produce the desired stochasticity in actions taken.

Let's develop an implementation of the algorithm presented in the original paper:

Lillicrap, Timothy P., et al., 2015. Continuous Control with Deep Reinforcement Learning. pdf

The two main components of the algorithm, the actor and critic networks can be implemented using most modern deep learning libraries, such as Keras or TensorFlow.

1.6.1 DDPG: Actor (Policy) Model

A very simple actor model defined using Keras can be found in DDPG_actor.py.

Note that the raw actions produced by the output layer are in a [0.0, 1.0] range (using a sigmoid activation function). So, we add another layer that scales each output to the desired range for each action dimension. This produces a deterministic action for any given state vector. A noise will be added later to this action to produce some exploratory behavior.

Another thing to note is how the loss function is defined using action value (Q value) gradients:

action_gradients = layers.Input(shape=(self.action_size,)) loss = K.mean(-action_gradients * actions)

These gradients will need to be computed using the critic model, and fed in while training. Hence it is specified as part of the "inputs" used in the training function:

self.train_fn = K.function(inputs=[self.model.input, action_gradients, K.learning_phase()], outputs=[], updates=updates_op)

1.6.2 DDPG: Critic (Value) Model

A corresponding critic model can be found in DDPG_critic.py.

It is simpler than the actor model in some ways, but there some things worth noting. Firstly, while the actor model is meant to map states to actions, the critic model needs to map (state, action) pairs to their Q-values. This is reflected in the input layers.

states = layers.Input(shape=(self.state_size,), name='states') actions = layers.Input(shape=(self.action_size,), name='actions')

These two layers can first be processed via separate "pathways" (mini sub-networks), but eventually need to be combined. This can be achieved, for instance, using the Add layer type in Keras (see Merge Layers):

net = layers.Add()([net_states, net_actions])

The final output of this model is the Q-value for any given (state, action) pair. However, we also need to compute the gradient of this Q-value with respect to the corresponding action vector, needed for training the actor model. This step needs to be performed explicitly, and a separate function needs to be defined to provide access to these gradients:

action_gradients = K.gradients(Q_values, actions)

self.get_action_gradients = K.function(inputs=[*self.model.input, K.learning_phase()], outputs=action_gradients)

1.6.3 DDPG: Agent

We are now ready to put together the actor and policy models to build our DDPG agent. Note that we will need two copies of each model - one local and one target. This is an extension of the "Fixed Q Targets" technique from Deep Q-Learning, and is used to decouple the parameters being updated from the ones that are producing target values.

Notice that after training over a batch of experiences, we could just copy our newly learned weights (from the local model) to the target model. However, individual batches can introduce a lot of variance into the process, so it's better to perform a soft update, controlled by the parameter tau.

1.7 Ornstein–Uhlenbeck Noise

We'll use a specific noise process that has some desired properties, called the Ornstein–Uhlenbeck process. It essentially generates random samples from a Gaussian (Normal) distribution, but each sample affects the next one such that two consecutive samples are more likely to be closer together than further apart. In this sense, the process in Markovian in nature.

Why is this relevant to us? We could just sample from Gaussian distribution, couldn't we? Yes, but remember that we want to use this process to add some noise to our actions, in order to encourage exploratory behavior. And since our actions translate to force and torque being applied to a quadcopter, we want consecutive actions to not vary wildly. Otherwise, we may not actually get anywhere! Imagine flicking a controller up-down, left-right randomly!

Besides the temporally correlated nature of samples, the other nice thing about the OU process is that it tends to settle down close to the specified mean over time. When used to generate noise, we can specify a mean of zero, and that will have the effect of reducing exploration as we make progress on learning the task.

```
In [7]:  ## TODO: Train your agent here.
         import sys
```

```python
import pandas as pd
import numpy as np
from agents.DDPG_agent import DDPG
from task import Task

num_episodes = 1000
target_pos = np.array([0., 0., 100.])
init_pose = np.array([0., 0., 10., 0., 0., 0.])
task = Task(target_pos=target_pos, init_pose=init_pose)
agent = DDPG(task)
worst_score = np.inf
best_score = -np.inf
reward_log = "reward.txt"

reward_labels = ['episode', 'reward']
reward_results = {x : [] for x in reward_labels}

for i_episode in range(1, num_episodes+1):
    state = agent.reset_episode() # start a new episode
    print('\nInit state:', state)
    score = 0
    while True:
        action = agent.act(state)
        next_state, reward, done = task.step(action)
        agent.step(action, reward, next_state, done)
        state = next_state
        score += reward
        best_score = max(best_score , score)
        worst_score = min(worst_score , score)
        if done:
            print("\rEpisode = {:4d}, score = {:7.3f} (best = {:7.3f} , worst = {:7.3f})".format(
                i_episode, score, best_score, worst_score), end="")
            print('\nEnd state:', state[:6])
            break
    reward_results['episode'].append(i_episode)
    reward_results['reward'].append(score)
    sys.stdout.flush()
```

```
Init state: [  0.    0.   10.    0.    0.    0.]
Episode =     1, score = 162.583 (best = 162.583 , worst =    2.146)
End state: [ 0.25954015  2.78707326  0.          2.91938049  4.68877437  0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =     2, score = 162.567 (best = 162.583 , worst =    2.146)
End state: [-0.63806332 -1.23728549  0.          2.50347708  3.12739881  0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
```

```
Episode =     3, score = 160.499 (best = 162.583 , worst =    2.146)
End state: [-0.1589928   0.5583883   0.          1.91554652  4.26055036  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =     4, score = 166.854 (best = 166.854 , worst =    2.146)
End state: [ 2.10935685  0.92438377  0.          2.44880898  3.75992958  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =     5, score = 204.939 (best = 204.939 , worst =    2.146)
End state: [-8.38000676 -4.09441068  0.          1.53776591  2.90917405  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =     6, score = 204.830 (best = 204.939 , worst =    2.146)
End state: [-4.66343655  8.89243674  0.          4.26911228  4.1055437   0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =     7, score = 149.629 (best = 204.939 , worst =    2.146)
End state: [-3.78464031  3.04063798  0.          5.75472754  6.02917392  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =     8, score = 160.232 (best = 204.939 , worst =    2.146)
End state: [-7.73076749  0.07239207  0.          0.6159337   5.25125778  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =     9, score = 168.783 (best = 204.939 , worst =    2.146)
End state: [-5.28620233  1.81897581  0.          4.37695633  1.272054    0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =    10, score = 170.918 (best = 204.939 , worst =    2.146)
End state: [-5.85871525  1.64564379  0.          0.49142522  0.69870338  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =    11, score = 153.873 (best = 204.939 , worst =    2.146)
End state: [-4.92942927 -0.50679579  0.          1.25934853  5.32388013  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =    12, score = 132.591 (best = 204.939 , worst =    2.146)
End state: [-0.73272807  0.97077805  0.          5.50886439  3.85273245  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =    13, score = 240.755 (best = 240.755 , worst =    2.146)
End state: [ -6.7606423   10.95668928   0.          1.29515609  3.5447544    0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =    14, score = 181.435 (best = 240.755 , worst =    2.146)
End state: [-8.49904195 -5.15635653  0.          1.47061048  3.87445719  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
```

```
Episode =    15, score = 222.356 (best = 240.755 , worst =    2.146)
End state: [ 4.94085813  1.43742537  0.          6.1575884   0.97859587  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =    16, score = 266.641 (best = 266.641 , worst =    2.146)
End state: [ -3.47527417 -12.53422964  0.          5.6912056   0.59553975  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =    17, score = 188.021 (best = 266.641 , worst =    2.146)
End state: [-7.36943941  0.47340024  0.          4.33224262  2.45732554  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =    18, score = 409.491 (best = 409.491 , worst =    2.146)
End state: [-19.05993009  14.49379755  0.          4.46996348   4.72978631  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =    19, score = 183.796 (best = 409.491 , worst =    2.146)
End state: [-6.97455817  0.01115062  0.          0.35981197  3.59411785  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =    20, score = 166.677 (best = 409.491 , worst =    2.146)
End state: [-5.60590299 -0.43158297  0.          1.41755294  1.95119997  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =    21, score = 181.499 (best = 409.491 , worst =    2.146)
End state: [-6.76453748  2.77938692  0.          2.77825194  4.12999692  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =    22, score = 209.243 (best = 409.491 , worst =    2.146)
End state: [-8.99777654  1.24145067  0.          1.94478981  2.92611289  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =    23, score = 298.386 (best = 409.491 , worst =    2.146)
End state: [ -8.66504023 -12.67671161  0.          3.34952362   3.88260994  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =    24, score = 205.012 (best = 409.491 , worst =    2.146)
End state: [-5.69187981 -5.04986086  0.          5.06304212  4.07185214  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =    25, score = 207.096 (best = 409.491 , worst =    2.146)
End state: [-10.2989085   0.85344779  0.          0.90550102  3.49896194  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =    26, score = 247.536 (best = 409.491 , worst =    2.146)
End state: [-7.04438711 -7.57694526  0.          0.16960563  5.11384338  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
```

```
Episode =   27, score = 160.278 (best = 409.491 , worst =   2.146)
End state: [-5.53319213 0.04577438 0.          1.36073637 3.62220552 0.          ]

Init state: [ 0.   0.   10.   0.   0.   0.]
Episode =   28, score = 188.027 (best = 409.491 , worst =   2.146)
End state: [-7.04161981 0.33632542 0.          1.38493138 2.42316306 0.          ]

Init state: [ 0.   0.   10.   0.   0.   0.]
Episode =   29, score = 188.009 (best = 409.491 , worst =   2.146)
End state: [-7.25021582 1.05637367 0.          1.13303218 2.46360692 0.          ]

Init state: [ 0.   0.   10.   0.   0.   0.]
Episode =   30, score = 185.823 (best = 409.491 , worst =   2.146)
End state: [-6.94662888 1.9726711  0.          2.48648011 2.97730681 0.          ]

Init state: [ 0.   0.   10.   0.   0.   0.]
Episode =   31, score = 185.935 (best = 409.491 , worst =   2.146)
End state: [ -6.93445849e+00  -1.20764912e-03   0.00000000e+00   2.71244147e-01
    2.98571997e+00   0.00000000e+00]

Init state: [ 0.   0.   10.   0.   0.   0.]
Episode =   32, score = 188.024 (best = 409.491 , worst =   2.146)
End state: [-7.06470513 0.2526127  0.          1.67893519 2.44319201 0.          ]

Init state: [ 0.   0.   10.   0.   0.   0.]
Episode =   33, score = 188.000 (best = 409.491 , worst =   2.146)
End state: [-7.07340282 0.73102286 0.          1.78063894 2.42738171 0.          ]

Init state: [ 0.   0.   10.   0.   0.   0.]
Episode =   34, score = 185.911 (best = 409.491 , worst =   2.146)
End state: [-7.08122127 -0.12918914 0.          1.0238556  3.02079851 0.          ]

Init state: [ 0.   0.   10.   0.   0.   0.]
Episode =   35, score = 155.902 (best = 409.491 , worst =   2.146)
End state: [-5.67539315 2.81135391 0.          4.92524287 4.77125767 0.          ]

Init state: [ 0.   0.   10.   0.   0.   0.]
Episode =   36, score = 185.928 (best = 409.491 , worst =   2.146)
End state: [-6.94092821 0.01390353 0.          0.78154936 2.98500599 0.          ]

Init state: [ 0.   0.   10.   0.   0.   0.]
Episode =   37, score = 185.931 (best = 409.491 , worst =   2.146)
End state: [-6.9716695  0.01409135 0.          0.32264726 2.9705664  0.          ]

Init state: [ 0.   0.   10.   0.   0.   0.]
Episode =   38, score = 175.082 (best = 409.491 , worst =   2.146)
End state: [-6.56344761 2.97670789 0.          2.9343937  5.86092019 0.          ]
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Init state: [  0.    0.   10.    0.    0.    0.]
Episode =   39, score = 188.021 (best = 409.491 , worst =    2.146)
End state: [-7.1887386  -0.40919769  0.          1.49944069  2.44369765  0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =   40, score = 181.520 (best = 409.491 , worst =    2.146)
End state: [-6.76418245  2.66305873  0.          2.67105224  4.11627814  0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =   41, score = 187.997 (best = 409.491 , worst =    2.146)
End state: [-7.10169907  0.5775204   0.          1.40655742  2.43380932  0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =   42, score = 143.005 (best = 409.491 , worst =    2.146)
End state: [-6.15573833 -4.92752929  0.          4.18904231  0.49702659  0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =   43, score = 188.039 (best = 409.491 , worst =    2.146)
End state: [-7.07538229 -0.47607547  0.          1.23047958  2.42568184  0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =   44, score = 162.280 (best = 409.491 , worst =    2.146)
End state: [-6.01872491  2.92981314  0.          5.31027197  3.07761227  0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =   45, score = 155.943 (best = 409.491 , worst =    2.146)
End state: [-5.37255334 -1.30120443  0.          3.03183502  4.82610939  0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =   46, score = 190.095 (best = 409.491 , worst =    2.146)
End state: [-7.31315269  2.15408259  0.          2.63307596  1.82635754  0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =   47, score = 223.960 (best = 409.491 , worst =    2.146)
End state: [-11.28763099   1.89962118   0.          2.72224986   5.17773541   0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =   48, score = 253.600 (best = 409.491 , worst =    2.146)
End state: [-15.34767114   3.05532762   0.          2.23929795   3.42590035   0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =   49, score = 179.517 (best = 409.491 , worst =    2.146)
End state: [-6.81612029  0.00867922  0.          5.34420811  4.71284536  0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =   50, score = 145.244 (best = 409.491 , worst =    2.146)
End state: [-5.07332573  3.85120154  0.          1.88996947  1.3742466   0.          ]
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Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   51, score = 185.929 (best = 409.491 , worst =    2.146)
End state: [-7.01419864 -0.01521468  0.          0.47319002  2.98638867  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   52, score = 198.446 (best = 409.491 , worst =    2.146)
End state: [-8.38950093 -3.29180543  0.          5.48074402  5.85796527  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   53, score = 183.753 (best = 409.491 , worst =    2.146)
End state: [-7.00916919  1.0145389   0.          4.2402725   3.59620235  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   54, score = 202.458 (best = 409.491 , worst =    2.146)
End state: [ -7.80681976  10.4403633    0.          1.40988017  4.71118189  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   55, score = 140.916 (best = 409.491 , worst =    2.146)
End state: [-5.47521594  2.85479819  0.          3.26716388  2.58663298  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   56, score = 162.397 (best = 409.491 , worst =    2.146)
End state: [-6.46868202  0.81486175  0.          2.87218697  1.00478243  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   57, score = 388.471 (best = 409.491 , worst =    2.146)
End state: [ -9.32694083  28.29579652   0.          5.62866472  3.2541128    0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   58, score = 311.290 (best = 409.491 , worst =    2.146)
End state: [ -2.46759803e-02   5.23716373e+01   0.00000000e+00   3.80431094e+00
   1.21062602e-03   0.00000000e+00]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   59, score = 160.335 (best = 409.491 , worst =    2.146)
End state: [ 7.49085521 -1.40859141  0.          6.16399174  1.04163921  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   60, score = 123.814 (best = 409.491 , worst =    2.146)
End state: [-8.7926449  -0.32372361  0.          2.55924278  3.81523527  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   61, score = 126.127 (best = 409.491 , worst =    2.146)
End state: [ 4.44852668  2.76193839  0.          3.77904394  0.6562572   0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   62, score = 158.152 (best = 409.491 , worst =    2.146)
End state: [ 7.2682747   1.35037969  0.          1.68672044  6.23567592  0.          ]
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Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   63, score = 177.144 (best = 409.491 , worst =    2.146)
End state: [-14.80921575   2.56881296   0.           0.97250505   1.81983197   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   64, score = 252.810 (best = 409.491 , worst =    2.146)
End state: [ -8.60847114  18.48128178   0.           0.95554397   5.45643599   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   65, score = 535.983 (best = 535.983 , worst =    2.146)
End state: [ -3.31887586e-03   7.31582072e+01   1.77121866e+01   2.60677105e+00
   7.26628728e-05   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   66, score = 104.734 (best = 535.983 , worst =    2.146)
End state: [ 2.79901606 -2.02052777  0.           1.0704842   2.32098167  0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   67, score = 206.487 (best = 535.983 , worst =    2.146)
End state: [ 5.58269296 -5.86349272  0.           2.82740199  2.11447466  0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   68, score = 172.835 (best = 535.983 , worst =    2.146)
End state: [-13.05500879   0.56969813   0.           5.29718061   3.10375493   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   69, score = 166.825 (best = 535.983 , worst =    2.146)
End state: [ 3.61498886  0.95206619  0.           3.69472511   5.68534143   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   70, score = 168.741 (best = 535.983 , worst =    2.146)
End state: [ 8.51324864  1.19901096  0.           4.29530264   6.21037565   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   71, score = 162.599 (best = 535.983 , worst =    2.146)
End state: [-1.66965561  0.63311124  0.           2.6671868    0.94428933   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   72, score = 164.500 (best = 535.983 , worst =    2.146)
End state: [-9.73756898  0.51442883  0.           4.99009583   1.95680638   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   73, score = 166.516 (best = 535.983 , worst =    2.146)
End state: [-9.84847921  1.16177627  0.           5.79575555   3.38974734   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   74, score = 166.641 (best = 535.983 , worst =    2.146)
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End state: [-7.37765916  0.5154951   0.           3.71452222  4.04523306  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =   75, score = 168.798 (best = 535.983 , worst =    2.146)
End state: [ 8.00979825  0.99268137  0.           4.37942659  5.87821905  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =   76, score = 162.629 (best = 535.983 , worst =    2.146)
End state: [ 2.87771116e-05   5.51278313e-01   0.00000000e+00   2.58191375e+00
   6.28317057e+00   0.00000000e+00]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =   77, score = 162.626 (best = 535.983 , worst =    2.146)
End state: [ 1.91963464e-05   5.82186127e-01   0.00000000e+00   2.61538303e+00
   6.28317803e+00   0.00000000e+00]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =   78, score = 162.539 (best = 535.983 , worst =    2.146)
End state: [-3.69180551  0.65416829  0.           3.14104098  0.87250003  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =   79, score = 164.721 (best = 535.983 , worst =    2.146)
End state: [-2.60482867  0.64637016  0.           3.47895414  2.55302609  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =   80, score = 168.589 (best = 535.983 , worst =    2.146)
End state: [-12.19278642   1.81620441   0.           0.53975029  2.76079046  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =   81, score = 162.600 (best = 535.983 , worst =    2.146)
End state: [-2.1119797   0.58564831  0.           2.6004897   1.62746309  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =   82, score = 162.602 (best = 535.983 , worst =    2.146)
End state: [-1.91467904  0.56818906  0.           2.58773318  2.05696704  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =   83, score = 162.518 (best = 535.983 , worst =    2.146)
End state: [-4.90501592  0.66451294  0.           2.53413509  1.62869516  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =   84, score = 164.741 (best = 535.983 , worst =    2.146)
End state: [-1.41305774  0.44408452  0.           3.14555061  4.45326263  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =   85, score = 164.560 (best = 535.983 , worst =    2.146)
End state: [-6.97396534  0.60976335  0.           3.12423015  1.35895263  0.          ]
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Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   86, score = 162.318 (best = 535.983 , worst =    2.146)
End state: [-9.66631464  0.58735573  0.          2.61597011  2.02526769  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   87, score = 162.595 (best = 535.983 , worst =    2.146)
End state: [-2.00074904  0.612891    0.          2.58951697  1.70051066  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   88, score = 162.611 (best = 535.983 , worst =    2.146)
End state: [-1.45199327  0.59463118  0.          2.62032946  2.05955349  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   89, score = 162.627 (best = 535.983 , worst =    2.146)
End state: [ 8.37376348e-05   5.75741738e-01   0.00000000e+00   2.63865355e+00
   6.28317057e+00   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   90, score = 162.334 (best = 535.983 , worst =    2.146)
End state: [-7.2865243   0.65794677  0.          2.59125677  3.72904149  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   91, score = 164.657 (best = 535.983 , worst =    2.146)
End state: [-1.56818276  0.24065966  0.          3.1622783   5.78232084  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   92, score = 166.849 (best = 535.983 , worst =    2.146)
End state: [ 2.50829041  0.70690378  0.          3.80561147  6.20496971  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   93, score = 164.490 (best = 535.983 , worst =    2.146)
End state: [-8.49860525  0.6174298   0.          3.17400612  2.87181988  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   94, score = 162.629 (best = 535.983 , worst =    2.146)
End state: [ 1.17514808e-04   5.51211217e-01   0.00000000e+00   2.58457767e+00
   6.28310993e+00   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   95, score = 166.856 (best = 535.983 , worst =    2.146)
End state: [ 2.43653426  0.68292752  0.          3.76468916  6.12525849  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =   96, score = 162.628 (best = 535.983 , worst =    2.146)
End state: [ 7.58194366e-05   5.66113759e-01   0.00000000e+00   2.58595904e+00
   6.28315160e+00   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
```

```
Episode =   97, score = 162.629 (best = 535.983 , worst =   2.146)
End state: [ 4.12424543e-05   5.50934858e-01   0.00000000e+00   2.63456167e+00
   6.28315748e+00   0.00000000e+00]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =   98, score = 162.627 (best = 535.983 , worst =   2.146)
End state: [ 6.10735714e-05   5.76641163e-01   0.00000000e+00   2.61874426e+00
   6.28317567e+00   0.00000000e+00]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =   99, score = 162.622 (best = 535.983 , worst =   2.146)
End state: [ 0.94778762  0.42872502  0.          2.55899402  0.05839127  0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  100, score = 162.628 (best = 535.983 , worst =   2.146)
End state: [ 4.48562581e-05   5.68286305e-01   0.00000000e+00   2.58753729e+00
   6.28316908e+00   0.00000000e+00]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  101, score = 162.626 (best = 535.983 , worst =   2.146)
End state: [ 2.91868017e-05   5.88531344e-01   0.00000000e+00   2.65036780e+00
   6.28317952e+00   0.00000000e+00]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  102, score = 164.764 (best = 535.983 , worst =   2.146)
End state: [-0.04475097  0.38921197  0.          3.15166805  3.99680149  0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  103, score = 162.629 (best = 535.983 , worst =   2.146)
End state: [ 3.39486469e-05   5.52324227e-01   0.00000000e+00   2.59822533e+00
   6.28316850e+00   0.00000000e+00]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  104, score = 166.865 (best = 535.983 , worst =   2.146)
End state: [-1.56817855  0.70390614  0.          3.80045778  3.3754625   0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  105, score = 162.629 (best = 535.983 , worst =   2.146)
End state: [ 7.43916884e-05   5.43765464e-01   0.00000000e+00   2.60453656e+00
   6.28316122e+00   0.00000000e+00]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  106, score = 162.569 (best = 535.983 , worst =   2.146)
End state: [-3.04064797  0.65541463  0.          2.59812937  3.10744139  0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  107, score = 166.672 (best = 535.983 , worst =   2.146)
End state: [ 5.77629856  0.79763279  0.          3.78147838  1.20579309  0.        ]
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Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  108, score = 162.629 (best = 535.983 , worst =   2.146)
End state: [  1.14181276e-05   5.53616001e-01   0.00000000e+00   2.56586909e+00
   6.28317853e+00   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  109, score = 170.890 (best = 535.983 , worst =   2.146)
End state: [ 8.70356274  0.98137969  0.          4.98250878  6.07989036  0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  110, score = 166.796 (best = 535.983 , worst =   2.146)
End state: [ 5.78536966  0.01003832  0.          3.72023412  5.63977284  0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  111, score = 162.628 (best = 535.983 , worst =   2.146)
End state: [ 0.45320774  0.41820749  0.          2.56716993  4.95183091  0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  112, score = 162.631 (best = 535.983 , worst =   2.146)
End state: [ 0.0086498   0.3877565   0.          2.56517339  3.61731084  0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  113, score = 162.630 (best = 535.983 , worst =   2.146)
End state: [-0.19038573  0.42102386  0.          2.65091889  3.00195469  0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  114, score = 162.628 (best = 535.983 , worst =   2.146)
End state: [ -1.73278856e-06   5.64719224e-01   0.00000000e+00   2.61550874e+00
   6.28317946e+00   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  115, score = 162.629 (best = 535.983 , worst =   2.146)
End state: [  3.53354169e-05   5.50180655e-01   0.00000000e+00   2.57677168e+00
   6.28316223e+00   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  116, score = 162.629 (best = 535.983 , worst =   2.146)
End state: [-0.0400719   0.57901664  0.          2.56695435  0.28222024  0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  117, score = 162.613 (best = 535.983 , worst =   2.146)
End state: [-0.90152013  0.67788487  0.          2.6013182   0.06580727  0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  118, score = 162.625 (best = 535.983 , worst =   2.146)
End state: [ 0.47323111  0.49272499  0.          2.57980424  6.05956124  0.        ]
```

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Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  119, score = 162.605 (best = 535.983 , worst =    2.146)
End state: [ 0.52483065  0.87745931  0.          2.62114772  6.26193539  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  120, score = 162.572 (best = 535.983 , worst =    2.146)
End state: [-0.35655658  0.35853957  0.          2.59378758  5.86294669  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  121, score = 539.440 (best = 539.440 , worst =    2.146)
End state: [-3.50865192  9.20835123  5.19800953  2.93826296  3.58666409  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  122, score = 177.452 (best = 539.440 , worst =    2.146)
End state: [ 4.88460773  0.06222805  0.          0.3089863   1.44679322  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  123, score = 210.978 (best = 539.440 , worst =    2.146)
End state: [ -7.14581299  10.02541501   0.           3.3002407    3.77037819   0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  124, score = 534.239 (best = 539.440 , worst =    2.146)
End state: [ -1.20434394 -57.22670415   5.41132198   2.96229739   3.77619601   0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  125, score = 121.916 (best = 539.440 , worst =    2.146)
End state: [ 0.16492116  3.00158821  0.          4.20419962  0.7944052   0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  126, score = 121.883 (best = 539.440 , worst =    2.146)
End state: [-1.312382    2.71028938  0.          4.17399537  1.68300334  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  127, score = 141.041 (best = 539.440 , worst =    2.146)
End state: [ 2.73520795  2.80264676  0.          3.1286574   2.12889519  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  128, score = 196.588 (best = 539.440 , worst =    2.146)
End state: [ 0.9452462   7.23222596  0.          5.57508475  0.27320957  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  129, score = 396.212 (best = 539.440 , worst =    2.146)
End state: [ 5.26281976  4.64591709  0.          2.72922852  5.72136765  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  130, score = 140.996 (best = 539.440 , worst =    2.146)
End state: [-1.64323724  6.40961991  0.          3.11263471  1.37527775  0.          ]
```

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Init state: [ 0.   0.  10.   0.   0.   0.]
Episode = 131, score = 149.553 (best = 539.440 , worst =    2.146)
End state: [ 2.98333077  3.67463069  0.          5.33043746  5.15744818  0.          ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode = 132, score = 181.573 (best = 539.440 , worst =    2.146)
End state: [ 2.48907007  4.57311186  0.          1.45229723  2.92458462  0.          ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode = 133, score = 253.747 (best = 539.440 , worst =    2.146)
End state: [ -0.39012569  16.76730547  0.          2.28941005  5.72862439  0.          ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode = 134, score = 151.686 (best = 539.440 , worst =    2.146)
End state: [-0.783287    8.35715811  0.          5.95335125  1.5413315   0.          ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode = 135, score = 188.049 (best = 539.440 , worst =    2.146)
End state: [ 0.20039818  7.13467315  0.          3.22764329  0.68017556  0.          ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode = 136, score = 258.046 (best = 539.440 , worst =    2.146)
End state: [ -1.22964587  16.18556659  0.          3.42864592  3.61805955  0.          ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode = 137, score = 126.138 (best = 539.440 , worst =    2.146)
End state: [-1.88755482  3.21200002  0.          5.35030506  2.80538207  0.          ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode = 138, score = 234.578 (best = 539.440 , worst =    2.146)
End state: [ -0.73676534  16.03488945  0.          3.36352221  4.00180972  0.          ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode = 139, score = 279.216 (best = 539.440 , worst =    2.146)
End state: [ -1.04400825  18.31738416  0.          2.90043268  4.59101219  0.          ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode = 140, score = 290.734 (best = 539.440 , worst =    2.146)
End state: [ 1.73491947  14.20684027  0.          5.76819674  0.57452866  0.          ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode = 141, score = 130.411 (best = 539.440 , worst =    2.146)
End state: [-1.53620583  4.39615932  0.          0.24586746  4.148834    0.          ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode = 142, score = 166.584 (best = 539.440 , worst =    2.146)
End state: [ 2.35147792  5.86385896  0.          3.70935011  2.82959666  0.          ]
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Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  143, score = 162.346 (best = 539.440 , worst =   2.146)
End state: [ 2.68278729  6.13672171  0.          2.63887781  0.49543665  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  144, score = 289.708 (best = 539.440 , worst =   2.146)
End state: [ -0.82803027  21.41180036  0.          5.79179503  0.02165507  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  145, score = 541.568 (best = 541.568 , worst =   2.146)
End state: [ -2.18060631   5.55686572  34.67060217  2.96810316  4.05278543  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  146, score = 219.505 (best = 541.568 , worst =   2.146)
End state: [  6.10203018  12.41997667  0.          5.62524591  1.53254037  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  147, score = 529.010 (best = 541.568 , worst =   2.146)
End state: [ -3.01028278  64.91243247  5.28751522  2.98351659  2.39796015  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  148, score = 541.424 (best = 541.568 , worst =   2.146)
End state: [ -3.24203965   6.8640115  36.83345745  2.9727175  2.95309857  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  149, score = 542.137 (best = 542.137 , worst =   2.146)
End state: [ -3.31543019   1.01335957  37.03003516  2.97064775  2.98692317  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  150, score = 541.789 (best = 542.137 , worst =   2.146)
End state: [ -3.28656668   4.02151174  36.99573268  2.99936008  3.00929594  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  151, score = 541.334 (best = 542.137 , worst =   2.146)
End state: [ -3.25503595   7.94802775  36.73950768  3.01871689  2.98606935  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  152, score = 541.770 (best = 542.137 , worst =   2.146)
End state: [ -3.32492496   3.91421978  36.9302038  2.99257558  2.97326289  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  153, score = 541.728 (best = 542.137 , worst =   2.146)
End state: [ -3.31184389   4.00044143  36.709386  3.06358729  3.04809507  0.          ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  154, score = 540.880 (best = 542.137 , worst =   2.146)
End state: [ -3.2963117  11.59030758  36.48761832  3.05168311  2.9814614  0.          ]
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Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  155, score = 541.222 (best = 542.137 , worst =    2.146)
End state: [ -3.26502302   9.05063979  36.79079259   2.96514771   2.92286864   0.           ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  156, score = 541.688 (best = 542.137 , worst =    2.146)
End state: [ -3.24958873   4.5522627   36.95703295   2.9586583    2.96800511   0.           ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  157, score = 541.501 (best = 542.137 , worst =    2.146)
End state: [ -3.20300052   5.94138693  36.95765523   2.97005509   2.9986872    0.           ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  158, score = 542.095 (best = 542.137 , worst =    2.146)
End state: [ -3.2690843    1.08122113  37.06656869   2.90638403   2.94863786   0.           ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  159, score = 541.355 (best = 542.137 , worst =    2.146)
End state: [ -3.33259913   7.04315294  36.59500574   3.04624016   3.02018325   0.           ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  160, score = 541.649 (best = 542.137 , worst =    2.146)
End state: [ -3.22859888   5.12511888  36.90733812   3.00587365   3.00820308   0.           ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  161, score = 542.095 (best = 542.137 , worst =    2.146)
End state: [ -3.27699975   0.7506377   36.88904328   2.99823299   3.04772006   0.           ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  162, score = 541.632 (best = 542.137 , worst =    2.146)
End state: [ -3.30345543   4.95069157  36.88784986   3.00788634   3.00644087   0.           ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  163, score = 541.095 (best = 542.137 , worst =    2.146)
End state: [ -3.24300039  10.26344962  36.65101855   3.01079244   2.95325176   0.           ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  164, score = 541.607 (best = 542.137 , worst =    2.146)
End state: [ -3.29384707   5.59622878  36.90817441   2.99994246   2.98404554   0.           ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  165, score = 541.844 (best = 542.137 , worst =    2.146)
End state: [ -3.3224642    3.11010655  36.83790192   3.00317973   3.00378817   0.           ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  166, score = 541.751 (best = 542.137 , worst =    2.146)
End state: [ -3.16674754   4.25819423  37.03143668   2.97451774   2.98941204   0.           ]
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Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  167, score = 541.718 (best = 542.137 , worst =    2.146)
End state: [ -3.27379626   5.12555076  36.99198279   2.96884092   2.95606118   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  168, score = 542.118 (best = 542.137 , worst =    2.146)
End state: [ -3.29268437  -4.00598249  36.83185822   2.95300744   3.01618922   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  169, score = 541.072 (best = 542.137 , worst =    2.146)
End state: [ -3.23055117   9.38317674  36.56812312   2.99940758   2.96111002   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  170, score = 541.171 (best = 542.137 , worst =    2.146)
End state: [ -3.19844768   9.4945026   36.82476948   2.98708287   2.96348489   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  171, score = 539.855 (best = 542.137 , worst =    2.146)
End state: [ -3.11464124  19.42085238  35.45352544   3.03824966   2.9422093    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  172, score = 540.627 (best = 542.137 , worst =    2.146)
End state: [ -3.30822984  13.05772958  36.18058056   3.05218671   3.00650718   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  173, score = 541.262 (best = 542.137 , worst =    2.146)
End state: [ -3.07728679   8.55014275  36.95526622   2.974152     2.95348153   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  174, score = 541.372 (best = 542.137 , worst =    2.146)
End state: [ -3.29851589   6.95233082  36.79516331   2.99481768   2.98373181   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  175, score = 540.706 (best = 542.137 , worst =    2.146)
End state: [ -3.14330036  13.0983577   36.45869547   2.9869679    2.93729187   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  176, score = 541.430 (best = 542.137 , worst =    2.146)
End state: [ -3.21771415   6.90491268  36.91403204   2.95688192   2.96110352   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  177, score = 541.628 (best = 542.137 , worst =    2.146)
End state: [ -3.33187086   4.82609262  36.78705345   2.99456837   3.0025558    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  178, score = 541.994 (best = 542.137 , worst =    2.146)
End state: [ -3.26864301   1.89802342  36.99824968   3.00105695   3.01635675   0.        ]
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Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  179, score = 541.107 (best = 542.137 , worst =    2.146)
End state: [ -3.09962923   9.87248502  36.75374306   2.9614962    2.93781336   0.         ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  180, score = 541.752 (best = 542.137 , worst =    2.146)
End state: [ -3.29069786   4.47061329  36.97814557   2.99891636   2.97870707   0.         ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  181, score = 541.731 (best = 542.137 , worst =    2.146)
End state: [ -3.28162838   4.63353089  36.97763547   2.96757253   2.96511058   0.         ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  182, score = 542.158 (best = 542.158 , worst =    2.146)
End state: [ -3.31772151   0.17589079  36.92492106   2.95820721   2.98896186   0.         ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  183, score = 541.728 (best = 542.158 , worst =    2.146)
End state: [ -3.32068665   4.38529994  36.94735468   2.97706172   2.98780464   0.         ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  184, score = 541.764 (best = 542.158 , worst =    2.146)
End state: [ -3.32261226   3.51071399  36.8419702    2.98620322   2.99265764   0.         ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  185, score = 541.819 (best = 542.158 , worst =    2.146)
End state: [ -3.34958045   3.78038136  36.92360882   2.99503548   2.9908285    0.         ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  186, score = 542.103 (best = 542.158 , worst =    2.146)
End state: [ -3.20344666   1.37491424  37.06429687   2.96975503   2.97284543   0.         ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  187, score = 542.155 (best = 542.158 , worst =    2.146)
End state: [ -3.43162434  -3.12617281  36.83628247   2.95108658   2.99667314   0.         ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  188, score = 541.280 (best = 542.158 , worst =    2.146)
End state: [ -3.28800534   7.95399923  36.75128713   2.95222924   2.93469575   0.         ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  189, score = 542.212 (best = 542.212 , worst =    2.146)
End state: [ -3.28911273  -0.64178442  36.93834297   2.94081495   2.9857356    0.         ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  190, score = 541.235 (best = 542.212 , worst =    2.146)
End state: [ -3.20633393   8.80944787  36.80176392   2.99533929   2.97945007   0.         ]
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Init state: [ 0.   0.   10.   0.   0.   0.]
Episode =  191, score = 542.138 (best = 542.212 , worst =   2.146)
End state: [ -3.29765331   1.06622469  37.09619269   2.9687516    2.99592514   0.          ]

Init state: [ 0.   0.   10.   0.   0.   0.]
Episode =  192, score = 542.178 (best = 542.212 , worst =   2.146)
End state: [ -3.30104128  -0.63360419  36.84879057   2.98149924   3.05121521   0.          ]

Init state: [ 0.   0.   10.   0.   0.   0.]
Episode =  193, score = 542.177 (best = 542.212 , worst =   2.146)
End state: [ -3.38205782e+00   1.39109682e-03   3.68740872e+01   2.97149587e+00
    3.00166159e+00   0.00000000e+00]

Init state: [ 0.   0.   10.   0.   0.   0.]
Episode =  194, score = 542.044 (best = 542.212 , worst =   2.146)
End state: [ -3.30069474   1.6888513   36.97412309   2.98412198   3.00298422   0.          ]

Init state: [ 0.   0.   10.   0.   0.   0.]
Episode =  195, score = 540.524 (best = 542.212 , worst =   2.146)
End state: [ -3.02906144  14.8849638   36.32693334   3.01600852   2.95704892   0.          ]

Init state: [ 0.   0.   10.   0.   0.   0.]
Episode =  196, score = 541.528 (best = 542.212 , worst =   2.146)
End state: [ -3.1930321    6.12374748  36.97465708   2.96361762   2.96699577   0.          ]

Init state: [ 0.   0.   10.   0.   0.   0.]
Episode =  197, score = 541.320 (best = 542.212 , worst =   2.146)
End state: [ -3.20329229   7.90960453  36.86679071   3.02326735   3.00057047   0.          ]

Init state: [ 0.   0.   10.   0.   0.   0.]
Episode =  198, score = 541.473 (best = 542.212 , worst =   2.146)
End state: [ -3.36474829   6.51397663  36.70265304   3.00045249   2.98226447   0.          ]

Init state: [ 0.   0.   10.   0.   0.   0.]
Episode =  199, score = 541.591 (best = 542.212 , worst =   2.146)
End state: [ -3.29978957   5.70089156  36.85308683   3.01439956   2.98746161   0.          ]

Init state: [ 0.   0.   10.   0.   0.   0.]
Episode =  200, score = 541.074 (best = 542.212 , worst =   2.146)
End state: [ -3.21779036   9.66032326  36.76307777   2.98248126   2.97212299   0.          ]

Init state: [ 0.   0.   10.   0.   0.   0.]
Episode =  201, score = 541.846 (best = 542.212 , worst =   2.146)
End state: [ -3.29056248   2.95275703  36.83104712   3.01137902   3.01467987   0.          ]

Init state: [ 0.   0.   10.   0.   0.   0.]
Episode =  202, score = 541.619 (best = 542.212 , worst =   2.146)
End state: [ -3.22764466   6.11479215  37.07334674   2.98659838   2.95956509   0.          ]
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Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  203, score = 541.323 (best = 542.212 , worst =   2.146)
End state: [ -3.1184792    8.32152336  37.03565534   2.99268405   2.95954418   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  204, score = 542.113 (best = 542.212 , worst =   2.146)
End state: [ -3.36157757   0.90968522  36.94865469   2.9880677    2.9830282    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  205, score = 541.973 (best = 542.212 , worst =   2.146)
End state: [ -3.19475392   2.07705771  37.00428529   2.9609294    2.98506117   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  206, score = 540.755 (best = 542.212 , worst =   2.146)
End state: [ -3.15545144  12.7729486   36.44116413   3.04543503   2.98337609   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  207, score = 541.663 (best = 542.212 , worst =   2.146)
End state: [ -3.18280038   5.40247671  37.09083625   2.99077628   2.97906356   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  208, score = 542.110 (best = 542.212 , worst =   2.146)
End state: [ -3.39966104   0.38635897  36.791645     3.01629096   3.04081349   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  209, score = 541.750 (best = 542.212 , worst =   2.146)
End state: [ -3.24260555   4.4783881   36.98664485   3.00762569   2.97992554   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  210, score = 541.726 (best = 542.212 , worst =   2.146)
End state: [ -3.23324551   4.41777609  37.01200064   2.9798112    2.99493916   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  211, score = 541.960 (best = 542.212 , worst =   2.146)
End state: [ -3.28357734   2.23631101  36.96840595   2.96519055   3.00306677   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  212, score = 540.859 (best = 542.212 , worst =   2.146)
End state: [ -3.22858118  11.39495997  36.45420262   3.03385029   2.98005394   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  213, score = 541.792 (best = 542.212 , worst =   2.146)
End state: [ -3.12980191   4.00403588  37.09470067   2.96949101   2.98426943   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  214, score = 541.182 (best = 542.212 , worst =   2.146)
End state: [ -3.21485798   8.87918362  36.74493414   2.99632153   2.97729199   0.        ]
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Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  215, score = 540.734 (best = 542.212 , worst =    2.146)
End state: [ -3.22718547  13.22163145  36.33506408   3.02642022   2.91833485   0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  216, score = 542.135 (best = 542.212 , worst =    2.146)
End state: [ -3.41939302  -1.62373984  36.63507095   3.02671987   3.0831885    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  217, score = 542.222 (best = 542.222 , worst =    2.146)
End state: [ -3.27809691  -1.68217935  36.86999715   2.97217136   3.03232752   0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  218, score = 541.240 (best = 542.222 , worst =    2.146)
End state: [ -3.2104423    8.47925268  36.65158831   3.04650139   3.00987273   0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  219, score = 541.092 (best = 542.222 , worst =    2.146)
End state: [ -3.13288548   9.64708019  36.81754894   2.97214393   2.94063866   0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  220, score = 542.198 (best = 542.222 , worst =    2.146)
End state: [ -3.43056932  -0.60369536  36.82335287   2.99039766   3.01589485   0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  221, score = 541.448 (best = 542.222 , worst =    2.146)
End state: [ -3.28129224   7.29401049  36.79229453   3.02014073   2.96204289   0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  222, score = 541.192 (best = 542.222 , worst =    2.146)
End state: [ -3.44979257 -12.28222712  35.92841411   2.91928215   3.04827574   0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  223, score = 542.183 (best = 542.222 , worst =    2.146)
End state: [ -3.36590463  -0.12238776  36.94651977   2.94862223   2.97400587   0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  224, score = 541.880 (best = 542.222 , worst =    2.146)
End state: [ -3.23381571   3.02935698  36.95098362   2.95841356   2.98012158   0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  225, score = 541.654 (best = 542.222 , worst =    2.146)
End state: [ -3.35991776   4.73753403  36.85946557   2.98940713   3.009284     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  226, score = 541.987 (best = 542.222 , worst =    2.146)
End state: [ -3.39243267  -5.36786081  36.60548247   2.98023094   3.06649358   0.        ]
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Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  227, score = 540.955 (best = 542.222 , worst =    2.146)
End state: [ -3.13437617  11.56687759  36.67506022   2.99989428   2.93943906   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  228, score = 540.479 (best = 542.222 , worst =    2.146)
End state: [ -3.17682136  14.63492052  36.21070387   3.02050919   2.94895774   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  229, score = 541.181 (best = 542.222 , worst =    2.146)
End state: [ -3.24869838   8.69977676  36.62874367   3.03529361   3.02173311   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  230, score = 540.934 (best = 542.222 , worst =    2.146)
End state: [ -3.22469932  11.10720822  36.55680765   2.97526998   2.94330405   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  231, score = 541.448 (best = 542.222 , worst =    2.146)
End state: [ -3.36059607 -10.81681369  36.21859176   2.89593207   3.01316834   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  232, score = 540.995 (best = 542.222 , worst =    2.146)
End state: [ -3.18387063  10.56824869  36.59769046   3.03125291   2.9793368    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  233, score = 541.675 (best = 542.222 , worst =    2.146)
End state: [ -3.22954517   4.95251609  36.81189054   3.01571167   2.99429588   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  234, score = 540.844 (best = 542.222 , worst =    2.146)
End state: [ -3.21388767  11.80472703  36.43416341   2.99611916   2.9366434    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  235, score = 542.285 (best = 542.285 , worst =    2.146)
End state: [ -3.27215932  -0.65844887  37.06069756   2.940654     2.98024604   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  236, score = 542.079 (best = 542.285 , worst =    2.146)
End state: [ -3.19545458   1.27680745  37.10397252   2.9284834    2.96527467   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  237, score = 540.833 (best = 542.285 , worst =    2.146)
End state: [ -3.08755917  11.88918738  36.57336744   2.97571217   2.92691522   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  238, score = 541.037 (best = 542.285 , worst =    2.146)
End state: [ -3.16372877  10.28355464  36.63472769   3.0010329    2.96261478   0.        ]
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Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  239, score = 542.206 (best = 542.285 , worst =    2.146)
End state: [ -3.40001371  -1.86478599  36.79034082   2.98035756   3.0004876    0.         ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  240, score = 541.063 (best = 542.285 , worst =    2.146)
End state: [ -3.16288836  10.21520221  36.74294351   2.9894791    2.95968974   0.         ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  241, score = 542.214 (best = 542.285 , worst =    2.146)
End state: [ -3.35605405  -0.46272235  36.86079966   2.98413342   3.01313256   0.         ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  242, score = 541.029 (best = 542.285 , worst =    2.146)
End state: [ -3.13902744  10.80970917  36.70699162   3.00648592   2.94665872   0.         ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  243, score = 540.626 (best = 542.285 , worst =    2.146)
End state: [ -3.18391687  13.25777509  36.31919904   3.01459813   2.96045614   0.         ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  244, score = 541.145 (best = 542.285 , worst =    2.146)
End state: [ -3.23585063   9.8258794   36.80752979   2.98674064   2.95638487   0.         ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  245, score = 541.669 (best = 542.285 , worst =    2.146)
End state: [ -3.37090945   4.61086767  36.86376894   3.02632187   3.02603542   0.         ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  246, score = 541.124 (best = 542.285 , worst =    2.146)
End state: [ -3.2006097    9.54271464  36.58146069   3.02385782   2.98836376   0.         ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  247, score = 541.868 (best = 542.285 , worst =    2.146)
End state: [ -3.18719664   3.30625534  37.00325499   2.9782396    2.98328954   0.         ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  248, score = 542.183 (best = 542.285 , worst =    2.146)
End state: [ -3.27434085  -3.17872026  36.83710405   2.94036811   3.01703901   0.         ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  249, score = 542.248 (best = 542.285 , worst =    2.146)
End state: [ -3.36635133  -2.22775955  36.99544549   2.87810548   2.954361     0.         ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  250, score = 541.258 (best = 542.285 , worst =    2.146)
End state: [ -3.14960146   9.09652655  36.85106205   2.95990813   2.91780424   0.         ]
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Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  251, score = 541.486 (best = 542.285 , worst =   2.146)
End state: [ -3.18595964   6.47262412  36.94811603   2.9860497    2.99010482   0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  252, score = 541.415 (best = 542.285 , worst =   2.146)
End state: [ -3.2894657    6.54358906  36.73314608   3.01429676   3.0051512    0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  253, score = 541.192 (best = 542.285 , worst =   2.146)
End state: [ -3.20722318   9.48560579  36.68973205   3.00303749   2.95011548   0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  254, score = 541.360 (best = 542.285 , worst =   2.146)
End state: [ -3.20751106   7.62644734  36.89962317   2.97733484   2.96796934   0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  255, score = 541.727 (best = 542.285 , worst =   2.146)
End state: [ -3.19431806   4.18101237  36.96507879   2.99763106   3.00984308   0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  256, score = 181.833 (best = 542.285 , worst =   2.146)
End state: [ 2.30712023 -1.31832881  0.           1.50317256   1.06306316   0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  257, score = 175.246 (best = 542.285 , worst =   2.146)
End state: [-3.69926962  1.44677579  0.           6.06260823   3.3344491    0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  258, score = 173.287 (best = 542.285 , worst =   2.146)
End state: [-0.35203589  1.7766838   0.           5.39808819   0.69591484   0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  259, score = 169.006 (best = 542.285 , worst =   2.146)
End state: [ 0.91483334 -0.15891384  0.           4.32484263   1.75397443   0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  260, score = 175.379 (best = 542.285 , worst =   2.146)
End state: [-3.81756894  2.47906956  0.           6.00889724   2.86103585   0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  261, score = 160.257 (best = 542.285 , worst =   2.146)
End state: [-7.05400451  2.82665566  0.           1.96799501   2.57850846   0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  262, score = 171.224 (best = 542.285 , worst =   2.146)
End state: [-1.63690872 -0.43590858  0.           4.84657895   2.34192124   0.        ]
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Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  263, score = 186.092 (best = 542.285 , worst =   2.146)
End state: [-3.06543593 -0.85997339  0.          2.66913382  4.35311367  0.         ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  264, score = 181.815 (best = 542.285 , worst =   2.146)
End state: [-3.22628872  0.03291792  0.          1.52397163  5.48850062  0.         ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  265, score = 164.711 (best = 542.285 , worst =   2.146)
End state: [-4.54055764 -0.14771708  0.          3.17161602  4.20778867  0.         ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  266, score = 179.455 (best = 542.285 , worst =   2.146)
End state: [-9.79496485  1.38203159  0.          0.89840122  3.62682705  0.         ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  267, score = 183.821 (best = 542.285 , worst =   2.146)
End state: [-6.61860724 -0.89587564  0.          2.06271588  4.98169223  0.         ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  268, score = 158.186 (best = 542.285 , worst =   2.146)
End state: [-1.91866661  4.4752814   0.          1.42912549  4.08441238  0.         ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  269, score = 166.772 (best = 542.285 , worst =   2.146)
End state: [ 5.627806    0.9062605   0.          3.69202375  1.52405106  0.         ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  270, score = 198.955 (best = 542.285 , worst =   2.146)
End state: [-0.06523272 -1.02495584  0.          6.16583467  0.17697673  0.         ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  271, score = 188.135 (best = 542.285 , worst =   2.146)
End state: [ 0.53349603 -1.0277062   0.          3.27096337  3.74881439  0.         ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  272, score = 162.593 (best = 542.285 , worst =   2.146)
End state: [-1.32442411 -0.5615547   0.          2.60154009  5.28990113  0.         ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  273, score = 168.988 (best = 542.285 , worst =   2.146)
End state: [ 5.24538121 -0.65676619  0.          4.37712566  6.27149966  0.         ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  274, score = 163.969 (best = 542.285 , worst =   2.146)
End state: [-16.90717032   0.35682163   0.           3.16789586   4.25160751   0.         ]
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Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  275, score = 162.570 (best = 542.285 , worst =   2.146)
End state: [-3.92199186  0.33072267  0.          2.59791091  2.73622334  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  276, score = 173.234 (best = 542.285 , worst =   2.146)
End state: [-5.48019315 -1.53840735  0.          5.47998864  3.91368097  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  277, score = 181.841 (best = 542.285 , worst =   2.146)
End state: [ 1.9960654   1.88108587  0.          1.47374729  6.10016493  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  278, score = 164.651 (best = 542.285 , worst =   2.146)
End state: [-5.58896904  1.12524185  0.          3.23389868  3.61264269  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  279, score = 164.780 (best = 542.285 , worst =   2.146)
End state: [-2.65981736  0.25130753  0.          3.17913953  3.07897692  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  280, score = 192.355 (best = 542.285 , worst =   2.146)
End state: [-7.13378242  3.07660145  0.          4.37736432  3.56310489  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  281, score = 151.857 (best = 542.285 , worst =   2.146)
End state: [-0.84005313 -2.59876217  0.          6.01300483  4.37700733  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  282, score = 164.662 (best = 542.285 , worst =   2.146)
End state: [-4.04054507 -2.69818218  0.          3.1817954   3.64696093  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  283, score = 169.026 (best = 542.285 , worst =   2.146)
End state: [ 0.60966581  0.16733234  0.          4.30366846  1.09873877  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  284, score = 215.932 (best = 542.285 , worst =   2.146)
End state: [ 2.03236267 -5.60318122  0.          4.41530191  1.74513215  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  285, score = 158.184 (best = 542.285 , worst =   2.146)
End state: [ 4.78475916 -2.94953444  0.          1.42328832  1.38877431  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  286, score = 162.094 (best = 542.285 , worst =   2.146)
End state: [-7.78628684  0.38383202  0.          2.59093521  4.82919766  0.          ]
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Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  287, score = 325.337 (best = 542.285 , worst =    2.146)
End state: [ 6.29391481 -8.48335019  0.           2.4017127   0.1306768   0.         ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  288, score = 200.561 (best = 542.285 , worst =    2.146)
End state: [ 9.26612128  5.20400173  0.           0.40522434  5.98758766  0.         ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  289, score = 183.032 (best = 542.285 , worst =    2.146)
End state: [-19.53568095   1.95826425  0.           2.12047042   4.43089277   0.         ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  290, score = 160.352 (best = 542.285 , worst =    2.146)
End state: [-0.38846794  2.21059164  0.           1.95639239  1.00879671  0.         ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  291, score = 168.443 (best = 542.285 , worst =    2.146)
End state: [-14.7852015    0.60323537  0.           4.37080239  4.5647465    0.         ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  292, score = 180.998 (best = 542.285 , worst =    2.146)
End state: [-16.71154304   1.91520372  0.           1.44593996  4.70373742  0.         ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  293, score = 173.277 (best = 542.285 , worst =    2.146)
End state: [-1.86933115  1.71994633  0.           5.47827488  2.30960701  0.         ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  294, score = 138.791 (best = 542.285 , worst =    2.146)
End state: [-4.82180823 -0.76072628  0.           2.53970279  5.464511    0.         ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  295, score = 334.246 (best = 542.285 , worst =    2.146)
End state: [-2.75398383 -3.12757075  0.           2.04554624  1.37309827  0.         ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  296, score = 556.204 (best = 556.204 , worst =    2.146)
End state: [ -20.59798339   -5.07436486  135.4037159     6.0173764     0.61843707
    0.        ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  297, score = 556.764 (best = 556.764 , worst =    2.146)
End state: [ 15.63372038   -2.0532185   139.702275     0.14041902    5.36016518
    0.        ]

Init state: [ 0.    0.   10.    0.    0.    0.]
```

```
Episode =  298, score = 556.628 (best = 556.764 , worst =   2.146)
End state: [ 4.22334921e+00   1.23940939e+01   1.37073278e+02   1.02282688e-02
   1.20122421e-01   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  299, score = 555.884 (best = 556.764 , worst =   2.146)
End state: [ -22.99490044  -10.97958582  134.6417556    5.81571899   0.68967955
     0.       ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  300, score = 555.853 (best = 556.764 , worst =   2.146)
End state: [   7.8513709   -29.06347498  134.16910425    5.17610338   5.75565717
     0.       ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  301, score = 556.803 (best = 556.803 , worst =   2.146)
End state: [  15.77644172   -3.26182647  136.76862376    5.84799065   5.85584523
     0.       ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  302, score = 553.951 (best = 556.803 , worst =   2.146)
End state: [ -21.00248343   27.92947055  153.91666703    1.45074638   0.91503887
     0.       ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  303, score = 553.517 (best = 556.803 , worst =   2.146)
End state: [  38.35852437   -0.38578875  162.01475862    0.51373289   4.73188701
     0.       ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  304, score = 554.634 (best = 556.803 , worst =   2.146)
End state: [  -6.16563055  -40.98908394  129.31827656    5.27073043   0.55044353
     0.       ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  305, score = 556.109 (best = 556.803 , worst =   2.146)
End state: [ 1.30960777e+01   1.29042534e+01   1.40406968e+02   1.40932882e-02
   5.40836273e+00   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  306, score = 557.434 (best = 557.434 , worst =   2.146)
End state: [   0.78582656   10.3852233   140.14953824    0.68375686   5.99909365
     0.       ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  307, score = 556.704 (best = 557.434 , worst =   2.146)
End state: [  14.87902532   -0.18928166  137.16606232    0.29949664   6.08026619
     0.       ]
```

```
Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  308, score = 557.189 (best = 557.434 , worst =   2.146)
End state: [  12.39835966    1.65009089  137.08033791    6.1689724     5.88332773
     0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  309, score = 556.489 (best = 557.434 , worst =   2.146)
End state: [  1.20411174e+01   7.22011231e+00   1.37113580e+02   8.59342540e-02
    7.25331905e-02   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  310, score = 556.956 (best = 557.434 , worst =   2.146)
End state: [ -1.85939580e+00  -1.72936641e+01   1.36126221e+02   5.70567223e+00
    1.12541562e-01   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  311, score = 556.434 (best = 557.434 , worst =   2.146)
End state: [ -17.95768068   -7.94472372  135.92288685    6.25553562    0.84939345
     0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  312, score = 555.783 (best = 557.434 , worst =   2.146)
End state: [ -2.00069271e+01  -9.39470691e+00   1.35408886e+02   6.00437678e+00
    6.99705603e-02   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  313, score = 557.541 (best = 557.541 , worst =   2.146)
End state: [   4.13055041    7.86724493  138.09247702    0.50896053    6.11838361
     0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  314, score = 556.394 (best = 557.541 , worst =   2.146)
End state: [ -23.35563743    3.75866329  134.94948609    0.17129001    0.99820685
     0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  315, score = 556.471 (best = 557.541 , worst =   2.146)
End state: [ -3.26540746e-01  -2.93309902e+01   1.33043113e+02   5.15471690e+00
    1.25893111e-01   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  316, score = 556.165 (best = 557.541 , worst =   2.146)
End state: [  -6.82317068  -20.90418812  135.5409703     5.82508674    0.37409608
     0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  317, score = 555.357 (best = 557.541 , worst =   2.146)
```

```
End state: [ -30.38057092   15.37084329  130.75773512    0.51947683    1.48194458
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  318, score = 555.643 (best = 557.541 , worst =   2.146)
End state: [ -26.65209961   11.53343362  133.2933918    0.42474752    0.91738022
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  319, score = 556.691 (best = 557.541 , worst =   2.146)
End state: [  -9.46859538   12.20114114  139.07258744    0.70398632    0.18214663
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  320, score = 556.130 (best = 557.541 , worst =   2.146)
End state: [ -17.22263082  -14.78198001  135.11198128    5.83217167    0.45718099
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  321, score = 555.607 (best = 557.541 , worst =   2.146)
End state: [   2.69587613   22.28588644  137.86101674    0.72139675    0.33061319
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  322, score = 556.009 (best = 557.541 , worst =   2.146)
End state: [ -21.88989121   -7.81543149  135.65254428    0.26113372    0.82942118
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  323, score = 557.687 (best = 557.687 , worst =   2.146)
End state: [   3.04418208    3.82882736  142.0340737    0.8664739    6.1718011    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  324, score = 557.081 (best = 557.687 , worst =   2.146)
End state: [  -5.87524706   11.83459512  137.11021801    0.15763193    0.38539423
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  325, score = 554.483 (best = 557.687 , worst =   2.146)
End state: [  20.14622487   23.38677805  148.15547081    1.34251315    5.52025448
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  326, score = 556.612 (best = 557.687 , worst =   2.146)
End state: [ 1.58009378e-02   1.55678021e+01   1.38914856e+02   1.19866228e-01
    5.73982244e+00   0.00000000e+00]

Init state: [  0.    0.   10.    0.    0.    0.]
```

```
Episode =  327, score = 554.827 (best = 557.687 , worst =   2.146)
End state: [ -29.78642031 -13.05424539 132.38421813   6.15064314   0.78087733
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  328, score = 555.811 (best = 557.687 , worst =   2.146)
End state: [ -8.65142702 -23.44569453 135.16283624   6.18977834   0.36298401
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  329, score = 556.386 (best = 557.687 , worst =   2.146)
End state: [ 15.27076195  -8.27254063 136.3786739    6.07853384   5.94906146
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  330, score = 555.196 (best = 557.687 , worst =   2.146)
End state: [ 2.98795620e+01   8.48230753e-03   1.41165176e+02   5.87386084e-02
    5.48743944e+00   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  331, score = 557.706 (best = 557.706 , worst =   2.146)
End state: [ -6.67514793   1.58679964 138.12052164   0.2726251    0.34791144
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  332, score = 555.345 (best = 557.706 , worst =   2.146)
End state: [ 25.74971527 -11.67694313 134.47258733   5.88212682   5.82428201
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  333, score = 556.841 (best = 557.706 , worst =   2.146)
End state: [ -1.55712578  -9.44179743 137.55076965   6.28068325   6.25953433
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  334, score = 556.134 (best = 557.706 , worst =   2.146)
End state: [ -11.16380678 -19.2374029  135.42967675   5.46591184   6.24677612
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  335, score = 556.428 (best = 557.706 , worst =   2.146)
End state: [ -25.01933324   2.1882094  134.42685275   6.08661879   0.83140872
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  336, score = 558.138 (best = 558.138 , worst =   2.146)
End state: [  1.29218764  -1.40782551 137.57833435   6.09258555   6.12230365
    0.        ]
```

```
Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  337, score = 556.603 (best = 558.138 , worst =   2.146)
End state: [ -17.88147469    5.15893286  136.15098947    6.21819224    0.80239523
    0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  338, score = 555.397 (best = 558.138 , worst =   2.146)
End state: [  -7.13203232  -26.91355983  133.75180789    5.64650328    0.21148903
    0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  339, score = 556.563 (best = 558.138 , worst =   2.146)
End state: [   5.25158172   13.50778252  137.886389      0.54713599    0.14749796
    0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  340, score = 557.842 (best = 558.138 , worst =   2.146)
End state: [  -4.23193576    0.29334925  137.58130931    6.15893616    0.32088126
    0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  341, score = 556.534 (best = 558.138 , worst =   2.146)
End state: [ -17.23779977    6.73092675  135.95377872    0.33971113    0.35624567
    0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  342, score = 555.904 (best = 558.138 , worst =   2.146)
End state: [  -4.94096716   22.00469196  135.86962984    0.73260873    6.20308559
    0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  343, score = 556.504 (best = 558.138 , worst =   2.146)
End state: [  -4.11673301  -24.92532394  134.63733665    5.29906367    0.3555312     0.          ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  344, score = 555.931 (best = 558.138 , worst =   2.146)
End state: [  13.29922218   11.34905492  136.52978896    0.1942127     6.25298422
    0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  345, score = 557.364 (best = 558.138 , worst =   2.146)
End state: [ -5.38944026e+00   3.08049665e+00   1.37587589e+02   8.92988972e-02
   6.21664663e+00   0.00000000e+00]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  346, score = 556.366 (best = 558.138 , worst =   2.146)
End state: [ -1.34648047e+01  -1.80142109e+01   1.35141237e+02   5.23918356e+00
```

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   1.29881644e-01   0.00000000e+00]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode = 347, score = 557.605 (best = 558.138 , worst =  2.146)
End state: [ 4.19834247e-01  -6.26464908e+00   1.37354670e+02   6.14071039e+00
   1.93801944e-02   0.00000000e+00]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode = 348, score = 556.610 (best = 558.138 , worst =  2.146)
End state: [ 6.1405731   -18.73765581  135.86486856   5.93164112   6.11631383
   0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode = 349, score = 556.568 (best = 558.138 , worst =  2.146)
End state: [ 1.07696213e-02   1.75455978e+01   1.39018747e+02   5.36400882e-01
   5.67075924e+00   0.00000000e+00]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode = 350, score = 557.567 (best = 558.138 , worst =  2.146)
End state: [ 6.66623361   3.24338287  138.4078785   0.25467771   5.94429285
   0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode = 351, score = 554.413 (best = 558.138 , worst =  2.146)
End state: [ -38.9180402   8.09789394  129.48715428   6.25265052   0.59439313
   0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode = 352, score = 555.751 (best = 558.138 , worst =  2.146)
End state: [ -28.01657023   -6.47652389  133.51380795   5.98113165   0.60794482
   0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode = 353, score = 555.925 (best = 558.138 , worst =  2.146)
End state: [ -2.58712444e+01   3.50325470e+00   1.34232868e+02   1.25770479e-01
   7.64864370e-01   0.00000000e+00]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode = 354, score = 555.155 (best = 558.138 , worst =  2.146)
End state: [ 13.8527145   -24.41349887  134.16200236   5.8479684   5.91665901
   0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode = 355, score = 555.562 (best = 558.138 , worst =  2.146)
End state: [ 22.84658053   -4.7025058  156.79047787   5.97273652   4.95193894
   0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
```

```
Episode =  356, score = 556.773 (best = 558.138 , worst =   2.146)
End state: [  -3.29542646   11.38442878  137.05466241    6.27737846    0.19062107
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  357, score = 554.711 (best = 558.138 , worst =   2.146)
End state: [  30.81466434  -12.16927955  137.96870791    5.73941822    5.12203704
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  358, score = 556.390 (best = 558.138 , worst =   2.146)
End state: [   6.68756241  -13.85597832  136.65805493    6.24606529    6.101451       0.         ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  359, score = 557.121 (best = 558.138 , worst =   2.146)
End state: [  -3.83300651  -14.39493546  136.72871069    5.78023264    0.42048221
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  360, score = 556.749 (best = 558.138 , worst =   2.146)
End state: [  -8.80056882    7.67778259  138.24360524    0.32508561    6.1404171       0.         ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  361, score = 557.674 (best = 558.138 , worst =   2.146)
End state: [   0.26922242    5.67783265  138.2421727     0.37137852    0.181103        0.         ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  362, score = 556.603 (best = 558.138 , worst =   2.146)
End state: [ -8.28166395e+00  -1.86475430e+01   1.35712005e+02   5.29952464e+00
   1.26327332e-01   0.00000000e+00]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  363, score = 557.138 (best = 558.138 , worst =   2.146)
End state: [  -3.80083693   -1.704301     138.40500871    0.1924148     6.25577994
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  364, score = 555.990 (best = 558.138 , worst =   2.146)
End state: [ -22.14268188   10.33468545  135.08007242    0.3024608     0.76809396
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  365, score = 555.584 (best = 558.138 , worst =   2.146)
End state: [ -11.8958292   -26.2131572   133.83207514    5.53614039    0.62610305
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  366, score = 554.585 (best = 558.138 , worst =   2.146)
```

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End state: [  -6.39769904  -40.69780196  128.79397001    5.27571743    0.15218447
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  367, score = 555.248 (best = 558.138 , worst =    2.146)
End state: [ -21.30187974   15.31676635  134.99613119    0.56932693    0.47721361
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  368, score = 556.642 (best = 558.138 , worst =    2.146)
End state: [  13.26250271  -13.97223836  136.8221988     5.40203821    5.61812166
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  369, score = 556.424 (best = 558.138 , worst =    2.146)
End state: [ -16.26979322   -2.67280182  137.04249368    6.2228463     6.06451612
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  370, score = 556.625 (best = 558.138 , worst =    2.146)
End state: [ 1.67958948e+01   1.50610856e+00   1.45521703e+02   3.87358616e-02
   5.23694539e+00   0.00000000e+00]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  371, score = 557.391 (best = 558.138 , worst =    2.146)
End state: [ 2.18533539e-01  -1.02739813e+01   1.37135923e+02   5.86474792e+00
   1.01048350e-01   0.00000000e+00]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  372, score = 557.330 (best = 558.138 , worst =    2.146)
End state: [   9.37984115    3.63726571  138.8627493     0.63718421    6.12572906
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  373, score = 556.777 (best = 558.138 , worst =    2.146)
End state: [  -2.18696997  -19.64108102  135.67833465    5.68758299    6.26313039
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  374, score = 555.215 (best = 558.138 , worst =    2.146)
End state: [  17.4246187   -22.8271639   145.29496041    5.78863268    5.1375424     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  375, score = 555.443 (best = 558.138 , worst =    2.146)
End state: [ -18.07256815   15.746721    136.9951535     0.78348767    0.34546337
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
```

```
Episode =  376, score = 554.936 (best = 558.138 , worst =   2.146)
End state: [ 2.36967514e+01  -1.43444945e+01   1.35375410e+02   3.21281770e-03
    5.41156704e+00   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  377, score = 555.509 (best = 558.138 , worst =   2.146)
End state: [ -29.75292482   -7.02963284  132.87088495    6.08814018    1.07079562
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  378, score = 555.779 (best = 558.138 , worst =   2.146)
End state: [ -3.14269852e+01   1.91966467e+00   1.32667382e+02   3.71482122e-02
    8.72839583e-01   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  379, score = 554.794 (best = 558.138 , worst =   2.146)
End state: [ 32.61190212   -7.49106196  136.88338335    6.04741638    5.31381204
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  380, score = 557.131 (best = 558.138 , worst =   2.146)
End state: [ -9.66562838  -13.76670774  136.86383042    5.38531987    0.72135508
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  381, score = 555.919 (best = 558.138 , worst =   2.146)
End state: [ 12.49444847  -16.01436295  135.81908403    6.122274     6.18061729
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  382, score = 554.682 (best = 558.138 , worst =   2.146)
End state: [ -30.56999994   13.80850265  135.45780388    0.70704346    0.50869558
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  383, score = 552.716 (best = 558.138 , worst =   2.146)
End state: [ -66.87553547   -9.29683051  108.0245056     5.71539009    1.99193607
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  384, score = 555.816 (best = 558.138 , worst =   2.146)
End state: [ -24.49844396   -6.30851088  134.89055617    0.25885195    0.62507948
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  385, score = 555.844 (best = 558.138 , worst =   2.146)
End state: [ 15.15347319   13.37163793  139.52709997    0.19940147    5.51502078
    0.        ]
```

```
Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  386, score = 554.322 (best = 558.138 , worst =    2.146)
End state: [  18.42035993  -27.31930311  145.57940481    5.71438035    5.14489834
     0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  387, score = 557.138 (best = 558.138 , worst =    2.146)
End state: [   1.20009086   -7.66504797  138.87801893    6.17845903    5.6719283     0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  388, score = 554.032 (best = 558.138 , worst =    2.146)
End state: [  33.12426744  -12.99637141  137.84619026    6.16365526    5.22346715
     0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  389, score = 557.149 (best = 558.138 , worst =    2.146)
End state: [ -18.38958337    0.2471299   137.15083827    0.37327564    0.88562461
     0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  390, score = 556.752 (best = 558.138 , worst =    2.146)
End state: [  10.13984921    4.67200012  136.99912399    6.21042454    6.14233386
     0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  391, score = 555.773 (best = 558.138 , worst =    2.146)
End state: [  26.74988133    4.78679393  139.64365704    0.76268664    5.2877414     0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  392, score = 555.902 (best = 558.138 , worst =    2.146)
End state: [ -2.31401799e+01  -6.70533494e+00   1.28526761e+02   3.04598202e-02
    4.39716601e+00    0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  393, score = 385.552 (best = 558.138 , worst =    2.146)
End state: [  17.56238607    0.36320022   0.            6.14938733    3.99934075    0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  394, score = 173.301 (best = 558.138 , worst =    2.146)
End state: [  4.88966254   0.02345718   0.            6.18914724    4.9881038    0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  395, score = 169.017 (best = 558.138 , worst =    2.146)
End state: [ -1.93065601   0.20392271   0.            6.16371939   6.18091153   0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  396, score = 471.113 (best = 558.138 , worst =    2.146)
```

End state: [5.80247732 6.64989221 0.   0.42616161 3.14922311 0.   ]

Init state: [0.   0. 10.   0.   0.   0.]
Episode = 397, score = 539.746 (best = 558.138 , worst =   2.146)
End state: [-14.44172307   2.56604395   7.32339971   6.19233164   0.03610225   0.   ]

Init state: [0.   0. 10.   0.   0.   0.]
Episode = 398, score = 412.524 (best = 558.138 , worst =   2.146)
End state: [0.7973015   0.29473917 0.   0.41764417 3.49328682 0.   ]

Init state: [0.   0. 10.   0.   0.   0.]
Episode = 399, score = 151.942 (best = 558.138 , worst =   2.146)
End state: [-1.25703342e+00   5.87760747e-04   0.00000000e+00   5.99844840e-02
   3.50685455e+00   0.00000000e+00]

Init state: [0.   0. 10.   0.   0.   0.]
Episode = 400, score = 533.991 (best = 558.138 , worst =   2.146)
End state: [-7.76178544   2.19298554   0.   6.25914348   0.43676006   0.   ]

Init state: [0.   0. 10.   0.   0.   0.]
Episode = 401, score = 164.813 (best = 558.138 , worst =   2.146)
End state: [-0.46627116 0.03285686 0.   0.0983419   2.42191307 0.   ]

Init state: [0.   0. 10.   0.   0.   0.]
Episode = 402, score = 201.073 (best = 558.138 , worst =   2.146)
End state: [-1.87353118 0.01317317 0.   0.04973684 2.83958054 0.   ]

Init state: [0.   0. 10.   0.   0.   0.]
Episode = 403, score = 231.286 (best = 558.138 , worst =   2.146)
End state: [1.07256099 -0.16849668 0.   0.02800425 4.24455991 0.   ]

Init state: [0.   0. 10.   0.   0.   0.]
Episode = 404, score = 510.244 (best = 558.138 , worst =   2.146)
End state: [-29.83728596   2.47133105   0.   0.3849865   1.76846697   0.   ]

Init state: [0.   0. 10.   0.   0.   0.]
Episode = 405, score = 276.137 (best = 558.138 , worst =   2.146)
End state: [-8.58642252 -0.02336234 0.   0.17703825 1.73849669 0.   ]

Init state: [0.   0. 10.   0.   0.   0.]
Episode = 406, score = 181.903 (best = 558.138 , worst =   2.146)
End state: [0.26261703 -0.05188633 0.   6.27645065 4.06262041 0.   ]

Init state: [0.   0. 10.   0.   0.   0.]
Episode = 407, score = 248.870 (best = 558.138 , worst =   2.146)
End state: [-5.48866377 0.93445378 0.   6.13721783 0.98137078 0.   ]

Init state: [0.   0. 10.   0.   0.   0.]

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Episode =  408, score = 447.364 (best = 558.138 , worst =    2.146)
End state: [-46.89755112 -8.81551381  0.         5.24118694  3.27763271  0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  409, score = 443.044 (best = 558.138 , worst =    2.146)
End state: [-10.80700951  5.27021768  0.         0.11708468  5.15929594  0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  410, score = 341.850 (best = 558.138 , worst =    2.146)
End state: [-0.27941158  2.62539928  0.         0.36011245  3.21864528  0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  411, score = 196.784 (best = 558.138 , worst =    2.146)
End state: [-8.79261988  0.48980827  0.         6.14817401  5.60578248  0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  412, score = 306.302 (best = 558.138 , worst =    2.146)
End state: [-25.1267855  -2.43332809  0.         6.1645055   3.06809625  0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  413, score =  96.179 (best = 558.138 , worst =    2.146)
End state: [-3.46659599 -0.00917952  0.         6.25064575  5.29146696  0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  414, score = 343.918 (best = 558.138 , worst =    2.146)
End state: [-0.46211457 -0.10950576  0.         0.03971423  3.43471649  0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  415, score = 115.382 (best = 558.138 , worst =    2.146)
End state: [-7.72850831  0.05868189  0.         0.02688469  4.97327735  0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  416, score = 432.729 (best = 558.138 , worst =    2.146)
End state: [-8.85691442 -0.91554798  0.         5.80628605  4.33216066  0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  417, score = 332.609 (best = 558.138 , worst =    2.146)
End state: [-19.5338301   0.64730562  0.         6.1904282   3.67907966  0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  418, score = 145.337 (best = 558.138 , worst =    2.146)
End state: [ 7.71063352 -0.01214074  0.         6.26793383  6.15162758  0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  419, score = 384.946 (best = 558.138 , worst =    2.146)
End state: [-5.88819225  0.67071228  0.         6.11903823  0.09927939  0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
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Episode =  420, score = 367.230 (best = 558.138 , worst =    2.146)
End state: [-15.9343163   -0.88846027   0.           0.28758901   5.74057224   0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  421, score = 199.067 (best = 558.138 , worst =    2.146)
End state: [-0.05702118 -0.5440717   0.           0.12563828   4.25614731   0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  422, score = 268.826 (best = 558.138 , worst =    2.146)
End state: [-7.24531988 -0.4905355   0.           0.1410645    3.49928603   0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  423, score = 166.986 (best = 558.138 , worst =    2.146)
End state: [ 0.20270365  0.33019484  0.           6.15375627   4.49747365   0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  424, score = 255.533 (best = 558.138 , worst =    2.146)
End state: [ 3.80066338 -0.91227978  0.           0.14868663   4.78517747   0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  425, score = 531.754 (best = 558.138 , worst =    2.146)
End state: [-46.64955455  16.71352133   7.9879644    0.60536036   2.17684583   0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  426, score = 215.999 (best = 558.138 , worst =    2.146)
End state: [ 4.70022313 -0.37725041  0.           0.04459381   4.30885461   0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  427, score = 241.861 (best = 558.138 , worst =    2.146)
End state: [-1.19430004 -0.69511161  0.           0.26878757   3.99914583   0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  428, score = 233.124 (best = 558.138 , worst =    2.146)
End state: [ 10.54193842  -0.69868119   0.           5.92169939   6.22435746   0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  429, score = 128.051 (best = 558.138 , worst =    2.146)
End state: [ -1.69081667e+01  -1.47027247e-01   0.00000000e+00   3.60489642e-03
    4.11677653e+00   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  430, score = 121.684 (best = 558.138 , worst =    2.146)
End state: [-13.94479149  -0.71016622   0.           0.21713241   2.57468207   0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  431, score = 207.429 (best = 558.138 , worst =    2.146)
End state: [ 4.90893258  0.15875506  0.           0.32382279   5.3893821    0.          ]
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Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  432, score = 166.993 (best = 558.138 , worst =    2.146)
End state: [ 5.45990162 -0.07426387  0.          0.04914277  2.66252863  0.         ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  433, score =  87.656 (best = 558.138 , worst =    2.146)
End state: [-3.80653637 -0.00913713  0.          6.27573414  4.59898554  0.         ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  434, score =  89.812 (best = 558.138 , worst =    2.146)
End state: [ 2.91962437  0.02774573  0.          6.26759137  5.57851705  0.         ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  435, score = 190.316 (best = 558.138 , worst =    2.146)
End state: [ 8.80461028  0.13050406  0.          6.18045762  4.55178834  0.         ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  436, score = 134.390 (best = 558.138 , worst =    2.146)
End state: [-19.61587877  -0.43579952   0.           0.10369646   3.85977394   0.         ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  437, score = 100.489 (best = 558.138 , worst =    2.146)
End state: [-3.52555558 -0.07936252  0.          0.05870093  0.56496842  0.         ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  438, score = 140.705 (best = 558.138 , worst =    2.146)
End state: [-17.17433989  -0.05279918   0.           6.27757783   1.82411801   0.         ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  439, score = 218.141 (best = 558.138 , worst =    2.146)
End state: [ 3.95885147 -0.53362372  0.          6.06530604  2.44290363  0.         ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  440, score = 149.783 (best = 558.138 , worst =    2.146)
End state: [ 2.17783037e-01  -1.97777891e-02   0.00000000e+00   2.90703182e-03
   5.63631401e+00    0.00000000e+00]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  441, score = 113.238 (best = 558.138 , worst =    2.146)
End state: [-8.56486733 -0.25303848  0.          0.06948876  4.85163956  0.         ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  442, score = 537.416 (best = 558.138 , worst =    2.146)
End state: [-26.82509189   8.7367615   28.4331568    5.97802218   3.09326149   0.         ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  443, score = 352.008 (best = 558.138 , worst =    2.146)
End state: [-4.12164048 -1.91579994  0.          5.27211315  0.37619401  0.         ]
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Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  444, score = 173.318 (best = 558.138 , worst =   2.146)
End state: [-4.32240345 -0.06182125  0.          0.08681447  5.21075695  0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  445, score = 224.629 (best = 558.138 , worst =   2.146)
End state: [-2.04435147 -0.11938141  0.          6.24099478  4.66410034  0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  446, score = 207.541 (best = 558.138 , worst =   2.146)
End state: [ 0.97934335 -0.02192805  0.          0.07739623  0.06549194  0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  447, score = 194.715 (best = 558.138 , worst =   2.146)
End state: [-2.52489519  0.05743618  0.          6.09002468  4.86155116  0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  448, score = 196.939 (best = 558.138 , worst =   2.146)
End state: [-2.27481347  0.17724084  0.          6.14492064  4.91849353  0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  449, score = 508.318 (best = 558.138 , worst =   2.146)
End state: [-73.13206755  -3.58757407   0.           5.31722327   4.55154669   0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  450, score = 282.668 (best = 558.138 , worst =   2.146)
End state: [-8.94295615 -0.05166099  0.          0.40081418  3.87353269  0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  451, score = 231.031 (best = 558.138 , worst =   2.146)
End state: [ -7.06952140e+00   3.04766534e-03   0.00000000e+00   6.25716166e+00
   5.07799437e+00   0.00000000e+00]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  452, score = 250.885 (best = 558.138 , worst =   2.146)
End state: [-4.12824183  0.33007949  0.          0.03215159  0.09729191  0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  453, score = 128.259 (best = 558.138 , worst =   2.146)
End state: [ -4.93461030e+00   4.84885182e-03   0.00000000e+00   9.31802309e-02
   6.07785834e-01   0.00000000e+00]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  454, score = 237.618 (best = 558.138 , worst =   2.146)
End state: [ 2.10460955  0.37482429  0.          6.26901289  5.24469947  0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
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Episode =  455, score = 276.238 (best = 558.138 , worst =   2.146)
End state: [-7.33824827 -0.01608774  0.          0.3582655   2.78726695  0.         ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  456, score =  91.997 (best = 558.138 , worst =   2.146)
End state: [  4.39497609e-01   1.57011182e-03   0.00000000e+00   6.27302304e+00
    5.36437078e+00   0.00000000e+00]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  457, score = 209.460 (best = 558.138 , worst =   2.146)
End state: [ 0.15296072 -0.20167334  0.          6.20682752  3.55554549  0.         ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  458, score = 188.383 (best = 558.138 , worst =   2.146)
End state: [ 0.69431348  0.51547585  0.          6.17380069  4.44607875  0.         ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  459, score = 180.955 (best = 558.138 , worst =   2.146)
End state: [ -2.08187311e+01   1.06803983e-02   0.00000000e+00   6.19112086e+00
    5.46670713e+00   0.00000000e+00]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  460, score = 149.260 (best = 558.138 , worst =   2.146)
End state: [ -1.47473550e+01   3.30407024e-03   0.00000000e+00   6.27986657e+00
    7.08635796e-01   0.00000000e+00]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  461, score = 197.309 (best = 558.138 , worst =   2.146)
End state: [ 31.62288033  0.09878777  0.          0.16764718  2.6162179   0.         ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  462, score = 168.748 (best = 558.138 , worst =   2.146)
End state: [-7.4711193  -0.0153008   0.          0.21284715  5.38661416  0.         ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  463, score =  91.929 (best = 558.138 , worst =   2.146)
End state: [ -2.14166694e+00  -5.23016654e-04   0.00000000e+00   6.99052899e-03
    4.80241684e+00   0.00000000e+00]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  464, score =  91.922 (best = 558.138 , worst =   2.146)
End state: [ -2.51370486e+00  -1.50304198e-03   0.00000000e+00   3.93724550e-02
    4.52921930e+00   0.00000000e+00]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  465, score = 141.134 (best = 558.138 , worst =   2.146)
End state: [-2.7778241  -0.01063864  0.          0.04783557  5.1052891   0.         ]
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Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  466, score = 183.683 (best = 558.138 , worst =    2.146)
End state: [ 10.83762676 -0.59013253  0.          5.97498031  2.76632165  0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  467, score = 310.352 (best = 558.138 , worst =    2.146)
End state: [ 1.16597299  1.17659572  0.          0.07583049  5.01939115  0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  468, score = 164.090 (best = 558.138 , worst =    2.146)
End state: [ -1.67834862e+01  -1.01214937e-02   0.00000000e+00   6.15626362e-02
    3.46919931e+00    0.00000000e+00]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  469, score = 203.662 (best = 558.138 , worst =    2.146)
End state: [-3.10482757  0.24430979  0.          6.16937963  4.19675303  0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  470, score = 136.531 (best = 558.138 , worst =    2.146)
End state: [-12.09085512 -0.03253287  0.          0.14568929  1.07779462  0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  471, score = 222.012 (best = 558.138 , worst =    2.146)
End state: [-14.26394086 -0.08573527  0.          6.17491917  1.27658185  0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  472, score = 190.237 (best = 558.138 , worst =    2.146)
End state: [-8.20246042 -0.02480712  0.          6.24214074  2.75163828  0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  473, score = 196.699 (best = 558.138 , worst =    2.146)
End state: [ -5.99885863e+00   1.97165564e-03   0.00000000e+00   1.54645374e-01
    1.50797820e+00    0.00000000e+00]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  474, score = 279.779 (best = 558.138 , worst =    2.146)
End state: [ 15.65148232 -1.38828309  0.          5.89909966  2.20512997  0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  475, score = 145.253 (best = 558.138 , worst =    2.146)
End state: [ 8.91221073 -0.0306025   0.          6.15278664  2.56400128  0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  476, score = 201.040 (best = 558.138 , worst =    2.146)
End state: [-5.02756206  0.04441264  0.          0.09407731  4.49617046  0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  477, score = 162.375 (best = 558.138 , worst =    2.146)
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End state: [ 7.19791401 -0.1206926   0.          6.2150846   1.25792365  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  478, score = 211.625 (best = 558.138 , worst =   2.146)
End state: [ -7.34783340e+00  -2.86641563e-03   0.00000000e+00   6.25384498e+00
   1.51247045e+00   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  479, score = 183.793 (best = 558.138 , worst =   2.146)
End state: [-6.73012221 -0.01827719  0.          0.2239098   1.62625972  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  480, score = 147.677 (best = 558.138 , worst =   2.146)
End state: [ -4.71559732e-01   2.96832468e-03   0.00000000e+00   6.16362803e+00
   4.47186615e+00   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  481, score = 167.039 (best = 558.138 , worst =   2.146)
End state: [-0.35760963  0.13802555  0.          6.25261951  5.99337923  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  482, score = 173.305 (best = 558.138 , worst =   2.146)
End state: [-2.4032376   0.0082209   0.          6.27288113  0.55817856  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  483, score = 181.907 (best = 558.138 , worst =   2.146)
End state: [ -1.45981072e+00  -1.25738862e-04   0.00000000e+00   6.27957781e+00
   1.83294557e+00   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  484, score = 184.018 (best = 558.138 , worst =   2.146)
End state: [ -1.91380112e+00   2.63499606e-04   0.00000000e+00   6.25472919e+00
   2.11415147e+00   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  485, score = 184.023 (best = 558.138 , worst =   2.146)
End state: [ -1.86523257e+00   1.79857533e-03   0.00000000e+00   1.58759106e-01
   2.09807290e+00   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  486, score = 184.018 (best = 558.138 , worst =   2.146)
End state: [-1.90689773  0.00256527  0.          0.18167253  2.03791284  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  487, score = 164.738 (best = 558.138 , worst =   2.146)
End state: [-1.93251503  0.04340482  0.          6.00229577  1.39273464  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
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Episode =  488, score = 134.644 (best = 558.138 , worst =    2.146)
End state: [-6.75712947  0.04511024  0.          6.25050862  3.27439435  0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  489, score = 104.770 (best = 558.138 , worst =    2.146)
End state: [ 3.36403082  0.02368929  0.          6.26603092  4.28477189  0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  490, score = 273.966 (best = 558.138 , worst =    2.146)
End state: [ 3.68012765  0.57361893  0.          0.43017004  1.3423978   0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  491, score = 177.758 (best = 558.138 , worst =    2.146)
End state: [ 3.67003949  0.37024096  0.          6.08707207  3.0376297   0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  492, score = 119.660 (best = 558.138 , worst =    2.146)
End state: [ 5.53262957e+00  1.66551111e-03  0.00000000e+00  6.27961173e+00
   4.83734256e+00  0.00000000e+00]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  493, score = 189.739 (best = 558.138 , worst =    2.146)
End state: [ -1.53120682e+01  1.09401390e-02  0.00000000e+00  3.56495067e-02
   4.39001910e+00  0.00000000e+00]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  494, score =  96.179 (best = 558.138 , worst =    2.146)
End state: [-5.05578408  0.12259552  0.          6.23092771  3.92965121  0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  495, score = 322.529 (best = 558.138 , worst =    2.146)
End state: [ 10.94270975  2.34531514  0.          0.07799643  3.14220176  0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  496, score = 184.041 (best = 558.138 , worst =    2.146)
End state: [-4.55080742  0.17891613  0.          6.14444149  1.08473695  0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  497, score = 121.927 (best = 558.138 , worst =    2.146)
End state: [-2.63372704  0.08562179  0.          6.19701944  4.16544421  0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  498, score = 134.594 (best = 558.138 , worst =    2.146)
End state: [-4.13484098  0.05374126  0.          0.07427488  0.2968508   0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  499, score = 301.814 (best = 558.138 , worst =    2.146)
End state: [-4.07109737  0.46357727  0.          0.12739655  6.14866697  0.          ]
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Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  500, score =  81.267 (best = 558.138 , worst =   2.146)
End state: [-0.11724256  0.04374802  0.          6.2305442   5.00565438  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  501, score = 174.734 (best = 558.138 , worst =   2.146)
End state: [ -1.71676347e+01  -1.44277437e-02   0.00000000e+00   6.20486664e+00
   3.93204622e+00   0.00000000e+00]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  502, score = 297.547 (best = 558.138 , worst =   2.146)
End state: [ 5.07295142  0.55509021  0.          0.28694125  2.8391937   0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  503, score =  87.665 (best = 558.138 , worst =   2.146)
End state: [-3.12334901  0.04537231  0.          6.26413115  3.39084833  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  504, score = 142.724 (best = 558.138 , worst =   2.146)
End state: [ -1.81561313e+01   4.79218865e-03   0.00000000e+00   3.93683528e-02
   5.42308754e+00   0.00000000e+00]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  505, score = 177.183 (best = 558.138 , worst =   2.146)
End state: [-9.71871196  0.01814696  0.          0.13174353  3.54650298  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  506, score = 211.781 (best = 558.138 , worst =   2.146)
End state: [ 0.08019877  0.09949353  0.          0.01890383  4.30315414  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  507, score = 344.513 (best = 558.138 , worst =   2.146)
End state: [ 4.41835973 -0.19032694  0.          0.19003901  0.38391279  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  508, score = 209.559 (best = 558.138 , worst =   2.146)
End state: [-3.15970602 -0.07898548  0.          6.21603309  1.75848155  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  509, score = 254.577 (best = 558.138 , worst =   2.146)
End state: [ 3.88347832  0.08128043  0.          0.08617367  4.76072013  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  510, score = 188.131 (best = 558.138 , worst =   2.146)
End state: [-5.96243173  0.00791666  0.          0.09330859  2.3195741   0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
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Episode =  511, score = 123.781 (best = 558.138 , worst =    2.146)
End state: [-9.46177007  0.01866292  0.          6.21466292  5.60396815  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  512, score = 267.181 (best = 558.138 , worst =    2.146)
End state: [ 7.17058389  1.28408262  0.          0.22313493  3.40444445  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  513, score = 190.272 (best = 558.138 , worst =    2.146)
End state: [ -5.67647063e+00   2.69823654e-03   0.00000000e+00   8.33505771e-02
   3.75357589e+00   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  514, score = 211.442 (best = 558.138 , worst =    2.146)
End state: [ -1.17086134e+01  -9.12962137e-03   0.00000000e+00   1.55998036e-01
   4.72650982e+00   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  515, score = 184.025 (best = 558.138 , worst =    2.146)
End state: [ -1.62443545e+00  -5.23968212e-03   0.00000000e+00   6.23941874e+00
   1.91096649e+00   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  516, score = 147.200 (best = 558.138 , worst =    2.146)
End state: [ -1.14171531e+01   2.17841427e-03   0.00000000e+00   6.22247144e+00
   1.48517792e+00   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  517, score = 252.424 (best = 558.138 , worst =    2.146)
End state: [ 3.07004501  0.25562888  0.          6.27225215  5.8184993   0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  518, score = 233.105 (best = 558.138 , worst =    2.146)
End state: [ 4.56807092  0.34346724  0.          0.19241485  3.71942252  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  519, score = 181.920 (best = 558.138 , worst =    2.146)
End state: [ 0.80728335 -0.02345194  0.          6.2592579   2.20441556  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  520, score = 196.817 (best = 558.138 , worst =    2.146)
End state: [-2.32869794 -0.07408187  0.          6.18710181  2.20703164  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  521, score = 179.735 (best = 558.138 , worst =    2.146)
End state: [ -2.16655985e+00  -1.84374952e-03   0.00000000e+00   6.17590752e+00
   8.31284255e-01   0.00000000e+00]
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Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  522, score = 188.295 (best = 558.138 , worst =    2.146)
End state: [-1.82473318 -0.07086062  0.          6.19963088  4.94995341  0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  523, score = 184.022 (best = 558.138 , worst =    2.146)
End state: [ -1.86609252e+00  -3.08990421e-03   0.00000000e+00   6.22251087e+00
    2.05814738e+00    0.00000000e+00]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  524, score = 184.023 (best = 558.138 , worst =    2.146)
End state: [-1.63279679  0.0032199   0.          0.07337469  2.85958985  0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  525, score = 184.027 (best = 558.138 , worst =    2.146)
End state: [-1.82892234 -0.01544558  0.          6.12936102  2.06913547  0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  526, score = 228.879 (best = 558.138 , worst =    2.146)
End state: [ 4.95606899  0.30440159  0.          0.06768387  4.09423374  0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  527, score = 280.416 (best = 558.138 , worst =    2.146)
End state: [ 2.11459848  0.01732313  0.          6.25991996  5.87947583  0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  528, score = 184.021 (best = 558.138 , worst =    2.146)
End state: [ -1.87781026e+00  -2.79682560e-03   0.00000000e+00   6.20681379e+00
    2.05932370e+00    0.00000000e+00]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  529, score = 220.315 (best = 558.138 , worst =    2.146)
End state: [ 4.62746531  0.12894664  0.          0.10674758  1.20061061  0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  530, score = 356.491 (best = 558.138 , worst =    2.146)
End state: [-4.52446842  0.4852607   0.          6.19801111  3.59689382  0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  531, score =  96.173 (best = 558.138 , worst =    2.146)
End state: [-4.26363963  0.0735367   0.          6.26757505  1.85003742  0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  532, score = 209.368 (best = 558.138 , worst =    2.146)
End state: [-3.9641705   0.09802358  0.          6.28120242  3.45617906  0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  533, score = 248.234 (best = 558.138 , worst =    2.146)
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End state: [-1.95936856  0.5361629   0.          0.32290721  3.42987392  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  534, score = 186.185 (best = 558.138 , worst =    2.146)
End state: [-1.29675836  0.05502413  0.          0.02321182  4.39344087  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  535, score = 196.630 (best = 558.138 , worst =    2.146)
End state: [-4.56838816 -0.13765388  0.          6.21327477  4.31047958  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  536, score =  96.178 (best = 558.138 , worst =    2.146)
End state: [-3.53835302  0.06047532  0.          6.25918712  5.2554091   0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  537, score = 198.922 (best = 558.138 , worst =    2.146)
End state: [ 6.13644055 -0.03347013  0.          6.15082956  1.62982453  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  538, score = 271.423 (best = 558.138 , worst =    2.146)
End state: [-2.05668568 -1.38202789  0.          6.1015516   4.41552582  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  539, score = 166.803 (best = 558.138 , worst =    2.146)
End state: [-3.79561972 -0.01319192  0.          0.00619152  1.57051302  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  540, score = 181.945 (best = 558.138 , worst =    2.146)
End state: [ 1.22698387e-02  -2.13478267e-03   0.00000000e+00   6.22456093e+00
    3.67788957e+00    0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  541, score = 177.684 (best = 558.138 , worst =    2.146)
End state: [-0.77988337  0.0164023   0.          6.28056934  1.35148898  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  542, score = 228.765 (best = 558.138 , worst =    2.146)
End state: [-8.15515216 -0.0222573   0.          0.03724536  4.25761836  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  543, score = 267.012 (best = 558.138 , worst =    2.146)
End state: [ 8.13723729  1.84978684  0.          0.44945761  2.76285343  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  544, score = 211.899 (best = 558.138 , worst =    2.146)
End state: [ 1.76611065 -0.01787362  0.          0.14716461  5.65877183  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
```

```
Episode =  545, score = 181.928 (best = 558.138 , worst =   2.146)
End state: [ -1.83444701e-01   5.67379068e-03   0.00000000e+00   6.23502869e+00
    3.68438892e+00   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  546, score = 216.138 (best = 558.138 , worst =   2.146)
End state: [-0.16620696  0.40319362  0.          0.03629926  4.81986312  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  547, score = 214.065 (best = 558.138 , worst =   2.146)
End state: [ 1.56248901 -0.01715676  0.          0.04817092  2.32108528  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  548, score = 416.964 (best = 558.138 , worst =   2.146)
End state: [-11.64592842  -0.03075454   0.          0.10867857   3.083807   0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  549, score = 228.971 (best = 558.138 , worst =   2.146)
End state: [ 2.04923192e+00   1.73063675e-02   0.00000000e+00   2.83628973e-03
    4.44850833e+00   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  550, score = 194.642 (best = 558.138 , worst =   2.146)
End state: [-1.93094019 -0.06630134  0.          6.26586063  0.64869676  0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  551, score = 219.967 (best = 558.138 , worst =   2.146)
End state: [ 10.66163862   0.11451856   0.          0.07142959   1.22845226   0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  552, score = 339.242 (best = 558.138 , worst =   2.146)
End state: [ 4.72879012  0.09410506  0.          6.03801462  5.7937659   0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  553, score = 552.001 (best = 558.138 , worst =   2.146)
End state: [ -2.61752271e+00   3.31541017e-02   4.47747246e+01   6.05133894e+00
    7.18235631e-01   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  554, score = 542.663 (best = 558.138 , worst =   2.146)
End state: [-42.4983535   -4.47195448  36.0267196    5.55237289   1.88495248   0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  555, score = 381.008 (best = 558.138 , worst =   2.146)
End state: [-26.34035773  -3.42436943   0.          0.35589416   5.02363457   0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  556, score =  96.178 (best = 558.138 , worst =   2.146)
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End state: [-3.30020856 -0.00748195  0.          6.2586638   5.34627109  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  557, score = 345.808 (best = 558.138 , worst =    2.146)
End state: [ 3.18186753  0.39398577  0.          0.08592741  0.20972288  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  558, score = 271.585 (best = 558.138 , worst =    2.146)
End state: [ 13.95452814   0.08163341  0.          6.27904576   0.6948401    0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  559, score = 544.646 (best = 558.138 , worst =    2.146)
End state: [-7.99902717 -3.25544105  4.26528286  5.19372096  4.24198672  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  560, score =  96.177 (best = 558.138 , worst =    2.146)
End state: [-3.52905065  0.06507606  0.          6.23601742  5.24217076  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  561, score =  96.178 (best = 558.138 , worst =    2.146)
End state: [-3.35081404  0.0105008   0.          6.25835966  5.26272355  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  562, score = 276.618 (best = 558.138 , worst =    2.146)
End state: [ 1.35760559  0.0242306   0.          0.37798906  3.23588918  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  563, score = 170.970 (best = 558.138 , worst =    2.146)
End state: [-10.18397208   0.16375259  0.          6.17428819  4.18431353  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  564, score = 366.303 (best = 558.138 , worst =    2.146)
End state: [-3.43132053  1.87845839  0.          0.42170844  5.75932445  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  565, score = 190.490 (best = 558.138 , worst =    2.146)
End state: [ 4.47430107  0.01327695  0.          6.27048407  6.13129584  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  566, score = 323.911 (best = 558.138 , worst =    2.146)
End state: [-8.8399358  -0.33670906  0.          0.20832881  4.39591003  0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  567, score = 255.930 (best = 558.138 , worst =    2.146)
End state: [ 4.39012460e+00   2.37209831e-01   0.00000000e+00   1.70175191e-03
   6.58481574e-01   0.00000000e+00]

Init state: [  0.    0.   10.    0.    0.    0.]
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Episode =  568, score = 239.374 (best = 558.138 , worst =   2.146)
End state: [ 0.42730493  1.07167151  0.         0.24755616  2.76211063  0.        ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  569, score = 162.768 (best = 558.138 , worst =   2.146)
End state: [ 5.89541353  0.10114488  0.         6.24403055  3.88872816  0.        ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  570, score = 494.548 (best = 558.138 , worst =   2.146)
End state: [-5.06270334  0.17777864  0.         0.10358737  5.40256538  0.        ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  571, score = 511.763 (best = 558.138 , worst =   2.146)
End state: [-9.54461209  0.25495582  0.         0.39023378  4.41436122  0.        ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  572, score = 549.564 (best = 558.138 , worst =   2.146)
End state: [-11.37027449  -1.69227877  38.75595288   0.22635104   1.81034271   0.        ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  573, score = 547.904 (best = 558.138 , worst =   2.146)
End state: [ -4.40954887   0.746141   22.83881959   5.82671374   2.03750085   0.        ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  574, score = 552.114 (best = 558.138 , worst =   2.146)
End state: [-36.30547718   3.76877526  76.58809728   0.26476691   5.87787882   0.        ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  575, score = 556.584 (best = 558.138 , worst =   2.146)
End state: [  -3.9796335   -11.16058289  138.79756267    6.15978695    5.79077143
    0.        ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  576, score = 554.811 (best = 558.138 , worst =   2.146)
End state: [  23.77028467  -26.14491808  133.27020834    5.21783263    5.43370854
    0.        ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  577, score = 151.501 (best = 558.138 , worst =   2.146)
End state: [-21.9445274   0.45123587  0.         6.25439371  3.97023795  0.        ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  578, score = 556.573 (best = 558.138 , worst =   2.146)
End state: [ -11.52232229  -14.461929   115.83827977    5.4926991    4.56945457
    0.        ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  579, score = 429.220 (best = 558.138 , worst =   2.146)
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End state: [-24.19798446  -0.07336352   0.           5.47825975   4.38866674   0.         ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  580, score = 363.369 (best = 558.138 , worst =    2.146)
End state: [-73.07693119   1.43541422   0.           6.22139482   3.54060138   0.         ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  581, score = 538.941 (best = 558.138 , worst =    2.146)
End state: [-109.94653136    5.91157563   44.00728363    5.57071955    2.68661509
    0.         ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  582, score = 554.841 (best = 558.138 , worst =    2.146)
End state: [  13.89897032   27.8360095   136.94350503    0.67647545    5.59152134
    0.         ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  583, score = 556.188 (best = 558.138 , worst =    2.146)
End state: [ -24.95367904    4.91347586  106.60874537    6.19766508    3.21227596
    0.         ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  584, score = 557.388 (best = 558.138 , worst =    2.146)
End state: [  -6.4611566     4.88494498  137.28933052    0.25630994    0.36628937
    0.         ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  585, score = 555.907 (best = 558.138 , worst =    2.146)
End state: [-11.51022584   0.17463937  81.81045436   0.74229091   3.76612762   0.         ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  586, score = 160.005 (best = 558.138 , worst =    2.146)
End state: [-23.63708927   1.52100382   0.           6.00441584   3.90010062   0.         ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  587, score = 290.206 (best = 558.138 , worst =    2.146)
End state: [-8.2974845   1.99450175  0.           0.10989952  3.48989189  0.         ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  588, score = 556.621 (best = 558.138 , worst =    2.146)
End state: [ -21.07059788    3.58897034  128.21789558    0.34641209    1.24876057
    0.         ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  589, score = 556.136 (best = 558.138 , worst =    2.146)
End state: [ -8.94877364   4.89625695  87.05414477   1.13650034   5.74233592   0.         ]

Init state: [  0.   0.  10.   0.   0.   0.]
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Episode =  590, score = 338.258 (best = 558.138 , worst =    2.146)
End state: [-3.16534722  0.43180707  0.          0.50769338  3.53992627  0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  591, score = 556.710 (best = 558.138 , worst =    2.146)
End state: [ -19.78434097    2.8811444   129.93474824    0.24111679    3.13899062
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  592, score = 535.525 (best = 558.138 , worst =    2.146)
End state: [-33.4057746   -7.17035701   4.37658366   5.41221689   0.44978738   0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  593, score = 555.950 (best = 558.138 , worst =    2.146)
End state: [ -20.1484825    11.15138757  114.182331      6.23431427    1.21128336
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  594, score = 556.517 (best = 558.138 , worst =    2.146)
End state: [   5.73619658   17.80942057  143.40597393    0.60097547    5.2716374     0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  595, score = 556.424 (best = 558.138 , worst =    2.146)
End state: [  -3.1580662    18.87755375  139.6001009     0.76461937    0.20477626
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  596, score = 555.919 (best = 558.138 , worst =    2.146)
End state: [   7.89328535  -25.99617545  134.10265662    5.44015783    5.85350176
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  597, score = 554.323 (best = 558.138 , worst =    2.146)
End state: [ -42.394975    -14.45635162  126.52344537    5.49661326    1.34479722
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  598, score = 556.501 (best = 558.138 , worst =    2.146)
End state: [ 2.43378808e+00  -2.09900566e+01   1.35412464e+02   5.54941460e+00
   7.30909989e-02   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  599, score = 557.376 (best = 558.138 , worst =    2.146)
End state: [  -3.68150437    7.37908838  140.1906983     0.69140209    6.0670751     0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  600, score = 555.905 (best = 558.138 , worst =    2.146)
End state: [ -11.94099651   15.92436903  135.50240798    0.43586175    3.97674215
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           0.       ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  601, score = 556.433 (best = 558.138 , worst =   2.146)
End state: [ -26.39746406   -0.79021343  131.16124215    6.1315628    5.82893609
           0.       ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  602, score = 556.085 (best = 558.138 , worst =   2.146)
End state: [  -9.88608197    4.66913493  139.01559172    5.65348327    5.95045606
           0.       ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  603, score = 555.729 (best = 558.138 , worst =   2.146)
End state: [   5.49829476   24.97967892  135.30459747    0.67720756    5.94034605
           0.       ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  604, score = 555.997 (best = 558.138 , worst =   2.146)
End state: [  23.36911559   -5.7548663   140.04583763    5.91488932    5.07789213
           0.       ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  605, score = 556.412 (best = 558.138 , worst =   2.146)
End state: [   8.34951163   12.34890442  137.59616195    6.18807124    5.91213833
           0.       ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  606, score = 556.697 (best = 558.138 , worst =   2.146)
End state: [ -11.65166112  -12.93653585  136.25625425    5.75874918    0.33199691
           0.       ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  607, score = 555.604 (best = 558.138 , worst =   2.146)
End state: [   9.62170069   22.29178345  137.23551391    0.75513857    5.99797254
           0.       ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  608, score = 556.269 (best = 558.138 , worst =   2.146)
End state: [ 1.91985502e+01   5.77453484e+00   1.36577415e+02   9.53353943e-02
         5.81089375e+00   0.00000000e+00]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  609, score = 554.207 (best = 558.138 , worst =   2.146)
End state: [  22.24418885   23.68749408  138.11124691    0.89279506    6.07141305
           0.       ]

Init state: [  0.    0.   10.    0.    0.    0.]
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Episode =  610, score = 554.467 (best = 558.138 , worst =   2.146)
End state: [ 17.97581734   26.24608208   136.36153436    0.49769172    5.61021716
    0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  611, score = 556.870 (best = 558.138 , worst =   2.146)
End state: [  3.68386718   12.71432906   136.95455961    0.33885081    6.06110759
    0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  612, score = 556.663 (best = 558.138 , worst =   2.146)
End state: [ -1.68915811e+01   -2.64660729e+00    1.36692674e+02    5.83448637e+00
    1.22478811e-01    0.00000000e+00]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  613, score = 555.668 (best = 558.138 , worst =   2.146)
End state: [  7.04438619   21.34074382   143.00536283    1.04324526    5.88682143
    0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  614, score = 556.561 (best = 558.138 , worst =   2.146)
End state: [ 2.35725305e+00   1.39727999e+01    1.37011199e+02    5.46332151e-02
    6.10014555e+00    0.00000000e+00]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  615, score = 556.551 (best = 558.138 , worst =   2.146)
End state: [  7.30532977   -15.82022978   136.14184209    5.91140449    6.15485079
    0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  616, score = 555.199 (best = 558.138 , worst =   2.146)
End state: [ 29.70162803   -8.43618711   134.00691806    5.85154481    5.82025563
    0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  617, score = 556.101 (best = 558.138 , worst =   2.146)
End state: [  -1.24314553   21.37860768   136.54328971    0.37054084    6.0681586    0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  618, score = 556.273 (best = 558.138 , worst =   2.146)
End state: [  8.01163663    9.94213523   137.66570867    0.38226176    0.30580442
    0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  619, score = 557.120 (best = 558.138 , worst =   2.146)
End state: [ 4.68772740e+00   -7.61541532e+00    1.38158174e+02    6.98520352e-02
    5.71826359e+00    0.00000000e+00]
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Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  620, score = 556.938 (best = 558.138 , worst =    2.146)
End state: [  -2.74713192   12.0049907    137.08754195    0.2705531     6.11066        0.        ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  621, score = 555.809 (best = 558.138 , worst =    2.146)
End state: [  19.79754965  -14.36084644  135.1527081    5.61724154    5.78241862
     0.        ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  622, score = 555.244 (best = 558.138 , worst =    2.146)
End state: [  6.52145055e+00  -2.95834375e+01   1.33109696e+02   5.64004622e+00
    1.31833761e-01   0.00000000e+00]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  623, score = 556.991 (best = 558.138 , worst =    2.146)
End state: [  12.13835738   -2.01343295  141.58041907    5.55987601    5.56681307
     0.        ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  624, score = 556.830 (best = 558.138 , worst =    2.146)
End state: [  14.84871885    4.03011509  137.32871288    0.39919039    5.77676224
     0.        ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  625, score = 553.050 (best = 558.138 , worst =    2.146)
End state: [  -5.70769850e+01   8.53275033e+00   1.18929616e+02   6.49561596e-03
    1.54993254e+00   0.00000000e+00]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  626, score = 557.001 (best = 558.138 , worst =    2.146)
End state: [  11.21324777   -5.09821235  140.26058493    6.11942079    5.57123855
     0.        ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  627, score = 555.881 (best = 558.138 , worst =    2.146)
End state: [   8.00955663  -24.87989413  136.41153027    5.75182271    5.6175455     0.        ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  628, score = 556.455 (best = 558.138 , worst =    2.146)
End state: [   2.20843074   15.01324542  142.58000335    0.9548002     0.19565494
     0.        ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  629, score = 556.453 (best = 558.138 , worst =    2.146)
End state: [   0.84319622  -23.05764829  135.22960623    5.66377039    6.00099684
     0.        ]
```

```
Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  630, score = 557.437 (best = 558.138 , worst =   2.146)
End state: [   5.28305451    6.54043308  137.45767245    0.17792943    6.11253867
     0.         ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  631, score = 557.441 (best = 558.138 , worst =   2.146)
End state: [   4.24877428    8.20011608  138.61650554    0.60843917    5.89725153
     0.         ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  632, score = 555.213 (best = 558.138 , worst =   2.146)
End state: [   6.04378957   27.74878654  145.65503762    1.17814089    5.80758578
     0.         ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  633, score = 556.936 (best = 558.138 , worst =   2.146)
End state: [ -18.94463903   -4.93746677  135.92475391    5.80157784    0.76896064
     0.         ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  634, score = 556.522 (best = 558.138 , worst =   2.146)
End state: [  1.21913502e+01   4.86544322e+00   1.37120987e+02   6.14278039e+00
    4.03538761e-02   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  635, score = 556.583 (best = 558.138 , worst =   2.146)
End state: [ -7.32904215e+00   1.20701947e+01   1.43570097e+02   9.62920943e-01
    6.33609060e-02   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  636, score = 555.552 (best = 558.138 , worst =   2.146)
End state: [  2.21126513e+01  -7.06199887e+00   1.39779910e+02   1.31021672e-01
    5.42890750e+00   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  637, score = 556.835 (best = 558.138 , worst =   2.146)
End state: [  -8.48220522    8.02326453  137.75998453    5.99423472    0.46057008
     0.         ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  638, score = 556.202 (best = 558.138 , worst =   2.146)
End state: [  1.66696995e+01   8.83000117e+00   1.43030399e+02   1.23165927e-01
    5.28222069e+00   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  639, score = 554.764 (best = 558.138 , worst =   2.146)
End state: [   6.35716676  -35.02967966  132.4031726    5.56867557    5.72255356
```

```
          0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  640, score = 556.361 (best = 558.138 , worst =    2.146)
End state: [  15.37423558  -10.86317791  136.35082712    5.57907429    5.77850172
          0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  641, score = 552.594 (best = 558.138 , worst =    2.146)
End state: [ -50.27344265  -23.57387549  120.31873493    6.02027543    1.62825865
          0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  642, score = 556.624 (best = 558.138 , worst =    2.146)
End state: [   7.82196034   13.31876421  136.77907346    0.39163263    6.22515711
          0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  643, score = 557.468 (best = 558.138 , worst =    2.146)
End state: [  -5.84343343   -8.03705397  137.35437188    5.90962183    0.37450623
          0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  644, score = 554.247 (best = 558.138 , worst =    2.146)
End state: [ -21.43381707   28.79601487  134.07093447    0.86639667    0.7982173     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  645, score = 557.459 (best = 558.138 , worst =    2.146)
End state: [   1.37892685  -10.71409673  137.14704838    6.25226085    0.22144636
          0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  646, score = 556.158 (best = 558.138 , worst =    2.146)
End state: [ -20.24813759    4.50054647  135.7512185     6.07013738    0.73229984
          0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  647, score = 555.876 (best = 558.138 , worst =    2.146)
End state: [  20.11099461   -4.1664192   139.84606413    0.68413626    5.65563834
          0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  648, score = 555.912 (best = 558.138 , worst =    2.146)
End state: [ -18.21972333   11.74880278  135.9336673     0.31632216    0.16461134
          0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  649, score = 557.219 (best = 558.138 , worst =    2.146)
```

```
End state: [ 10.33099972   -4.13008464  137.12130837    6.09955755    6.03225782
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  650, score = 554.983 (best = 558.138 , worst =    2.146)
End state: [ -22.06858772  -18.46345733  133.52234494    5.73986522    0.44215655
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  651, score = 556.022 (best = 558.138 , worst =    2.146)
End state: [ -26.8469076    -0.20220801  133.99285572    6.27087972    0.64026623
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  652, score = 556.995 (best = 558.138 , worst =    2.146)
End state: [  0.44760611   15.68861995  138.00885402    0.64951303    6.10157649
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  653, score = 557.558 (best = 558.138 , worst =    2.146)
End state: [  5.33605913    6.58608033  138.78950465    0.48468864    5.9282917     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  654, score = 555.384 (best = 558.138 , worst =    2.146)
End state: [ 25.68075181    9.70228227  138.43810341    0.47756469    5.19565219
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  655, score = 556.163 (best = 558.138 , worst =    2.146)
End state: [ -24.27050577   -2.12355848  134.61512332    6.19581335    0.62172701
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  656, score = 555.384 (best = 558.138 , worst =    2.146)
End state: [ 3.10813053e+00  -2.99589417e+01   1.35494770e+02   1.02408845e-01
    5.96097538e+00    0.00000000e+00]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  657, score = 557.075 (best = 558.138 , worst =    2.146)
End state: [ -7.41594581   -8.32112927  137.02210546    5.95342533    0.18607048
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  658, score = 554.788 (best = 558.138 , worst =    2.146)
End state: [ 12.87607453  -32.28274901  134.12761111    6.03437803    5.57351082
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
```

```
Episode =  659, score = 554.118 (best = 558.138 , worst =   2.146)
End state: [ 36.997556     -3.48492119 147.12471555   6.1266812    5.05483898
    0.        ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  660, score = 557.623 (best = 558.138 , worst =   2.146)
End state: [  0.28446098  -3.06837558 139.93925044   6.14253548   5.61707507
    0.        ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  661, score = 557.274 (best = 558.138 , worst =   2.146)
End state: [ -1.91173526  -8.31585226 137.3759186    5.91108903   0.16722569
    0.        ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  662, score = 554.991 (best = 558.138 , worst =   2.146)
End state: [ -35.26011195 -10.01905725 130.84420357   5.61188086   0.89213038
    0.        ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  663, score = 555.041 (best = 558.138 , worst =   2.146)
End state: [ -42.35417721  -4.27019065 128.22751545   5.5666729    1.26312393
    0.        ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  664, score = 557.307 (best = 558.138 , worst =   2.146)
End state: [ -9.18035711e-03  -9.31850939e+00   1.37228310e+02   6.08765635e+00
    1.11003608e-01   0.00000000e+00]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  665, score = 554.715 (best = 558.138 , worst =   2.146)
End state: [  -2.05169957 -45.96800314 127.80274323   5.00296508   5.7140258    0.        ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  666, score = 557.546 (best = 558.138 , worst =   2.146)
End state: [ -5.79561777e-01   7.76507954e+00   1.39192636e+02   7.56721345e-01
    9.87437050e-02   0.00000000e+00]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  667, score = 556.990 (best = 558.138 , worst =   2.146)
End state: [  -6.93970584  -9.38012934 137.42317785   6.18645272   0.56906397
    0.        ]


Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  668, score = 555.184 (best = 558.138 , worst =   2.146)
End state: [ -24.1267011  -10.46504357 134.71761595   6.21240337   0.82713058
    0.        ]
```

```
Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  669, score = 555.599 (best = 558.138 , worst =   2.146)
End state: [ -1.09304590e+01   1.88004299e+01   1.35379592e+02   4.58308301e-01
    9.11034190e-02   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  670, score = 557.733 (best = 558.138 , worst =   2.146)
End state: [ 3.35146544e+00  -3.66919428e-01   1.37778873e+02   1.07191821e-01
    6.23863510e+00   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  671, score = 556.537 (best = 558.138 , worst =   2.146)
End state: [  0.1678047   -19.42223363  135.85879882   5.83910348   0.15502911
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  672, score = 556.673 (best = 558.138 , worst =   2.146)
End state: [  5.41186413   12.27535262  137.7149783   0.39750287   0.2452921      0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  673, score = 557.045 (best = 558.138 , worst =   2.146)
End state: [ 6.38953815e+00   6.11755907e+00   1.37631626e+02   4.09169379e-01
    6.90616304e-02   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  674, score = 556.669 (best = 558.138 , worst =   2.146)
End state: [ -5.94319232  -21.58595661  135.25485326   5.79577718   0.18582729
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  675, score = 555.699 (best = 558.138 , worst =   2.146)
End state: [ -16.65849138  -21.64252903  134.01813093   5.68989272   0.52652411
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  676, score = 556.514 (best = 558.138 , worst =   2.146)
End state: [  4.11475359   17.86454208  139.68532068   0.74499446   6.08180454
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  677, score = 556.386 (best = 558.138 , worst =   2.146)
End state: [ 10.80791722   12.12155561  136.45968496   0.39608286   5.96260793
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  678, score = 556.275 (best = 558.138 , worst =   2.146)
End state: [ -16.80777609  -10.63153756  135.73375687   6.05263855   0.60621013
    0.        ]
```

```
Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  679, score = 554.918 (best = 558.138 , worst =    2.146)
End state: [  32.28468963    6.02832732  142.76957191    0.53379       5.1509116      0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  680, score = 555.786 (best = 558.138 , worst =    2.146)
End state: [ -12.42393426  -22.55846612  134.30764832    5.49003556    0.36055481
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  681, score = 552.466 (best = 558.138 , worst =    2.146)
End state: [ -60.07825401  -15.63070146  118.80376525    0.70024875    1.60281591
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  682, score = 556.446 (best = 558.138 , worst =    2.146)
End state: [   4.74137491  -19.15740797  136.71419766    5.75160204    5.94763885
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  683, score = 553.719 (best = 558.138 , worst =    2.146)
End state: [ -28.99206813  -31.47325944  128.1027196     5.1753242     0.34373857
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  684, score = 556.345 (best = 558.138 , worst =    2.146)
End state: [  17.84035184   -6.25092487  141.24796352    6.15915019    5.26135179
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  685, score = 556.748 (best = 558.138 , worst =    2.146)
End state: [ -13.47818434   -7.46803345  136.56928656    5.76190177    0.17294       0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  686, score = 557.554 (best = 558.138 , worst =    2.146)
End state: [   1.034639     -8.40564144  137.29955993    6.25022814    6.0134897     0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  687, score = 557.025 (best = 558.138 , worst =    2.146)
End state: [ -14.24942875    4.28885759  138.58151166    0.66564226    0.51309703
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  688, score = 555.875 (best = 558.138 , worst =    2.146)
End state: [ -2.41994639e+01  -3.36710875e+00   1.34929021e+02   5.30158138e-02
   2.90894594e-01   0.00000000e+00]
```

```
Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  689, score = 557.641 (best = 558.138 , worst =    2.146)
End state: [ -1.97471102e+00   8.62950669e-01   1.37939187e+02   5.92701922e+00
    2.23292555e-02   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  690, score = 553.454 (best = 558.138 , worst =    2.146)
End state: [ -41.80919605  -19.77203031  126.74694032    5.36463238    1.32327566
    0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  691, score = 555.470 (best = 558.138 , worst =    2.146)
End state: [  18.7536254   -19.78969787  134.83373813    5.47698471    5.69298317
    0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  692, score = 555.275 (best = 558.138 , worst =    2.146)
End state: [ -23.66311908   17.07466278  134.97297876    0.66863199    0.64200121
    0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  693, score = 557.036 (best = 558.138 , worst =    2.146)
End state: [  3.40508975e-02  -1.72872921e+01   1.36287946e+02   5.58027617e+00
    1.67428255e-01   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  694, score = 555.531 (best = 558.138 , worst =    2.146)
End state: [  24.51959403   -3.23740166  148.97941761    6.20379418    5.10891904
    0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  695, score = 555.884 (best = 558.138 , worst =    2.146)
End state: [   9.14662169  -26.33156115  134.81485829    5.58629286    5.65818066
    0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  696, score = 557.471 (best = 558.138 , worst =    2.146)
End state: [   6.34459508   -1.34697766  138.02377308    0.20754505    6.07523358
    0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  697, score = 554.332 (best = 558.138 , worst =    2.146)
End state: [ -25.27435546   22.40247134  132.20098421    0.24900583    0.82718138
    0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  698, score = 556.178 (best = 558.138 , worst =    2.146)
End state: [   0.67822881   19.63704418  142.51621646    0.55576105    5.52088922
```

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    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  699, score = 555.764 (best = 558.138 , worst =    2.146)
End state: [ -31.34899712    7.11110465  135.49270673    0.9502503     1.32964806
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  700, score = 552.991 (best = 558.138 , worst =    2.146)
End state: [ -51.92310158  -17.45982036  120.88875054    5.94995897    1.4435194     0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  701, score = 554.973 (best = 558.138 , worst =    2.146)
End state: [   6.59306276   28.08813095  135.27873873    0.85090511    0.1536318     0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  702, score = 556.704 (best = 558.138 , worst =    2.146)
End state: [   8.19043388   11.52996227  138.77148744    0.74845456    0.22194723
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  703, score = 553.122 (best = 558.138 , worst =    2.146)
End state: [  14.97957461   34.2664058   179.88596328    1.67172649    5.88711924
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  704, score = 557.499 (best = 558.138 , worst =    2.146)
End state: [   9.6693008    -1.00796206  137.97364641    6.19292997    5.63353882
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  705, score = 557.132 (best = 558.138 , worst =    2.146)
End state: [  12.63276719   -1.94462115  138.05361543    5.84798051    5.95446667
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  706, score = 554.985 (best = 558.138 , worst =    2.146)
End state: [ -31.47979053  -17.61432702  130.54792203    5.81448593    1.44550487
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  707, score = 557.267 (best = 558.138 , worst =    2.146)
End state: [ 5.81082015e+00   6.95494072e+00   1.37259842e+02   8.01860697e-02
    6.19794302e+00   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  708, score = 555.947 (best = 558.138 , worst =    2.146)
End state: [ -18.83200872   11.70611539  135.60484942    0.52809699    0.20579754
```

```
      0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  709, score = 553.635 (best = 558.138 , worst =   2.146)
End state: [ -38.7282275    18.04766858  129.96932363    0.69259847    0.49172152
      0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  710, score = 556.803 (best = 558.138 , worst =   2.146)
End state: [  1.36358813e+01  -3.59562470e+00   1.41562967e+02   1.30584289e-01
   5.38423158e+00   0.00000000e+00]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  711, score = 557.423 (best = 558.138 , worst =   2.146)
End state: [  8.9437168    -3.05326138  137.31600658    6.23471735    5.90754576
      0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  712, score = 555.342 (best = 558.138 , worst =   2.146)
End state: [ -36.18317406    4.94466687  132.50510165    0.49104478    1.06705378
      0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  713, score = 555.652 (best = 558.138 , worst =   2.146)
End state: [ -24.83813112   -4.19190234  134.87050476    6.01867183    0.18379821
      0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  714, score = 556.386 (best = 558.138 , worst =   2.146)
End state: [ -19.72783069    6.32491604  136.21233945    0.44821309    0.30890573
      0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  715, score = 553.038 (best = 558.138 , worst =   2.146)
End state: [  36.56231     21.01301841  142.98978393    1.20898757    5.30431383
      0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  716, score = 555.758 (best = 558.138 , worst =   2.146)
End state: [  -9.95197072   20.71722675  137.51070705    0.66681772    0.39662307
      0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  717, score = 555.097 (best = 558.138 , worst =   2.146)
End state: [ -31.28211737    8.89132981  133.94722914    0.65928816    0.62448126
      0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
```

```
Episode =  718, score = 554.389 (best = 558.138 , worst =    2.146)
End state: [  23.34124108  -18.28423009  139.82732743    6.00503511    5.21765978
     0.        ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  719, score = 556.880 (best = 558.138 , worst =    2.146)
End state: [  10.63914654    4.44809422  138.6117588     0.46263637    0.25916729
     0.        ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  720, score = 556.088 (best = 558.138 , worst =    2.146)
End state: [ -16.65580222   11.19964948  139.57216169    0.78378922    0.57364089
     0.        ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  721, score = 556.036 (best = 558.138 , worst =    2.146)
End state: [  12.45537466   16.61966137  137.71393308    0.82372805    5.91610974
     0.        ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  722, score = 557.255 (best = 558.138 , worst =    2.146)
End state: [ -2.30213749e+00    4.78884304e+00   1.39477352e+02   7.87229504e-02
   5.77244520e+00    0.00000000e+00]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  723, score = 555.250 (best = 558.138 , worst =    2.146)
End state: [ -2.01380704e+01    1.35210320e+01   1.34989895e+02   3.69413440e-02
   2.01115489e-01    0.00000000e+00]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  724, score = 557.020 (best = 558.138 , worst =    2.146)
End state: [  1.35405859e+01    1.52723468e+00   1.37831460e+02   3.33918769e-02
   5.66000631e+00    0.00000000e+00]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  725, score = 557.833 (best = 558.138 , worst =    2.146)
End state: [ -8.56002270e-01    3.66044384e+00   1.37629888e+02   1.46410728e-01
   3.94170387e-02    0.00000000e+00]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  726, score = 554.869 (best = 558.138 , worst =    2.146)
End state: [  27.55810702    9.57879464  151.63743055    0.27204341    4.93010435
     0.        ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  727, score = 556.066 (best = 558.138 , worst =    2.146)
End state: [ -29.4234956     7.50732727  132.60513406    0.35517309    1.17356124
     0.        ]
```

```
Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  728, score = 556.952 (best = 558.138 , worst =   2.146)
End state: [ -22.73936798   -3.74419953  134.89465569    6.04160214    1.24346983
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  729, score = 556.569 (best = 558.138 , worst =   2.146)
End state: [  11.29244123  -13.08300676  136.44034963    5.44755322    5.9515762     0.          ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  730, score = 556.613 (best = 558.138 , worst =   2.146)
End state: [  7.79173046e+00   1.15867847e+01   1.42801532e+02   1.17553726e-01
    5.47656496e+00   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  731, score = 557.224 (best = 558.138 , worst =   2.146)
End state: [  8.08339014e+00   2.61986253e+00   1.37525431e+02   2.61440495e-01
    3.81895106e-02   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  732, score = 556.311 (best = 558.138 , worst =   2.146)
End state: [  -2.6994855    15.60087273  140.59786032    0.70742988    5.76217281
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  733, score = 557.092 (best = 558.138 , worst =   2.146)
End state: [  1.10380611e+01  -2.80332211e+00   1.37033347e+02   4.80951362e-02
    6.01058795e+00   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  734, score = 557.135 (best = 558.138 , worst =   2.146)
End state: [   8.73263272  -10.45377451  137.65909581    5.76314636    5.77648927
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  735, score = 556.079 (best = 558.138 , worst =   2.146)
End state: [ -25.98075554  -11.75183932  133.76600756    5.42502974    0.90653387
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  736, score = 556.207 (best = 558.138 , worst =   2.146)
End state: [  10.77165968   12.19669096  136.2739386     0.24464746    6.04284082
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  737, score = 556.139 (best = 558.138 , worst =   2.146)
End state: [  -7.23131684  -20.3045848   135.88858151    6.11772809    0.6171023     0.          ]
```

```
Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  738, score = 556.792 (best = 558.138 , worst =    2.146)
End state: [  4.51219324e+00  -1.27771509e+01   1.37269971e+02   9.33797508e-02
    6.25020617e+00    0.00000000e+00]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  739, score = 552.683 (best = 558.138 , worst =    2.146)
End state: [ -45.29041016   23.68539913  127.36809296    0.79872035    1.39097494
     0.        ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  740, score = 556.785 (best = 558.138 , worst =    2.146)
End state: [ -11.79377956    3.68044776  136.90664463    6.15478364    0.32452525
     0.        ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  741, score = 554.036 (best = 558.138 , worst =    2.146)
End state: [ -17.70017633  -34.1225405   130.35872971    5.69008841    0.49336865
     0.        ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  742, score = 556.507 (best = 558.138 , worst =    2.146)
End state: [  17.24167456   -2.05310875  138.01830028    0.39346931    5.74053365
     0.        ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  743, score = 556.228 (best = 558.138 , worst =    2.146)
End state: [  -3.64698998  -25.52783243  134.15430794    5.58049874    6.26818203
     0.        ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  744, score = 556.715 (best = 558.138 , worst =    2.146)
End state: [  -5.3797453   -10.22886485  137.11404342    6.07466359    6.16831529
     0.        ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  745, score = 556.193 (best = 558.138 , worst =    2.146)
End state: [  -9.47511718  -21.60967816  134.87800059    5.57522963    6.24236511
     0.        ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  746, score = 556.558 (best = 558.138 , worst =    2.146)
End state: [   7.29807812  -14.30406779  139.16325481    5.70903378    5.54631206
     0.        ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  747, score = 555.918 (best = 558.138 , worst =    2.146)
```

```
End state: [  -8.61272242    20.35598587   142.58475689     1.04346937    0.20368333
      0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  748, score = 554.622 (best = 558.138 , worst =    2.146)
End state: [ -11.45382354    28.73822166   150.55371403     1.39722786    0.26674768
      0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  749, score = 555.289 (best = 558.138 , worst =    2.146)
End state: [ -29.44411526   -13.04947783   132.58800743     5.65109224    0.74957234
      0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  750, score = 554.948 (best = 558.138 , worst =    2.146)
End state: [ -36.98774961     3.81281104   130.55522113     6.15383437    0.81283113
      0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  751, score = 556.220 (best = 558.138 , worst =    2.146)
End state: [   3.99524079    20.46116925   135.69141797     0.56656934    6.25166113
      0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  752, score = 555.773 (best = 558.138 , worst =    2.146)
End state: [ -28.595408      -9.47096255   133.1508483      5.78612036    0.6156635      0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  753, score = 557.534 (best = 558.138 , worst =    2.146)
End state: [   3.32925683    -1.66488054   140.54171174     0.58181283    6.00279437
      0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  754, score = 557.857 (best = 558.138 , worst =    2.146)
End state: [  -4.84735368     1.22141667   138.70404408     0.56786147    0.22560671
      0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  755, score = 556.139 (best = 558.138 , worst =    2.146)
End state: [  -8.4533935     18.99569847   136.90157535     0.45239325    0.18790889
      0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  756, score = 554.729 (best = 558.138 , worst =    2.146)
End state: [  16.35967195   -29.67966428   138.39525567     5.9290507     5.27047118
      0.          ]


Init state: [  0.    0.   10.    0.    0.    0.]
```

```
Episode =  757, score = 554.683 (best = 558.138 , worst =   2.146)
End state: [ 1.89062422e+01  -2.31568217e+01   1.33619326e+02   5.52714790e+00
    1.52012062e-02   0.00000000e+00]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  758, score = 554.737 (best = 558.138 , worst =   2.146)
End state: [ 19.02030865   22.68458252   137.49070696   0.89185238   5.76131364
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  759, score = 554.528 (best = 558.138 , worst =   2.146)
End state: [ 18.3251233    25.89392736   136.7254751    0.83145384   5.74299144
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  760, score = 555.931 (best = 558.138 , worst =   2.146)
End state: [ -24.2262719    4.28191022   134.69400278   6.07839551   0.57115668
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  761, score = 551.167 (best = 558.138 , worst =   2.146)
End state: [ -59.45010856   12.86304779   146.16199951   1.39596433   1.69419104
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  762, score = 557.676 (best = 558.138 , worst =   2.146)
End state: [ -7.22207034e+00  -1.25059233e+00   1.37413615e+02   1.94376873e-02
    1.72163634e-01   0.00000000e+00]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  763, score = 557.224 (best = 558.138 , worst =   2.146)
End state: [  3.90758742   -5.67298309   137.75690244   6.1687525    5.94576016
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  764, score = 555.599 (best = 558.138 , worst =   2.146)
End state: [  -1.51012492  -39.10192507   129.10077507   4.9482821    6.27547199
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  765, score = 556.241 (best = 558.138 , worst =   2.146)
End state: [ 17.64702524    7.14232607   136.40938186   0.21020137   6.02876742
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  766, score = 555.109 (best = 558.138 , worst =   2.146)
End state: [ 11.72759704  -28.78645583   134.64400342   5.97232922   5.82569919
    0.        ]
```

```
Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  767, score = 553.289 (best = 558.138 , worst =   2.146)
End state: [ -4.79427444e+01   1.34520338e+01   1.24676867e+02   9.77831724e-02
    1.16628008e+00   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  768, score = 555.806 (best = 558.138 , worst =   2.146)
End state: [  1.21985510e+01   1.36302455e+01   1.38740798e+02   6.48818752e-01
    1.02981554e-01   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  769, score = 554.985 (best = 558.138 , worst =   2.146)
End state: [ -47.62258038   -5.3705942   123.07558253    5.84133745    1.83461775
    0.         ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  770, score = 556.783 (best = 558.138 , worst =   2.146)
End state: [  14.21387191   -6.32585566   137.28639121    5.72402558    5.72982387
    0.         ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  771, score = 555.450 (best = 558.138 , worst =   2.146)
End state: [   3.07550747   -35.75886697   132.02512824    5.32942294    5.82959885
    0.         ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  772, score = 556.163 (best = 558.138 , worst =   2.146)
End state: [  16.63142924   10.98019532   137.480161    0.4829877    5.85496479
    0.         ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  773, score = 556.581 (best = 558.138 , worst =   2.146)
End state: [  8.28439322e+00   1.06208641e+01   1.41047722e+02   8.60398744e-01
    9.61644797e-02   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  774, score = 555.922 (best = 558.138 , worst =   2.146)
End state: [ -21.66041142   -16.70622232   134.00997203    5.76531805    0.88253935
    0.         ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  775, score = 555.431 (best = 558.138 , worst =   2.146)
End state: [  26.45394516    3.05712108   140.38596869    0.18841873    5.46053791
    0.         ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  776, score = 553.282 (best = 558.138 , worst =   2.146)
```

```
End state: [  29.74692688  -42.48906766  127.01944666    4.66506298    5.17039571
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  777, score = 557.399 (best = 558.138 , worst =    2.146)
End state: [ -5.27992738e+00  -8.39581464e+00   1.37522094e+02   5.56495384e+00
    6.58664631e-02   0.00000000e+00]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  778, score = 555.723 (best = 558.138 , worst =    2.146)
End state: [ -25.42163122   -7.24549027  134.272692      5.9727358     0.59895888
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  779, score = 556.339 (best = 558.138 , worst =    2.146)
End state: [   9.96742235   15.11197003  141.0565334     0.90951222    5.940795       0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  780, score = 556.693 (best = 558.138 , worst =    2.146)
End state: [   8.38409765   14.02196791  140.19304535    0.31471268    5.46612675
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  781, score = 556.925 (best = 558.138 , worst =    2.146)
End state: [   7.46882261   -6.97964887  137.14696964    6.24158596    5.97108631
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  782, score = 556.413 (best = 558.138 , worst =    2.146)
End state: [ -20.56198628    6.408394    138.37588108    0.60038182    0.95286857
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  783, score = 553.793 (best = 558.138 , worst =    2.146)
End state: [ -33.4859439    21.8707758   130.84219543    0.59008826    0.76867627
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  784, score = 556.923 (best = 558.138 , worst =    2.146)
End state: [   3.25520729  -18.97963438  136.25806591    5.76394728    6.02240039
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  785, score = 555.337 (best = 558.138 , worst =    2.146)
End state: [ 7.57570001e+00  -2.56981050e+01   1.34285953e+02   5.67109699e+00
    8.96741011e-02   0.00000000e+00]

Init state: [  0.    0.   10.    0.    0.    0.]
```

```
Episode =  786, score = 556.381 (best = 558.138 , worst =    2.146)
End state: [  15.12490471   10.49294369  139.95554276    0.52951433    5.53962413
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  787, score = 557.046 (best = 558.138 , worst =    2.146)
End state: [   7.59202801   -7.06051069  137.1974791    6.18861523    5.98270073
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  788, score = 555.763 (best = 558.138 , worst =    2.146)
End state: [   7.93220074   21.25255645  137.38618957    0.75232875    6.24218717
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  789, score = 557.417 (best = 558.138 , worst =    2.146)
End state: [   7.07058465   -2.10743583  137.53371617    0.1714748     5.99944729
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  790, score = 555.395 (best = 558.138 , worst =    2.146)
End state: [  17.60568341  -23.33965495  133.51836441    5.3294708     5.89719723
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  791, score = 556.656 (best = 558.138 , worst =    2.146)
End state: [   6.61569082  -18.40699309  135.8817432     5.54421732    5.98360644
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  792, score = 555.850 (best = 558.138 , worst =    2.146)
End state: [  14.72105638   14.24801043  135.96931475    0.30123709    6.10968574
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  793, score = 555.231 (best = 558.138 , worst =    2.146)
End state: [ -42.97235642   -0.91724148  127.59081356    0.30123403    1.26618622
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  794, score = 556.385 (best = 558.138 , worst =    2.146)
End state: [   0.92005807  -24.85127605  134.75218164    5.75600204    6.08103658
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  795, score = 556.486 (best = 558.138 , worst =    2.146)
End state: [  -3.58573102  -20.90851328  135.73091441    5.44482719    0.24243314
     0.        ]
```

```
Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  796, score = 556.571 (best = 558.138 , worst =   2.146)
End state: [ -14.28095206  -12.06562895  136.01155605    5.94675948    0.54127222
     0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  797, score = 557.742 (best = 558.138 , worst =   2.146)
End state: [  -0.53394554   -5.09029383  137.88287722    5.92626955    6.21065781
     0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  798, score = 556.492 (best = 558.138 , worst =   2.146)
End state: [  -8.84297405  -16.81054565  136.02704137    5.73928904    0.33237505
     0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  799, score = 555.140 (best = 558.138 , worst =   2.146)
End state: [ -16.89981079  -36.72974737  128.25982832    4.76144097    0.41584913
     0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  800, score = 553.792 (best = 558.138 , worst =   2.146)
End state: [ -35.72451477   21.7507393   133.17752398    1.09395231    1.29942755
     0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  801, score = 555.993 (best = 558.138 , worst =   2.146)
End state: [   8.10486675  -24.42825776  136.1800658     5.49420351    5.67396822
     0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  802, score = 554.432 (best = 558.138 , worst =   2.146)
End state: [  11.45700289  -38.4783658   130.6998926     5.56624066    5.87015343
     0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  803, score = 557.264 (best = 558.138 , worst =   2.146)
End state: [   0.33636032    7.06461743  137.86603034    6.2554116     0.23560568
     0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  804, score = 555.766 (best = 558.138 , worst =   2.146)
End state: [ -23.83344348  -15.5786222   133.63225171    5.78949605    0.97744469
     0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  805, score = 556.806 (best = 558.138 , worst =   2.146)
```

```
End state: [   4.95758951  -15.06597273   136.78436243     6.02458192     5.85720555
     0.         ]

Init state: [  0.   0.   10.   0.   0.   0.]
Episode =  806, score = 554.965 (best = 558.138 , worst =   2.146)
End state: [  19.15167541    20.35455451   135.89724766    0.43049774     5.97197617
     0.         ]

Init state: [  0.   0.   10.   0.   0.   0.]
Episode =  807, score = 555.492 (best = 558.138 , worst =   2.146)
End state: [ -34.2538316     -5.33125561   131.76412772     5.59888637    0.8199193      0.          ]

Init state: [  0.   0.   10.   0.   0.   0.]
Episode =  808, score = 554.790 (best = 558.138 , worst =   2.146)
End state: [  20.49957629   -20.19345286   143.51343637     5.7293965      5.23449362
     0.         ]

Init state: [  0.   0.   10.   0.   0.   0.]
Episode =  809, score = 556.984 (best = 558.138 , worst =   2.146)
End state: [   5.56138472    10.97005787   138.49664571    0.52382503     6.18951636
     0.         ]

Init state: [  0.   0.   10.   0.   0.   0.]
Episode =  810, score = 556.036 (best = 558.138 , worst =   2.146)
End state: [  17.88423321     4.61430038   139.80236254     6.03725931     5.32376161
     0.         ]

Init state: [  0.   0.   10.   0.   0.   0.]
Episode =  811, score = 557.513 (best = 558.138 , worst =   2.146)
End state: [  -8.00702597    -4.18736804   137.22629929     6.15631521    0.33777158
     0.         ]

Init state: [  0.   0.   10.   0.   0.   0.]
Episode =  812, score = 556.992 (best = 558.138 , worst =   2.146)
End state: [   7.10526855    11.38571783   140.62134271    0.68852958     5.66475541
     0.         ]

Init state: [  0.   0.   10.   0.   0.   0.]
Episode =  813, score = 555.805 (best = 558.138 , worst =   2.146)
End state: [ -24.17794882    11.06700901   135.85498601    0.57608685    0.68292871
     0.         ]

Init state: [  0.   0.   10.   0.   0.   0.]
Episode =  814, score = 553.704 (best = 558.138 , worst =   2.146)
End state: [ -54.24162571     9.90524736   122.36022838    0.855733      1.92556475
     0.         ]

Init state: [  0.   0.   10.   0.   0.   0.]
```

```
Episode =  815, score = 553.809 (best = 558.138 , worst =   2.146)
End state: [ 2.71139132e+01   9.95759690e-01   1.94953283e+02   1.88364589e-01
   4.77119251e+00   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  816, score = 555.099 (best = 558.138 , worst =   2.146)
End state: [ -23.81186627   17.66660812  134.66906987   0.64055489   0.783664       0.       ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  817, score = 556.646 (best = 558.138 , worst =   2.146)
End state: [  14.51252843   6.99604752  140.21244776   0.47020264   5.5224723      0.       ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  818, score = 554.504 (best = 558.138 , worst =   2.146)
End state: [ -45.4193965    -2.34343634  127.00184306   0.22894513   1.14052965
     0.       ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  819, score = 555.202 (best = 558.138 , worst =   2.146)
End state: [  2.6994051   -40.33690615  129.14300602   5.07893996   5.96163522
     0.       ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  820, score = 557.189 (best = 558.138 , worst =   2.146)
End state: [  1.15414215   -9.16470658  137.80094247   0.25942648   6.28041047
     0.       ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  821, score = 553.844 (best = 558.138 , worst =   2.146)
End state: [ -8.62417843e+00   3.14245500e+01   1.57580166e+02   1.31171127e+00
   5.06317384e-02   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  822, score = 555.258 (best = 558.138 , worst =   2.146)
End state: [  16.97952494  -24.16686291  135.41162184   5.59268791   5.50321158
     0.       ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  823, score = 555.795 (best = 558.138 , worst =   2.146)
End state: [  2.79911015  -17.71640143  136.91074729   6.09592522   0.46241498
     0.       ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  824, score = 556.035 (best = 558.138 , worst =   2.146)
End state: [ -8.79044875e+00  -1.94639523e+01   1.35377880e+02   5.60026016e+00
   1.11044991e-01   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
```

```
Episode =  825, score = 554.056 (best = 558.138 , worst =   2.146)
End state: [ -50.36000147  -10.31407837  122.72447441    6.12243329    1.36206873
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  826, score = 557.703 (best = 558.138 , worst =   2.146)
End state: [  -3.70059078    4.25867489  140.78340325    0.70448052    0.45712144
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  827, score = 557.130 (best = 558.138 , worst =   2.146)
End state: [ -3.46737662e+00  -1.02038621e+01   1.37105544e+02   4.97778651e-02
   6.21128508e+00   0.00000000e+00]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  828, score = 557.505 (best = 558.138 , worst =   2.146)
End state: [   4.2377154    -3.30315785  137.84267436    0.33559178    6.14671142
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  829, score = 555.860 (best = 558.138 , worst =   2.146)
End state: [ -30.37006352   -3.48733232  132.91373935    6.22921082    0.9289607     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  830, score = 555.789 (best = 558.138 , worst =   2.146)
End state: [ -2.02617449e+01  -1.03524225e+01   1.35218407e+02   9.33029081e-02
   6.94717961e-01   0.00000000e+00]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  831, score = 556.824 (best = 558.138 , worst =   2.146)
End state: [  -8.13576672   11.72205028  137.16286429    0.21697703    0.3649233     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  832, score = 556.019 (best = 558.138 , worst =   2.146)
End state: [  12.9270323    13.64275982  138.29188842    6.21506042    5.67752665
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  833, score = 556.774 (best = 558.138 , worst =   2.146)
End state: [ -21.78591643   -0.82462492  135.35955597    5.90067426    0.73078354
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  834, score = 555.327 (best = 558.138 , worst =   2.146)
End state: [  17.52307969   17.74899875  137.97253895    0.30261272    5.52039395
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
```

```
Episode =   835, score = 556.528 (best =  558.138 , worst =    2.146)
End state: [  -9.29806997   15.72196847  137.49626346    0.80196987    0.43068808
     0.         ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =   836, score = 556.749 (best =  558.138 , worst =    2.146)
End state: [ -22.86504552    4.27647435  136.78129978    0.54104545    1.06225958
     0.         ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =   837, score = 553.074 (best =  558.138 , worst =    2.146)
End state: [ -50.95135582  -19.74334121  121.47765292    5.35049608    1.5104957      0.         ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =   838, score = 555.310 (best =  558.138 , worst =    2.146)
End state: [ -25.94328411  -17.17261924  132.77867218    5.69383634    0.81108405
     0.         ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =   839, score = 556.069 (best =  558.138 , worst =    2.146)
End state: [  11.88359945   15.84318589  143.20219471    0.55763663    5.24480409
     0.         ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =   840, score = 556.483 (best =  558.138 , worst =    2.146)
End state: [   5.03242146  -15.05050144  136.39566245    6.10746612    6.18226938
     0.         ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =   841, score = 555.821 (best =  558.138 , worst =    2.146)
End state: [ -11.51109764  -27.72887039  133.07301602    5.40018358    0.45816045
     0.         ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =   842, score = 557.684 (best =  558.138 , worst =    2.146)
End state: [ 1.53647558e+00   6.11587367e+00   1.37543437e+02   3.80850814e-01
   7.26993826e-02   0.00000000e+00]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =   843, score = 556.199 (best =  558.138 , worst =    2.146)
End state: [  15.94452722  -13.72411364  137.05342259    5.6781926     5.62920424
     0.         ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =   844, score = 556.894 (best =  558.138 , worst =    2.146)
End state: [   5.66384282   -5.97938874  137.97850937    6.22255796    0.41790946
     0.         ]
```

```
Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  845, score = 557.630 (best = 558.138 , worst =    2.146)
End state: [   1.03866498    3.58599709  137.8214433     6.00171582    6.11647138
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  846, score = 556.017 (best = 558.138 , worst =    2.146)
End state: [ -17.94974447    9.08337322  135.57382258    0.18383276    0.37850206
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  847, score = 555.380 (best = 558.138 , worst =    2.146)
End state: [ -11.20570444  -27.78040983  133.22717531    5.48684115    0.4120909     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  848, score = 554.316 (best = 558.138 , worst =    2.146)
End state: [ -29.00794319  -33.92952779  126.58393332    4.96119456    1.02070375
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  849, score = 556.330 (best = 558.138 , worst =    2.146)
End state: [ -9.35436439e+00  -1.67497630e+01   1.35872508e+02   6.02604576e+00
   5.04139013e-02   0.00000000e+00]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  850, score = 557.018 (best = 558.138 , worst =    2.146)
End state: [ -19.82785013   -1.43389503  135.88270591    6.10690491    0.94762852
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  851, score = 557.323 (best = 558.138 , worst =    2.146)
End state: [ -1.26708456e+01  -2.82732027e+00   1.36856922e+02   9.63942284e-02
   5.07929714e-01   0.00000000e+00]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  852, score = 556.522 (best = 558.138 , worst =    2.146)
End state: [ -1.73594904e+01   2.93669923e+00   1.36084124e+02   1.07224435e-01
   3.46823519e-01   0.00000000e+00]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  853, score = 556.245 (best = 558.138 , worst =    2.146)
End state: [  1.15692737e+01   1.34183978e+01   1.38685046e+02   5.73484656e-02
   5.66823128e+00   0.00000000e+00]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  854, score = 555.687 (best = 558.138 , worst =    2.146)
End state: [  27.32816687    1.66091975  137.87702608    0.48871812    5.39529557
     0.        ]
```

```
Init state: [  0.   0.   10.   0.   0.   0.]
Episode =  855, score = 556.553 (best = 558.138 , worst =    2.146)
End state: [  16.0201837     7.20844223  140.83075298    0.61393623    5.66450196
    0.         ]

Init state: [  0.   0.   10.   0.   0.   0.]
Episode =  856, score = 556.597 (best = 558.138 , worst =    2.146)
End state: [ -2.03138403e+01  -3.92500251e-01   1.35524630e+02   9.06386049e-02
    5.50480063e-01   0.00000000e+00]

Init state: [  0.   0.   10.   0.   0.   0.]
Episode =  857, score = 556.911 (best = 558.138 , worst =    2.146)
End state: [   2.48478817   -7.12327422  138.1139851    6.20676824    0.65318417
    0.         ]

Init state: [  0.   0.   10.   0.   0.   0.]
Episode =  858, score = 556.310 (best = 558.138 , worst =    2.146)
End state: [  13.8686945   -12.21807994  136.24137333    5.89022033    6.06112081
    0.         ]

Init state: [  0.   0.   10.   0.   0.   0.]
Episode =  859, score = 554.255 (best = 558.138 , worst =    2.146)
End state: [  24.88092481   20.65649253  133.33169338    0.44087335    5.79214888
    0.         ]

Init state: [  0.   0.   10.   0.   0.   0.]
Episode =  860, score = 553.230 (best = 558.138 , worst =    2.146)
End state: [ -19.11126593   32.2202123   165.79306857    1.62769755    0.38978799
    0.         ]

Init state: [  0.   0.   10.   0.   0.   0.]
Episode =  861, score = 556.637 (best = 558.138 , worst =    2.146)
End state: [  -3.33446563   15.5897404   137.57991619    0.47137751    0.63960731
    0.         ]

Init state: [  0.   0.   10.   0.   0.   0.]
Episode =  862, score = 553.896 (best = 558.138 , worst =    2.146)
End state: [   5.64214632  -49.81882677  124.18469086    4.89593722    0.16538337
    0.         ]

Init state: [  0.   0.   10.   0.   0.   0.]
Episode =  863, score = 552.410 (best = 558.138 , worst =    2.146)
End state: [ -43.87147842  -36.62986195  119.46733654    4.90175767    1.08403545
    0.         ]

Init state: [  0.   0.   10.   0.   0.   0.]
Episode =  864, score = 553.198 (best = 558.138 , worst =    2.146)
```

```
End state: [ -38.60384133  -32.29670449  124.00641131     5.13291336     1.07590632
    0.          ]


Init state: [   0.     0.    10.     0.     0.     0.]
Episode =  865, score = 555.515 (best = 558.138 , worst =   2.146)
End state: [ -27.0379212     8.17985593  134.10079819     0.3449952      0.48927856
    0.          ]


Init state: [   0.     0.    10.     0.     0.     0.]
Episode =  866, score = 554.028 (best = 558.138 , worst =   2.146)
End state: [ -18.08495582   28.42751965  148.06584159     1.18679318     0.59014371
    0.          ]


Init state: [   0.     0.    10.     0.     0.     0.]
Episode =  867, score = 555.864 (best = 558.138 , worst =   2.146)
End state: [  10.93401968  -17.48296889  140.95793573     5.98829404     5.31180906
    0.          ]


Init state: [   0.     0.    10.     0.     0.     0.]
Episode =  868, score = 557.557 (best = 558.138 , worst =   2.146)
End state: [ -5.69173231e+00  -6.09559314e-01   1.37710547e+02   5.81033757e+00
    1.78824617e-02   0.00000000e+00]


Init state: [   0.     0.    10.     0.     0.     0.]
Episode =  869, score = 556.659 (best = 558.138 , worst =   2.146)
End state: [  -6.11297068  -10.46301442  137.26747675     6.14227541     6.13135879
    0.          ]


Init state: [   0.     0.    10.     0.     0.     0.]
Episode =  870, score = 555.604 (best = 558.138 , worst =   2.146)
End state: [ -23.27485972  -14.20434988  134.07987959     5.63319355     0.69635959
    0.          ]


Init state: [   0.     0.    10.     0.     0.     0.]
Episode =  871, score = 556.719 (best = 558.138 , worst =   2.146)
End state: [   8.76809567  -12.72006575  136.52919059     5.78718039     6.21989216
    0.          ]


Init state: [   0.     0.    10.     0.     0.     0.]
Episode =  872, score = 556.913 (best = 558.138 , worst =   2.146)
End state: [ -14.96450516   -5.33874917  137.02443983     0.30651544     0.68903921
    0.          ]


Init state: [   0.     0.    10.     0.     0.     0.]
Episode =  873, score = 556.184 (best = 558.138 , worst =   2.146)
End state: [  21.13281935   -3.17629174  138.02227015     5.66449385     5.46850555
    0.          ]
```

```
Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  874, score = 556.358 (best = 558.138 , worst =   2.146)
End state: [  2.04343864e+01   2.15771431e+00   1.37240042e+02   5.96095119e-02
    5.54086980e+00   0.00000000e+00]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  875, score = 556.926 (best = 558.138 , worst =   2.146)
End state: [ -17.85989351   -4.0818384   136.07796204    6.21187923    0.42282934
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  876, score = 555.184 (best = 558.138 , worst =   2.146)
End state: [ -12.72554083  -20.10619777  135.80112228    5.94021859    6.15308482
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  877, score = 555.619 (best = 558.138 , worst =   2.146)
End state: [ -21.08273     -14.90051036  134.29369403    5.98406872    0.50505685
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  878, score = 555.086 (best = 558.138 , worst =   2.146)
End state: [  26.52583756   -9.06522994  140.64116069    5.97569651    5.29990852
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  879, score = 556.447 (best = 558.138 , worst =   2.146)
End state: [  11.25984483  -12.95224768  136.71355461    6.28164645    5.90158717
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  880, score = 555.694 (best = 558.138 , worst =   2.146)
End state: [   3.78100715  -30.51566472  137.29109531    5.74554992    5.44568571
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  881, score = 554.501 (best = 558.138 , worst =   2.146)
End state: [  18.48158186  -24.79629878  133.27580262    5.72771191    6.08452372
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  882, score = 553.896 (best = 558.138 , worst =   2.146)
End state: [  31.80695289  -25.53974657  137.19566021    5.42018087    5.08928731
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  883, score = 552.216 (best = 558.138 , worst =   2.146)
End state: [  33.40389788   28.51426857  151.54575893    1.15073133    5.26675951
```

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       0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  884, score = 555.163 (best = 558.138 , worst =   2.146)
End state: [  16.56237129   19.72271288   144.65321395    1.20974881    6.04728504
       0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  885, score = 555.906 (best = 558.138 , worst =   2.146)
End state: [  7.68024883e+00    1.71839616e+01    1.36656715e+02    3.70523795e-01
    3.89752400e-02    0.00000000e+00]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  886, score = 553.955 (best = 558.138 , worst =   2.146)
End state: [   9.5706403    37.91065904   166.1675123     1.82481358    6.05871104
       0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  887, score = 553.664 (best = 558.138 , worst =   2.146)
End state: [ -44.53848584   -14.19397754   125.86970118    6.02332675    1.05684105
       0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  888, score = 555.714 (best = 558.138 , worst =   2.146)
End state: [  11.02857709   -16.4549189    136.26311549    6.24370912    5.95010395
       0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  889, score = 555.969 (best = 558.138 , worst =   2.146)
End state: [ -12.57884453   16.37029737   136.08592577    0.18932079    0.46214487
       0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  890, score = 555.285 (best = 558.138 , worst =   2.146)
End state: [ -44.13289421    0.6231239    126.78058133    0.28842492    1.29765772
       0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  891, score = 556.134 (best = 558.138 , worst =   2.146)
End state: [ -2.77135532e+01    6.15807803e+00    1.33454039e+02    1.20966112e-01
    9.98211024e-01    0.00000000e+00]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  892, score = 556.750 (best = 558.138 , worst =   2.146)
End state: [  -4.16680799   -10.64177018   139.53056955    5.84487248    5.65393115
       0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
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Episode =  893, score = 556.538 (best = 558.138 , worst =    2.146)
End state: [  16.43469139    6.77567269  138.96735211    0.38319231    5.54090451
     0.        ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  894, score = 556.313 (best = 558.138 , worst =    2.146)
End state: [ -16.69632813    8.97170726  136.11887994    0.26665146    0.73200802
     0.        ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  895, score = 557.591 (best = 558.138 , worst =    2.146)
End state: [  7.31080902e+00  -2.37994088e-01   1.37888303e+02   1.90054148e-02
   5.88794151e+00   0.00000000e+00]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  896, score = 556.911 (best = 558.138 , worst =    2.146)
End state: [  11.34957837    5.13810651  143.89962767    0.9736909    5.86918304
     0.        ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  897, score = 557.416 (best = 558.138 , worst =    2.146)
End state: [ -5.67378228e+00  -9.24756286e+00   1.37227348e+02   5.75284488e+00
   1.22149612e-01   0.00000000e+00]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  898, score = 556.275 (best = 558.138 , worst =    2.146)
End state: [  11.15629526  -20.63122814  135.11444954    5.47462924    6.10858989
     0.        ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  899, score = 555.618 (best = 558.138 , worst =    2.146)
End state: [  14.18271638   16.58724941  137.77673545    0.20193553    5.52021902
     0.        ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  900, score = 556.147 (best = 558.138 , worst =    2.146)
End state: [ -2.42382533e+00  -2.49822205e+01   1.34468567e+02   5.46896513e+00
   6.66364984e-02   0.00000000e+00]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  901, score = 555.603 (best = 558.138 , worst =    2.146)
End state: [ -28.70591094   -7.35992142  133.30162034    5.90975441    0.85853006
     0.        ]


Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  902, score = 554.010 (best = 558.138 , worst =    2.146)
End state: [  -6.70669814  -48.69873098  124.88543387    5.25736082    6.0123993     0.        ]
```

```
Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  903, score = 554.206 (best = 558.138 , worst =    2.146)
End state: [ -44.87666676   -6.53182786  127.04305702    5.89429644    1.08071676
    0.        ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  904, score = 556.943 (best = 558.138 , worst =    2.146)
End state: [  15.02217639   -1.26071755  137.64519263    6.11856245    5.82750971
    0.        ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  905, score = 556.824 (best = 558.138 , worst =    2.146)
End state: [  15.2942667    -2.96415975  138.67511566    0.14530726    5.88092998
    0.        ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  906, score = 557.102 (best = 558.138 , worst =    2.146)
End state: [  11.48225862   -4.70424793  137.77733808    6.26031381    5.77264385
    0.        ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  907, score = 552.689 (best = 558.138 , worst =    2.146)
End state: [ -56.60308352  -16.03521934  117.9097535     6.04947479    1.54136071
    0.        ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  908, score = 558.099 (best = 558.138 , worst =    2.146)
End state: [ -6.77673724e-01  -1.29835397e+00   1.37522186e+02   6.26480616e+00
    1.10945158e-01   0.00000000e+00]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  909, score = 555.654 (best = 558.138 , worst =    2.146)
End state: [  -1.33703096   28.2897738   139.55074626    1.15337421    0.35522429
    0.        ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  910, score = 556.540 (best = 558.138 , worst =    2.146)
End state: [  -5.63879437   15.30711803  143.11821565    0.85377982    0.33764828
    0.        ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  911, score = 554.413 (best = 558.138 , worst =    2.146)
End state: [  30.84674836    3.04505791  154.52481596    6.28208873    4.98944579
    0.        ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  912, score = 557.648 (best = 558.138 , worst =    2.146)
End state: [  -2.70612504   -5.40236139  138.26691312    5.64544266    0.39680148
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    0.           ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  913, score = 555.450 (best = 558.138 , worst =    2.146)
End state: [ 15.033854    -17.0312776   135.60704675   6.07235774   6.03639317
    0.           ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  914, score = 557.535 (best = 558.138 , worst =    2.146)
End state: [ -3.67968912    2.93682289  139.7702622    0.54184162   6.21739329
    0.           ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  915, score = 557.805 (best = 558.138 , worst =    2.146)
End state: [ -0.81251242    3.87099303  138.5429264    0.35841852   6.15691671
    0.           ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  916, score = 555.474 (best = 558.138 , worst =    2.146)
End state: [ -40.00378474   -4.52100979  128.79861901   5.73889182   1.46157095
    0.           ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  917, score = 556.732 (best = 558.138 , worst =    2.146)
End state: [ -11.76495246    8.27274284  136.9033488    6.15906656   0.56252307
    0.           ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  918, score = 554.536 (best = 558.138 , worst =    2.146)
End state: [ 23.9283997   -19.14311751  142.44450203   5.74940799   5.3183404     0.           ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  919, score = 554.585 (best = 558.138 , worst =    2.146)
End state: [ -24.63108157   21.53859402  134.03391269   0.69015141   0.55484906
    0.           ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  920, score = 557.017 (best = 558.138 , worst =    2.146)
End state: [ -11.75764862   -5.90776676  136.86704181   6.159199     0.49346668
    0.           ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  921, score = 554.561 (best = 558.138 , worst =    2.146)
End state: [ -3.38982420e+01   1.03986582e+01   1.31309041e+02   2.47668988e-02
    8.37461197e-01   0.00000000e+00]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  922, score = 556.881 (best = 558.138 , worst =    2.146)
```

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End state: [  17.08143705   -0.60173355  136.87611785    6.07836629    5.75528464
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  923, score = 556.246 (best = 558.138 , worst =    2.146)
End state: [  21.07964182   -5.50131068  140.90141815    5.55517324    5.28465055
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  924, score = 557.438 (best = 558.138 , worst =    2.146)
End state: [   5.86283217    7.12669191  137.73568607    0.21090338    5.84338512
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  925, score = 556.929 (best = 558.138 , worst =    2.146)
End state: [   8.69102799  -11.46935266  136.9734709    5.50504842    6.00408184
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  926, score = 556.974 (best = 558.138 , worst =    2.146)
End state: [   5.39951856   11.63444867  137.60614331    0.59993266    6.09356963
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  927, score = 557.438 (best = 558.138 , worst =    2.146)
End state: [  -8.15808312    1.42564663  137.70868323    6.19492656    0.47908647
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  928, score = 556.735 (best = 558.138 , worst =    2.146)
End state: [ -10.685464    -18.30159319  135.6231894    5.47125664    0.52795064
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  929, score = 557.374 (best = 558.138 , worst =    2.146)
End state: [  -4.73251827    5.82198838  137.413223     6.2602763     6.19786265
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  930, score = 555.508 (best = 558.138 , worst =    2.146)
End state: [   6.6472481   -35.64281358  130.41352768    5.13959024    6.17141984
    0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  931, score = 555.796 (best = 558.138 , worst =    2.146)
End state: [  -0.94493825   27.94666241  135.86517       0.76216283    6.25845522
    0.        ]
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Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  932, score = 557.052 (best = 558.138 , worst =   2.146)
End state: [ -2.76936508   -6.04598812  137.99087622   0.13985595   6.14693403
    0.        ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  933, score = 556.703 (best = 558.138 , worst =   2.146)
End state: [ -9.21925412   14.05039712  144.59298785   1.16718801   0.90213976
    0.        ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  934, score = 556.532 (best = 558.138 , worst =   2.146)
End state: [ -10.63696787   10.22168714  140.30209654   0.56949878   6.17816864
    0.        ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  935, score = 555.603 (best = 558.138 , worst =   2.146)
End state: [ -10.77584028  -18.30302062  136.53422985   0.17805349   0.14266642
    0.        ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  936, score = 555.109 (best = 558.138 , worst =   2.146)
End state: [ -9.08635112  -35.99560094  130.72088837   5.21590982   0.40708402
    0.        ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  937, score = 554.434 (best = 558.138 , worst =   2.146)
End state: [  9.17958094  -39.28232858  129.42126403   5.36314435   6.04222407
    0.        ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  938, score = 557.476 (best = 558.138 , worst =   2.146)
End state: [ -9.61043931   -2.56436962  137.86216991   5.82185533   0.65445696
    0.        ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  939, score = 553.094 (best = 558.138 , worst =   2.146)
End state: [ 31.85676661  -43.36109584  124.35918896   4.61813824   5.39372675
    0.        ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  940, score = 556.201 (best = 558.138 , worst =   2.146)
End state: [ -21.98321785   -6.47891838  135.21646395   5.73027867   0.44280772
    0.        ]

Init state: [ 0.    0.   10.    0.    0.    0.]
Episode =  941, score = 554.556 (best = 558.138 , worst =   2.146)
End state: [ -30.3873044   17.56442936  134.32210447   0.8371121   0.93087974
```

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    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  942, score = 555.302 (best = 558.138 , worst =   2.146)
End state: [  -5.30024301  -30.16267669  133.14460147    5.64130656    6.05471949
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  943, score = 554.428 (best = 558.138 , worst =   2.146)
End state: [  24.91951924  -20.63925899  137.64325301    5.8148313    5.26467887
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  944, score = 556.583 (best = 558.138 , worst =   2.146)
End state: [   0.31867577  -16.00590409  136.55105107    6.09291608    6.26875873
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  945, score = 554.406 (best = 558.138 , worst =   2.146)
End state: [  17.42151357   24.15949787  134.45877633    6.24577856    5.81938249
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  946, score = 555.991 (best = 558.138 , worst =   2.146)
End state: [ 1.20792900e+01  -1.39006104e+01   1.36402073e+02   6.09754838e-03
   6.01550860e+00   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  947, score = 556.295 (best = 558.138 , worst =   2.146)
End state: [ -2.08306727e+01  -2.77589830e+00   1.35420606e+02   7.47477221e-02
   2.94718878e-01   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  948, score = 556.799 (best = 558.138 , worst =   2.146)
End state: [ -17.64752464   -7.07266074  136.21448814    5.93066861    0.85177945
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  949, score = 556.075 (best = 558.138 , worst =   2.146)
End state: [  16.4118732   -15.69004553  137.93521477    5.62595032    5.47013547
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  950, score = 556.177 (best = 558.138 , worst =   2.146)
End state: [ 1.50248660e+01   6.47403542e+00   1.40444050e+02   5.64651483e-01
   1.32541670e-01   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
```

```
Episode =  951, score = 554.467 (best = 558.138 , worst =   2.146)
End state: [ 13.8687224   -32.14393579  134.76628393    6.07171811    5.56323438
     0.         ]

Init state: [ 0.   0.   10.   0.   0.   0.]
Episode =  952, score = 556.166 (best = 558.138 , worst =   2.146)
End state: [ 20.86100593   -4.1632144   139.11605169    5.6872795     5.15888487
     0.         ]

Init state: [ 0.   0.   10.   0.   0.   0.]
Episode =  953, score = 556.176 (best = 558.138 , worst =   2.146)
End state: [ 11.49624832   16.23399431  137.23419201    0.40775618    5.7050618      0.           ]

Init state: [ 0.   0.   10.   0.   0.   0.]
Episode =  954, score = 557.201 (best = 558.138 , worst =   2.146)
End state: [ -0.52495204  -11.49448084  137.07226314    5.98619851    0.30286092
     0.         ]

Init state: [ 0.   0.   10.   0.   0.   0.]
Episode =  955, score = 556.979 (best = 558.138 , worst =   2.146)
End state: [ -0.99952709  -13.10801623  137.24894406    6.07280467    0.54322109
     0.         ]

Init state: [ 0.   0.   10.   0.   0.   0.]
Episode =  956, score = 557.445 (best = 558.138 , worst =   2.146)
End state: [ -3.475008      2.27997908  138.9427052     0.16042491    5.96279555
     0.         ]

Init state: [ 0.   0.   10.   0.   0.   0.]
Episode =  957, score = 557.814 (best = 558.138 , worst =   2.146)
End state: [ -1.27166126   -6.74203679  137.36704863    6.07635371    6.27945617
     0.         ]

Init state: [ 0.   0.   10.   0.   0.   0.]
Episode =  958, score = 556.553 (best = 558.138 , worst =   2.146)
End state: [ -4.82497341e+00  -1.61817421e+01   1.36364069e+02    5.55612895e+00
    2.62277365e-02    0.00000000e+00]

Init state: [ 0.   0.   10.   0.   0.   0.]
Episode =  959, score = 556.198 (best = 558.138 , worst =   2.146)
End state: [ -21.6902717     2.63937312  135.25204905    0.18891828    0.42848023
     0.         ]

Init state: [ 0.   0.   10.   0.   0.   0.]
Episode =  960, score = 557.373 (best = 558.138 , worst =   2.146)
End state: [ -2.66673257    8.53332272  137.62601475    6.26885659    0.52513037
     0.         ]
```

```
Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  961, score = 556.719 (best = 558.138 , worst =   2.146)
End state: [ 1.32314783e+01   7.17358990e+00   1.37194222e+02   3.40947248e-02
   5.84070009e+00   0.00000000e+00]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  962, score = 554.680 (best = 558.138 , worst =   2.146)
End state: [ 21.12174094   15.8434113   135.56459247   6.10687014   5.64340784
   0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  963, score = 555.676 (best = 558.138 , worst =   2.146)
End state: [ 10.91607188  -19.93886632  135.77078864   6.13524444   5.89520516
   0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  964, score = 554.995 (best = 558.138 , worst =   2.146)
End state: [ -14.86544314  -36.21576296  129.90613007   4.97923479   0.80044213
   0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  965, score = 552.323 (best = 558.138 , worst =   2.146)
End state: [ 27.6789308   -52.2674202   124.1768267   4.7864021   5.16330369
   0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  966, score = 555.208 (best = 558.138 , worst =   2.146)
End state: [ -2.54572361  -31.60713488  133.12206843   5.6039266   0.41177186
   0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  967, score = 557.053 (best = 558.138 , worst =   2.146)
End state: [ -3.79915835  -11.82778768  137.20321107   5.77557312   6.0390612   0.        ]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  968, score = 555.309 (best = 558.138 , worst =   2.146)
End state: [ -4.30046494e+01  -3.58602207e-01   1.27343504e+02   3.83856130e-02
   1.38822685e+00   0.00000000e+00]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  969, score = 557.077 (best = 558.138 , worst =   2.146)
End state: [ 1.55054683e+01  -6.57093730e-02   1.39196278e+02   6.24756258e+00
   5.43197255e+00   0.00000000e+00]

Init state: [ 0.   0.  10.   0.   0.   0.]
Episode =  970, score = 556.861 (best = 558.138 , worst =   2.146)
End state: [ -16.98193652   3.76148416  137.24637438   0.56606592   0.52230948
   0.        ]
```

```
Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  971, score = 557.638 (best = 558.138 , worst =    2.146)
End state: [   3.66590097   -6.67692934  137.62825553    6.15465322    5.94291986
     0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  972, score = 557.518 (best = 558.138 , worst =    2.146)
End state: [   6.93756251   -2.56723952  137.41477856    6.26536029    5.97455067
     0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  973, score = 555.897 (best = 558.138 , worst =    2.146)
End state: [   6.74445565   23.35955511  139.62076521    0.92927428    5.79113336
     0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  974, score = 556.723 (best = 558.138 , worst =    2.146)
End state: [  14.16176687    7.92195115  138.68640659    0.55720552    5.76603488
     0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  975, score = 555.283 (best = 558.138 , worst =    2.146)
End state: [ -2.22351271e+01   2.02342237e+01   1.33672061e+02   8.70317481e-02
    1.05999887e+00   0.00000000e+00]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  976, score = 552.657 (best = 558.138 , worst =    2.146)
End state: [ -42.9357192   -32.10809791  122.17659241    4.92207074    0.95709791
     0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  977, score = 552.691 (best = 558.138 , worst =    2.146)
End state: [ -29.36795924  -39.1242454   125.42643126    5.34425652    0.78603068
     0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  978, score = 557.716 (best = 558.138 , worst =    2.146)
End state: [   0.73296538   -7.47483042  137.89252243    5.65050001    0.36659339
     0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  979, score = 557.869 (best = 558.138 , worst =    2.146)
End state: [  2.32277736e+00  -4.03885497e+00   1.37671575e+02   1.35164516e-01
    5.99273758e+00   0.00000000e+00]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  980, score = 556.587 (best = 558.138 , worst =    2.146)
```

```
End state: [  1.11037997e+01   6.46093888e+00   1.37016492e+02   6.25072777e+00
    2.82250177e-04   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  981, score = 556.168 (best = 558.138 , worst =   2.146)
End state: [ -15.66107429  -10.54023807  137.39690291    5.81426223    6.01159003
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  982, score = 554.565 (best = 558.138 , worst =   2.146)
End state: [ -36.75894705   10.84750048  130.16434097    6.27633503    0.87718012
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  983, score = 556.893 (best = 558.138 , worst =   2.146)
End state: [   4.39335292   12.61258781  138.53069782    0.51039896    0.24689854
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  984, score = 556.972 (best = 558.138 , worst =   2.146)
End state: [ -1.71924144e+01  -7.05883968e-01   1.36367807e+02   1.26580311e-01
    8.20964047e-01   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  985, score = 556.069 (best = 558.138 , worst =   2.146)
End state: [  2.62317234e+00   2.27783630e+01   1.36961974e+02   6.33176503e-01
    1.26822685e-01   0.00000000e+00]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  986, score = 554.472 (best = 558.138 , worst =   2.146)
End state: [  30.90376763  -14.43967478  153.88670138    6.13642434    4.62606631
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  987, score = 554.019 (best = 558.138 , worst =   2.146)
End state: [  21.42161794   25.8691192   145.34429784    1.22670751    5.43186522
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  988, score = 554.636 (best = 558.138 , worst =   2.146)
End state: [   4.71271916  -39.78832286  129.89308087    5.09982028    0.49304434
    0.        ]

Init state: [  0.   0.  10.   0.   0.   0.]
Episode =  989, score = 553.519 (best = 558.138 , worst =   2.146)
End state: [ -40.2975395   -28.18026489  124.74136044    5.20763988    1.39444286
    0.        ]
```

```
Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  990, score = 556.919 (best = 558.138 , worst =    2.146)
End state: [ 11.55961834     5.64062576  137.13267036    0.19115211    6.25370089
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  991, score = 553.408 (best = 558.138 , worst =    2.146)
End state: [ -20.75935867   28.74664741  145.71345745    1.25795936    0.19423876
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  992, score = 556.737 (best = 558.138 , worst =    2.146)
End state: [ -12.36379489  -15.00068809  135.99785077    5.61628665    0.49867802
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  993, score = 556.281 (best = 558.138 , worst =    2.146)
End state: [ 11.58125523  -16.64697609  138.30399714    5.74330092    5.53508835
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  994, score = 555.167 (best = 558.138 , worst =    2.146)
End state: [ 20.9071839   -22.84137072  136.57811541    5.53801368    5.4742219     0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  995, score = 556.481 (best = 558.138 , worst =    2.146)
End state: [ -16.6667619    -6.90498857  136.14010224    5.87833804    0.6017777     0.          ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  996, score = 557.155 (best = 558.138 , worst =    2.146)
End state: [ 5.50376680e+00   8.09624882e+00   1.38816107e+02   5.84387757e-01
   7.25549909e-03   0.00000000e+00]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  997, score = 556.395 (best = 558.138 , worst =    2.146)
End state: [ -23.18007957    5.18982991  138.31042366    0.84622351    0.82720138
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  998, score = 554.007 (best = 558.138 , worst =    2.146)
End state: [ -40.72312104  -17.86606361  126.97508049    5.70870988    1.28019816
     0.        ]

Init state: [  0.    0.   10.    0.    0.    0.]
Episode =  999, score = 556.987 (best = 558.138 , worst =    2.146)
End state: [ 4.30791879e+00   1.06807171e+01   1.38194776e+02   3.82304969e-03
   5.72499116e+00   0.00000000e+00]
```

```
Init state: [  0.    0.   10.    0.    0.    0.]
Episode = 1000, score = 557.598 (best = 558.138 , worst =   2.146)
End state: [  -2.2158567     7.9878157   137.82601625    0.31178574    0.24181807
      0.        ]
```
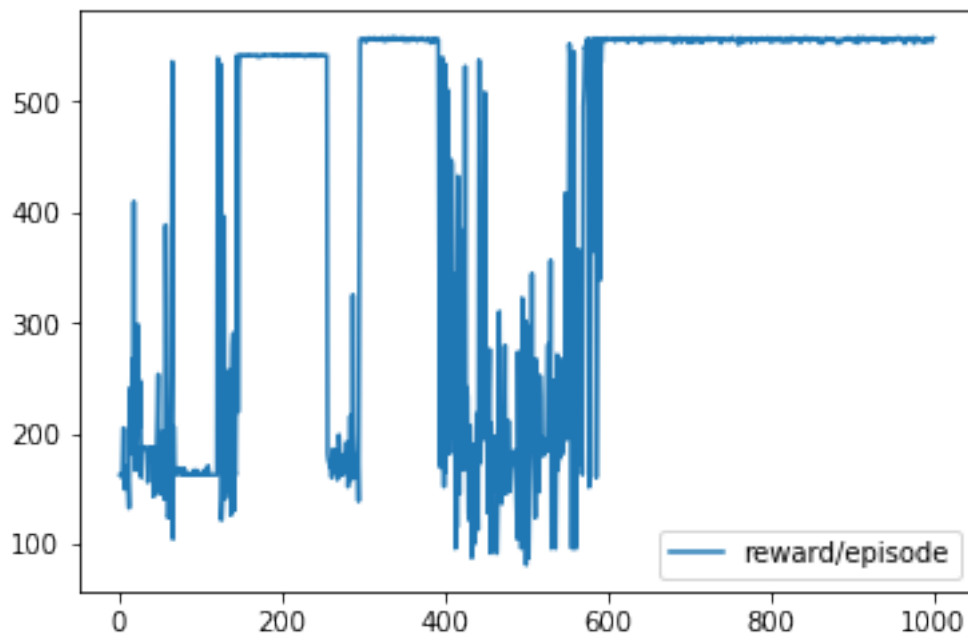
1.8 Plot the Rewards

Once you are satisfied with your performance, plot the episode rewards, either from a single run, or averaged over multiple runs.

```
In [8]: ## TODO: Plot the rewards.
        import matplotlib.pyplot as plt
        %matplotlib inline

        plt.plot(reward_results['episode'], reward_results['reward'], label='reward/episode')
        plt.legend()
        _ = plt.ylim()
```


1.9 Reflections

Question 1: Describe the task that you specified in `task.py`. How did you design the reward function?

    Answer: I worked on the takeoff task, with an init pose of [0,0,10] and a target pose of [0,0,100]. I first used the given reward including the absolute difference between target pose and init pose.

The agent performed poorly due to big variations. I did some scaling and then applied a sigmoid in order to keep the reward between 0 and 1. The agent learned well in the beginning, but stopped improving after some epochs, probably due to vanishing gradient. So I used a tangens hyperbolicus to avoid vanishing gradient and the results looked better.

Question 2: Discuss your agent briefly, using the following questions as a guide:

- What learning algorithm(s) did you try? What worked best for you?
- What was your final choice of hyperparameters (such as α, γ, ϵ, etc.)?
- What neural network architecture did you use (if any)? Specify layers, sizes, activation functions, etc.

Answer: I tried several methods for discretization first. I tried a grid approach and a Deep Q-Network (DQN) in PyTorch. However, I couldn't figure out how to deal with the continuous action space because DQN needs a discrete action space. So I used a Deep Deterministic Policy Gradients (DDPG) approach instead, which worked well. I used a discount factor gamma of 0.99. The network consists of an input layer, three hidden layers with relu activations and an output layer with sigmoid activation.

Question 3: Using the episode rewards plot, discuss how the agent learned over time.

- Was it an easy task to learn or hard?
- Was there a gradual learning curve, or an aha moment?
- How good was the final performance of the agent? (e.g. mean rewards over the last 10 episodes)

Answer: I found this task quite hard compared to the simple grid world examples we solved in the lessons before. The agent didn't learn anything in many attempts, so I really had to tune the reward function. There was an aha moment when the agent suddenly worked well, and then the performance stayed good until the end, the rewards were nearly constant over the last episodes.

Question 4: Briefly summarize your experience working on this project. You can use the following prompts for ideas.

- What was the hardest part of the project? (e.g. getting started, plotting, specifying the task, etc.)
- Did you find anything interesting in how the quadcopter or your agent behaved?

Answer: I found the project quite difficult because I tried to work on a different approach than DDPG first. Even with DDPG, it took quite some time to tune the parameters until the agent finally learned. I found it interesting that the quadcopter often had aha moments when suddenly the strategy changed and it worked much better instead of slowly improving.

```
In [ ]:
```