```
Last login: Mon Apr  6 18:55:01 on ttys000
Run-Mac:~ mac$ cd ~/.ssh
Run-Mac:.ssh mac$ ssh -i "Runzhe_Song_0110.pem" ubuntu@ec2-3-93-75-68.compute-1.amazonaws.com
The authenticity of host 'ec2-3-93-75-68.compute-1.amazonaws.com (3.93.75.68)' can't be established.
ECDSA key fingerprint is SHA256:g5m3tMEGtBi3zhghx61dtiw+pto1fxu3EPo/2VlZcZM.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'ec2-3-93-75-68.compute-1.amazonaws.com,3.93.75.68' (ECDSA) to the list of known hosts.
Welcome to Ubuntu 18.04.3 LTS (GNU/Linux 4.15.0-1063-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

  System information as of Mon Apr  6 22:57:59 UTC 2020

  System load:  1.21               Processes:           225
  Usage of /:   57.0% of 15.45GB   Users logged in:     0
  Memory usage: 1%                 IP address for ens5: 172.31.68.86
  Swap usage:   0%

 * Kubernetes 1.18 GA is now available! See https://microk8s.io for docs or
   install it with:

     sudo snap install microk8s --channel=1.18 --classic

 * Multipass 1.1 adds proxy support for developers behind enterprise
   firewalls. Rapid prototyping for cloud operations just got easier.

     https://multipass.run/

 * Canonical Livepatch is available for installation.
   - Reduce system reboots and improve kernel security. Activate at:
     https://ubuntu.com/livepatch

53 packages can be updated.
0 updates are security updates.


Last login: Wed Apr  1 20:30:39 2020 from 107.13.161.147
ubuntu@ip-172-31-68-86:~$ export openblas_num_threads=1; export OMP_NUM_THREADS=1; python EC2.py
18:59, 04/06; num of cores:16

final sd_R trend for[0, 10, 20]

Basic setting:[T, rep_times, sd_O, sd_D, sd_R, sd_u_O, w_O, w_A, [M_in_R, mean_reversion, pois0, u_O_u_D], sd_R_range, t_func] = [None,
16, None, None, None, 30, 1, 1, [True, False, True, 10], [0, 10, 20], None]


---------------------------------------
[pattern_seed, day, sd_R] = [2, 7, 0]

max(u_O) =  168.8
O_threshold = 80
number of reward locations:  15
O_threshold = 90
number of reward locations:  12
O_threshold = 100
number of reward locations:  9
O_threshold = 110
number of reward locations:  6
O_threshold = 120
number of reward locations:  3
O_threshold = 130
number of reward locations:  3
target 1 in 6 DONE!
target 2 in 6 DONE!
target 3 in 6 DONE!
target 4 in 6 DONE!
target 5 in 6 DONE!
target 6 in 6 DONE!

---------------------------------------
Value of Behaviour policy:60.434
O_threshold = 80
MC for this TARGET:[70.239, 0.057]
   [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-1.65, -1.83, -2.15]][[-0.29, -70.24, -9.81]]
std:[[0.37, 0.37, 0.29]][[0.27, 0.0, 0.2]]
MSE:[[1.69, 1.87, 2.17]][[0.4, 70.24, 9.81]]
MSE(-DR):[[0.0, 0.18, 0.48]][[-1.29, 68.55, 8.12]]
==============
O_threshold = 90
MC for this TARGET:[69.059, 0.059]
   [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-1.46, -1.62, -1.96]][[-1.53, -69.06, -8.63]]
std:[[0.3, 0.3, 0.24]][[0.26, 0.0, 0.2]]
MSE:[[1.49, 1.65, 1.97]][[1.55, 69.06, 8.63]]
MSE(-DR):[[0.0, 0.16, 0.48]][[0.06, 67.57, 7.14]]
***
```

```
==============
O_threshold = 100
MC for this TARGET:[69.273, 0.064]
   [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-3.5, -3.61, -3.85]][[-4.41, -69.27, -8.84]]
std:[[0.32, 0.34, 0.26]][[0.26, 0.0, 0.2]]
MSE:[[3.51, 3.63, 3.86]][[4.42, 69.27, 8.84]]
MSE(-DR):[[0.0, 0.12, 0.35]][[0.91, 65.76, 5.33]]
***
==============
O_threshold = 110
MC for this TARGET:[69.04, 0.069]
   [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-6.13, -6.2, -6.24]][[-7.37, -69.04, -8.61]]
std:[[0.39, 0.39, 0.48]][[0.28, 0.0, 0.2]]
MSE:[[6.14, 6.21, 6.26]][[7.38, 69.04, 8.61]]
MSE(-DR):[[0.0, 0.07, 0.12]][[1.24, 62.9, 2.47]]
***
==============
O_threshold = 120
MC for this TARGET:[68.245, 0.058]
   [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-7.62, -7.63, -7.47]][[-10.06, -68.24, -7.81]]
std:[[0.43, 0.46, 0.5]][[0.29, 0.0, 0.2]]
MSE:[[7.63, 7.64, 7.49]][[10.06, 68.24, 7.81]]
MSE(-DR):[[0.0, 0.01, -0.14]][[2.43, 60.61, 0.18]]
**
==============
O_threshold = 130
MC for this TARGET:[68.245, 0.058]
   [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-7.62, -7.63, -7.48]][[-10.06, -68.24, -7.81]]
std:[[0.42, 0.46, 0.5]][[0.29, 0.0, 0.2]]
MSE:[[7.63, 7.64, 7.5]][[10.06, 68.24, 7.81]]
MSE(-DR):[[0.0, 0.01, -0.13]][[2.43, 60.61, 0.18]]
**
==============
[[ 1.69  1.87  2.17  0.4  70.24  9.81]
 [ 1.49  1.65  1.97  1.55 69.06  8.63]
 [ 3.51  3.63  3.86  4.42 69.27  8.84]
 [ 6.14  6.21  6.26  7.38 69.04  8.61]
 [ 7.63  7.64  7.49 10.06 68.24  7.81]
 [ 7.63  7.64  7.5  10.06 68.24  7.81]]


time spent until now: 57.8 mins


--------------------------------------
[pattern_seed, day, sd_R] = [2, 7, 10]

max(u_O) =  168.8
O_threshold = 80
number of reward locations:  15
O_threshold = 90
number of reward locations:  12
O_threshold = 100
number of reward locations:  9
O_threshold = 110
number of reward locations:  6
O_threshold = 120
number of reward locations:  3
O_threshold = 130
number of reward locations:  3
^CProcess Process-20:
Process Process-26:
Process Process-19:
Traceback (most recent call last):
Process Process-24:
Process Process-25:
Process Process-18:
Process Process-17:
  File "EC2.py", line 87, in <module>
    with_MF = with_MF,
  File "/home/ubuntu/simu_funs.py", line 62, in simu
    value_reps = parmap(once, range(OPE_rep_times), n_cores)
  File "/home/ubuntu/_uti_basic.py", line 80, in parmap
    [q_in.put((None, None)) for _ in range(nprocs)]
  File "/home/ubuntu/_uti_basic.py", line 80, in <listcomp>
    [q_in.put((None, None)) for _ in range(nprocs)]
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/queues.py", line 82, in put
Process Process-27:
Process Process-28:
Process Process-21:
Process Process-22:
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
```