```
Last login: Thu Apr  9 16:51:22 on ttys002
Run-Mac:~ mac$ cd ~/.ssh
Run-Mac:.ssh mac$ export openblas_num_threads=1; export OMP_NUM_THREADS=1; python EC2.py
python: can't open file 'EC2.py': [Errno 2] No such file or directory
Run-Mac:.ssh mac$ ssh -i "Runzhe.pem" ubuntu@ec2-3-219-33-144.compute-1.amazonaws.com
Warning: Permanently added the ED25519 host key for IP address '3.219.33.144' to the list of known hosts.
Welcome to Ubuntu 18.04.3 LTS (GNU/Linux 4.15.0-1060-aws x86_64)

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

  System information as of Fri Apr 10 00:42:30 UTC 2020

  System load:  1.33               Processes:           882
  Usage of /:   28.1% of 30.96GB   Users logged in:     0
  Memory usage: 0%                 IP address for ens5: 172.31.0.66
  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

90 packages can be updated.
39 updates are security updates.


Last login: Fri Apr  3 19:45:17 2020 from 107.13.161.147
ubuntu@ip-172-31-0-66:~$ export openblas_num_threads=1; export OMP_NUM_THREADS=1; python EC2.py
20:44, 04/09; num of cores:96

Basic setting:[rep_times, sd_O, sd_D, sd_u_O, w_O, w_A, u_O_u_D, sd_R_range, t_func] = [96, None, None, 20, 0.5, 1, 0, [0, 10, 20], None
]


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

max(u_O) =  145.8
O_threshold = 100
number of reward locations:  9
O_threshold = 105
number of reward locations:  7
O_threshold = 110
number of reward locations:  6
O_threshold = 115
number of reward locations:  3
target 1 in 4 DONE!
target 2 in 4 DONE!
target 3 in 4 DONE!
target 4 in 4 DONE!

--------------------------------------
Value of Behaviour policy:64.866
O_threshold = 100
MC for this TARGET:[70.776, 0.095]
   [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-0.38, -0.48, -0.95]][[-1.34, -70.78, -5.91]]
std:[[0.45, 0.45, 0.29]][[0.25, 0.0, 0.23]]
MSE:[[0.59, 0.66, 0.99]][[1.36, 70.78, 5.91]]
MSE(-DR):[[0.0, 0.07, 0.4]][[0.77, 70.19, 5.32]]
***
==============
O_threshold = 105
MC for this TARGET:[71.779, 0.092]
   [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-2.68, -2.77, -3.34]][[-4.05, -71.78, -6.91]]
std:[[0.53, 0.54, 0.32]][[0.26, 0.0, 0.23]]
MSE:[[2.73, 2.82, 3.36]][[4.06, 71.78, 6.91]]
MSE(-DR):[[0.0, 0.09, 0.63]][[1.33, 69.05, 4.18]]
***
==============
O_threshold = 110
MC for this TARGET:[70.873, 0.086]
   [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-2.69, -2.76, -3.16]][[-4.75, -70.87, -6.01]]
std:[[0.52, 0.53, 0.34]][[0.25, 0.0, 0.23]]
MSE:[[2.74, 2.81, 3.18]][[4.76, 70.87, 6.01]]
MSE(-DR):[[0.0, 0.07, 0.44]][[2.02, 68.13, 3.27]]
```

***
==========
O_threshold = 115
MC for this TARGET:[71.797, 0.073]
   [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-5.81, -5.82, -5.78]][[-9.63, -71.8, -6.93]]
std:[[0.69, 0.7, 0.43]][[0.25, 0.0, 0.23]]
MSE:[[5.85, 5.86, 5.8]][[9.63, 71.8, 6.93]]
MSE(-DR):[[0.0, 0.01, -0.05]][[3.78, 65.95, 1.08]]
**
==========
[[0.59 0.66 0.99 1.36 70.78 5.91]
 [2.73 2.82 3.36 4.06 71.78 6.91]
 [2.74 2.81 3.18 4.76 70.87 6.01]
 [5.85 5.86 5.8   9.63 71.8   6.93]]

time spent until now: 64.7 mins

21:49, 04/09

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

max(u_O) = 145.8
O_threshold = 100
number of reward locations: 9
O_threshold = 105
number of reward locations: 7
O_threshold = 110
number of reward locations: 6
O_threshold = 115
number of reward locations: 3
target 1 in 4 DONE!
target 2 in 4 DONE!
target 3 in 4 DONE!
target 4 in 4 DONE!

Value of Behaviour policy:64.879
O_threshold = 100
MC for this TARGET:[70.792, 0.152]
   [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-0.33, -0.44, -0.94]][[-1.32, -70.79, -5.91]]
std:[[0.58, 0.58, 0.4]][[0.34, 0.0, 0.25]]
MSE:[[0.67, 0.73, 1.02]][[1.36, 70.79, 5.92]]
MSE(-DR):[[0.0, 0.06, 0.35]][[0.69, 70.12, 5.25]]
***
==========
O_threshold = 105
MC for this TARGET:[71.795, 0.146]
   [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-2.69, -2.79, -3.4]][[-4.04, -71.8, -6.92]]
std:[[0.77, 0.76, 0.44]][[0.32, 0.0, 0.25]]
MSE:[[2.8, 2.89, 3.43]][[4.05, 71.8, 6.92]]
MSE(-DR):[[0.0, 0.09, 0.63]][[1.25, 69.0, 4.12]]
***
==========
O_threshold = 110
MC for this TARGET:[70.889, 0.144]
   [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-2.73, -2.8, -3.18]][[-4.74, -70.89, -6.01]]
std:[[0.77, 0.76, 0.45]][[0.32, 0.0, 0.25]]
MSE:[[2.84, 2.9, 3.21]][[4.75, 70.89, 6.02]]
MSE(-DR):[[0.0, 0.06, 0.37]][[1.91, 68.05, 3.18]]
***
==========
O_threshold = 115
MC for this TARGET:[71.813, 0.136]
   [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-5.82, -5.83, -5.86]][[-9.62, -71.81, -6.93]]
std:[[0.96, 0.97, 0.58]][[0.31, 0.0, 0.25]]
MSE:[[5.9, 5.91, 5.89]][[9.62, 71.81, 6.93]]
MSE(-DR):[[0.0, 0.01, -0.01]][[3.72, 65.91, 1.03]]
**
==========
[[0.59 0.66 0.99 1.36 70.78 5.91]
 [2.73 2.82 3.36 4.06 71.78 6.91]
 [2.74 2.81 3.18 4.76 70.87 6.01]
 [5.85 5.86 5.8   9.63 71.8   6.93]]

[[0.67 0.73 1.02 1.36 70.79 5.92]
 [2.8   2.89 3.43 4.05 71.8   6.92]
 [2.84 2.9   3.21 4.75 70.89 6.02]
 [5.9   5.91 5.89 9.62 71.81 6.93]]

time spent until now: 129.1 mins

```
22:53, 04/09

--------------------------------------
[pattern_seed, day, sd_R] = [2, 7, 20]

max(u_0) =  145.8
O_threshold = 100
number of reward locations:  9
O_threshold = 105
number of reward locations:  7
O_threshold = 110
number of reward locations:  6
O_threshold = 115
number of reward locations:  3
target 1 in 4 DONE!
target 2 in 4 DONE!
target 3 in 4 DONE!
target 4 in 4 DONE!

--------------------------------------
Value of Behaviour policy:64.892
O_threshold = 100
MC for this TARGET:[70.808, 0.252]
   [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-0.31, -0.41, -0.94]][[-1.3, -70.81, -5.92]]
std:[[0.93, 0.94, 0.63]][[0.52, 0.0, 0.3]]
MSE:[[0.98, 1.03, 1.13]][[1.4, 70.81, 5.93]]
MSE(-DR):[[0.0, 0.05, 0.15]][[0.42, 69.83, 4.95]]
***
==============
O_threshold = 105
MC for this TARGET:[71.811, 0.247]
   [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-2.73, -2.84, -3.44]][[-4.02, -71.81, -6.92]]
std:[[1.27, 1.27, 0.72]][[0.49, 0.0, 0.3]]
MSE:[[3.01, 3.11, 3.51]][[4.05, 71.81, 6.93]]
MSE(-DR):[[0.0, 0.1, 0.5]][[1.04, 68.8, 3.92]]
***
==============
O_threshold = 110
MC for this TARGET:[70.905, 0.246]
   [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-2.8, -2.88, -3.21]][[-4.73, -70.9, -6.01]]
std:[[1.26, 1.26, 0.71]][[0.48, 0.0, 0.3]]
MSE:[[3.07, 3.14, 3.29]][[4.75, 70.9, 6.02]]
MSE(-DR):[[0.0, 0.07, 0.22]][[1.68, 67.83, 2.95]]
***
==============
O_threshold = 115
MC for this TARGET:[71.829, 0.241]
   [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-5.87, -5.89, -5.91]][[-9.61, -71.83, -6.94]]
std:[[1.54, 1.53, 0.92]][[0.5, 0.0, 0.3]]
MSE:[[6.07, 6.09, 5.98]][[9.62, 71.83, 6.95]]
MSE(-DR):[[0.0, 0.02, -0.09]][[3.55, 65.76, 0.88]]
**
==============
[[ 0.59  0.66  0.99  1.36 70.78  5.91]
 [ 2.73  2.82  3.36  4.06 71.78  6.91]
 [ 2.74  2.81  3.18  4.76 70.87  6.01]
 [ 5.85  5.86  5.8   9.63 71.8   6.93]]


[[ 0.67  0.73  1.02  1.36 70.79  5.92]
 [ 2.8   2.89  3.43  4.05 71.8   6.92]
 [ 2.84  2.9   3.21  4.75 70.89  6.02]
 [ 5.9   5.91  5.89  9.62 71.81  6.93]]


[[ 0.98  1.03  1.13  1.4  70.81  5.93]
 [ 3.01  3.11  3.51  4.05 71.81  6.93]
 [ 3.07  3.14  3.29  4.75 70.9   6.02]
 [ 6.07  6.09  5.98  9.62 71.83  6.95]]


time spent until now: 193.8 mins

23:58, 04/09
ubuntu@ip-172-31-0-66:~$
```