| Environment S | Symbol  | Hyperparameter values  |
|---------------|---------|--|
| F             | H_based | ['batch_size': 16, 'n_steps': 6720, 'gamma': 0.9959713930285174,               |
|               |         | 'learning rate': 0.0006775254254374189, 'n epochs': 5, 'clip range':           |
|               |         | 0.2889836600993812, 'gae_lambda': 0.9858111198753257]                          |
|               |         | ['batch size': 128, 'n steps': 6848, 'gamma': 0.999232076008961,               |
|               | H_21    | 'learning_rate': 0.0015814787559273393, 'n_epochs': 5, 'clip_range':           |
|               |         | 0.2968575197168429,'gae_lambda': 0.9676636030587324]                           |
|               | H_22    | ['batch size': 256, 'n steps': 4736, 'gamma': 0.9965340722946804,              |
|               |         | 'learning rate': 0.0021886149373170844, 'n epochs': 5, 'clip range':           |
|               |         | 0.1728537315025567, 'gae lambda': 0.9267132592413907]                          |
|               |         | ['batch size': 8, 'n steps': 6848, 'gamma': 0.998503511677947,                 |
|               | Н 23    | 'learning rate': 0.0004567947143227571, 'n epochs': 5, 'clip range':           |
|               | _       | 0.12468861944611186,'gae lambda': 0.8813492787770341]                          |
|               | H_24    | ['batch size': 128, 'n steps': 6912, 'gamma': 0.9992551002441824,              |
| Lunar Lander  |         | 'learning rate': 0.0016991063396771834, 'n epochs': 5, 'clip range':           |
|               |         | 0.28166753465030664,'gae lambda': 0.9694435700053803]                          |
|               | H_31    | ['batch size': 128, 'buffer size': 1000000, 'gamma': 0.9839923929578793,       |
|               |         | 'noise std':0.26728168450714124,'learning rate': 0.00018992566517462038,       |
|               |         | 'tau': 0.005, 'train_freq': 16, 'gradient_steps': 128]                         |
|               | Н 32    | ['batch size': 32, 'buffer size': 100000, 'gamma': 0.99,                       |
|               |         | 'learning rate': 0.0037435099582206195, 'learning starts': 20000, 'tau': 0.01, |
|               | _       | 'train freq': 128, 'gradient steps': 512]                                      |
|               | Н 33    | ['batch size': 128, 'buffer size': 1000000, 'gamma': 0.98, 'learning rate':    |
|               |         | 0.00015314983631606004, 'learning starts': 0,'tau': 0.02, 'train freq': 1,     |
|               | _       | 'gradient_steps': 4,'top_quantiles_to_drop_per_net': 0, 'n_quantiles':12]      |
|               | Н 34    | ['batch size': 128, 'buffer size': 1000000, 'gamma': 0.995,                    |
|               |         | 'noise std':0.9835200949632787,'learning rate':0.00020269647156352695,         |
|               | _       | 'tau': 0.005, 'train freq': 4, 'gradient steps': 8]                            |
|               | H_based | [batch_size: 64,n_steps: 5056, gamma: 0.9741220907251389, learning_rate:       |
| l H           |         | 0.0010672146718286866, n epochs: 10,clip range: 0.21079005022258343,           |
|               |         | gae_lambda: 0.8086980782125599]  |
|               |         | ['batch_size': 128, 'n_steps': 7168, 'gamma': 0.9126022183463831,              |
|               | H_21    | 'learning_rate': 0.0005940450961747367, 'n_epochs': 20, 'clip_range':          |
|               | _       | 0.33895320584700733,'gae_lambda': 0.8700225105173911]                          |
|               |         | ['batch_size': 32, 'n_steps': 6208, 'gamma': 0.886146621924327,                |
| D 11          | H_22    | 'learning_rate': 0.0007189639383586805, 'n_epochs': 10, 'clip_range':          |
| Pendulum      |         | 0.21950486682714387, 'gae_lambda': 0.8549450580889233]                         |
|               |         | ['batch_size': 32, 'n_steps': 5376, 'gamma': 0.9462772871561818,               |
|               | H_23    | 'learning_rate': 0.0003995321942427602, 'n_epochs': 20, 'clip_range':          |
|               |         | 0.3083266285450791,'gae_lambda': 0.8242778578779988]                           |
|               |         | ['batch_size': 64, 'n_steps': 6912, 'gamma': 0.9103634565035998,               |
|               | H_24    | 'learning_rate': 0.00035858281865525814, 'n_epochs': 20,'clip_range':          |
| 1             |         | 0.2779412583087546, 'gae lambda': 0.9058083860180379]                          |
|               | 1       | 0.2777412363667546, gae_iamoda: 0.5036663660160375]                            |

|              |         | 'noise_std':0.7482657372159108,'learning_rate': 0.0013669971512440856,            |
|--------------|---------|---|
|              |         | 'tau': 0.05, 'train_freq': 64, 'gradient_steps': 64]                              |
|              |         | ['batch_size': 128, 'buffer_size': 1000000, 'gamma': 0.995,                       |
|              | H_32    | 'learning_rate': 0.000562301045595862, 'learning_starts': 1000, 'tau': 0.08,      |
|              |         | 'train_freq': 1, 'gradient_steps': 32]  |
|              |         | ['batch_size': 128, 'buffer_size': 10000, 'gamma': 0.95, 'learning_rate':         |
|              | H_33    | 0.00011766677667306279, 'learning_starts': 10000,'tau': 0.02, 'train_freq':       |
|              |         | 512, 'gradient_steps': 256,'top_quantiles_to_drop_per_net': 3, 'n_quantiles':29]  |
|              |         | ['batch_size': 2048, 'buffer_size': 1000000, 'gamma': 0.999,                      |
|              | H_34    | 'noise_std':0.5127950505953394,'learning_rate':0.00019473098062278903,            |
|              |         | 'tau': 0.005, 'train_freq': 1, 'gradient_steps': 1]                               |
|              | H_based | ['batch_size': 16, 'n_steps': 7616, 'gamma': 0.8849943207734652,                  |
|              |         | 'learning_rate': 0.0010244830153997469, 'n_epochs': 20,'clip_range':              |
|              |         | 0.20381705609220702, 'gae_lambda': 0.8604403546655337]                            |
|              | H_21    | ['batch_size': 8, 'n_steps': 6208, 'gamma': 0.9185892275023241,                   |
|              |         | 'learning_rate': 0.004224055794292608, 'n_epochs': 10, 'clip_range':              |
|              |         | 0.21303944035219943, 'gae_lambda': 0.8445330596165352]                            |
|              | H_22    | ['batch_size': 16, 'n_steps': 8192, 'gamma': 0.8911486265979175,                  |
|              |         | 'learning_rate': 0.0002526724963919991, 'n_epochs': 20, 'clip_range':             |
|              |         | 0.19954098439085813, 'gae_lambda': 0.8498810421193769]                            |
|              | H_23    | ['batch_size': 256, 'n_steps': 3136, 'gamma': 0.9546733021541268,                 |
|              |         | 'learning_rate': 0.002738851289451412, 'n_epochs': 20, 'clip_range':              |
|              |         | 0.23031950703224877, 'gae_lambda': 0.9425157788773443]                            |
| Mountain Car |         | ['batch_size': 128, 'n_steps': 2048, 'gamma': 0.961904592453925,                  |
| Continuous   | H_24    | 'learning_rate': 0.001149702016542051, 'n_epochs': 20, 'clip_range':              |
|              |         | 0.2057447489995108, 'gae_lambda': 0.942925712818124]                              |
|              |         | ['batch_size': 64, 'buffer_size': 1000000, 'gamma': 0.9788033143476176,           |
|              | H_31    | 'noise_std': 0.8647260711585298,'learning_rate': 0.00010629138105368415,          |
|              |         | 'tau': 0.01, 'train_freq': 128, 'gradient_steps': 256]                            |
|              |         | ['batch_size': 1024, 'buffer_size': 1000000, 'gamma': 0.9999,                     |
|              | H_32    | 'learning_rate': 0.0006798481317696185, 'learning_starts': 10000, 'tau': 0.02,    |
|              |         | 'train_freq': 32, 'gradient_steps': 8]  |
|              | H_33    | ['batch_size': 128, 'buffer_size': 10000, 'gamma': 0.99, 'learning_rate':         |
|              |         | 0.00011574971392402415, 'learning_starts': 10000, 'tau': 0.005, 'train_freq':     |
|              |         | 64, 'gradient_steps': 256, 'top_quantiles_to_drop_per_net': 6, 'n_quantiles': 13] |
|              | H_34    | ['batch_size': 16, 'buffer_size': 1000000, 'gamma': 0.98,                         |
|              |         | 'noise_std': 0.15007838061374013, 'learning_rate': 8.963009346457138e-05,         |
|              |         | 'tau': 0.08, 'train_freq': 1, 'gradient_steps': 8]                                |