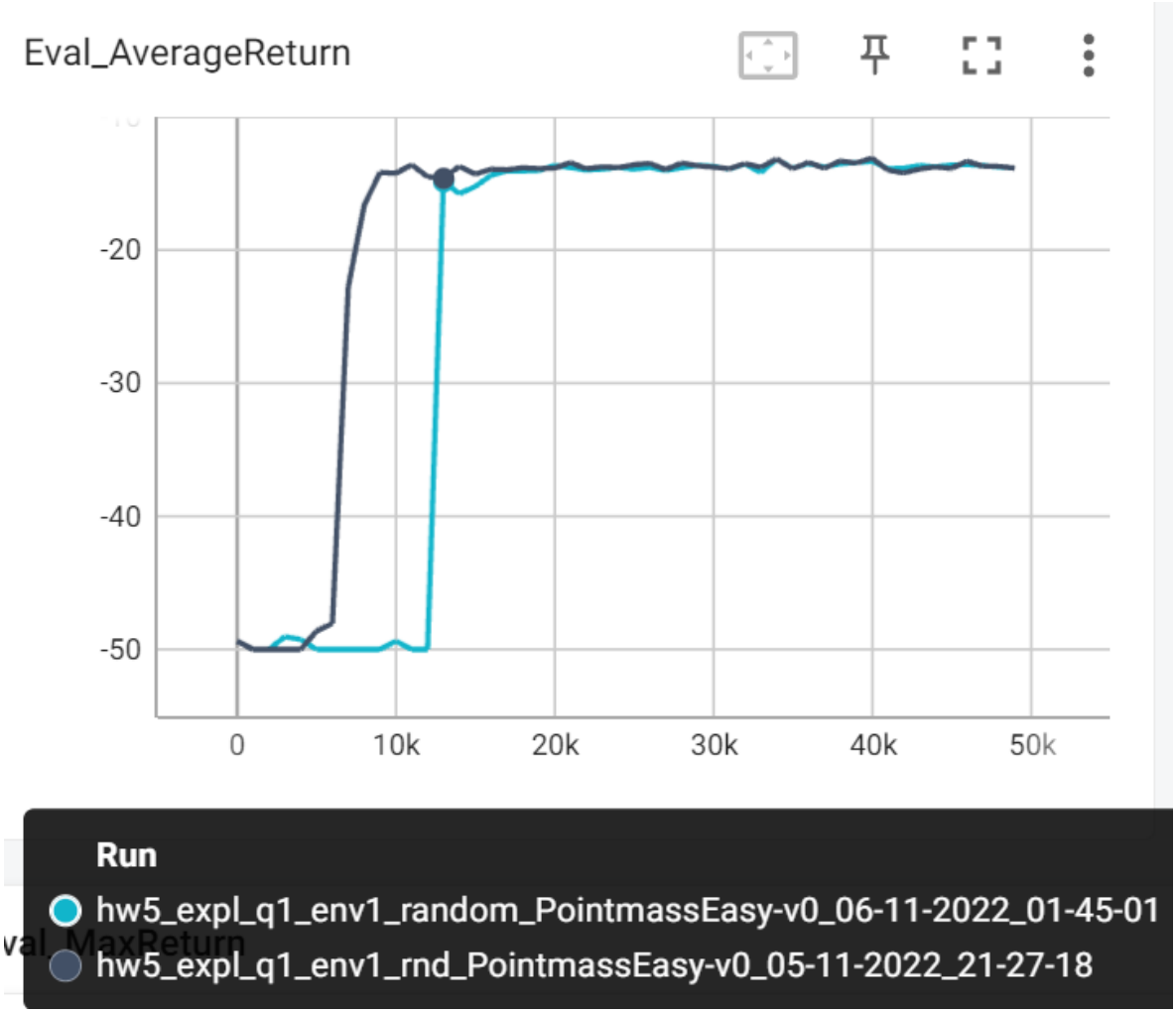
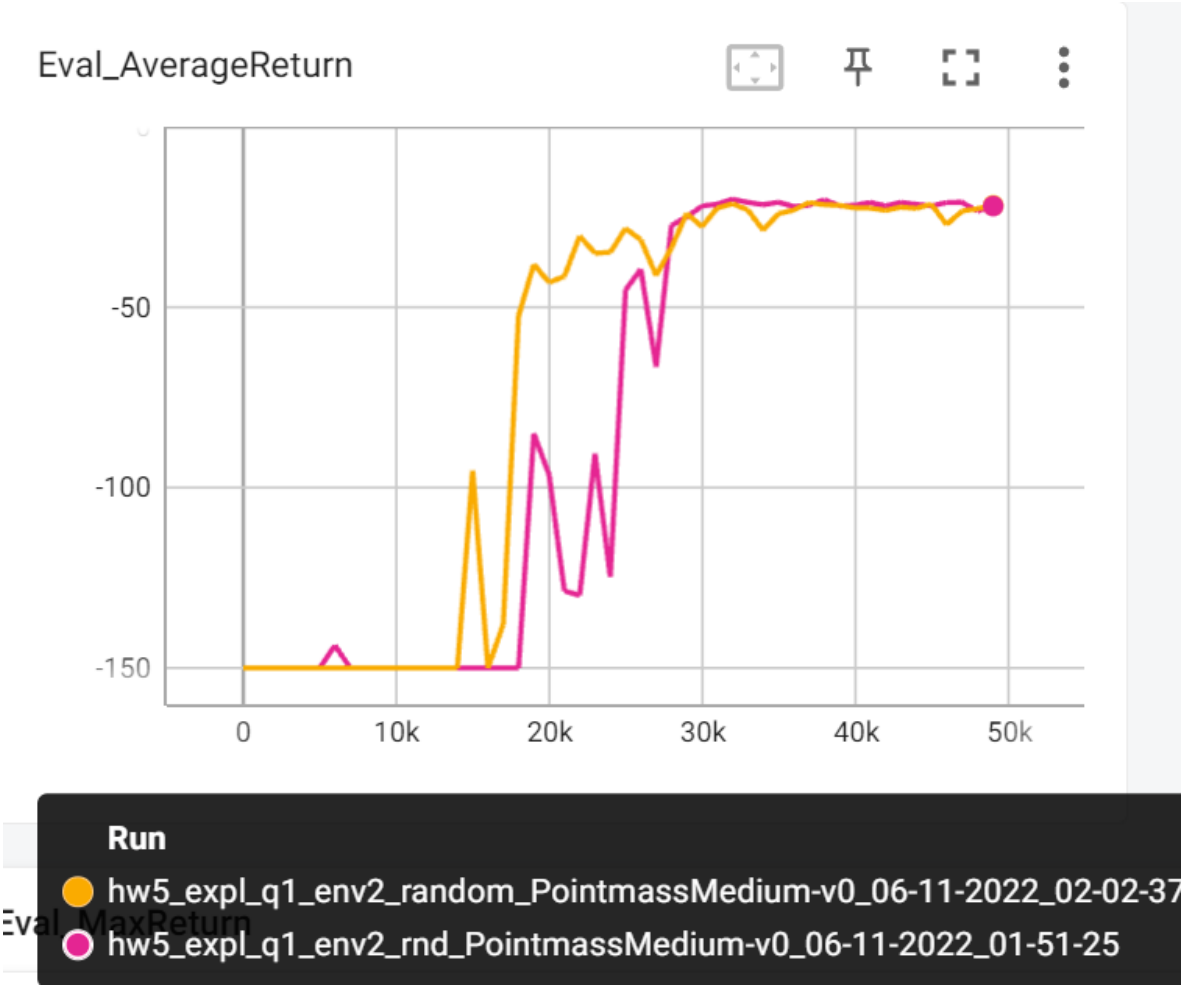
CS285 HW5 Report

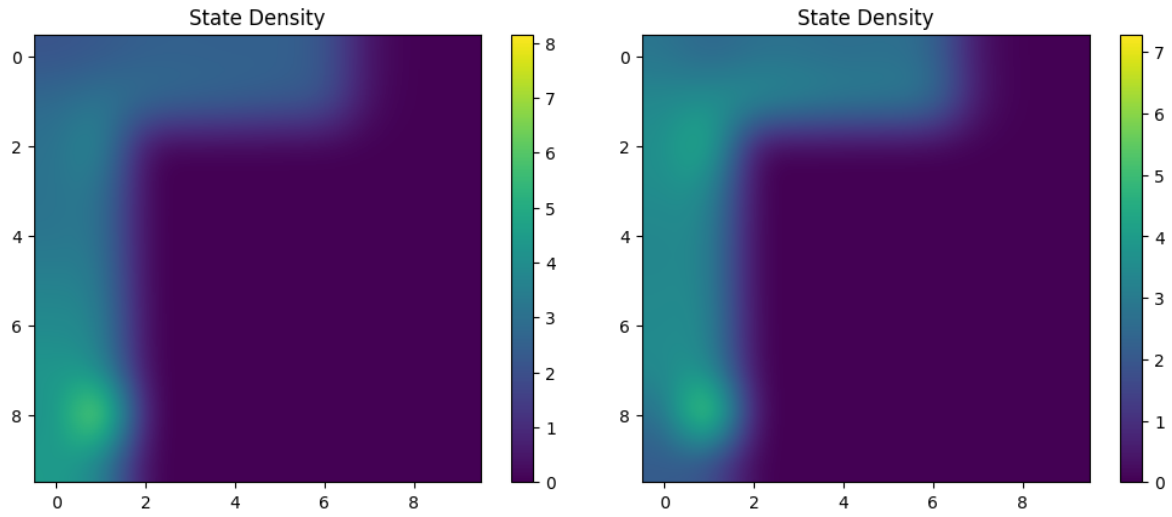
Part 1 “Unsupervised” RND and exploration performance

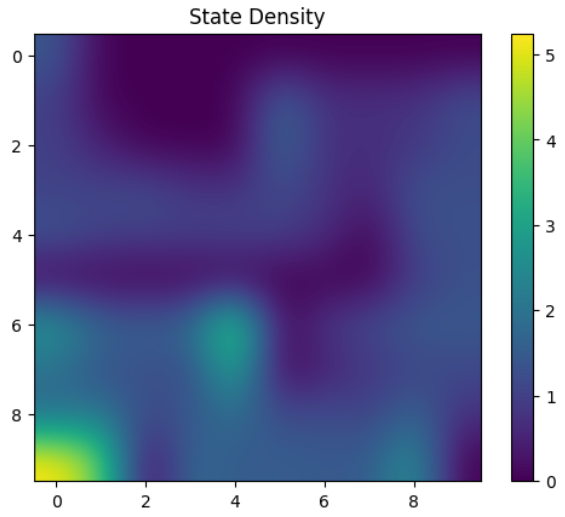
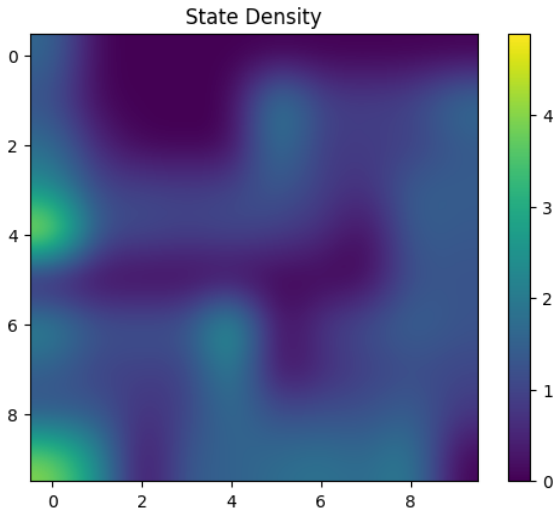
Performance Compare

	Eval Average
Easy	

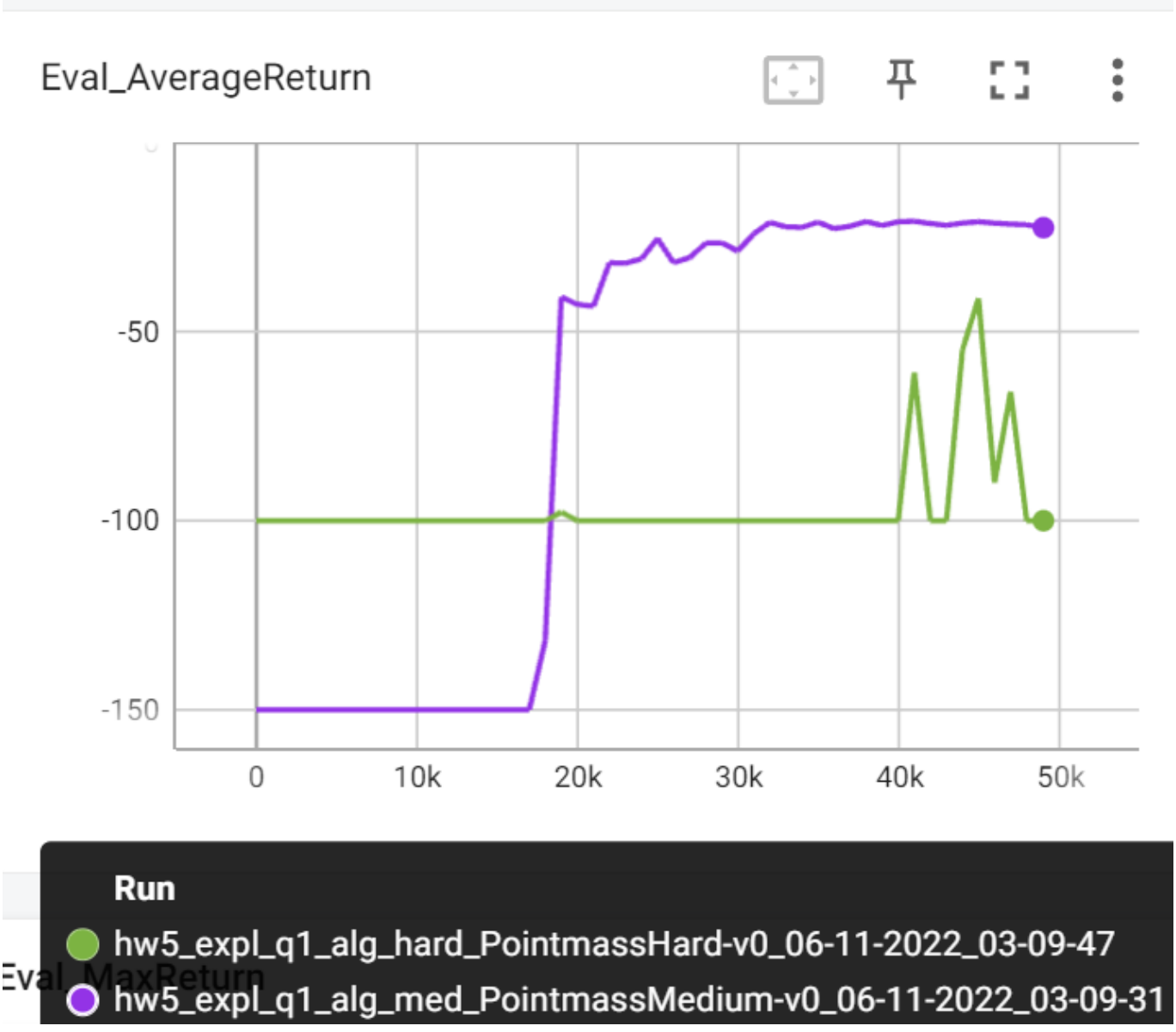
	Eval Average
Medium	

State Density Comparison

	Random	RND
Easy		

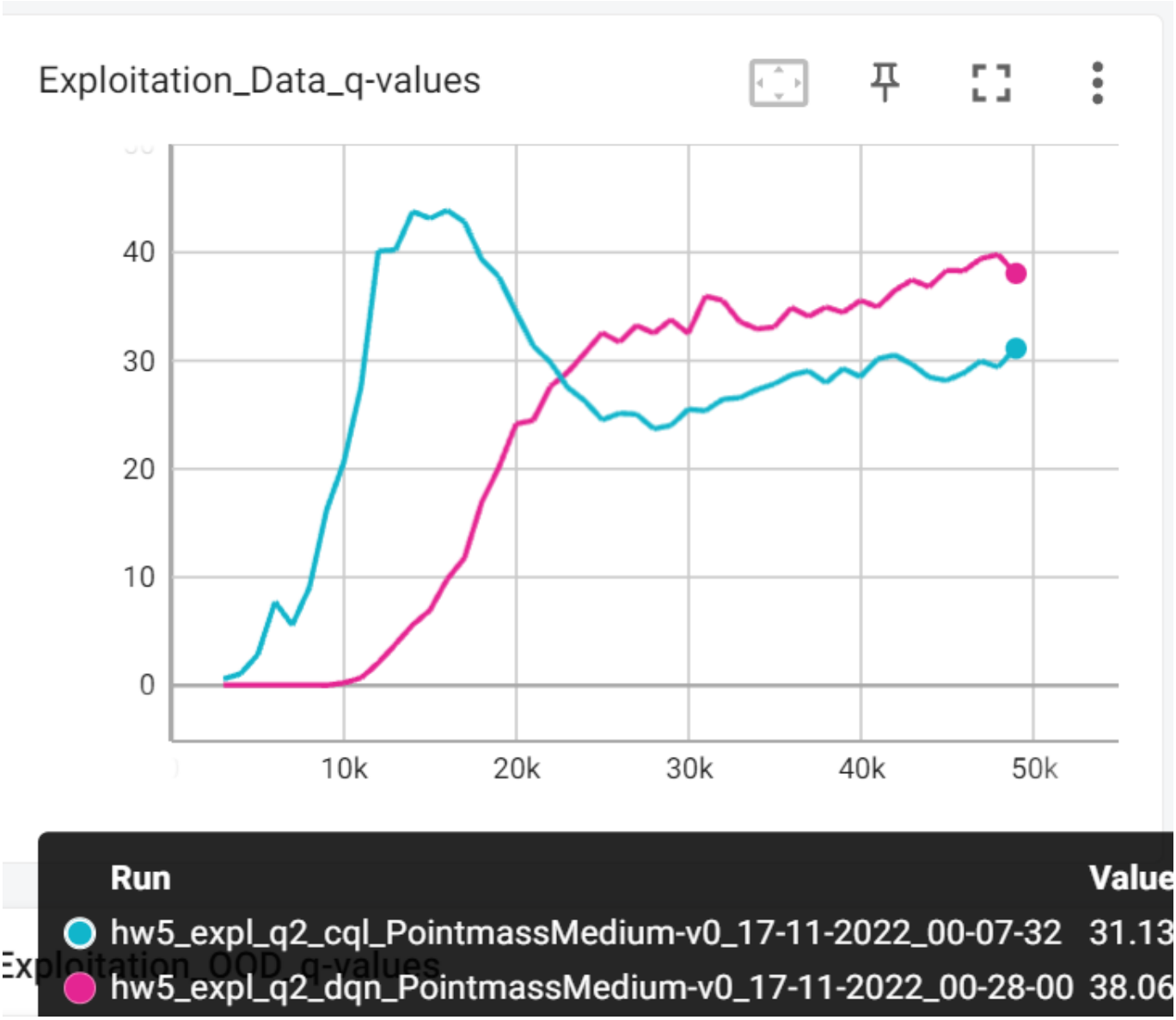
	Random	RND
Medium		

Subpart Custom Exploration: Boltzman

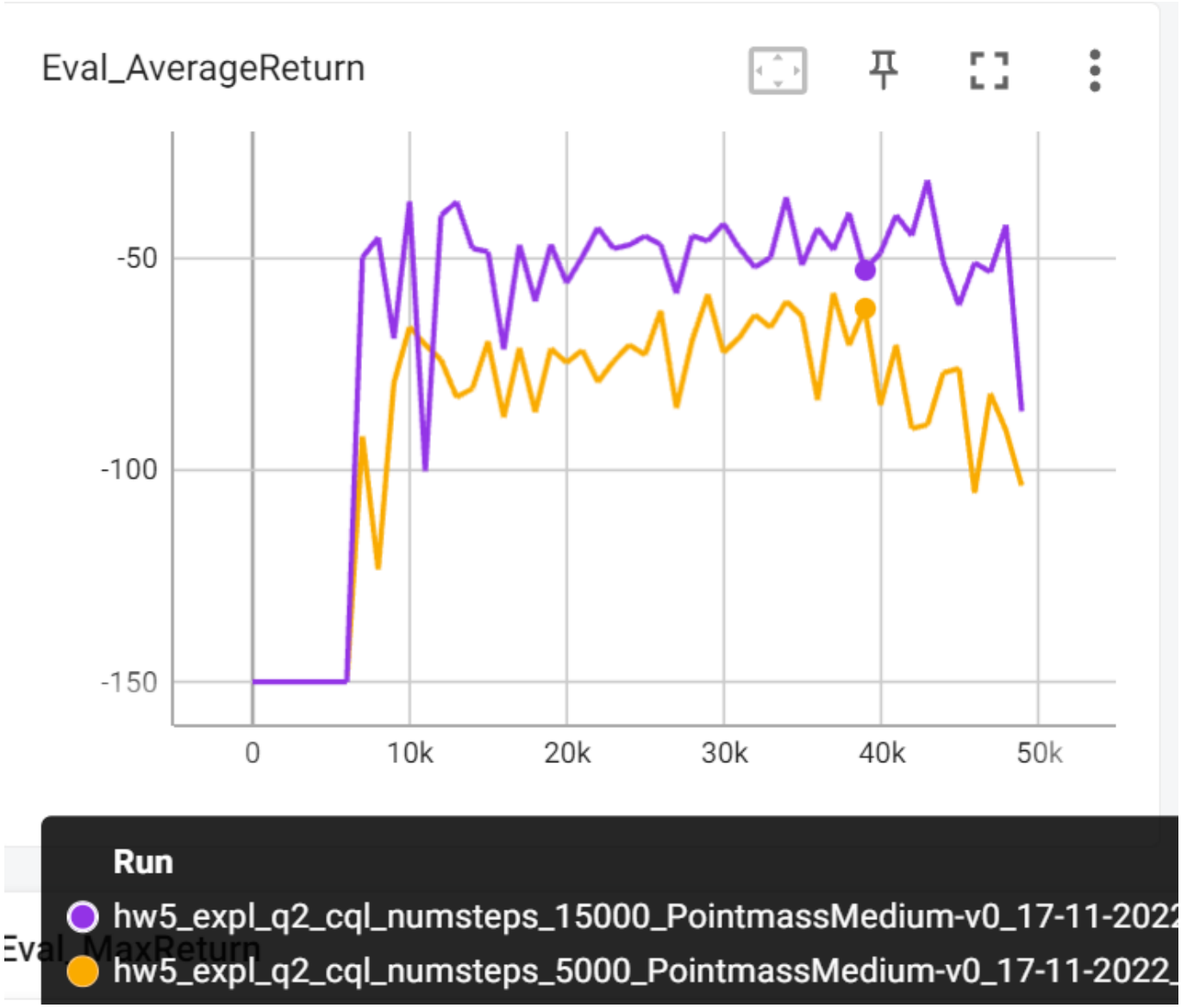


Part 2 Offline learning on exploration data

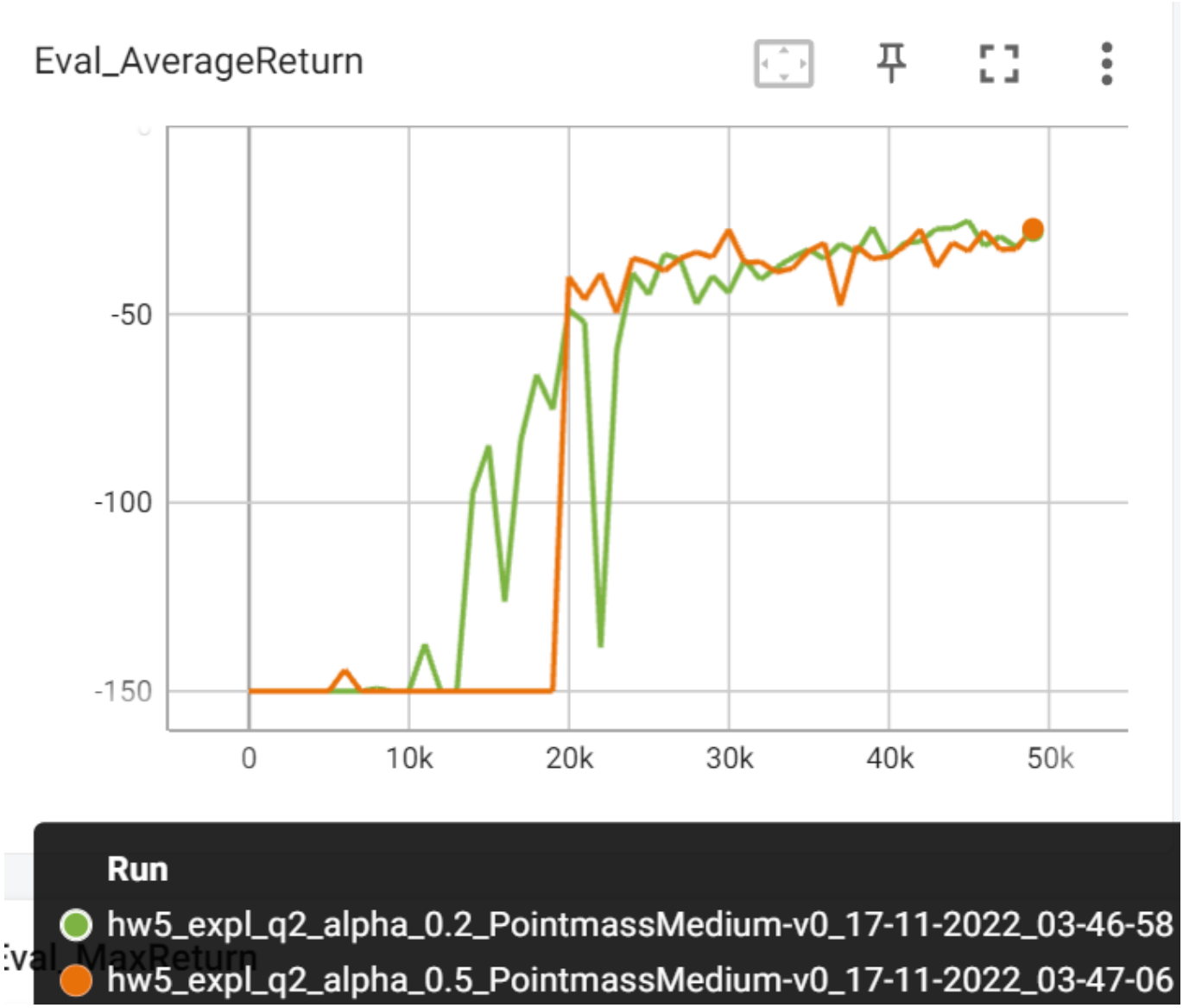
Subpart 1: Q value comparison



Subpart 2 Numsteps comparison:



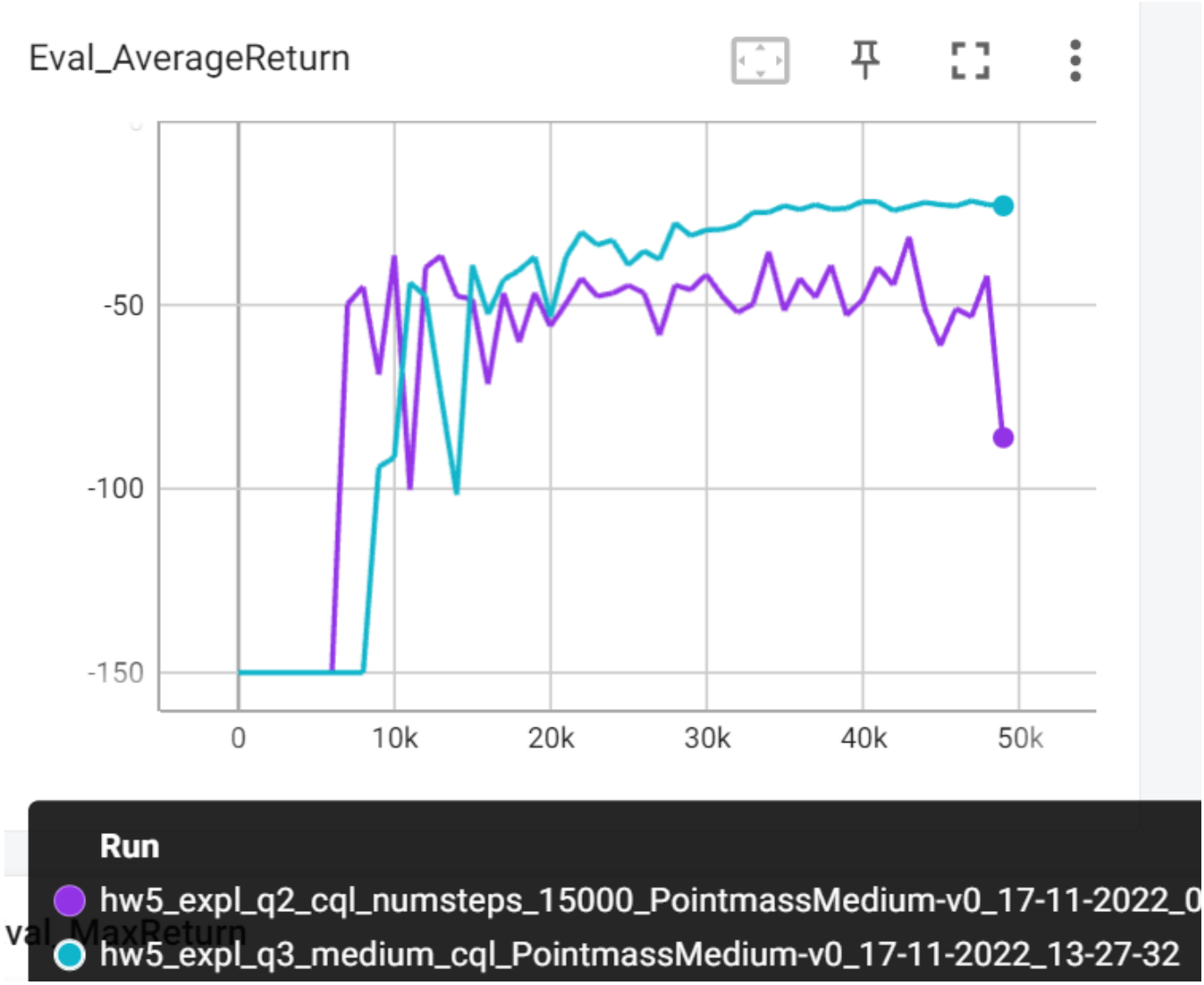
Subpart 3: Alpha comparison:



Alpha 0.2 performs the best while dqn performs the worst.

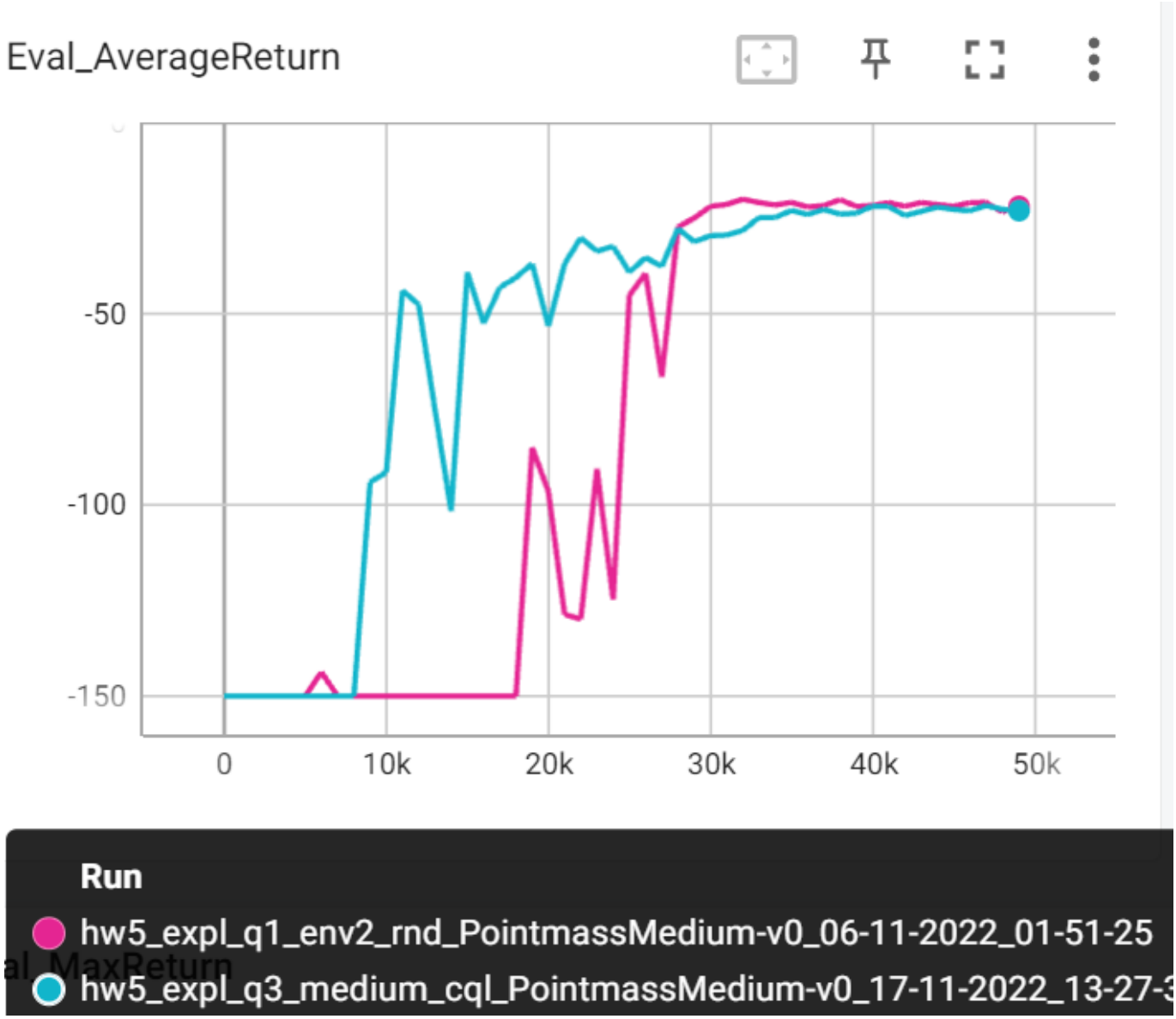
Part 3 “Supervised” exploration with mixed reward bonuses.

Compare to Q2(purely offline)



Clearly, mixed reward is the winner.

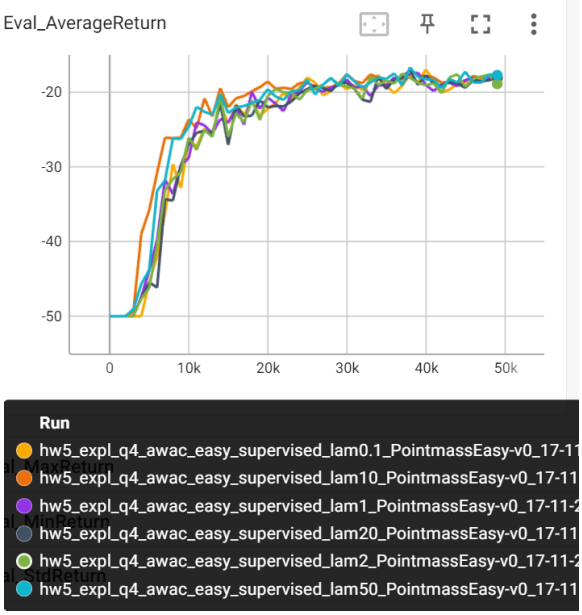
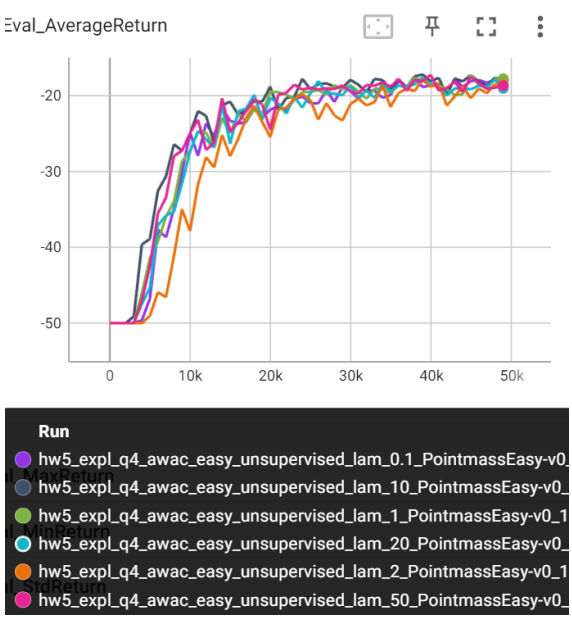
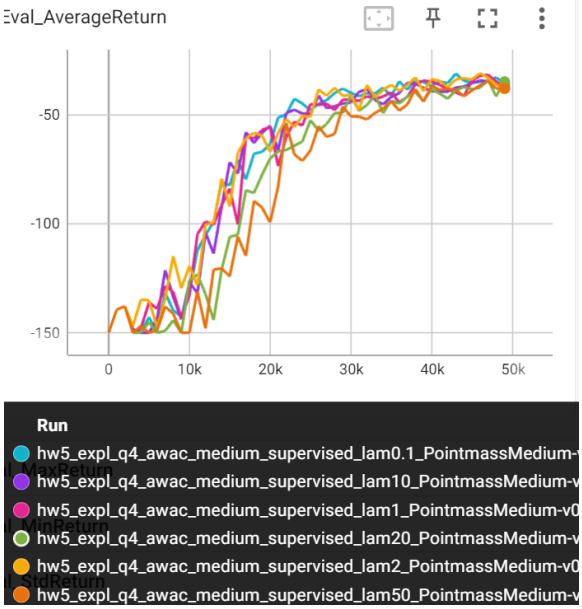
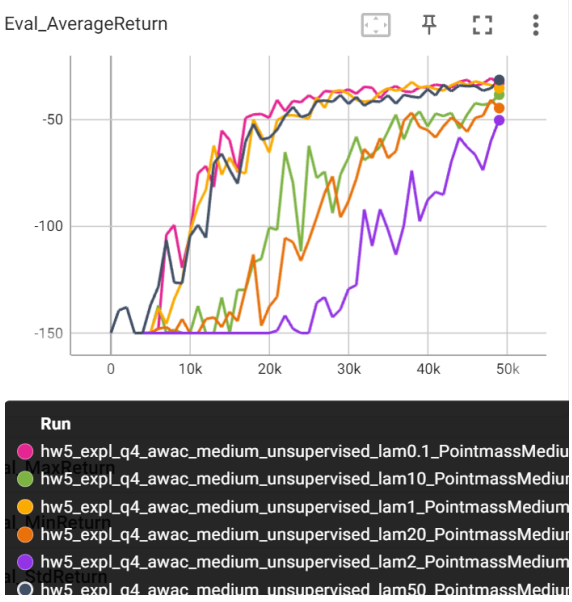
Compare to Q1(rnd with default exploration=10000steps)



Even though the final result is close, but clearly CQL with mixed reward converges a lot faster than standard RND.

Part 4 Offline Learning with AWAC

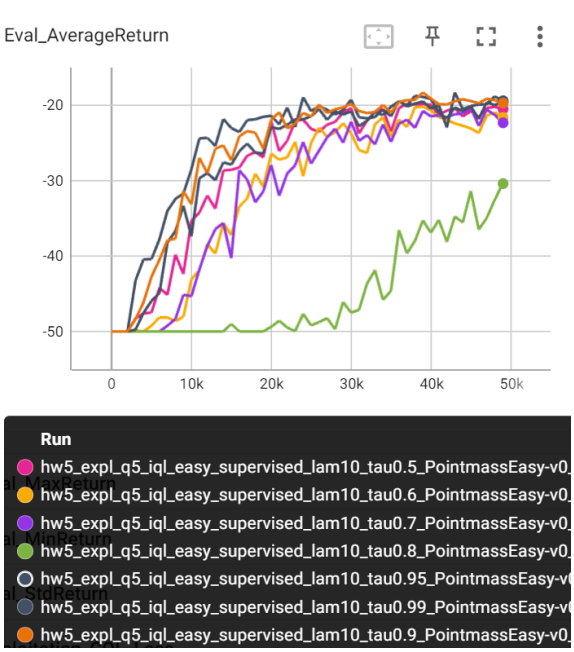
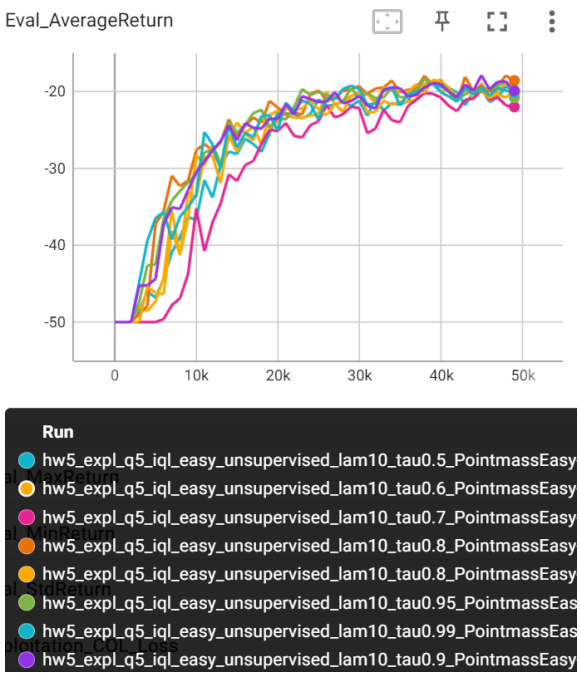
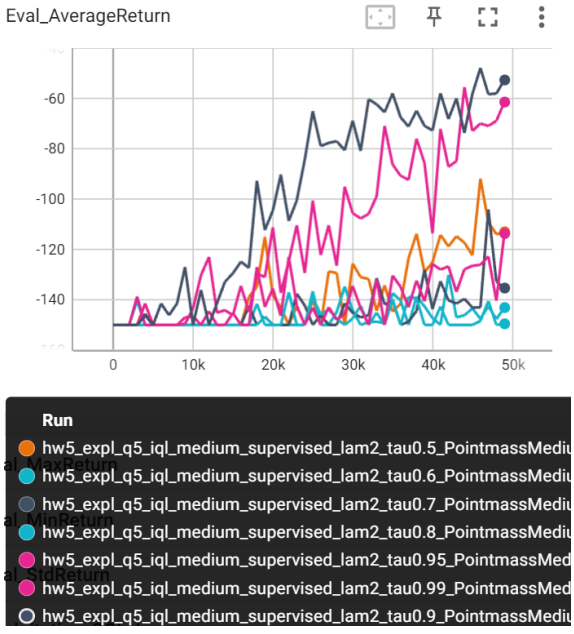
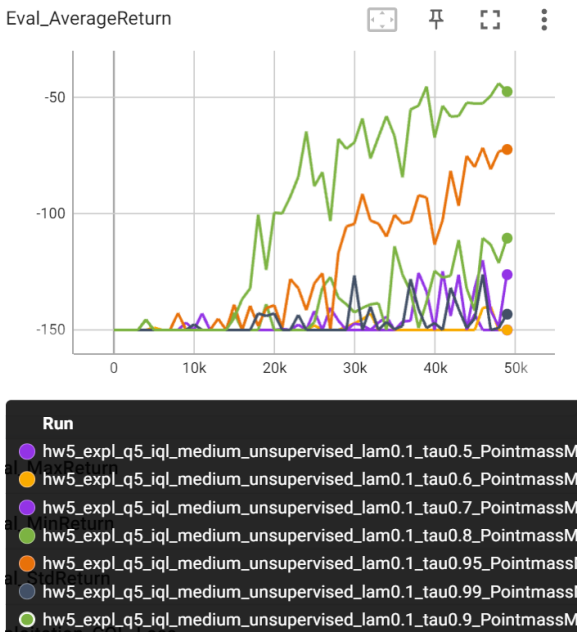
Supervised	Unsupervised

	Supervised	Unsupervised
Easy		
Medium		

Best lambda: Easy-sup(10), Easy-unsup(10), Med-sup(2), Med_unsup(0.1)

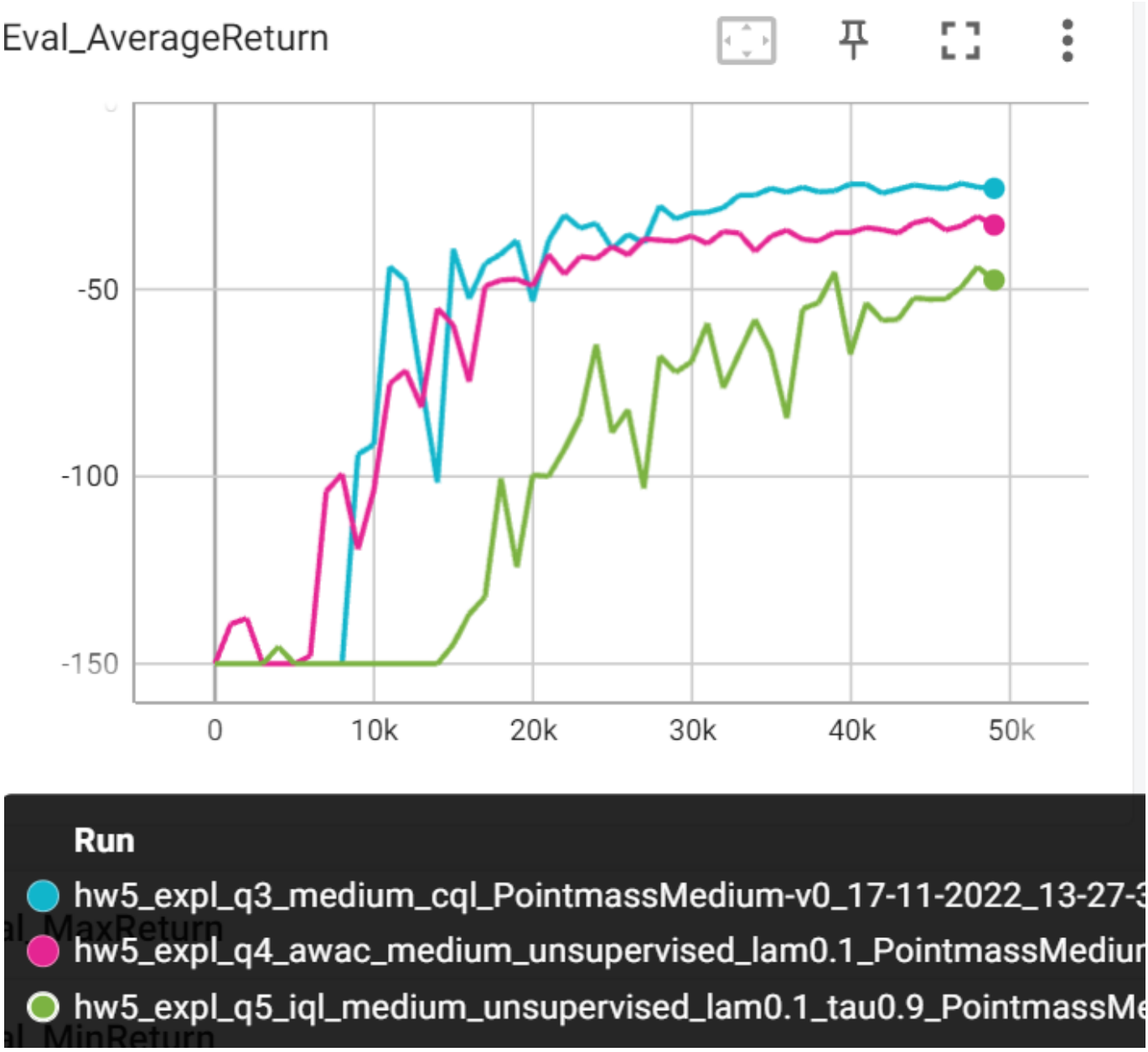
Part 5 Offline Learning with IQL

Supervised	Unsupervised

	Supervised	Unsupervised
Easy		
Medium		

Best tau: Easy-sup(0.99), Easy-unsup(0.8), Med-sup(0.9), Med_unsup(0.9)

Final compare CQL, AWAC, IQL



From the plot, we can see that cql seems to performs the best in the end. AWAC is also really close and converges fast. IQL seems to perform the worst among all.