

ML Model Performance Analysis

Overview

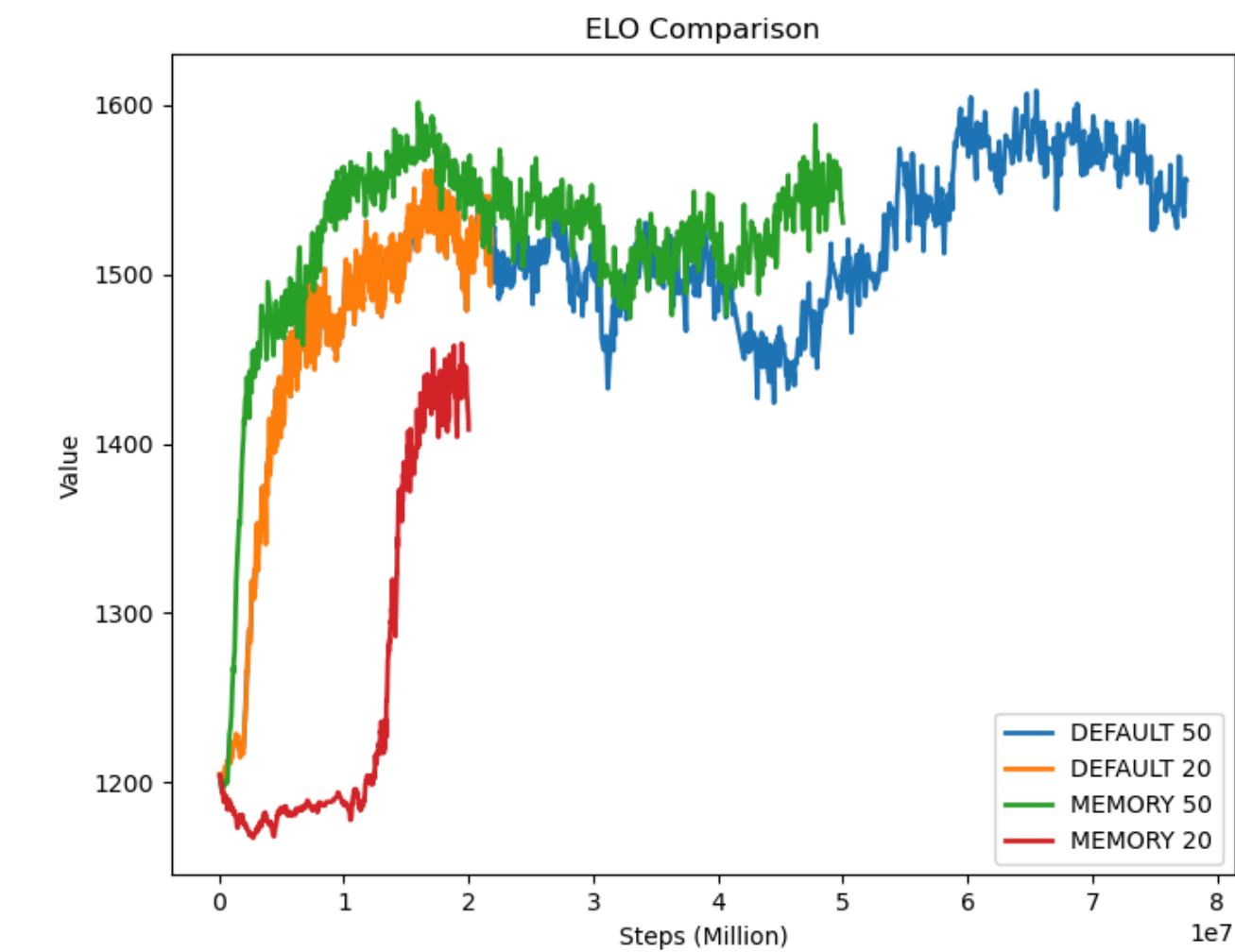
This analysis compares different Memory Sensor training steps against different Base Case training steps.

Configurations

- Base Case (20 million steps)
- Base Case (50 million steps)
- Memory Sensor (50 million steps)
- Memory Sensor (20 million steps)

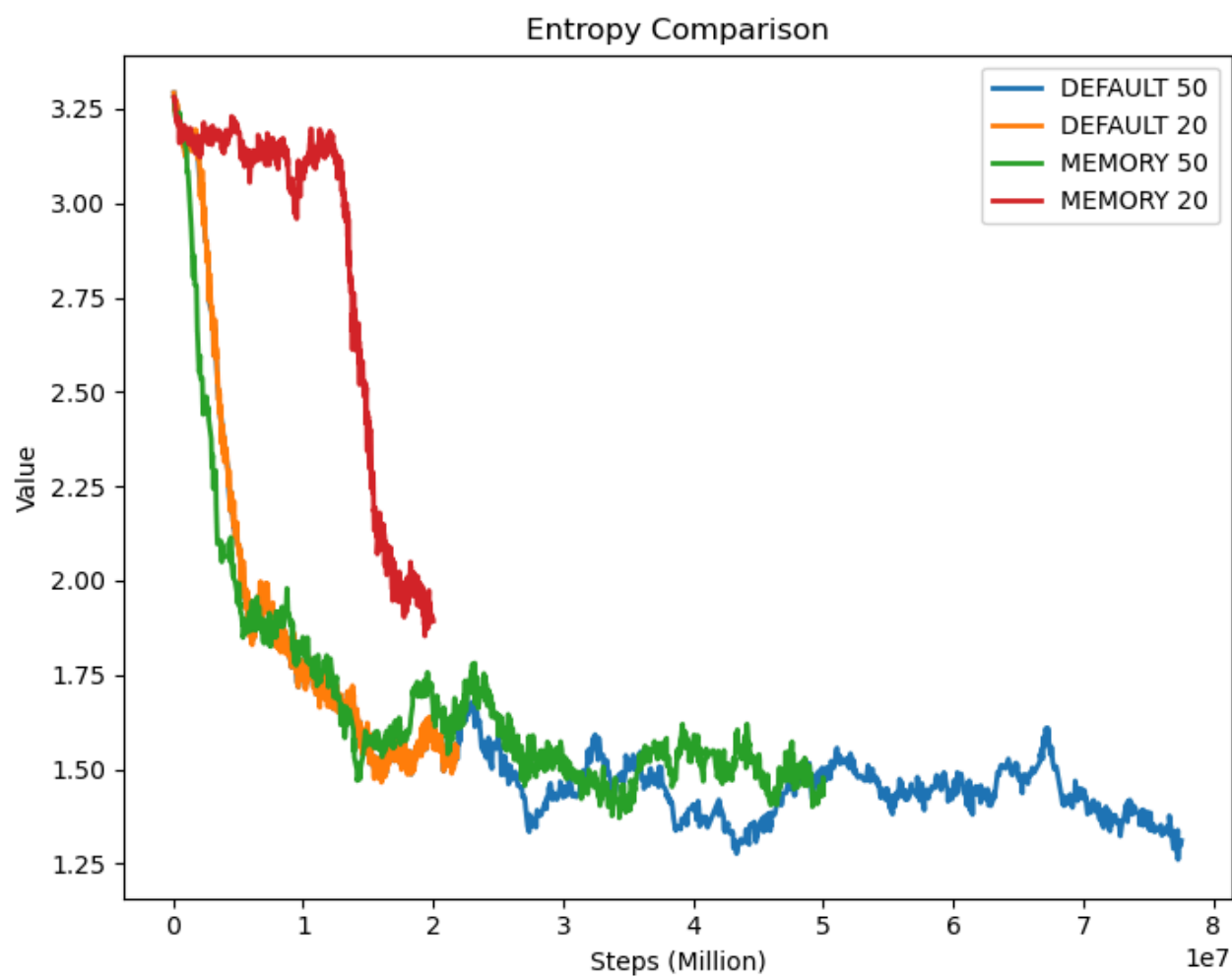
Metrics Analysis

ELO Rating



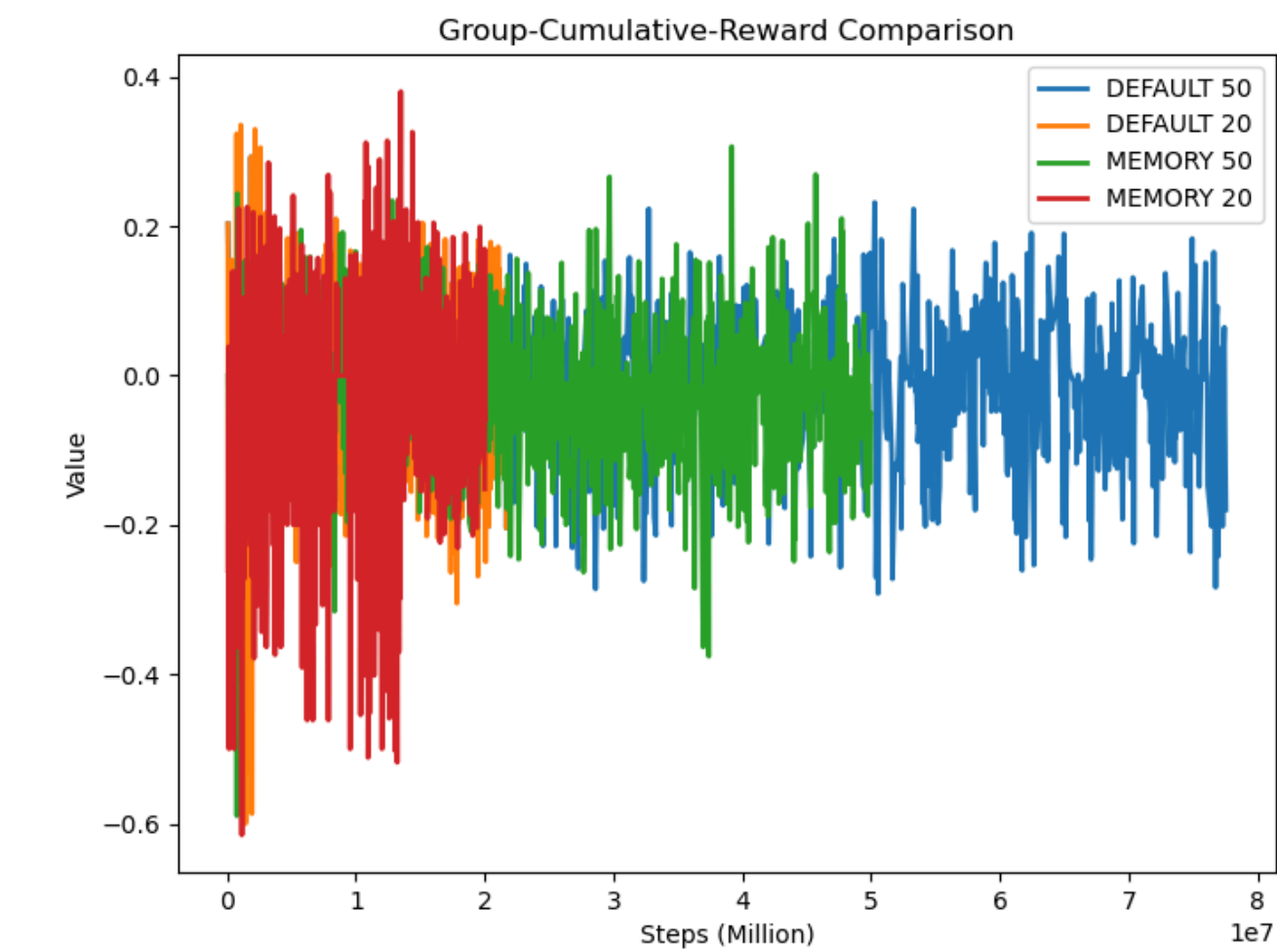
Configuration	Mean	Std Dev	Min	Max
Base Case	1506.60	66.53	1199.95	1608.24
Base Case 20	1459.93	92.54	1199.95	1561.27
Memory Sensor 50	1522.45	53.22	1194.28	1601.35
Memory Sensor 20	1280.55	109.63	1167.39	1459.09

Entropy



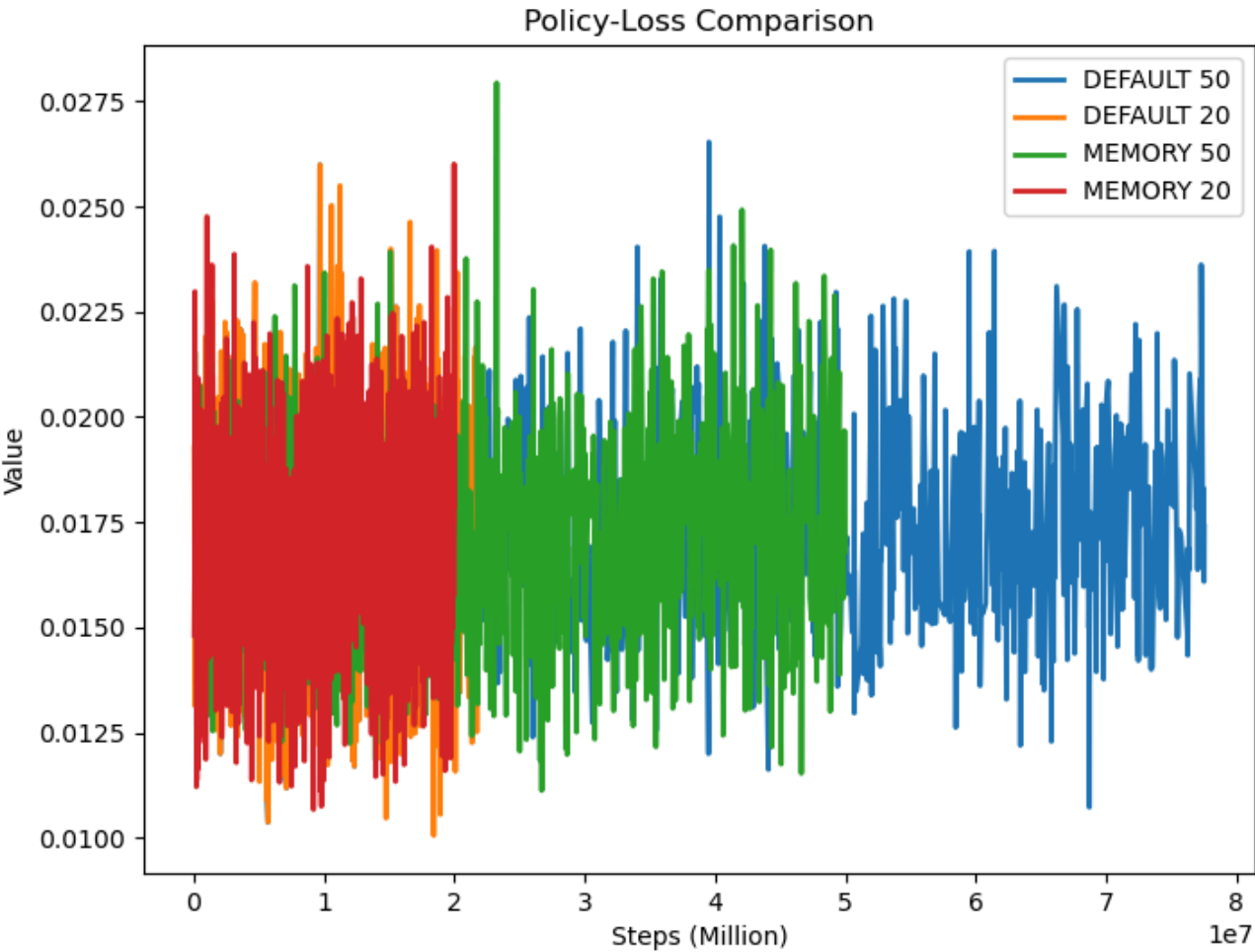
Configuration	Mean	Std Dev	Min	Max
Base Case 50	1.57	0.34	1.26	3.29
Base Case 20	1.92	0.51	1.47	3.29
Memory Sensor 50	1.68	0.31	1.37	3.28
Memory Sensor 20	2.81	0.49	1.85	3.28

Group Cumulative Reward



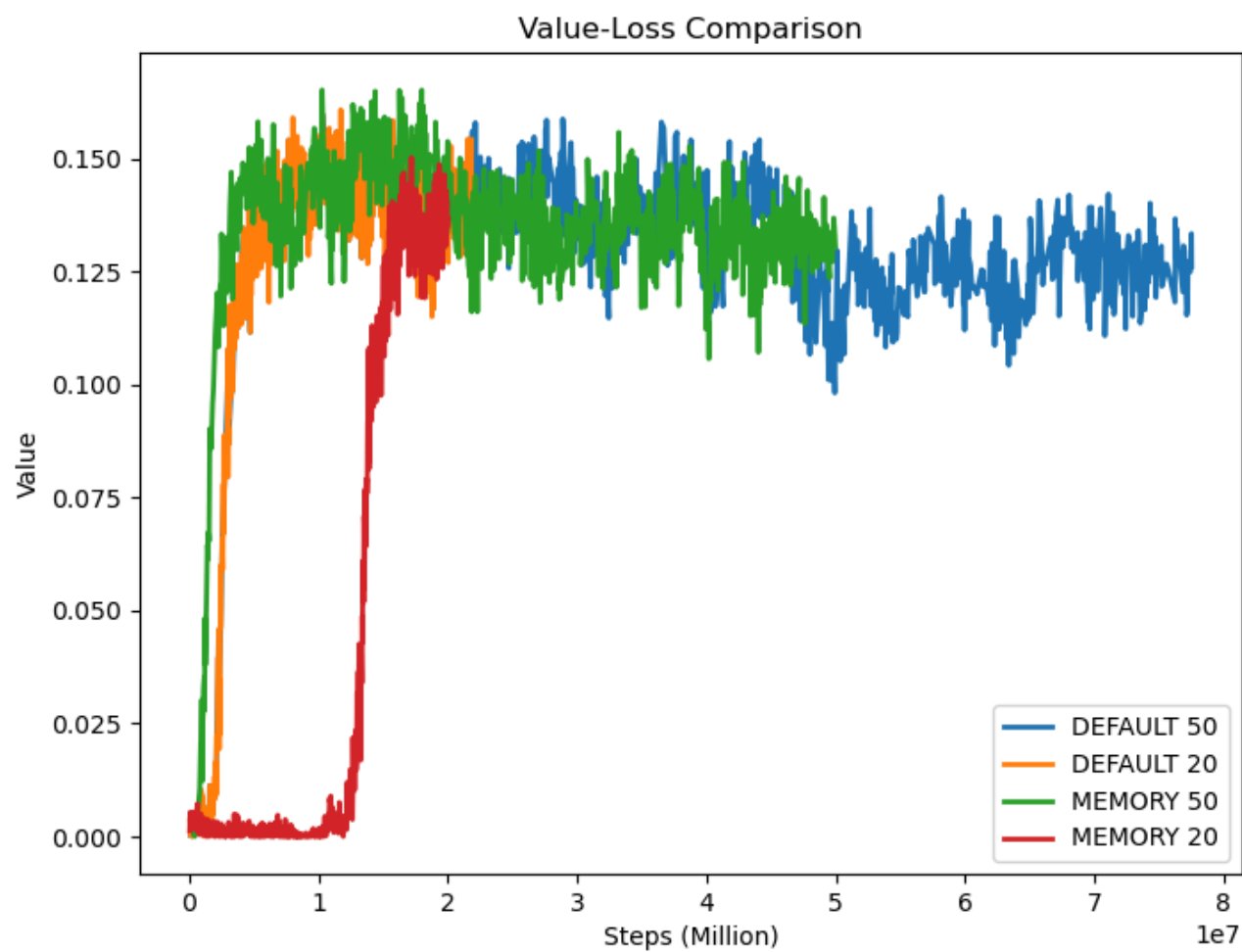
Configuration	Mean	Std Dev	Min	Max
Base Case 50	-0.019	0.098	-0.359	0.293
Base Case 20	-0.020	0.109	-0.600	0.335
Memory Sensor 50	-0.026	0.095	-0.590	0.307
Memory Sensor 20	-0.036	0.137	-0.615	0.380

Policy Loss



Configuration	Mean	Std Dev	Min	Max
Base Case	0.017	0.002	0.010	0.027
Base Case 20	0.017	0.002	0.010	0.026
Memory Sensor 50	0.017	0.002	0.011	0.028
Memory Sensor 20	0.017	0.002	0.011	0.026

Value Loss



Configuration	Mean	Std Dev	Min	Max
Base Case 50	0.130	0.026	0.000	0.160
Base Case 20	0.123	0.043	0.000	0.161
Memory Sensor 50	0.134	0.022	0.000	0.165
Memory Sensor 20	0.044	0.058	0.000	0.150

Key Observations

1. Goals Scored

Fixed Delta Time: 0.01

Sensor Type	Goals Scored	Sensor Type	Goals Scored	Total Goals	Ratio
Base Case 50	111967	Memory Based 50	105574	217541	1.06055
Base Case 20	12004	Memory Based 20	8272	20276	1.45116

- Description:
- **Evaluation:**

2. **ELO**

- Description:
- **Evaluation:**

3. **Entropy**

- Description:
- **Evaluation:**

4. **Group Cumulative Rewards**

- Description:
- **Evaluation:**

5. **Policy Loss**

- Description:
- **Evaluation:**

6. **Value Loss**

- Description:
- **Evaluation:**