Training:

A2C:

------------------------------------

| time/ | |

| fps | 588 |

| iterations | 20000 |

| time\_elapsed | 169 |

| total\_timesteps | 100000 |

| train/ | |

| entropy\_loss | -0.0427 |

| explained\_variance | nan |

| learning\_rate | 0.0007 |

| n\_updates | 19999 |

| policy\_loss | -0 |

| value\_loss | 0 |

Episode:1 Score: -84.0

Episode:2 Score: -79.0

Episode:3 Score: -68.0

Episode:4 Score: -78.0

Episode:5 Score: -77.0

Episode:6 Score: -77.0

Episode:7 Score: -77.0

Episode:8 Score: -78.0

Episode:9 Score: -101.0

Episode:10 Score: -80.0

Episode:11 Score: -80.0

Episode:12 Score: -83.0

Episode:13 Score: -83.0

Episode:14 Score: -78.0

Episode:15 Score: -91.0

Episode:16 Score: -80.0

Episode:17 Score: -77.0

Episode:18 Score: -77.0

Episode:19 Score: -98.0

Episode:20 Score: -76.0

Episode:21 Score: -91.0

Episode:22 Score: -79.0

Episode:23 Score: -83.0

Episode:24 Score: -77.0

Episode:25 Score: -76.0

Episode:26 Score: -83.0

Episode:27 Score: -71.0

Episode:28 Score: -87.0

Episode:29 Score: -79.0

Episode:30 Score: -78.0

Episode:31 Score: -69.0

Episode:32 Score: -77.0

Episode:33 Score: -69.0

Episode:34 Score: -81.0

Episode:35 Score: -77.0

Episode:36 Score: -85.0

Episode:37 Score: -80.0

Episode:38 Score: -93.0

Episode:39 Score: -78.0

Episode:40 Score: -85.0

Episode:41 Score: -77.0

Episode:42 Score: -85.0

Episode:43 Score: -83.0

Episode:44 Score: -88.0

Episode:45 Score: -80.0

Episode:46 Score: -85.0

Episode:47 Score: -85.0

Episode:48 Score: -76.0

Episode:49 Score: -77.0

Episode:50 Score: -91.0

Episode:51 Score: -78.0

Episode:52 Score: -69.0

Episode:53 Score: -87.0

Episode:54 Score: -68.0

Episode:55 Score: -92.0

Episode:56 Score: -79.0

Episode:57 Score: -85.0

Episode:58 Score: -86.0

Episode:59 Score: -70.0

Episode:60 Score: -78.0

Episode:61 Score: -84.0

Episode:62 Score: -77.0

Episode:63 Score: -77.0

Episode:64 Score: -76.0

Episode:65 Score: -79.0

Episode:66 Score: -78.0

Episode:67 Score: -91.0

Episode:68 Score: -85.0

Episode:69 Score: -77.0

Episode:70 Score: -77.0

Episode:71 Score: -97.0

Episode:72 Score: -79.0

Episode:73 Score: -83.0

Episode:74 Score: -88.0

Episode:75 Score: -84.0

Episode:76 Score: -74.0

Episode:77 Score: -69.0

Episode:78 Score: -83.0

Episode:79 Score: -137.0

Episode:80 Score: -77.0

Episode:81 Score: -88.0

Episode:82 Score: -70.0

Episode:83 Score: -83.0

Episode:84 Score: -72.0

Episode:85 Score: -84.0

Episode:86 Score: -79.0

Episode:87 Score: -91.0

Episode:88 Score: -90.0

Episode:89 Score: -262.0

Episode:90 Score: -104.0

Episode:91 Score: -85.0

Episode:92 Score: -77.0

Episode:93 Score: -78.0

Episode:94 Score: -77.0

Episode:95 Score: -86.0

Episode:96 Score: -78.0

Episode:97 Score: -84.0

Episode:98 Score: -76.0

Episode:99 Score: -86.0

Episode:100 Score: -76.0

Mean: -83.37  
SD: 20.02

PPO:

------------------------------------------

| time/ | |

| fps | 926 |

| iterations | 49 |

| time\_elapsed | 108 |

| total\_timesteps | 100352 |

| train/ | |

| approx\_kl | 0.0028296371 |

| clip\_fraction | 0.00734 |

| clip\_range | 0.3 |

| entropy\_loss | -0.241 |

| explained\_variance | 0.809 |

| learning\_rate | 0.001 |

| loss | 3.31 |

| n\_updates | 384 |

| policy\_gradient\_loss | -0.00236 |

| value\_loss | 12.8 |

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Mean: -86.89

SD: 23.26

TRPO:  
----------------------------------------

| time/ | |

| fps | 995 |

| iterations | 49 |

| time\_elapsed | 100 |

| total\_timesteps | 100352 |

| train/ | |

| explained\_variance | 0.912 |

| is\_line\_search\_success | 1 |

| kl\_divergence\_loss | 0.00493 |

| learning\_rate | 0.001 |

| n\_updates | 48 |

| policy\_objective | 0.00855 |

| value\_loss | 8.68 |

Episode:1 Score: -83.0

Episode:2 Score: -81.0

Episode:3 Score: -118.0

Episode:4 Score: -93.0

Episode:5 Score: -61.0

Episode:6 Score: -92.0

Episode:7 Score: -63.0

Episode:8 Score: -71.0

Episode:9 Score: -75.0

Episode:10 Score: -71.0

Episode:11 Score: -83.0

Episode:12 Score: -84.0

Episode:13 Score: -89.0

Episode:14 Score: -72.0

Episode:15 Score: -166.0

Episode:16 Score: -77.0

Episode:17 Score: -99.0

Episode:18 Score: -70.0

Episode:19 Score: -84.0

Episode:20 Score: -77.0

Episode:21 Score: -87.0

Episode:22 Score: -89.0

Episode:23 Score: -60.0

Episode:24 Score: -71.0

Episode:25 Score: -78.0

Episode:26 Score: -103.0

Episode:27 Score: -77.0

Episode:28 Score: -64.0

Episode:29 Score: -85.0

Episode:30 Score: -72.0

Episode:31 Score: -147.0

Episode:32 Score: -71.0

Episode:33 Score: -88.0

Episode:34 Score: -73.0

Episode:35 Score: -71.0

Episode:36 Score: -83.0

Episode:37 Score: -64.0

Episode:38 Score: -69.0

Episode:39 Score: -76.0

Episode:40 Score: -99.0

Episode:41 Score: -82.0

Episode:42 Score: -94.0

Episode:43 Score: -93.0

Episode:44 Score: -77.0

Episode:45 Score: -101.0

Episode:46 Score: -86.0

Episode:47 Score: -93.0

Episode:48 Score: -72.0

Episode:49 Score: -259.0

Episode:50 Score: -87.0

Episode:51 Score: -72.0

Episode:52 Score: -79.0

Episode:53 Score: -76.0

Episode:54 Score: -94.0

Episode:55 Score: -79.0

Episode:56 Score: -71.0

Episode:57 Score: -90.0

Episode:58 Score: -84.0

Episode:59 Score: -94.0

Episode:60 Score: -75.0

Episode:61 Score: -111.0

Episode:62 Score: -78.0

Episode:63 Score: -81.0

Episode:64 Score: -74.0

Episode:65 Score: -70.0

Episode:66 Score: -72.0

Episode:67 Score: -87.0

Episode:68 Score: -71.0

Episode:69 Score: -70.0

Episode:70 Score: -75.0

Episode:71 Score: -95.0

Episode:72 Score: -63.0

Episode:73 Score: -72.0

Episode:74 Score: -92.0

Episode:75 Score: -72.0

Episode:76 Score: -98.0

Episode:77 Score: -70.0

Episode:78 Score: -73.0

Episode:79 Score: -91.0

Episode:80 Score: -73.0

Episode:81 Score: -63.0

Episode:82 Score: -72.0

Episode:83 Score: -72.0

Episode:84 Score: -110.0

Episode:85 Score: -80.0

Episode:86 Score: -74.0

Episode:87 Score: -77.0

Episode:88 Score: -73.0

Episode:89 Score: -97.0

Episode:90 Score: -62.0

Episode:91 Score: -74.0

Episode:92 Score: -70.0

Episode:93 Score: -102.0

Episode:94 Score: -69.0

Episode:95 Score: -79.0

Episode:96 Score: -92.0

Episode:97 Score: -62.0

Episode:98 Score: -75.0

Episode:99 Score: -79.0

Episode:100 Score: -73.0

Mean: -83.37  
SD: 23.79

Default:  
PPO:

-----------------------------------------

| time/ | |

| fps | 735 |

| iterations | 49 |

| time\_elapsed | 136 |

| total\_timesteps | 100352 |

| train/ | |

| approx\_kl | 0.003182754 |

| clip\_fraction | 0.0234 |

| clip\_range | 0.2 |

| entropy\_loss | -0.163 |

| explained\_variance | 0.895 |

| learning\_rate | 0.0003 |

| loss | 11 |

| n\_updates | 480 |

| policy\_gradient\_loss | -0.00178 |

| value\_loss | 21.2 |

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Episode:1 Score: -91.0

Episode:2 Score: -85.0

Episode:3 Score: -75.0

Episode:4 Score: -79.0

Episode:5 Score: -93.0

Episode:6 Score: -83.0

Episode:7 Score: -72.0

Episode:8 Score: -78.0

Episode:9 Score: -73.0

Episode:10 Score: -81.0

Episode:11 Score: -108.0

Episode:12 Score: -78.0

Episode:13 Score: -83.0

Episode:14 Score: -89.0

Episode:15 Score: -71.0

Episode:16 Score: -71.0

Episode:17 Score: -83.0

Episode:18 Score: -94.0

Episode:19 Score: -78.0

Episode:20 Score: -78.0

Episode:21 Score: -80.0

Episode:22 Score: -151.0

Episode:23 Score: -78.0

Episode:24 Score: -78.0

Episode:25 Score: -70.0

Episode:26 Score: -78.0

Episode:27 Score: -72.0

Episode:28 Score: -86.0

Episode:29 Score: -82.0

Episode:30 Score: -89.0

Episode:31 Score: -70.0

Episode:32 Score: -227.0

Episode:33 Score: -88.0

Episode:34 Score: -75.0

Episode:35 Score: -76.0

Episode:36 Score: -76.0

Episode:37 Score: -70.0

Episode:38 Score: -71.0

Episode:39 Score: -86.0

Episode:40 Score: -72.0

Episode:41 Score: -78.0

Episode:42 Score: -77.0

Episode:43 Score: -77.0

Episode:44 Score: -73.0

Episode:45 Score: -90.0

Episode:46 Score: -151.0

Episode:47 Score: -72.0

Episode:48 Score: -87.0

Episode:49 Score: -159.0

Episode:50 Score: -77.0

Episode:51 Score: -78.0

Episode:52 Score: -78.0

Episode:53 Score: -80.0

Episode:54 Score: -79.0

Episode:55 Score: -61.0

Episode:56 Score: -77.0

Episode:57 Score: -98.0

Episode:58 Score: -115.0

Episode:59 Score: -76.0

Episode:60 Score: -80.0

Episode:61 Score: -81.0

Episode:62 Score: -90.0

Episode:63 Score: -81.0

Episode:64 Score: -90.0

Episode:65 Score: -100.0

Episode:66 Score: -76.0

Episode:67 Score: -149.0

Episode:68 Score: -76.0

Episode:69 Score: -78.0

Episode:70 Score: -77.0

Episode:71 Score: -90.0

Episode:72 Score: -211.0

Episode:73 Score: -84.0

Episode:74 Score: -85.0

Episode:75 Score: -87.0

Episode:76 Score: -84.0

Episode:77 Score: -92.0

Episode:78 Score: -69.0

Episode:79 Score: -93.0

Episode:80 Score: -86.0

Episode:81 Score: -79.0

Episode:82 Score: -74.0

Episode:83 Score: -71.0

Episode:84 Score: -77.0

Episode:85 Score: -82.0

Episode:86 Score: -75.0

Episode:87 Score: -72.0

Episode:88 Score: -77.0

Episode:89 Score: -63.0

Episode:90 Score: -78.0

Episode:91 Score: -97.0

Episode:92 Score: -85.0

Episode:93 Score: -77.0

Episode:94 Score: -84.0

Episode:95 Score: -71.0

Episode:96 Score: -77.0

Episode:97 Score: -87.0

Episode:98 Score: -69.0

Episode:99 Score: -74.0

Episode:100 Score: -75.0

Mean: -86.04  
SD: 25.32

A2C:

-------------------------------------

| time/ | |

| fps | 588 |

| iterations | 20000 |

| time\_elapsed | 169 |

| total\_timesteps | 100000 |

| train/ | |

| entropy\_loss | -0.00736 |

| explained\_variance | 0.148 |

| learning\_rate | 0.0007 |

| n\_updates | 19999 |

| policy\_loss | -3.74e-06 |

| value\_loss | 2.06e-05 |

Episode:1 Score: -154.0

Episode:2 Score: -198.0

Episode:3 Score: -130.0

Episode:4 Score: -173.0

Episode:5 Score: -141.0

Episode:6 Score: -186.0

Episode:7 Score: -150.0

Episode:8 Score: -143.0

Episode:9 Score: -157.0

Episode:10 Score: -192.0

Episode:11 Score: -191.0

Episode:12 Score: -128.0

Episode:13 Score: -233.0

Episode:14 Score: -165.0

Episode:15 Score: -144.0

Episode:16 Score: -138.0

Episode:17 Score: -147.0

Episode:18 Score: -150.0

Episode:19 Score: -136.0

Episode:20 Score: -159.0

Episode:21 Score: -143.0

Episode:22 Score: -144.0

Episode:23 Score: -129.0

Episode:24 Score: -149.0

Episode:25 Score: -158.0

Episode:26 Score: -227.0

Episode:27 Score: -153.0

Episode:28 Score: -140.0

Episode:29 Score: -164.0

Episode:30 Score: -197.0

Episode:31 Score: -221.0

Episode:32 Score: -189.0

Episode:33 Score: -146.0

Episode:34 Score: -148.0

Episode:35 Score: -148.0

Episode:36 Score: -114.0

Episode:37 Score: -126.0

Episode:38 Score: -136.0

Episode:39 Score: -131.0

Episode:40 Score: -161.0

Episode:41 Score: -155.0

Episode:42 Score: -116.0

Episode:43 Score: -161.0

Episode:44 Score: -153.0

Episode:45 Score: -147.0

Episode:46 Score: -170.0

Episode:47 Score: -194.0

Episode:48 Score: -147.0

Episode:49 Score: -155.0

Episode:50 Score: -140.0

Episode:51 Score: -155.0

Episode:52 Score: -139.0

Episode:53 Score: -187.0

Episode:54 Score: -129.0

Episode:55 Score: -152.0

Episode:56 Score: -150.0

Episode:57 Score: -141.0

Episode:58 Score: -159.0

Episode:59 Score: -149.0

Episode:60 Score: -138.0

Episode:61 Score: -136.0

Episode:62 Score: -136.0

Episode:63 Score: -130.0

Episode:64 Score: -160.0

Episode:65 Score: -117.0

Episode:66 Score: -152.0

Episode:67 Score: -156.0

Episode:68 Score: -188.0

Episode:69 Score: -139.0

Episode:70 Score: -141.0

Episode:71 Score: -139.0

Episode:72 Score: -203.0

Episode:73 Score: -131.0

Episode:74 Score: -130.0

Episode:75 Score: -172.0

Episode:76 Score: -128.0

Episode:77 Score: -149.0

Episode:78 Score: -129.0

Episode:79 Score: -175.0

Episode:80 Score: -157.0

Episode:81 Score: -145.0

Episode:82 Score: -129.0

Episode:83 Score: -134.0

Episode:84 Score: -166.0

Episode:85 Score: -136.0

Episode:86 Score: -158.0

Episode:87 Score: -138.0

Episode:88 Score: -159.0

Episode:89 Score: -138.0

Episode:90 Score: -148.0

Episode:91 Score: -136.0

Episode:92 Score: -137.0

Episode:93 Score: -159.0

Episode:94 Score: -145.0

Episode:95 Score: -140.0

Episode:96 Score: -148.0

Episode:97 Score: -144.0

Episode:98 Score: -154.0

Episode:99 Score: -163.0

Episode:100 Score: -175.0

Mean: -152.96  
SD: 22.82  
  
TRPO:  
----------------------------------------

| time/ | |

| fps | 1058 |

| iterations | 49 |

| time\_elapsed | 94 |

| total\_timesteps | 100352 |

| train/ | |

| explained\_variance | 0.897 |

| is\_line\_search\_success | 1 |

| kl\_divergence\_loss | 0.00397 |

| learning\_rate | 0.001 |

| n\_updates | 48 |

| policy\_objective | 0.0128 |

| value\_loss | 20.7 |

Episode:1 Score: -78.0

Episode:2 Score: -72.0

Episode:3 Score: -70.0

Episode:4 Score: -95.0

Episode:5 Score: -91.0

Episode:6 Score: -120.0

Episode:7 Score: -70.0

Episode:8 Score: -71.0

Episode:9 Score: -89.0

Episode:10 Score: -70.0

Episode:11 Score: -91.0

Episode:12 Score: -102.0

Episode:13 Score: -81.0

Episode:14 Score: -73.0

Episode:15 Score: -63.0

Episode:16 Score: -90.0

Episode:17 Score: -61.0

Episode:18 Score: -277.0

Episode:19 Score: -93.0

Episode:20 Score: -89.0

Episode:21 Score: -96.0

Episode:22 Score: -77.0

Episode:23 Score: -104.0

Episode:24 Score: -115.0

Episode:25 Score: -66.0

Episode:26 Score: -97.0

Episode:27 Score: -73.0

Episode:28 Score: -78.0

Episode:29 Score: -81.0

Episode:30 Score: -92.0

Episode:31 Score: -65.0

Episode:32 Score: -72.0

Episode:33 Score: -85.0

Episode:34 Score: -61.0

Episode:35 Score: -92.0

Episode:36 Score: -71.0

Episode:37 Score: -69.0

Episode:38 Score: -84.0

Episode:39 Score: -88.0

Episode:40 Score: -90.0

Episode:41 Score: -93.0

Episode:42 Score: -101.0

Episode:43 Score: -100.0

Episode:44 Score: -92.0

Episode:45 Score: -88.0

Episode:46 Score: -76.0

Episode:47 Score: -206.0

Episode:48 Score: -80.0

Episode:49 Score: -96.0

Episode:50 Score: -78.0

Episode:51 Score: -85.0

Episode:52 Score: -71.0

Episode:53 Score: -82.0

Episode:54 Score: -95.0

Episode:55 Score: -62.0

Episode:56 Score: -87.0

Episode:57 Score: -97.0

Episode:58 Score: -90.0

Episode:59 Score: -78.0

Episode:60 Score: -108.0

Episode:61 Score: -140.0

Episode:62 Score: -89.0

Episode:63 Score: -81.0

Episode:64 Score: -63.0

Episode:65 Score: -71.0

Episode:66 Score: -94.0

Episode:67 Score: -94.0

Episode:68 Score: -63.0

Episode:69 Score: -93.0

Episode:70 Score: -76.0

Episode:71 Score: -158.0

Episode:72 Score: -75.0

Episode:73 Score: -63.0

Episode:74 Score: -70.0

Episode:75 Score: -91.0

Episode:76 Score: -73.0

Episode:77 Score: -112.0

Episode:78 Score: -65.0

Episode:79 Score: -76.0

Episode:80 Score: -76.0

Episode:81 Score: -104.0

Episode:82 Score: -79.0

Episode:83 Score: -104.0

Episode:84 Score: -77.0

Episode:85 Score: -82.0

Episode:86 Score: -62.0

Episode:87 Score: -154.0

Episode:88 Score: -89.0

Episode:89 Score: -98.0

Episode:90 Score: -72.0

Episode:91 Score: -75.0

Episode:92 Score: -81.0

Episode:93 Score: -63.0

Episode:94 Score: -138.0

Episode:95 Score: -75.0

Episode:96 Score: -71.0

Episode:97 Score: -77.0

Episode:98 Score: -94.0

Episode:99 Score: -75.0

Episode:100 Score: -142.0

Mean: -89.02  
SD: 29.35