

CNN

Layer	Kernel Size	Padding	Stride	Max Pool	Number of Channels
Input	-	-	-	-	6
Conv1	3 x 3	1	0	2	64
Conv2	3 x 3	1	0	2	128
Conv3	3 x 3	1	0	4	256
Conv4	3 x 3	1	0	4	512
Conv5	3 x 3	1	0	4	1024

AIM

	Supervised (All towns, b128)	Supervised (All towns)	Supervised (first 4 towns)	Self-Supervised + Finetuned
Avg. driving score	23.09 \pm 6.9	18.05 \pm 3.46	12.95 \pm 4.45	10.54 \pm 1.25
Avg. route completion	87.28 \pm 2.84	41.63 \pm 4.59	57.16 \pm 9.78	18.15 \pm 0.37
Avg. infraction penalty	0.31 \pm 0.1	0.59 \pm 0.06	0.37 \pm 0.04	0.59 \pm 0.04
Collisions with pedestrians	0.21 \pm 0.24	0.14 \pm 0.12	0.39 \pm 0.14	0.15 \pm 0.21
Collisions with vehicles	0.51 \pm 0.22	1.6 \pm 0.42	1.66 \pm 0.48	0.78 \pm 0.02
Collisions with layout	0.02 \pm 0.03	0.07 \pm 0.11	0.44 \pm 0.3	2.8 \pm 0.83
Red lights infractions	1.22 \pm 1.36	2 \pm 0.19	3.13 \pm 0.46	1.79 \pm 0.46
Stop sign infractions	0.42 \pm 0.48	0.52 \pm 0.12	0.57 \pm 0.26	0.08 \pm 0.17
Off-road infractions	0.39 \pm 0.49	1.49 \pm 0.12	0.45 \pm 0.18	4.88 \pm 10.3
Route deviations	0 \pm 0	0 \pm 0	0 \pm 0	2.25 \pm 0.66
Route timeouts	0 \pm 0	0.07 \pm 0.12	0 \pm 0	0 \pm 0
Agent blocked	0.24 \pm 0.08	1.59 \pm 0.55	1.07 \pm 0.32	1.32 \pm 0.51

AIM with Navigational Command

	Supervised (All towns)
Avg. driving score	8.01 \pm 1.1
Avg. route completion	10.23 \pm 1.78
Avg. infraction penalty	0.85 \pm 0.13
Collisions with pedestrians	0.39 \pm 0.55
Collisions with vehicles	0.87 \pm 0.12
Collisions with layout	0.78 \pm 1.11

Red lights infractions	1.26 ± 0.44
Stop sign infractions	0 ± 0
Off-road infractions	5.6 ± 7.79
Route deviations	5.36 ± 3.15
Route timeouts	0 ± 0
Agent blocked	3.3 ± 1.98

AIM with DeepVO

	Self-Supervised	Self-Supervised + Finetuned
Avg. driving score	10.33 ± 1.35	24.71 ± 3.04
Avg. route completion	80.41 ± 5.29	76.53 ± 6.18
Avg. infraction penalty	0.19 ± 0.06	0.39 ± 0.03
Collisions with pedestrians	0.13 ± 0.09	0.35 ± 0.08
Collisions with vehicles	1.71 ± 0.22	0.99 ± 0.26
Collisions with layout	0.62 ± 0.2	0.03 ± 0.06
Red lights infractions	4.24 ± 0.28	2.42 ± 0.41
Stop sign infractions	0.55 ± 0.19	0.56 ± 0.09
Off-road infractions	2.62 ± 0.31	0.23 ± 0.25
Route deviations	0 ± 0	0 ± 0
Route timeouts	0 ± 0	0 ± 0
Agent blocked	0.46 ± 0.06	0.42 ± 0.12

	AIM Nav Supervised (All towns)	AIM DeepVO Self-Supervised	AIM DeepVO Self-Supervised + Finetuned
Avg. driving score	8.01 ± 1.1	10.33 ± 1.35	24.71 ± 3.04
Avg. route completion	10.23 ± 1.78	80.41 ± 5.29	76.53 ± 6.18
Avg. infraction penalty	0.85 ± 0.13	0.19 ± 0.06	0.39 ± 0.03
Collisions with pedestrians	0.39 ± 0.55	0.13 ± 0.09	0.35 ± 0.08
Collisions with vehicles	0.87 ± 0.12	1.71 ± 0.22	0.99 ± 0.26
Collisions with layout	0.78 ± 1.11	0.62 ± 0.2	0.03 ± 0.06
Red lights infractions	1.26 ± 0.44	4.24 ± 0.28	2.42 ± 0.41
Stop sign infractions	0 ± 0	0.55 ± 0.19	0.56 ± 0.09
Off-road infractions	5.6 ± 7.79	2.62 ± 0.31	0.23 ± 0.25

Route deviations	5.36 ± 3.15	0 ± 0	0 ± 0
Route timeouts	0 ± 0	0 ± 0	0 ± 0
Agent blocked	3.3 ± 1.98	0.46 ± 0.06	0.42 ± 0.12

	AIM				AIM NAV	AIM DeepVO	
	Supervised (All towns, b128)	Supervised (All towns)	Supervised (first 4 towns)	Self- Supervised + Finetuned	Supervised (All towns)	Self- Supervised	Self- Supervised + Finetuned
Avg. driving score	23.09 ± 6.9	18.05 ± 3.46	12.95 ± 4.45	10.54 ± 1.25	8.01 ± 1.1	10.33 ± 1.35	24.71 ± 3.04
Avg. route completion	87.28 ± 2.84	41.63 ± 4.59	57.16 ± 9.78	18.15 ± 0.37	10.23 ± 1.78	80.41 ± 5.29	76.53 ± 6.18
Avg. infraction penalty	0.31 ± 0.1	0.59 ± 0.06	0.37 ± 0.04	0.59 ± 0.04	0.85 ± 0.13	0.19 ± 0.06	0.39 ± 0.03
Collisions with pedestrians	0.21 ± 0.24	0.14 ± 0.12	0.39 ± 0.14	0.15 ± 0.21	0.39 ± 0.55	0.13 ± 0.09	0.35 ± 0.08
Collisions with vehicles	0.51 ± 0.22	1.6 ± 0.42	1.66 ± 0.48	0.78 ± 0.02	0.87 ± 0.12	1.71 ± 0.22	0.99 ± 0.26
Collisions with layout	0.02 ± 0.03	0.07 ± 0.11	0.44 ± 0.3	2.8 ± 0.83	0.78 ± 1.11	0.62 ± 0.2	0.03 ± 0.06
Red lights in- fractions	1.22 ± 1.36	2 ± 0.19	3.13 ± 0.46	1.79 ± 0.46	1.26 ± 0.44	4.24 ± 0.28	2.42 ± 0.41
Stop sign in- fractions	0.42 ± 0.48	0.52 ± 0.12	0.57 ± 0.26	0.08 ± 0.17	0 ± 0	0.55 ± 0.19	0.56 ± 0.09
Off-road infrac- tions	0.39 ± 0.49	1.49 ± 0.12	0.45 ± 0.18	4.88 ± 10.3	5.6 ± 7.79	2.62 ± 0.31	0.23 ± 0.25
Route devia- tions	0 ± 0	0 ± 0	0 ± 0	2.25 ± 0.66	5.36 ± 3.15	0 ± 0	0 ± 0
Route timeouts	0 ± 0	0.07 ± 0.12	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0 ± 0
Agent blocked	0.24 ± 0.08	1.59 ± 0.55	1.07 ± 0.32	1.32 ± 0.51	3.3 ± 1.98	0.46 ± 0.06	0.42 ± 0.12