

# Supplementary Materials: Rethinking the One-shot Object Detection: Cross-Domain Object Search

Anonymous Authors

## 1 EXPERIMENT

**Protocol IV: Free category in each domain.** This is a newly proposed propocol. We randomly select 10 images from each style and category as query patches. Similar to Protocol III, we form a diverse gallery by selecting images from the dataset, but with the distinction that Protocol IV requires the gallery to match the style of the query. Similarly, the gallery should ideally be the entire dataset, but this is impractical to implement. Therefore, in our experiments, we randomly select 2k images for each style as the gallery.

Table 1 display the experimental results under the Protocol IV. In Protocol IV, our method achieved an increase of 2.58% in AP50 for base categories and 1.82% in AP50 for novel categories, resulting in an overall improvement of 2.39% across the entire test dataset.

**Table 1: Comparisons of CrDoOS with state-of-the-art methods on the MSOSB in terms of AP50 under the Protocol IV.**

Method	Protocol IV		
	Base	Novel	All
CoAE [2]	4.93	1.52	4.08
AIT [1]	7.95	2.07	6.48
BHRL [3]	10.74	2.82	8.76
<b>CrDoOS</b>	<b>13.32</b>	<b>4.64</b>	<b>11.15</b>

## 2 THE DETAILED INFORMATION OF MSOSB

Table 2 and Table 3 provide detailed information on the quantities and specific categories of MSOSB.

## REFERENCES

- [1] Ding-Jie Chen, He-Yen Hsieh, and Tyng-Luh Liu. 2021. Adaptive image transformer for one-shot object detection. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*. 12247–12256.
- [2] Ting-I Hsieh, Yi-Chen Lo, Hwann-Tzong Chen, and Tyng-Luh Liu. 2019. One-shot object detection with co-attention and co-excitation. *Advances in neural information processing systems* 32 (2019), 1–10.
- [3] Hanqing Yang, Sijia Cai, Hualian Sheng, Bing Deng, Jianqiang Huang, Xian-Sheng Hua, Yong Tang, and Yu Zhang. 2022. Balanced and hierarchical relation learning for one-shot object detection. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*. 7591–7600.

Table 2: Quantitative and category statistics of the MSOSB. (part 1)

MSOSB							
		Style					Sum
		cartoon	oil	water-color	pencil	art	
Category	person	9292	2856	3779	20806	18247	54980
	bicycle	322	234	187	1130	859	2732
	car	600	800	370	3925	3684	9379
	motorcycle	403	340	199	1046	881	2869
	airplane	151	147	194	915	872	2279
	bus	147	301	177	786	709	2120
	train	314	476	216	801	723	2530
	truck	277	424	162	212	201	1276
	boat	429	222	236	1246	1036	3169
	traffic light	81	335	231	320	317	1284
	fire hydrant	73	103	21	50	51	298
	stop sign	507	493	280	32	43	1355
	parking meter	102	279	8	32	28	449
	bench	81	331	154	217	191	974
	bird	671	413	684	1495	1848	5111
	cat	363	131	236	1136	1102	2968
	dog	389	536	209	1522	1362	4018
	horse	241	431	395	972	901	2940
	sheep	1259	1286	129	1073	1036	4783
	cow	111	194	343	898	938	2484
	elephant	177	165	217	127	128	814
	bear	257	288	412	38	33	1028
	zebra	130	170	78	137	131	646
	giraffe	597	201	172	108	124	1202
	backpack	154	14	179	202	168	717
	umbrella	437	492	288	180	233	1630
	handbag	402	99	283	289	250	1323
	tie	108	57	26	119	120	430
	suitcase	285	358	226	139	164	1172
	frisbee	27	50	11	61	54	203
	skis	3184	2065	1981	99	142	7471
	snowboard	219	268	92	27	42	648
	sports ball	690	479	508	136	127	1940
	kite	173	84	115	155	181	708
	baseball bat	175	44	134	87	59	499
	baseball glove	95	217	139	77	71	599
	skateboard	105	212	12	94	84	507
	surfboard	482	379	179	140	129	1309
	tennis racket	90	157	25	117	108	497
	bottle	517	735	607	2113	1764	5736

Table 3: Quantitative and category statistics of the MSOSB. (part 2)

MSOSB							
		Style					Sum
		cartoon	oil	water-color	pencil	art	
Category	wine glass	543	575	175	159	184	1636
	cup	503	371	518	458	441	2291
	fork	344	166	102	111	104	827
	knife	196	102	137	180	146	761
	spoon	392	267	248	135	118	1160
	bowl	143	367	320	320	306	1456
	banana	161	297	415	160	219	1252
	apple	268	661	779	109	130	1947
	sandwich	417	336	115	101	76	1045
	orange	156	701	399	148	139	1543
	broccoli	87	179	115	187	129	697
	carrot	269	641	679	180	191	1960
	hot dog	356	158	83	67	60	724
	pizza	288	184	180	176	109	937
	donut	256	292	230	179	159	1216
	cake	114	102	200	125	191	732
	chair	998	2293	605	3853	3797	11546
	couch	205	544	263	981	942	2935
	potted plant	850	719	333	1540	1222	4664
	bed	193	599	187	84	79	1142
	dining table	242	429	104	1071	1036	2882
	toilet	341	405	117	89	90	1042
	tv	334	16	39	935	974	2298
	laptop	249	17	55	103	128	552
	mouse	319	25	202	49	57	652
	remote	206	89	22	135	148	600
	keyboard	158	14	70	82	71	395
	cell phone	70	359	171	139	123	862
	microwave	223	24	48	25	30	350
	oven	106	224	205	71	72	678
	toaster	183	309	142	7	2	643
	sink	490	548	99	116	109	1362
	refrigerator	209	335	122	66	60	792
	book	944	914	583	614	547	3602
	clock	81	190	61	135	128	595
	vase	545	919	387	127	150	2128
	scissors	44	25	12	17	19	117
	teddy bear	213	307	103	108	83	814
	hair drier	31	15	6	6	5	63
	toothbrush	210	153	42	21	36	462
Sum		36054	32835	22567	56237	51751	—