

Table 1: Comparison with NNGuide and MaxLogit based on ResNet50 and CLIP-B/16. The ID data are ImageNet-1K.

Architecture	Method	OOD Dataset									
		iNaturalist		SUN		Places		Textures		Average	
		AUROC↑	FPR95↓	AUROC↑	FPR95↓	AUROC↑	FPR95↓	AUROC↑	FPR95↓	AUROC↑	FPR95↓
ResNet50	MaxLogit	91.93	50.91	86.59	59.87	84.18	65.68	86.40	54.36	87.07	57.70
	NNGuide(k=1)	93.13	34.06	90.41	38.86	88.06	47.46	91.67	29.89	90.82	37.57
	NNGuide(k=10)	94.33	29.27	91.23	36.4	88.71	46.2	92.93	26.31	91.80	34.55
	NNGuide(k=100)	95.10	26.06	91.44	36.86	88.63	47.64	93.61	24.17	92.19	33.68
	CoVer (ours)	97.14	14.04	94.12	25.77	91.05	35.93	91.93	30.39	93.56	26.53
CLIP-B/16	MaxLogit	89.31	61.66	87.43	64.39	85.95	63.67	71.68	86.61	83.59	69.08
	NNGuide(k=1)	65.06	99.38	68.56	97.27	72.19	93.51	66.06	98.49	67.97	97.16
	NNGuide(k=10)	60.98	99.68	68.06	98.06	71.65	94.83	62.61	98.99	65.83	97.89
	NNGuide(k=100)	51.34	99.85	64.84	98.83	68.74	96.49	53.26	99.63	59.54	98.70
	CoVer (ours)	95.98	22.55	93.42	32.85	90.27	40.71	90.14	43.39	92.45	34.88

Table 2: Compatibility experiments of CoVer combined with NNGuide and MaxLogit based on ResNet50 and CLIP-B/16. The ID data are ImageNet-1K.

Architecture	Method	OOD Dataset									
		iNaturalist		SUN		Places		Textures		Average	
		AUROC↑	FPR95↓	AUROC↑	FPR95↓	AUROC↑	FPR95↓	AUROC↑	FPR95↓	AUROC↑	FPR95↓
CLIP-B/16	MaxLogit	89.31	61.66	87.43	64.39	85.95	63.67	71.68	86.61	83.59	69.08
	MaxLogit + CoVer	91.78	49.93	89.20	59.64	87.89	59.15	74.01	84.50	85.72	63.31
ResNet50	MaxLogit	91.13	50.91	86.59	59.87	84.18	65.68	86.40	54.36	87.07	57.70
	MaxLogit + CoVer	92.85	42.19	87.19	58.17	84.97	63.04	86.59	54.10	87.90	54.38
	NNGuide(k=1)	93.13	34.06	90.41	38.86	88.06	47.46	91.67	29.89	90.82	37.57
	NNGuide(k=1) + CoVer	94.98	25.16	91.17	36.51	88.82	44.52	91.91	29.24	91.72	33.86
	NNGuide(k=10)	94.33	29.27	91.23	36.4	88.71	46.2	92.93	26.31	91.80	34.55
	NNGuide(k=10) + CoVer	95.84	21.61	91.91	34.45	89.38	43.42	93.12	25.80	92.56	31.32
	NNGuide(k=100)	95.10	26.06	91.44	36.86	88.63	47.64	93.61	24.17	92.19	33.68
	NNGuide(k=100) + CoVer	96.42	19.46	92.20	34.43	89.39	44.34	93.79	23.58	92.95	30.45

Table 3: CoVer combined with each method using the same expanded corruption type.

Architecture	D _{in}	Method	Expanded Type	AUROC↑	FPR95↓
ResNet50	ImageNet-1K	ReAct	/	92.95	31.43
ResNet50	ImageNet-1K	ReAct + CoVer	Brightness(1)	93.94	28.10
ResNet50	ImageNet-1K	DICE	/	90.77	34.75
ResNet50	ImageNet-1K	DICE + CoVer	Brightness(1)	91.96	31.66
ResNet50	ImageNet-1K	ASH-B	/	90.91	39.04
ResNet50	ImageNet-1K	ASH-B + CoVer	Brightness(1)	92.24	30.55
CLIP-B/16	ImageNet-1K	MCM	/	90.76	42.73
CLIP-B/16	ImageNet-1K	MCM + CoVer	Brightness(1)	91.05	41.49
CLIP-B/16	ImageNet-1K	CLIPN	/	93.35	29.66
CLIP-B/16	ImageNet-1K	CLIPN + CoVer	Brightness(1)	93.47	27.82
CLIP-B/16	ImageNet-1K	NegLabel	/	94.10	26.11
CLIP-B/16	ImageNet-1K	NegLabel + CoVer	Brightness(1)	95.15	24.99

Table 4: Runtime of a single input using a single RTX 3090 GPU based on CLIP-B/16.

Dataset	Type	Inference time (s)
ImageNet	ID	121 (± 11)
iNaturalist	OOD	45 (± 15)
SUN	OOD	41 (± 12)
Places	OOD	33 (± 8)
Textures	OOD	16 (± 1)

Table 5: The overall results of CoVer on three NINCO OOD datasets without leveraging VLMs/CLIP. The ID data are ImageNet-1K.

Architecture	D _{in}	D _{out}	Method	AUROC↑	FPR95↓
ResNet50	ImageNet-1K	NINCO	ASH	82.26	69.22
		NINCO	AHS + CoVer	82.80	68.59
		NINCO unit-tests	ASH	99.13	4.85
		NINCO unit-tests	AHS + CoVer	99.49	2.12
		NINCO subsamples	ASH	82.07	56.10
		NINCO subsamples	AHS + CoVer	82.67	54.44

Table 6: Compatibility experiments of CoVer combined with each mentioned DNN-based OOD detection method. The ID data are ImageNet-1K.

Architecture	Method	OOD Dataset									
		iNaturalist		SUN		Places		Textures		Average	
		AUROC↑	FPR95↓	AUROC↑	FPR95↓	AUROC↑	FPR95↓	AUROC↑	FPR95↓	AUROC↑	FPR95↓
ResNet50	MSP	87.74	54.99	80.86	70.83	79.76	73.99	79.61	68.00	81.99	66.95
	MSP + CoVer	90.81	44.49	82.51	66.38	81.57	69.34	81.00	65.43	83.97	61.41
	ODIN	91.37	41.57	86.89	53.97	84.44	62.15	87.57	45.53	87.57	50.80
	ODIN + CoVer	93.66	31.56	88.14	51.47	85.98	58.69	87.97	44.77	88.94	46.62
	Energy score	89.95	55.72	85.89	59.26	82.86	64.92	85.99	53.72	86.17	58.41
	Energy + CoVer	92.23	46.97	87.42	56.50	84.98	63.16	86.99	51.70	87.91	54.51
	ReAct	96.22	20.38	94.20	21.20	91.58	33.85	89.80	47.30	92.95	31.43
	ReAct + CoVer	97.58	13.35	95.7	18.91	93.08	29.02	91.55	40.74	94.48	25.51
	DICE	94.49	25.63	90.83	35.15	87.48	46.49	90.30	31.72	90.77	34.75
	DICE + CoVer	96.8	16.56	93.53	28.52	90.00	40.54	91.14	31.15	92.87	29.19
	ASH-B	94.25	28.95	90.32	40.21	87.52	49.52	91.53	33.48	90.91	39.04
	ASH-B + CoVer	97.14	14.04	94.12	25.77	91.05	35.93	91.93	30.39	93.56	26.53

Table 7: Examples of corruption types selections in the utilized validation set SVHN based on ResNet50

Selected?	D _{in}	D _{val}	Method	Expanded Type	AUROC↑	FPR95↓
	ImageNet-1K	SVHN	MSP	/	97.45	13.80
✓	ImageNet-1K	SVHN	MSP	Brightness	98.81	6.36
✓	ImageNet-1K	SVHN	MSP	Fog	98.83	6.52
✓	ImageNet-1K	SVHN	MSP	Motion Blur	98.62	7.69
✗	ImageNet-1K	SVHN	MSP	Snow	89.43	56.47
✗	ImageNet-1K	SVHN	MSP	Impulse Noise	94.71	29.74
✗	ImageNet-1K	SVHN	MSP	Spatter	95.87	28.03

Table 8: Comparison with competitive anomaly detection and textual OOD detection baselines based on ResNet50. The selected methods’ types are Data Depth, Information Projection and Isolation Forest, respectively. The ID data are ImageNet-1K.

Architecture	Method	OOD Dataset									
		iNaturalist		SUN		Places		Textures		Average	
		AUROC↑	FPR95↓	AUROC↑	FPR95↓	AUROC↑	FPR95↓	AUROC↑	FPR95↓	AUROC↑	FPR95↓
ResNet50	APPROVED	53.25	95.90	60.01	94.63	56.77	94.26	70.21	78.30	60.06	90.77
	REFERENCE	79.77	94.76	73.28	96.91	72.9	96.80	74.01	94.08	74.99	95.64
	Isolation Forest	70.76	85.94	59.55	94.78	60.27	93.91	65.89	81.37	64.12	89.00
	MSP + CoVer	90.81	44.90	82.51	66.38	81.57	69.34	81.00	65.43	83.97	61.41

Table 9: Comparison with competitive OOD detection method Watermark based on ResNet50. The ID data are ImageNet-1K.

Architecture	Method	OOD Dataset										Runtime
		iNaturalist		SUN		Places		Textures		Average		
		AUROC↑	FPR95↓	AUROC↑	FPR95↓	AUROC↑	FPR95↓	AUROC↑	FPR95↓	AUROC↑	FPR95↓	
ResNet50	Watermark	80.31	74.45	79.21	73.27	79.78	71.43	80.44	67.53	79.94	71.67	3 h/epoch
	MSP + CoVer	90.81	44.90	82.51	66.38	81.57	69.34	81.00	65.43	83.97	61.41	10 mins