

Vision-Language Model IP Protection via Prompt-based Learning

Supplementary Material

Augmentation	Augmentation
AutoContrast	Applies automatic contrast adjustment to an image.
Brightness	Adjusts the brightness of an image.
Color	Adjusts the color saturation of an image.
Contrast	Adjusts the contrast of an image.
Equalize	Equalizes the histogram of an image.
Identity	Returns the image without any changes.
Posterize	Reduces the color depth of an image.
Rotate	Rotates an image by a random degree.
Sharpness	Adjusts the sharpness of an image.
ShearX	Shears an image along the X-axis.
ShearY	Shears an image along the Y-axis.
Solarize	Inverts all pixel values above a threshold
TranslateX	Translates an image horizontally.
TranslateY	Translates an image vertically

Table 1. A detailed description of the augmentation method applied in the target-free scenario.

Algorithm 1 Target-Specified IP-CLIP.

Require: The authorized domain D_a , unauthorized domain D_u , visual encoder of CLIP with L layers, text encoder of CLIP, the parameters θ of IP Projector P and ϕ of STAM.

- 1: Construct authorized domain B_a with D_a , and unauthorized domain B_u with D_u .
- 2: **For** $epoch = 1$ **to** Max_{epochs} **do**
- 3: Calculate the output of x_a, x_u in visual encoder: f_v^a, f_v^u .
- 4: Calculate the augmented feature: s_v^a, s_v^u
- 5: Construct $Prompt_a$ and $Prompt_u$ by multi-scale features from the L-layer visual encoder.
- 6: Calculate the output of $Prompt_a, Prompt_u$ in text encoder: f_t^a, f_t^u .
- 7: Update θ by Eq. (12)
- 8: **End For**
- 9: Return projector parameters θ and ϕ .

Algorithm 2 Target-Free IP-CLIP.

Require: The authorized domain D_a , visual encoder of CLIP with L layers, text encoder of CLIP, the parameters θ of IP Projector, the parameters ϕ of STAM, augmentation pool $A = \{a_i\}_{i=1}^{N_A}$, and number of augmentation $n_{aug} < N_A$.

- 1: Initialize unauthorized domain $D_u = \emptyset$.
- 2: **For** $i = 1$ **to** N_a **do**
- 3: **For** $j = 1$ **to** n_{aug} **do**
- 4: Random select $a_j \in A$
- 5: style augmentation: $x_i \leftarrow a_j(x_i)$
- 6: **End For**
- 7: Update $D_u = D_u \cup x_i$
- 8: **End For**
- 9: Construct authorized domain B_a with D_a , and unauthorized domain B_u with D_u .
- 10: **For** $epoch = 1$ **to** Max_{epochs} **do**
- 11: Calculate the output of x_a, x_u in visual encoder: f_v^a, f_v^u .
- 12: Calculate the augmented feature: s_v^a, s_v^u
- 13: Construct $Prompt_a$ and $Prompt_u$ by multi-scale features from the L-layer visual encoder.
- 14: Calculate the output of $Prompt_a, Prompt_u$ in test encoder: f_t^a, f_t^u .
- 15: Update θ by Eq. (12).
- 16: **End For**
- 17: Return projector parameters θ and ϕ .

Authorized/Unauthorized	Amazon	Dslr	Webcam	$W_{ua} \uparrow$	$D_u \uparrow$	$D_a \downarrow$
Amazon	82.1 \Rightarrow 79.0	79.7 \Rightarrow 35.9	71.9 \Rightarrow 4.7	41.37	55.50	3.10
Dslr	65.6 \Rightarrow 9.4	99.2 \Rightarrow 97.7	92.2 \Rightarrow 0.0	70.94	74.20	1.55
Webcam	65.6 \Rightarrow 3.1	93.8 \Rightarrow 4.7	97.7 \Rightarrow 97.7	74.02	75.80	0.00
Mean	/			62.11	68.50	2.07

Table 2. The accuracy (%) of target-specified NTL [28] on the Office-31 [26]. The vertical/horizontal axis denotes the authorized/unauthorized domain. In each task, the left of ' \Rightarrow ' shows the test accuracy of supervised learning CNN on the unauthorized domain, while the right side presents the accuracy of NTL. W_{ua} represents the proposed weighted drop, while D_u and D_a denote the drop rates for the unauthorized and authorized domains, respectively.

Authorized/Unauthorized	Amazon	Dslr	Webcam	$W_{ua} \uparrow$	$D_u \uparrow$	$D_a \downarrow$
Amazon	82.1 \Rightarrow 81.3	79.7 \Rightarrow 0.0	71.9 \Rightarrow 0.0	60.94	75.80	0.80
Dslr	65.6 \Rightarrow 3.1	99.2 \Rightarrow 98.4	92.2 \Rightarrow 0.0	75.33	77.35	0.80
Webcam	65.6 \Rightarrow 3.1	93.8 \Rightarrow 4.7	97.7 \Rightarrow 97.7	74.02	75.80	0.00
Mean	/			70.09	76.32	0.53

Table 3. The accuracy (%) of target-specified CUTI-Domain [29] on the Office-31 [26]. The vertical/horizontal axis denotes the authorized/unauthorized domain. In each task, the left of ' \Rightarrow ' shows the test accuracy of supervised learning CNN on the unauthorized domain, while the right side presents the accuracy of CUTI-Domain. W_{ua} represents the proposed weighted drop, while D_u and D_a denote the drop rates for the unauthorized and authorized domains, respectively.

Authorized/Unauthorized	Amazon	Dslr	Webcam	$W_{ua} \uparrow$	$D_u \uparrow$	$D_a \downarrow$
Amazon	79.4 \Rightarrow 77.6	87.5 \Rightarrow 10.0	88.8 \Rightarrow 17.5	56.34	74.40	1.80
Dslr	83.8 \Rightarrow 10.0	95.7 \Rightarrow 94.4	98.8 \Rightarrow 8.8	76.09	81.90	1.30
Webcam	80.0 \Rightarrow 3.8	92.5 \Rightarrow 91.3	94.4 \Rightarrow 91.3	32.50	38.70	3.10
Mean	/			54.98	65.00	2.07

Table 4. The accuracy (%) of target-specified CLIP-based NTL [28] on the Office-31 [26]. The vertical/horizontal axis denotes the authorized/unauthorized domain. In each task, the left of ' \Rightarrow ' shows the test accuracy of supervised learning CLIP on the unauthorized domain, while the right side presents the accuracy of CLIP-based NTL. W_{ua} represents the proposed weighted drop, while D_u and D_a denote the drop rates for the unauthorized and authorized domains, respectively.

Authorized/Unauthorized	Amazon	Dslr	Webcam	$W_{ua} \uparrow$	$D_u \uparrow$	$D_a \downarrow$
Amazon	79.4 \Rightarrow 78.8	87.5 \Rightarrow 6.3	88.8 \Rightarrow 11.3	62.06	79.35	0.60
Dslr	83.8 \Rightarrow 5.0	95.7 \Rightarrow 95.0	98.8 \Rightarrow 7.5	80.13	85.05	0.70
Webcam	80.0 \Rightarrow 1.3	92.5 \Rightarrow 2.5	94.4 \Rightarrow 91.9	75.24	84.38	2.50
Mean	/			72.48	82.93	1.27

Table 5. The accuracy (%) of target-specified CLIP-based CUTI-Domain [29] on the Office-31 [26]. The vertical/horizontal axis denotes the authorized/unauthorized domain. In each task, the left of ' \Rightarrow ' shows the test accuracy of supervised learning CLIP on the unauthorized domain, while the right side presents the accuracy of CLIP-based CUTI-Domain. W_{ua} represents the proposed weighted drop, while D_u and D_a denote the drop rates for the unauthorized and authorized domains, respectively.

Authorized/Unauthorized	Amazon	Dslr	Webcam	$W_{ua} \uparrow$	$D_u \uparrow$	$D_a \downarrow$
Amazon	79.4 \Rightarrow 79.4	87.5 \Rightarrow 7.5	88.8 \Rightarrow 8.8	63.52	80.00	0.00
Dslr	83.8 \Rightarrow 3.8	95.7 \Rightarrow 95.7	98.8 \Rightarrow 6.3	82.54	86.25	0.00
Webcam	80.0 \Rightarrow 3.8	92.5 \Rightarrow 2.5	94.4 \Rightarrow 94.4	78.45	83.10	0.00
Mean	/			74.84	83.12	0.00

Table 6. The accuracy (%) of target-specified IP-CLIP on the Office-31 [26]. The vertical/horizontal axis denotes the authorized/unauthorized domain. In each task, the left of ' \Rightarrow ' shows the test accuracy of supervised learning CLIP on the unauthorized domain, while the right side presents the accuracy of IP-CLIP. W_{ua} represents the proposed weighted drop, while D_u and D_a denote the drop rates for the unauthorized and authorized domains, respectively.

Authorized/Unauthorized	Art	Clipart	Product	RealWorld	$W_{ua} \uparrow$	$D_u \uparrow$	$D_a \downarrow$
Art	76.3 \Rightarrow 75.5	47.1 \Rightarrow 1.8	64.9 \Rightarrow 2.6	72.2 \Rightarrow 68.0	27.53	37.27	0.80
Clipart	57.8 \Rightarrow 4.2	80.1 \Rightarrow 79.9	63.5 \Rightarrow 6.5	68.8 \Rightarrow 16.4	43.23	54.31	0.20
Product	56.6 \Rightarrow 6.3	45.2 \Rightarrow 3.4	92.7 \Rightarrow 92.4	72.7 \Rightarrow 29.7	41.31	45.01	0.30
RealWorld	63.8 \Rightarrow 26.6	49.2 \Rightarrow 6.5	75.5 \Rightarrow 64.3	84.4 \Rightarrow 82.0	22.93	30.37	2.40
Mean	/				33.75	41.74	0.43

Table 7. The accuracy (%) of target-specified NTL [28] on the Office-Home-65 [27]. The vertical/horizontal axis denotes the authorized/unauthorized domain. In each task, the left of ' \Rightarrow ' shows the test accuracy of supervised learning CNN on the unauthorized domain, while the right side presents the accuracy of NTL. W_{ua} represents the proposed weighted drop, while D_u and D_a denote the drop rates for the unauthorized and authorized domains, respectively.

Authorized/Unauthorized	Art	Clipart	Product	RealWorld	$W_{ua} \uparrow$	$D_u \uparrow$	$D_a \downarrow$
Art	76.3 \Rightarrow 76.0	47.1 \Rightarrow 4.4	64.9 \Rightarrow 9.4	72.2 \Rightarrow 28.9	35.62	47.16	0.30
Clipart	57.8 \Rightarrow 4.4	80.1 \Rightarrow 79.9	63.5 \Rightarrow 5.5	68.8 \Rightarrow 8.1	45.67	57.35	0.20
Product	56.6 \Rightarrow 9.1	45.2 \Rightarrow 4.2	92.7 \Rightarrow 92.2	72.7 \Rightarrow 23.7	41.78	45.82	0.50
RealWorld	63.8 \Rightarrow 31.3	49.2 \Rightarrow 8.6	75.5 \Rightarrow 19.8	84.4 \Rightarrow 84.1	35.87	42.95	0.30
Mean	/				39.73	48.32	0.33

Table 8. The accuracy (%) of target-specified CUTI-Domain [29] on the Office-Home-65 [27]. The vertical/horizontal axis denotes the authorized/unauthorized domain. In each task, the left of ' \Rightarrow ' shows the test accuracy of supervised learning CNN on the unauthorized domain, while the right side presents the accuracy of CUTI-Domain. W_{ua} represents the proposed weighted drop, while D_u and D_a denote the drop rates for the unauthorized and authorized domains, respectively.

Authorized/Unauthorized	Art	Clipart	Product	RealWorld	$W_{ua} \uparrow$	$D_u \uparrow$	$D_a \downarrow$
Art	85.5 \Rightarrow 85.4	68.0 \Rightarrow 23.8	89.8 \Rightarrow 86.5	88.5 \Rightarrow 88.5	13.44	15.83	0.10
Clipart	81.0 \Rightarrow 18.3	75.0 \Rightarrow 74.7	90.8 \Rightarrow 15.0	89.5 \Rightarrow 31.0	48.83	65.67	0.30
Product	78.8 \Rightarrow 11.0	73.3 \Rightarrow 13.8	92.8 \Rightarrow 92.8	87.5 \Rightarrow 85.8	39.90	43.00	0.00
RealWorld	83.0 \Rightarrow 80.8	71.3 \Rightarrow 7.8	90.8 \Rightarrow 52.5	90.0 \Rightarrow 88.1	28.87	34.67	1.90
Mean	/				32.76	39.79	0.57

Table 9. The accuracy (%) of target-specified CLIP-based NTL [28] on the Office-Home-65 [27]. The vertical/horizontal axis denotes the authorized/unauthorized domain. In each task, the left of ' \Rightarrow ' shows the test accuracy of supervised learning CLIP on the unauthorized domain, while the right side presents the accuracy of CLIP-based NTL. W_{ua} represents the proposed weighted drop, while D_u and D_a denote the drop rates for the unauthorized and authorized domains, respectively.

Authorized/Unauthorized	Art	Clipart	Product	RealWorld	$W_{ua} \uparrow$	$D_u \uparrow$	$D_a \downarrow$
Art	85.5 \Rightarrow 82.5	68.0 \Rightarrow 16.8	89.8 \Rightarrow 21.3	88.5 \Rightarrow 48.0	41.58	53.40	3.00
Clipart	81.0 \Rightarrow 15.8	75.0 \Rightarrow 75.0	90.8 \Rightarrow 9.0	89.5 \Rightarrow 19.3	53.37	72.40	0.63
Product	78.8 \Rightarrow 16.3	73.3 \Rightarrow 10.8	92.8 \Rightarrow 92.4	87.5 \Rightarrow 27.0	56.82	61.83	0.37
RealWorld	83.0 \Rightarrow 30.3	71.3 \Rightarrow 10.0	90.8 \Rightarrow 32.8	90.0 \Rightarrow 88.5	49.41	57.33	1.50
Mean	/				50.29	61.24	1.38

Table 10. The accuracy (%) of target-specified CLIP-based CUTI-Domain [29] on the Office-Home-65 [27]. The vertical/horizontal axis denotes the authorized/unauthorized domain. In each task, the left of ' \Rightarrow ' shows the test accuracy of supervised learning CLIP on the unauthorized domain, while the right side presents the accuracy of CLIP-based CUTI-Domain. W_{ua} represents the proposed weighted drop, while D_u and D_a denote the drop rates for the unauthorized and authorized domains, respectively.

Authorized/Unauthorized	Art	Clipart	Product	RealWorld	$W_{ua} \uparrow$	$D_u \uparrow$	$D_a \downarrow$
Art	85.5 \Rightarrow 85.2	68.0 \Rightarrow 12.8	89.8 \Rightarrow 15.0	88.5 \Rightarrow 34.5	52.00	61.33	0.30
Clipart	81.0 \Rightarrow 11.8	75.0 \Rightarrow 74.9	90.8 \Rightarrow 5.3	89.5 \Rightarrow 17.8	56.45	75.47	0.10
Product	78.8 \Rightarrow 14.0	73.3 \Rightarrow 8.5	92.8 \Rightarrow 92.5	87.5 \Rightarrow 25.8	58.71	63.77	0.30
RealWorld	83.0 \Rightarrow 30.3	71.3 \Rightarrow 7.5	90.8 \Rightarrow 29.3	90.0 \Rightarrow 89.9	53.25	59.33	0.10
Mean	/				55.10	64.98	0.20

Table 11. The accuracy (%) of target-specified IP-CLIP on the Office-Home-65 [27]. The vertical/horizontal axis denotes the authorized/unauthorized domain. In each task, the left of ' \Rightarrow ' shows the test accuracy of supervised learning CLIP on the unauthorized domain, while the right side presents the accuracy of IP-CLIP. W_{ua} represents the proposed weighted drop, while D_u and D_a denote the drop rates for the unauthorized and authorized domains, respectively.

Authorized/Unauthorized	Art	Clipart	Product	Real	$W_{ua} \uparrow$	$D_u \uparrow$	$D_a \downarrow$
Clipart	76.4 \Rightarrow 74.3	49.5 \Rightarrow 12.7	62.5 \Rightarrow 27.0	47.0 \Rightarrow 9.5	25.63	36.60	2.10
Painting	48.0 \Rightarrow 5.8	61.8 \Rightarrow 61.3	60.4 \Rightarrow 38.3	42.3 \Rightarrow 9.5	19.53	32.37	0.50
Real	52.3 \Rightarrow 16.6	57.9 \Rightarrow 27.8	85.6 \Rightarrow 84.4	46.9 \Rightarrow 5.1	29.26	35.87	1.20
Sketch	52.5 \Rightarrow 13.7	46.9 \Rightarrow 5.9	62.8 \Rightarrow 5.3	66.6 \Rightarrow 65.6	29.37	45.77	1.00
Mean	/				25.95	37.65	1.27

Table 12. The accuracy (%) of target-specified NTL [28] on the Mini-DomainNet [34]. The vertical/horizontal axis denotes the authorized/unauthorized domain. In each task, the left of ' \Rightarrow ' shows the test accuracy of supervised learning CNN on the unauthorized domain, while the right side presents the accuracy of NTL. W_{ua} represents the proposed weighted drop, while D_u and D_a denote the drop rates for the unauthorized and authorized domains, respectively.

Authorized/Unauthorized	Art	Clipart	Product	Real	$W_{ua} \uparrow$	$D_u \uparrow$	$D_a \downarrow$
Clipart	76.4 \Rightarrow 75.6	49.5 \Rightarrow 8.4	62.5 \Rightarrow 19.9	47.0 \Rightarrow 8.1	30.29	40.87	0.80
Painting	48.0 \Rightarrow 7.9	61.8 \Rightarrow 61.1	60.4 \Rightarrow 36.8	42.3 \Rightarrow 6.3	19.88	33.23	0.70
Real	52.3 \Rightarrow 14.0	57.9 \Rightarrow 22.0	85.6 \Rightarrow 84.5	46.9 \Rightarrow 5.9	31.52	38.40	1.10
Sketch	52.5 \Rightarrow 11.2	46.9 \Rightarrow 5.4	62.8 \Rightarrow 4.9	66.7 \Rightarrow 65.7	30.18	46.90	0.96
Mean	/				27.97	39.85	0.87

Table 13. The accuracy (%) of target-specified CUTI-Domain [29] on the Mini-DomainNet [34]. The vertical/horizontal axis denotes the authorized/unauthorized domain. In each task, the left of ' \Rightarrow ' shows the test accuracy of supervised learning CNN on the unauthorized domain, while the right side presents the accuracy of CUTI-Domain. W_{ua} represents the proposed weighted drop, while D_u and D_a denote the drop rates for the unauthorized and authorized domains, respectively.

Authorized/Unauthorized	Art	Clipart	Product	Real	$W_{ua} \uparrow$	$D_u \uparrow$	$D_a \downarrow$
Clipart	85.1 \Rightarrow 84.5	79.8 \Rightarrow 33.3	89.8 \Rightarrow 34.0	78.7 \Rightarrow 42.1	38.62	46.30	0.60
Painting	83.8 \Rightarrow 11.9	81.4 \Rightarrow 79.8	89.1 \Rightarrow 60.5	78.4 \Rightarrow 17.5	41.66	53.80	1.60
Real	84.6 \Rightarrow 26.4	80.5 \Rightarrow 30.8	90.6 \Rightarrow 89.8	80.0 \Rightarrow 10.8	52.29	59.03	0.80
Sketch	84.3 \Rightarrow 83.0	79.1 \Rightarrow 32.7	90.3 \Rightarrow 9.7	80.7 \Rightarrow 80.1	33.78	42.77	0.60
Mean	/				41.59	50.48	1.00

Table 14. The accuracy (%) of target-specified CLIP-based NTL [28] on the Mini-DomainNet [34]. The vertical/horizontal axis denotes the authorized/unauthorized domain. In each task, the left of ' \Rightarrow ' shows the test accuracy of supervised learning CLIP on the unauthorized domain, while the right side presents the accuracy of CLIP-based NTL. W_{ua} represents the proposed weighted drop, while D_u and D_a denote the drop rates for the unauthorized and authorized domains, respectively.

Authorized/Unauthorized	Art	Clipart	Product	Real	$W_{ua} \uparrow$	$D_u \uparrow$	$D_a \downarrow$
Clipart	85.1 \Rightarrow 84.9	79.8 \Rightarrow 22.7	89.8 \Rightarrow 23.7	78.7 \Rightarrow 23.7	50.26	59.40	0.20
Painting	83.8 \Rightarrow 17.9	81.4 \Rightarrow 76.1	89.1 \Rightarrow 15.6	78.4 \Rightarrow 17.1	46.88	66.90	5.30
Real	84.6 \Rightarrow 24.9	80.5 \Rightarrow 23.8	90.6 \Rightarrow 89.5	80.0 \Rightarrow 9.5	54.77	62.30	1.10
Sketch	84.3 \Rightarrow 24.0	79.1 \Rightarrow 25.2	90.3 \Rightarrow 10.8	80.7 \Rightarrow 80.0	51.09	64.57	0.70
Mean	/				50.75	63.29	2.20

Table 15. The accuracy (%) of target-specified CLIP-based CUTI-Domain [29] on the Mini-DomainNet [34]. The vertical/horizontal axis denotes the authorized/unauthorized domain. In each task, the left of ' \Rightarrow ' shows the test accuracy of supervised learning CLIP on the unauthorized domain, while the right side presents the accuracy of CLIP-based CUTI-Domain. W_{ua} represents the proposed weighted drop, while D_u and D_a denote the drop rates for the unauthorized and authorized domains, respectively.

Authorized/Unauthorized	Art	Clipart	Product	Real	$W_{ua} \uparrow$	$D_u \uparrow$	$D_a \downarrow$
Clipart	85.1 \Rightarrow 84.8	79.8 \Rightarrow 18.1	89.8 \Rightarrow 24.8	78.7 \Rightarrow 22.4	51.47	61.00	0.30
Painting	83.8 \Rightarrow 9.2	81.4 \Rightarrow 80.9	89.1 \Rightarrow 26.5	78.4 \Rightarrow 14.4	53.85	67.07	0.50
Real	84.6 \Rightarrow 21.9	80.5 \Rightarrow 21.4	90.6 \Rightarrow 90.4	80.0 \Rightarrow 6.0	58.82	65.27	0.20
Sketch	84.3 \Rightarrow 23.2	79.1 \Rightarrow 15.6	90.3 \Rightarrow 9.2	80.7 \Rightarrow 80.2	54.59	68.57	0.50
Mean	/				54.68	65.48	0.33

Table 16. The accuracy (%) of target-specified IP-CLIP on the Mini-DomainNet [34]. The vertical/horizontal axis denotes the authorized/unauthorized domain. In each task, the left of ' \Rightarrow ' shows the test accuracy of supervised learning CLIP on the unauthorized domain, while the right side presents the accuracy of IP-CLIP. W_{ua} represents the proposed weighted drop, while D_u and D_a denote the drop rates for the unauthorized and authorized domains, respectively.

Authorized/Test	Amazon	Dslr	Webcam	$W_{ua} \uparrow$	$D_u \uparrow$	$D_a \downarrow$
Amazon	82.1 \Rightarrow 75.0	79.7 \Rightarrow 64.1	71.9 \Rightarrow 71.9	0.56	7.80	7.05
Dslr	65.6 \Rightarrow 48.4	99.2 \Rightarrow 96.9	92.2 \Rightarrow 90.6	6.88	9.40	2.30
Webcam	65.6 \Rightarrow 57.8	93.8 \Rightarrow 84.4	97.7 \Rightarrow 92.2	2.90	8.60	5.45
Mean	/			3.45	8.60	4.93

Table 17. The accuracy (%) of target-free NTL [28] on the Office-31 [26]. The vertical/horizontal axis denotes the authorized/test domain. In each task, the left of ' \Rightarrow ' shows the test accuracy of supervised learning CNN on the test domain, while the right side presents the accuracy of NTL. W_{ua} represents the proposed weighted drop, while D_u and D_a denote the drop rates for the unauthorized and authorized domains, respectively.

Authorized/Test	Amazon	Dslr	Webcam	$W_{ua} \uparrow$	$D_u \uparrow$	$D_a \downarrow$
Amazon	82.1 \Rightarrow 75.0	79.7 \Rightarrow 64.1	71.9 \Rightarrow 60.9	4.69	13.30	7.05
Dslr	65.6 \Rightarrow 46.9	99.2 \Rightarrow 96.9	92.2 \Rightarrow 92.2	6.83	9.35	2.30
Webcam	65.6 \Rightarrow 59.4	93.8 \Rightarrow 89.1	97.7 \Rightarrow 95.3	2.95	5.45	2.35
Mean	/			4.82	9.37	3.90

Table 18. The accuracy (%) of target-free CUTI-Domain [29] on the Office-31 [26]. The vertical/horizontal axis denotes the authorized/test domain. In each task, the left of ' \Rightarrow ' shows the test accuracy of supervised learning CNN on the test domain, while the right side presents the accuracy of CUTI-Domain. W_{ua} represents the proposed weighted drop, while D_u and D_a denote the drop rates for the unauthorized and authorized domains, respectively.

Authorized/Test	Amazon	Dslr	Webcam	$W_{ua} \uparrow$	$D_u \uparrow$	$D_a \downarrow$
Amazon	79.4 \Rightarrow 77.5	87.5 \Rightarrow 62.5	88.8 \Rightarrow 79.3	11.90	17.25	1.90
Dslr	83.8 \Rightarrow 27.0	95.7 \Rightarrow 91.8	98.8 \Rightarrow 67.8	36.72	43.90	3.90
Webcam	80.0 \Rightarrow 23.8	92.5 \Rightarrow 46.8	94.4 \Rightarrow 92.8	45.80	50.95	1.60
Mean	/			31.47	37.37	2.47

Table 19. The accuracy (%) of target-free CLIP-based NTL [28] on the Office-31 [26]. The vertical/horizontal axis denotes the authorized/test domain. In each task, the left of ' \Rightarrow ' shows the test accuracy of supervised learning CLIP on the test domain, while the right side presents the accuracy of CLIP-based NTL. W_{ua} represents the proposed weighted drop, while D_u and D_a denote the drop rates for the unauthorized and authorized domains, respectively.

Authorized/Test	Amazon	Dslr	Webcam	$W_{ua} \uparrow$	$D_u \uparrow$	$D_a \downarrow$
Amazon	79.4 \Rightarrow 76.3	87.5 \Rightarrow 34.5	88.8 \Rightarrow 68.5	25.60	36.65	3.10
Dslr	83.8 \Rightarrow 15.0	95.7 \Rightarrow 93.8	98.8 \Rightarrow 81.0	38.83	43.30	1.90
Webcam	80.0 \Rightarrow 77.8	92.5 \Rightarrow 27.5	94.4 \Rightarrow 93.8	30.95	33.60	0.60
Mean	/			31.80	37.85	1.87

Table 20. The accuracy (%) of target-free CLIP-based CUTI-Domain [29] on the Office-31 [26]. The vertical/horizontal axis denotes the authorized/test domain. In each task, the left of ' \Rightarrow ' shows the test accuracy of supervised learning CLIP on the test domain, while the right side presents the accuracy of CLIP-based CUTI-Domain. W_{ua} represents the proposed weighted drop, while D_u and D_a denote the drop rates for the unauthorized and authorized domains, respectively.

Authorized/Test	Amazon	Dslr	Webcam	$W_{ua} \uparrow$	$D_u \uparrow$	$D_a \downarrow$
Amazon	79.4 \Rightarrow 79.0	87.5 \Rightarrow 9.8	88.8 \Rightarrow 38.3	50.32	64.10	0.40
Dslr	83.8 \Rightarrow 23.3	95.7 \Rightarrow 95.3	98.8 \Rightarrow 64.3	44.89	47.50	0.40
Webcam	80.0 \Rightarrow 17.8	92.5 \Rightarrow 10.0	94.4 \Rightarrow 92.5	65.17	72.35	1.90
Mean	/			53.46	61.32	0.90

Table 21. The accuracy (%) of target-specified IP-CLIP on the Office-31 [26]. The vertical/horizontal axis denotes the authorized/test domain. In each task, the left of ' \Rightarrow ' shows the test accuracy of supervised learning CLIP on the test domain, while the right side presents the accuracy of IP-CLIP. W_{ua} represents the proposed weighted drop, while D_u and D_a denote the drop rates for the unauthorized and authorized domains, respectively.

Authorized/Test	Art	Clipart	Product	RealWorld	$W_{ua} \uparrow$	$D_u \uparrow$	$D_a \downarrow$
Art	76.3 \Rightarrow 74.5	47.1 \Rightarrow 43.5	64.9 \Rightarrow 63.3	72.2 \Rightarrow 71.6	0.10	1.93	1.80
Clipart	57.8 \Rightarrow 55.7	80.1 \Rightarrow 79.7	63.5 \Rightarrow 61.5	68.8 \Rightarrow 68.8	0.75	1.34	0.40
Product	56.6 \Rightarrow 51.0	45.2 \Rightarrow 37.0	92.7 \Rightarrow 90.1	72.7 \Rightarrow 68.2	3.13	6.08	2.60
RealWorld	63.8 \Rightarrow 62.5	49.2 \Rightarrow 43.8	75.5 \Rightarrow 73.7	84.4 \Rightarrow 84.4	2.39	2.83	0.00
Mean	/				1.59	3.05	1.20

Table 22. The accuracy (%) of target-free NTL [28] on the Office-Home-65 [27]. The vertical/horizontal axis denotes the authorized/test domain. In each task, the left of ' \Rightarrow ' shows the test accuracy of supervised learning CNN on the test domain, while the right side presents the accuracy of NTL. W_{ua} represents the proposed weighted drop, while D_u and D_a denote the drop rates for the unauthorized and authorized domains, respectively.

Authorized/Test	Art	Clipart	Product	RealWorld	$W_{ua} \uparrow$	$D_u \uparrow$	$D_a \downarrow$
Art	76.3 \Rightarrow 69.5	47.1 \Rightarrow 39.3	64.9 \Rightarrow 56.8	72.2 \Rightarrow 68.5	-0.19	6.53	6.80
Clipart	57.8 \Rightarrow 44.5	80.1 \Rightarrow 73.7	63.5 \Rightarrow 59.1	68.8 \Rightarrow 61.7	1.36	8.24	6.40
Product	56.6 \Rightarrow 42.2	45.2 \Rightarrow 31.3	92.7 \Rightarrow 84.6	72.7 \Rightarrow 61.7	4.21	13.08	8.10
RealWorld	63.8 \Rightarrow 53.1	49.2 \Rightarrow 40.4	75.5 \Rightarrow 68.5	84.4 \Rightarrow 80.2	3.72	8.83	4.20
Mean	/				2.28	9.17	6.38

Table 23. The accuracy (%) of target-free CUTI-Domain [29] on the Office-Home-65 [27]. The vertical/horizontal axis denotes the authorized/test domain. In each task, the left of ' \Rightarrow ' shows the test accuracy of supervised learning CNN on the test domain, while the right side presents the accuracy of CUTI-Domain. W_{ua} represents the proposed weighted drop, while D_u and D_a denote the drop rates for the unauthorized and authorized domains, respectively.

Authorized/Test	Art	Clipart	Product	RealWorld	$W_{ua} \uparrow$	$D_u \uparrow$	$D_a \downarrow$
Art	85.5 \Rightarrow 81.8	68.0 \Rightarrow 64.5	89.8 \Rightarrow 88.3	88.5 \Rightarrow 85.0	-0.71	2.83	3.70
Clipart	81.0 \Rightarrow 78.8	75.0 \Rightarrow 74.5	90.8 \Rightarrow 91.8	89.5 \Rightarrow 88.0	0.30	0.90	0.50
Product	78.8 \Rightarrow 60.0	73.3 \Rightarrow 35.0	92.8 \Rightarrow 89.5	87.5 \Rightarrow 87.5	14.08	19.03	3.30
RealWorld	83.0 \Rightarrow 71.3	71.3 \Rightarrow 31.8	90.8 \Rightarrow 89.0	90.0 \Rightarrow 87.3	13.07	17.67	2.70
Mean	/				6.68	10.11	2.55

Table 24. The accuracy (%) of target-free CLIP-based NTL [28] on the Office-Home-65 [27]. The vertical/horizontal axis denotes the authorized/test domain. In each task, the left of ' \Rightarrow ' shows the test accuracy of supervised learning CLIP on the test domain, while the right side presents the accuracy of CLIP-based NTL. W_{ua} represents the proposed weighted drop, while D_u and D_a denote the drop rates for the unauthorized and authorized domains, respectively.

Authorized/Test	Art	Clipart	Product	RealWorld	$W_{ua} \uparrow$	$D_u \uparrow$	$D_a \downarrow$
Art	85.5 \Rightarrow 81.3	68.0 \Rightarrow 62.5	89.8 \Rightarrow 89.8	88.5 \Rightarrow 83.8	-0.65	3.40	4.20
Clipart	81.0 \Rightarrow 70.8	75.0 \Rightarrow 73.8	90.8 \Rightarrow 87.3	89.5 \Rightarrow 78.5	5.19	8.23	1.20
Product	78.8 \Rightarrow 67.3	73.3 \Rightarrow 49.8	92.8 \Rightarrow 88.5	87.5 \Rightarrow 67.0	12.57	18.50	4.30
RealWorld	83.0 \Rightarrow 79.5	71.3 \Rightarrow 62.8	90.8 \Rightarrow 86.3	90.0 \Rightarrow 88.8	3.82	5.50	1.20
Mean	/				5.23	8.91	2.73

Table 25. The accuracy (%) of target-free CLIP-based CUTI-Domain [29] on the Office-Home-65 [27]. The vertical/horizontal axis denotes the authorized/test domain. In each task, the left of ' \Rightarrow ' shows the test accuracy of supervised learning CLIP on the test domain, while the right side presents the accuracy of CLIP-based CUTI-Domain. W_{ua} represents the proposed weighted drop, while D_u and D_a denote the drop rates for the unauthorized and authorized domains, respectively.

Authorized/Test	Art	Clipart	Product	RealWorld	$W_{ua} \uparrow$	$D_u \uparrow$	$D_a \downarrow$
Art	85.5 \Rightarrow 79.5	68.0 \Rightarrow 52.5	89.8 \Rightarrow 87.8	88.5 \Rightarrow 69.8	4.82	12.07	6.00
Clipart	81.0 \Rightarrow 56.0	75.0 \Rightarrow 75.0	90.8 \Rightarrow 87.3	89.5 \Rightarrow 58.5	14.88	19.83	0.00
Product	78.8 \Rightarrow 46.8	73.3 \Rightarrow 41.3	92.8 \Rightarrow 89.0	87.5 \Rightarrow 60.3	23.67	30.40	3.80
RealWorld	83.0 \Rightarrow 64.8	71.3 \Rightarrow 35.0	90.8 \Rightarrow 76.5	90.0 \Rightarrow 89.8	20.41	22.93	0.20
Mean	/				15.95	21.31	2.50

Table 26. The accuracy (%) of target-free IP-CLIP on the Office-Home-65 [27]. The vertical/horizontal axis denotes the authorized/test domain. In each task, the left of ' \Rightarrow ' shows the test accuracy of supervised learning CLIP on the test domain, while the right side presents the accuracy of IP-CLIP. W_{ua} represents the proposed weighted drop, while D_u and D_a denote the drop rates for the unauthorized and authorized domains, respectively.

Authorized/Test	Art	Clipart	Product	Real	$W_{ua} \uparrow$	$D_u \uparrow$	$D_a \downarrow$
Clipart	76.4 \Rightarrow 59.1	49.5 \Rightarrow 38.0	62.5 \Rightarrow 51.6	47.0 \Rightarrow 34.0	-3.25	11.80	17.30
Painting	48.0 \Rightarrow 36.3	61.8 \Rightarrow 53.3	60.4 \Rightarrow 55.3	42.3 \Rightarrow 36.5	-0.52	7.53	8.50
Real	52.3 \Rightarrow 44.2	57.9 \Rightarrow 54.1	85.6 \Rightarrow 83.0	46.9 \Rightarrow 41.6	2.60	5.73	2.60
Sketch	52.5 \Rightarrow 38.0	46.9 \Rightarrow 35.5	62.8 \Rightarrow 45.1	66.6 \Rightarrow 56.4	2.44	14.53	10.20
Mean	/				0.32	9.90	9.47

Table 27. The accuracy (%) of target-free NTL [28] on the Mini-DomainNet [34]. The vertical/horizontal axis denotes the authorized/test domain. In each task, the left of ' \Rightarrow ' shows the test accuracy of supervised learning CNN on the test domain, while the right side presents the accuracy of NTL. W_{ua} represents the proposed weighted drop, while D_u and D_a denote the drop rates for the unauthorized and authorized domains, respectively.

Authorized/Test	Art	Clipart	Product	Real	$W_{ua} \uparrow$	$D_u \uparrow$	$D_a \downarrow$
Clipart	76.4 \Rightarrow 68.4	49.5 \Rightarrow 43.9	62.5 \Rightarrow 57.9	47.0 \Rightarrow 41.3	-1.85	5.30	8.00
Painting	48.0 \Rightarrow 39.3	61.8 \Rightarrow 58.4	60.4 \Rightarrow 61.8	42.3 \Rightarrow 38.0	0.27	3.87	3.40
Real	52.3 \Rightarrow 44.1	57.9 \Rightarrow 51.2	85.6 \Rightarrow 82.1	46.9 \Rightarrow 43.8	2.05	6.00	3.50
Sketch	52.5 \Rightarrow 44.2	46.9 \Rightarrow 41.3	62.8 \Rightarrow 56.6	66.7 \Rightarrow 57.1	-1.63	6.70	9.56
Mean	/				-0.29	5.47	4.97

Table 28. The accuracy (%) of target-free CUTI-Domain [29] on the Mini-DomainNet [34]. The vertical/horizontal axis denotes the authorized/test domain. In each task, the left of ' \Rightarrow ' shows the test accuracy of supervised learning CNN on the test domain, while the right side presents the accuracy of CUTI-Domain. W_{ua} represents the proposed weighted drop, while D_u and D_a denote the drop rates for the unauthorized and authorized domains, respectively.

Authorized/Test	Art	Clipart	Product	Real	$W_{ua} \uparrow$	$D_u \uparrow$	$D_a \downarrow$
Clipart	85.1 \Rightarrow 80.5	79.8 \Rightarrow 77.0	89.8 \Rightarrow 88.4	78.7 \Rightarrow 72.4	-0.89	3.50	4.60
Painting	83.8 \Rightarrow 78.7	81.4 \Rightarrow 77.5	89.1 \Rightarrow 86.4	78.4 \Rightarrow 73.0	0.39	4.40	3.90
Real	84.6 \Rightarrow 78.9	80.5 \Rightarrow 69.7	90.6 \Rightarrow 86.4	80.0 \Rightarrow 68.4	4.46	9.37	4.20
Sketch	84.3 \Rightarrow 73.2	79.1 \Rightarrow 74.9	90.3 \Rightarrow 83.5	80.7 \Rightarrow 77.3	3.07	7.37	3.40
Mean	/				1.76	6.16	4.23

Table 29. The accuracy (%) of target-free CLIP-based NTL [28] on the Mini-DomainNet [34]. The vertical/horizontal axis denotes the authorized/test domain. In each task, the left of ' \Rightarrow ' shows the test accuracy of supervised learning CLIP on the test domain, while the right side presents the accuracy of CLIP-based NTL. W_{ua} represents the proposed weighted drop, while D_u and D_a denote the drop rates for the unauthorized and authorized domains, respectively.

Authorized/Test	Art	Clipart	Product	Real	$W_{ua} \uparrow$	$D_u \uparrow$	$D_a \downarrow$
Clipart	85.1 \Rightarrow 80.8	79.8 \Rightarrow 67.9	89.8 \Rightarrow 85.4	78.7 \Rightarrow 73.8	2.24	7.07	4.30
Painting	83.8 \Rightarrow 80.6	81.4 \Rightarrow 78.1	89.1 \Rightarrow 88.9	78.4 \Rightarrow 71.1	0.21	3.57	3.30
Real	84.6 \Rightarrow 74.3	80.5 \Rightarrow 74.6	90.6 \Rightarrow 88.3	80.0 \Rightarrow 69.4	5.86	8.93	2.30
Sketch	84.3 \Rightarrow 78.9	79.1 \Rightarrow 74.1	90.3 \Rightarrow 85.2	80.7 \Rightarrow 77.2	1.29	5.17	3.50
Mean	/				2.40	6.18	3.30

Table 30. The accuracy (%) of target-free CLIP-based CUTI-Domain [29] on the Mini-DomainNet [34]. The vertical/horizontal axis denotes the authorized/test domain. In each task, the left of ' \Rightarrow ' shows the test accuracy of supervised learning CLIP on the test domain, while the right side presents the accuracy of CLIP-based CUTI-Domain. W_{ua} represents the proposed weighted drop, while D_u and D_a denote the drop rates for the unauthorized and authorized domains, respectively.

Authorized/Test	Art	Clipart	Product	Real	$W_{ua} \uparrow$	$D_u \uparrow$	$D_a \downarrow$
Clipart	85.1 \Rightarrow 81.1	79.8 \Rightarrow 70.6	89.8 \Rightarrow 86.4	78.7 \Rightarrow 68.4	2.95	7.63	4.00
Painting	83.8 \Rightarrow 76.5	81.4 \Rightarrow 78.7	89.1 \Rightarrow 87.8	78.4 \Rightarrow 75.2	0.97	3.93	2.70
Real	84.6 \Rightarrow 66.8	80.5 \Rightarrow 66.8	90.6 \Rightarrow 88.1	80.0 \Rightarrow 57.1	13.77	18.13	2.50
Sketch	84.3 \Rightarrow 78.6	79.1 \Rightarrow 69.8	90.3 \Rightarrow 80.6	80.7 \Rightarrow 77.3	3.74	8.23	3.40
Mean	/				5.36	9.48	3.07

Table 31. The accuracy (%) of target-free IP-CLIP on the Mini-DomainNet [34]. The vertical/horizontal axis denotes the authorized/test domain. In each task, the left of ' \Rightarrow ' shows the test accuracy of supervised learning CLIP on the test domain, while the right side presents the accuracy of IP-CLIP. W_{ua} represents the proposed weighted drop, while D_u and D_a denote the drop rates for the unauthorized and authorized domains, respectively.

Authorized/Test	Amazon	Dslr	Webcam	$D_{ua} \uparrow$	$A_u \downarrow$	$A_a \uparrow$
Amazon	3.1	6.3	6.3	1.63	5.21	15.63
Dslr	7.8	3.1	3.1	9.23	4.69	32.81
Webcam	0.0	0.0	0.0	11.82	0.00	34.38
Mean	/			7.56	3.30	27.60

Table 32. D_{ua} , A_u , and A_a of authorization application NTL [28] on the Office-31 [26]. The vertical/horizontal axis denotes the authorized/test domain. D_{ua} represents the proposed weighted drop, while A_u^{IP} and A_a^{IP} denote the accuracy of the unauthorized and test domains, respectively.

Authorized/Test	Amazon	Dslr	Webcam	$D_{ua} \uparrow$	$A_u \downarrow$	$A_a \uparrow$
Amazon	0.0	1.6	0.0	27.95	0.52	53.13
Dslr	10.9	0.0	1.6	72.92	4.17	87.50
Webcam	34.4	43.8	32.8	40.01	37.00	84.40
Mean	/			46.96	13.90	75.01

Table 33. D_{ua} , A_u , and A_a of authorization application CUTI-Domain [29] on the Office-31 [26]. The vertical/horizontal axis denotes the authorized/test domain. D_{ua} represents the proposed weighted drop, while A_u^{IP} and A_a^{IP} denote the accuracy of the unauthorized and test domains, respectively.

Authorized/Test	Amazon	Dslr	Webcam	$D_{ua} \uparrow$	$A_u \downarrow$	$A_a \uparrow$
Amazon	57.5	13.8	41.0	15.67	37.43	62.50
Dslr	78.7	18.5	54.3	39.25	50.50	92.80
Webcam	31.8	17.3	14.8	54.59	21.30	85.30
Mean	/			36.50	36.41	80.20

Table 34. D_{ua} , A_u , and A_a of authorization application CLIP-based NTL [28] on the Office-31 [26]. The vertical/horizontal axis denotes the authorized/test domain. D_{ua} represents the proposed weighted drop, while A_u^{IP} and A_a^{IP} denote the accuracy of the unauthorized and test domains, respectively.

Authorized/Test	Amazon	Dslr	Webcam	$D_{ua} \uparrow$	$A_u \downarrow$	$A_a \uparrow$
Amazon	36.0	7.5	19.0	29.26	20.83	65.50
Dslr	74.0	6.3	29.3	54.47	36.53	94.30
Webcam	57.0	12.5	22.3	40.56	30.60	80.80
Mean	/			41.43	29.32	80.20

Table 35. D_{ua} , A_u , and A_a of authorization application CLIP-based CUTI-Domain [29] on the Office-31 [26]. The vertical/horizontal axis denotes the authorized/test domain. D_{ua} represents the proposed weighted drop, while A_u^{IP} and A_a^{IP} denote the accuracy of the unauthorized and test domains, respectively.

Authorized/Test	Amazon	Dslr	Webcam	$D_{ua} \uparrow$	$A_u \downarrow$	$A_a \uparrow$
Amazon	4.5	3.3	2.8	37.46	3.53	63.00
Dslr	27.3	1.5	0.5	82.42	9.77	95.80
Webcam	31.0	4.3	11.3	56.45	15.53	83.30
Mean	/			58.78	9.61	80.70

Table 36. D_{ua} , A_u , and A_a of authorization application IP-CLIP on the Office-31 [26]. The vertical/horizontal axis denotes the authorized/test domain. D_{ua} represents the proposed weighted drop, while A_u^{IP} and A_a^{IP} denote the accuracy of the unauthorized and test domains, respectively.

Authorized/Test	Art	Clipart	Product	RealWorld	$D_{ua} \uparrow$	$A_u \downarrow$	$A_a \uparrow$
Art	77.3	42.7	64.6	71.1	8.75	63.93	75.52
Clipart	44.8	58.9	46.4	51.6	4.98	50.39	58.85
Product	50.0	43.0	78.4	62.2	17.49	58.40	80.21
RealWorld	60.9	46.6	69.3	83.1	15.83	64.97	83.85
Mean	/				11.76	59.42	74.61

Table 37. D_{ua} , A_u , and A_a of authorization application NTL [28] on the Office-Home-65 [27]. The vertical/horizontal axis denotes the authorized/test domain. D_{ua} represents the proposed weighted drop, while A_u^{IP} and A_a^{IP} denote the accuracy of the unauthorized and test domains, respectively.

Authorized/Test	Art	Clipart	Product	RealWorld	$D_{ua} \uparrow$	$A_u \downarrow$	$A_a \uparrow$
Art	1.6	1.0	0.8	0.8	35.25	1.04	59.90
Clipart	0.8	0.8	0.8	0.5	14.78	0.72	38.80
Product	2.1	0.8	0.0	0.3	33.27	0.78	58.07
RealWorld	21.9	19.5	39.6	44.3	3.15	31.32	39.32
Mean	/				21.61	8.46	49.02

Table 38. D_{ua} , A_u , and A_a of authorization application CUTI-Domain [29] on the Office-Home-65 [27]. The vertical/horizontal axis denotes the authorized/test domain. D_{ua} represents the proposed weighted drop, while A_u^{IP} and A_a^{IP} denote the accuracy of the unauthorized and test domains, respectively.

Authorized/Test	Art	Clipart	Product	RealWorld	$D_{ua} \uparrow$	$A_u \downarrow$	$A_a \uparrow$
Art	21.0	14.3	17.0	29.5	49.47	20.45	81.30
Clipart	21.0	13.0	45.0	31.8	9.74	27.70	48.00
Product	21.3	27.8	36.8	24.0	44.44	27.48	81.80
RealWorld	10.3	22.5	27.5	16.5	51.50	19.20	82.00
Mean	/				38.79	23.71	73.28

Table 39. D_{ua} , A_u , and A_a of authorization application CLIP-based NTL [28] on the Office-Home-65 [27]. The vertical/horizontal axis denotes the authorized/test domain. D_{ua} represents the proposed weighted drop, while A_u^{IP} and A_a^{IP} denote the accuracy of the unauthorized and test domains, respectively.

Authorized/Test	Art	Clipart	Product	RealWorld	$D_{ua} \uparrow$	$A_u \downarrow$	$A_a \uparrow$
Art	4.5	5.0	21.0	11.0	54.95	10.38	79.50
Clipart	11.0	16.0	36.5	20.0	16.86	20.88	52.80
Product	18.0	33.5	61.0	29.0	39.53	35.38	83.00
RealWorld	7.5	3.5	10.8	9.5	62.87	7.83	83.30
Mean	/				43.55	18.61	74.65

Table 40. D_{ua} , A_u , and A_a of authorization application CLIP-based CUTI-Domain [29] on the Office-Home-65 [27]. The vertical/horizontal axis denotes the authorized/test domain. D_{ua} represents the proposed weighted drop, while A_u^{IP} and A_a^{IP} denote the accuracy of the unauthorized and test domains, respectively.

Authorized/Test	Art	Clipart	Product	RealWorld	$D_{ua} \uparrow$	$A_u \downarrow$	$A_a \uparrow$
Art	1.5	3.3	7.8	3.0	60.12	3.88	79.50
Clipart	4.3	5.3	22.5	9.8	26.52	10.48	57.00
Product	5.8	9.3	12.0	6.5	57.74	8.40	80.30
RealWorld	2.3	4.0	8.5	6.0	71.17	5.20	87.00
Mean	/				53.89	6.99	75.95

Table 41. D_{ua} , A_u , and A_a of authorization application IP-CLIP on the Office-Home-65 [27]. The vertical/horizontal axis denotes the authorized/test domain. D_{ua} represents the proposed weighted drop, while A_u^{IP} and A_a^{IP} denote the accuracy of the unauthorized and test domains, respectively.

Authorized/Test	Clipart	Painting	Real	Sketch	$D_{ua} \uparrow$	$A_u \downarrow$	$A_a \uparrow$
Clipart	75.0	48.2	62.2	46.9	11.96	58.06	74.18
Painting	51.6	69.1	68.4	43.9	7.47	58.26	69.08
Real	47.5	53.1	83.2	44.2	21.08	57.03	82.57
Sketch	53.9	48.4	62.7	68.9	7.72	58.47	69.57
Mean	/				12.06	57.96	73.85

Table 42. D_{ua} , A_u , and A_a of authorization application NTL [28] on the Mini-DomainNet [34]. The vertical/horizontal axis denotes the authorized/test domain. D_{ua} represents the proposed weighted drop, while A_u^{IP} and A_a^{IP} denote the accuracy of the unauthorized and test domains, respectively.

Authorized/Test	Clipart	Painting	Real	Sketch	$D_{ua} \uparrow$	$A_u \downarrow$	$A_a \uparrow$
Clipart	78.5	50.5	64.1	49.0	13.75	60.53	78.13
Painting	38.5	56.3	54.6	31.3	6.47	45.15	56.58
Real	48.5	54.9	85.4	44.9	22.62	58.43	85.03
Sketch	50.8	48.8	61.0	68.3	7.00	57.24	67.60
Mean	/				12.46	55.34	71.83

Table 43. D_{ua} , A_u , and A_a of authorization application CUTI-Domain [29] on the Mini-DomainNet [34]. The vertical/horizontal axis denotes the authorized/test domain. D_{ua} represents the proposed weighted drop, while A_u^{IP} and A_u^{IP} denote the accuracy of the unauthorized and test domains, respectively.

Authorized/Test	Clipart	Painting	Real	Sketch	$D_{ua} \uparrow$	$A_u \downarrow$	$A_a \uparrow$
Clipart	13.5	8.7	12.1	35.9	38.45	17.54	71.40
Painting	26.2	15.1	14.3	41.1	32.78	24.18	70.60
Real	41.1	21.8	24.6	64.1	35.66	37.90	81.60
Sketch	16.5	7.8	11.3	30.6	38.66	16.55	71.00
Mean	/				36.39	24.04	73.65

Table 44. D_{ua} , A_u , and A_a of authorization application CLIP-based NTL [28] on the Mini-DomainNet [34]. The vertical/horizontal axis denotes the authorized/test domain. D_{ua} represents the proposed weighted drop, while A_u^{IP} and A_u^{IP} denote the accuracy of the unauthorized and test domains, respectively.

Authorized/Test	Clipart	Painting	Real	Sketch	$D_{ua} \uparrow$	$A_u \downarrow$	$A_a \uparrow$
Clipart	57.9	24.3	31.1	63.0	22.77	44.08	74.60
Painting	46.5	13.8	21.6	57.0	24.48	34.73	69.80
Real	42.4	17.9	21.9	57.1	33.56	34.83	77.90
Sketch	6.0	4.8	6.4	20.6	48.18	9.45	74.30
Mean	/				32.25	30.77	74.15

Table 45. D_{ua} , A_u , and A_a of authorization application CLIP-based CUTI-Domain [29] on the Mini-DomainNet [34]. The vertical/horizontal axis denotes the authorized/test domain. D_{ua} represents the proposed weighted drop, while A_u^{IP} and A_u^{IP} denote the accuracy of the unauthorized and test domains, respectively.

Authorized/Test	Clipart	Painting	Real	Sketch	$D_{ua} \uparrow$	$A_u \downarrow$	$A_a \uparrow$
Clipart	4.6	5.1	4.8	14.9	50.88	7.35	75.10
Painting	7.5	4.6	8.4	23.2	40.33	10.93	69.20
Real	17.3	8.4	9.8	38.1	54.06	18.40	83.30
Sketch	4.6	3.8	5.7	18.7	48.27	8.20	73.70
Mean	/				48.39	11.22	75.33

Table 46. D_{ua} , A_u , and A_a of authorization application IP-CLIP on the Mini-DomainNet [34]. The vertical/horizontal axis denotes the authorized/test domain. D_{ua} represents the proposed weighted drop, while A_u^{IP} and A_a^{IP} denote the accuracy of the unauthorized and test domains, respectively.

Modules	\mathcal{L}_a	\mathcal{L}_u	\mathcal{L}_{dis}	\mathcal{L}_{aug}	$W_{ua} \uparrow$	$D_u \uparrow$	$D_a \downarrow$
Baseline (SL-CLIP)	✓				/	/	/
Baseline+IP	✓	✓			23.96	30.81	2.35
Baseline+IP+Proj	✓	✓	✓		53.60	65.41	0.41
Proposed (Baseline+IP+Proj+STAM)	✓	✓	✓	✓	54.68	65.48	0.33

Table 47. Ablation experiments on Mini-DomainNet. \mathcal{L}_a is used for supervised learning on the authorized domain as the baseline. "Baseline+IP" naively trains both domains simultaneously, using entropy (\mathcal{L}_{en}) to enhance text feature diversity. The addition of the IP projector (Baseline+IP+Proj) incorporates \mathcal{L}_{dis} ($\mathcal{L}_{kl} + \mathcal{L}_m$) to distinguishing text and domain features across domains. STAM with \mathcal{L}_{aug} ($\mathcal{L}_{ai} + \mathcal{L}_{ui}$) further enhances domain token robustness in domain feature identification (Proposed).