Table 1: Few-shot IAD performance averaged across on each dataset of MVTec, VisA, MPDD, and RealIAD. Results of image-level and pixel-level are reported in AUROC. The values in parentheses represent the improvements of our method compared to the original method. The best and the second best results are bold with black and blue, respectively.

Setup	Method	MVTec		VisA		MPDD		RealIAD	
		Image	Pixel	Image	Pixel	Image	Pixel	Image	Pixel
1-shot	GraphCore (ICLR'23)	89.9	**95.6**	—	—	**84.7**	95.2	—	—
	PatchCore (CVPR'22)	84.1	92.3	71.0	**96.1**	71.0	96.3	—	—
	PatchCore+ (Ours)	85.9(+1.8)	93.7(+1.4)	78.3(+7.3)	**97.1**(+1)	**74.9**(+3.9)	**96.6**(+0.3)	—	—
	WinCLIP (CVPR'23)	**93.5**	93.6	**83.4**	94.7	70.5	96.3	—	—
	WinCLIP+ (Ours)	**93.8**(+0.3)	**95.7**(+2.1)	**83.9**(+0.5)	95.8(+1.1)	72.5(+2.0)	**96.9**(+0.6)	—	—
2-shot	GraphCore (ICLR'23)	91.9	**96.9**	—	—	**85.4**	95.4	—	—
	PatchCore (CVPR'22)	87.1	93.3	80.0	**96.9**	71.4	96.5	72.5	**95.9**
	PatchCore+ (Ours)	88.8(+1.7)	94.7(+1.4)	**87.1**(+7.1)	**98.0**(+1.1)	**78.2**(+6.8)	**96.9**(+0.4)	**76.9**(+4.4)	**96.5**(+0.6)
	WinCLIP (CVPR'23)	**93.7**	93.8	83.8	95.1	72.5	96.5	75.0	94.6
	WinCLIP+ (Ours)	**93.9**(+0.2)	**96.2**(+2.4)	**84.1**(+0.3)	96.4(+1.3)	76.0(+3.5)	**97.3**(+0.8)	**75.9**(+0.9)	95.2(+0.6)
4-shot	GraphCore (ICLR'23)	92.9	**97.4**	—	—	**85.7**	95.7		
	PatchCore (CVPR'22)	90.0	95.1	84.2	**97.5**	76.2	97.2	—	—
	PatchCore+ (Ours)	92.1(+2.1)	96.1(+1)	**90.4**(+6.2)	**98.2**(+0.7)	80.3(+4.1)	**97.2**(+0)	—	—
	WinCLIP (CVPR'23)	**95.3**	94.2	84.1	95.4	75.0	96.8	—	—
	WinCLIP+ (Ours)	**95.5**(+0.2)	**96.7**(+2.5)	**85.0**(+0.9)	96.6(+1.2)	**82.0**(+7)	**97.6**(+0.8)	—	—

Table 2: Ablation studies of WinCLIP+ with AUROC under 2-shot. The best results are in bold.

W^*	T^*	MVTec		VisA		MPDD	
		Image	Pixel	Image	Pixel	Image	Pixel
×	×	93.7	93.8	83.8	95.1	72.5	96.5
✓	×	93.7	94.7	83.7	96.2	74.9	96.4
✓	✓	**93.9**	**96.2**	**84.1**	**96.4**	**76.0**	**97.3**

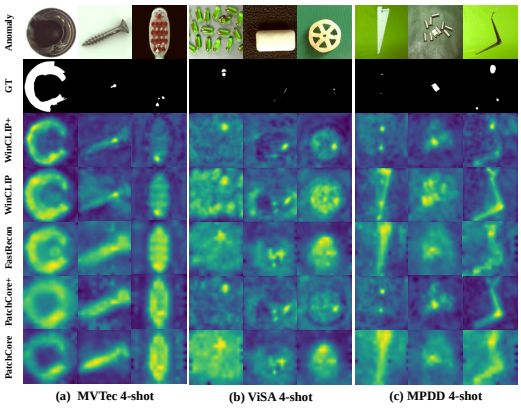
Table 3: Results of incorporating refined prototypes into the memory bank on MPDD.

Method	1-shot		2-shot	
	Image	Pixel	Image	Pixel
PatchCore	71.0	96.3	71.4	96.5
PatchCore+	74.9	96.6	78.2	96.9
Online PatchCore+	75.2	97.1	78.5	97.2

Algorithm 1 Inference Process

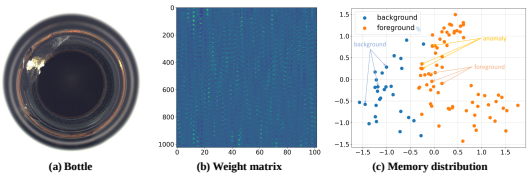
Require: Initial transform matrix $\boldsymbol{W}_0$, original prototypes $\boldsymbol{\mathcal{M}}_{\mathrm{s}}$, the t-th query features $\boldsymbol{f}_t^q$

Calculating p_s using $\boldsymbol{\mathcal{M}}_{\mathrm{s}}$
for $m = 0$ *to* $M-1$ **do**
  Calculate q_s using $\boldsymbol{W}_m \boldsymbol{\mathcal{M}}_{\mathrm{s}}$
  for $e = 0$ *to* $E-1$ **do**
    Update $\boldsymbol{T}_{m+1}$ from $\boldsymbol{T}_m$ by minimizing
    $\mathrm{OT}(p_s, q_s)$ while fix $\boldsymbol{W}_m$
  Update $\boldsymbol{W}_{m+1}$ from $\boldsymbol{W}_m$ by minimizing
  $\mathcal{L}(\boldsymbol{f}_t^q, \boldsymbol{\mathcal{M}}_{\mathrm{s}}; \boldsymbol{W}, \boldsymbol{T})$ while fix $\boldsymbol{T}_{m+1}$
Set $\boldsymbol{W}^* = \boldsymbol{W}_M$, $\boldsymbol{\mathcal{M}}_{\mathrm{s}}^* = \boldsymbol{W}^* \boldsymbol{\mathcal{M}}_{\mathrm{s}}$
Implement few-shot IAD as follows:
$\boldsymbol{s}_{\mathrm{j}} := \min_{\boldsymbol{r} \in \boldsymbol{\mathcal{M}}_{\mathrm{s}}^*} \mathrm{dis}(\boldsymbol{f}_{\mathrm{t,j}}^{\mathrm{q}}, \boldsymbol{r}), \quad \mathrm{j} = 1, ..., \mathrm{m}$



(a) MVTec 4-shot (b) VisA 4-shot (c) MPDD 4-shot

Figure 1: Qualitative results of pixel-level anomaly localization under 4-shot.



(a) Bottle (b) Weight matrix (c) Memory distribution

Figure 2: The learned weight matrix in (b) corresponding to the bottle in (a). (c) shows the Top-3 selected items in the memory according to (b) for different patches of query image in (a).

Table 4: Image/pixel level AUROC and per image inference time (s) on MPDD under 2-shot.

Method	Image	Pixel	Inference time
PatchCore	71.4	96.5	0.20
PatchCore+	78.2	96.9	0.50
Closed PatchCore+	78.0	97.0	0.36