

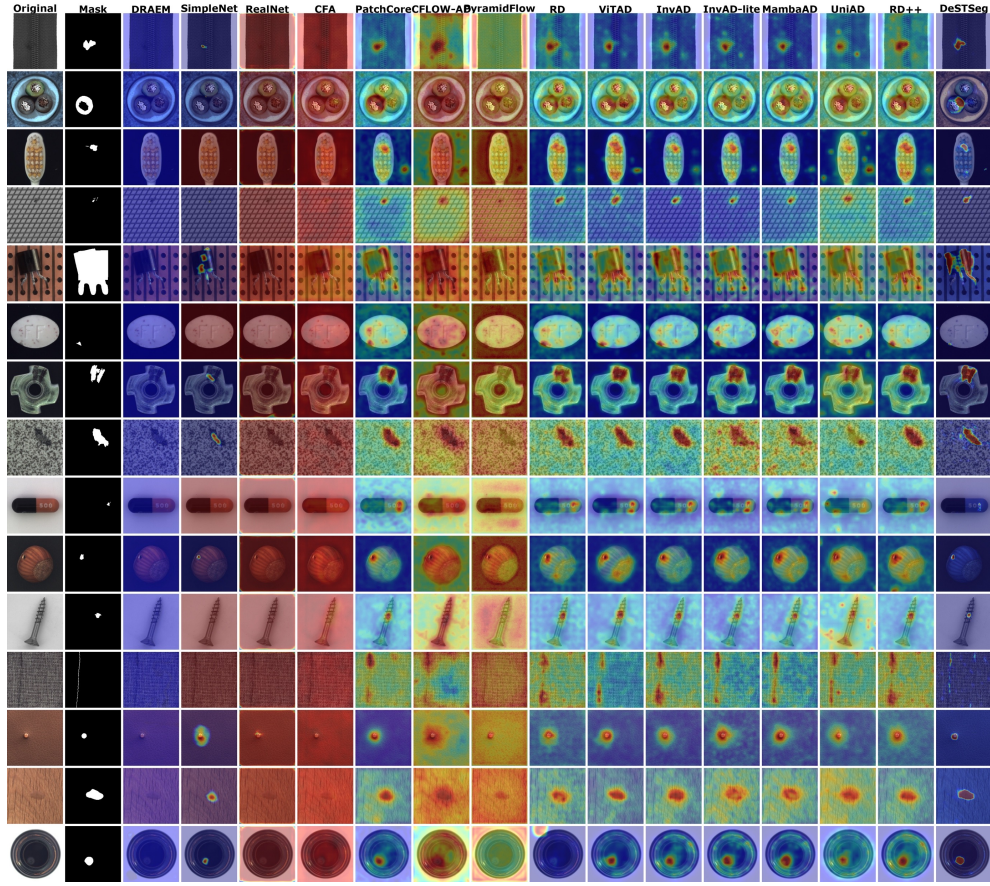
Overview

The supplementary material presents the following sections to strengthen the main manuscript:

- **Sec. A** shows the qualitative visualizations Results on the popular MVTec AD and VisA datasets, as well as the medical Uni-Medical and large-scale Real-IAD datasets.
- **Sec. B** shows the average quantitative results on various datasets under 100 epochs.
- **Sec. C** shows the average quantitative results on various datasets under 300 epochs.
- **Sec. D** shows the specific quantitative results for each class under 100 epochs on MVTec AD [3] dataset.
- **Sec. E** shows the specific quantitative results for each class under 100 epochs on MVTec AD 3D [6] dataset.
- **Sec. F** shows the specific quantitative results for each class under 100 epochs on MVTec LOCO-AD [5] dataset.
- **Sec. G** shows the specific quantitative results for each class under 100 epochs on VisA [47] dataset.
- **Sec. H** shows the specific quantitative results for each class under 100 epochs on BTAD [28] dataset.
- **Sec. I** shows the specific quantitative results for each class under 100 epochs on MPDD [20] dataset.
- **Sec. J** shows the specific quantitative results for each class under 100 epochs on MAD.Real [46] dataset.
- **Sec. K** shows the specific quantitative results for each class under 100 epochs on MAD.Sim [46] dataset.
- **Sec. L** shows the specific quantitative results for each class under 100 epochs on Uni-Medical [40] dataset.
- **Sec. M** shows the specific quantitative results for each class under 100 epochs on Real-IAD [32] dataset.
- **Sec. N** shows the specific quantitative results for each class under 100 epochs on COCO-AD [42] dataset.
- **Sec. O** shows the specific quantitative results for each class under 300 epochs on MVTec AD [3] dataset.
- **Sec. P** shows the specific quantitative results for each class under 300 epochs on MVTec AD 3D [6] dataset.
- **Sec. Q** shows the specific quantitative results for each class under 300 epochs on MVTec LOCO-AD [5] dataset.
- **Sec. R** shows the specific quantitative results for each class under 300 epochs on VisA [47] dataset.
- **Sec. S** shows the specific quantitative results for each class under 300 epochs on BTAD [28] dataset.
- **Sec. T** shows the specific quantitative results for each class under 300 epochs on MPDD [20] dataset.
- **Sec. U** shows the specific quantitative results for each class under 300 epochs on MAD.Real [46] dataset.
- **Sec. V** shows the specific quantitative results for each class under 300 epochs on MAD.Sim [46] dataset.
- **Sec. W** shows the specific quantitative results for each class under 300 epochs on Uni-Medical [40] dataset.

A. Detailed Qualitative Visualizations Results on the popular MVTec AD and VisA datasets, as well as the medical Uni-Medical and large-scale Real-IAD datasets.

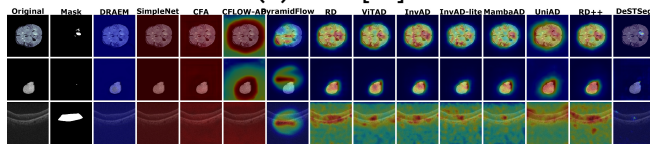
B. Detailed Quantitative Results on All Dataset Under 100 epochs



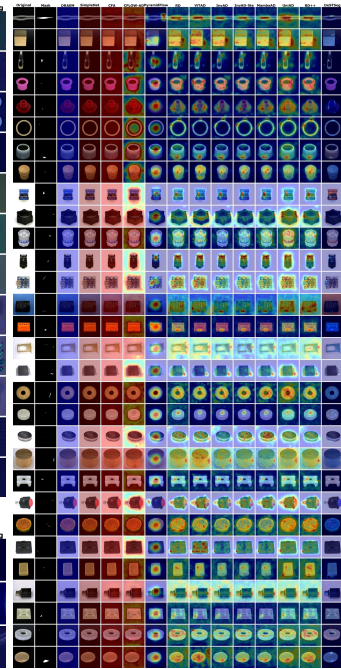
(a) MVTec AD [3]



(b) VisA [47]



(c) Uni-Medical [40]



(d) Real-IAD [32]

Figure A1. Qualitative visualizations on the popular MVTec AD and VisA datasets, as well as the medical Uni-Medical and large-scale Real-IAD datasets. Zoom in for better viewing.

Table A1. Benchmarked results on MVTec AD dataset [3] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
Avg	Aug.	DRAEM [37]	54.5	76.3	83.6	47.6	3.2	6.7	14.3	40.9
		SimpleNet [27]	95.4	98.3	95.7	96.8	48.8	51.9	86.9	82.0
		RealNet [45]	84.8	94.1	90.9	72.6	48.2	41.4	56.8	69.8
	Emb.	CFA [21]	57.6	78.3	84.7	54.8	11.9	14.7	25.3	46.8
		PatchCore [29]	98.8	99.5	98.4	98.3	<u>59.9</u>	<u>61.0</u>	<u>94.2</u>	87.2
		CFLOW-AD [14]	91.6	96.7	93.4	95.7	45.9	48.6	88.3	33.2
		PyramidalFlow [22]	70.2	85.5	85.5	80.0	22.3	22.0	47.5	59.0
	Rec.	RD [10]	93.6	97.2	95.6	95.8	48.2	53.6	91.2	37.0
		DiAD [16]	88.9	95.8	93.5	89.3	27.0	32.5	63.9	21.1
		ViTAD [40]	<u>98.3</u>	<u>99.3</u>	<u>97.3</u>	<u>97.6</u>	55.2	58.4	92.0	42.3
		InvAD [42]	<u>98.1</u>	99.0	<u>97.6</u>	<u>98.0</u>	<u>56.3</u>	<u>59.2</u>	94.4	<u>42.8</u>
		InvAD-lite [42]	97.9	<u>99.2</u>	96.8	97.3	54.4	57.8	93.3	41.4
		MambaAD [15]	97.8	<u>99.3</u>	<u>97.3</u>	97.4	55.1	57.6	<u>93.4</u>	41.2
	Hybrid	UniAD [35]	92.5	97.3	95.4	95.8	42.7	48.0	89.3	32.5
		RD++ [31]	97.9	98.8	96.4	97.3	54.7	58.0	93.2	41.5
		DesTSeg [44]	96.4	98.6	96.2	92.0	71.1	68.2	83.4	52.8

Table A2. Benchmarked results on MVTec 3D dataset [6] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
Avg	Aug.	DRAEM [37]	55.7	81.8	88.8	46.6	0.8	1.9	21.9	42.5
		SimpleNet [27]	75.8	92.3	90.4	94.7	17.3	23.4	81.0	67.8
	Emb.	CFA [21]	67.1	89.3	89.6	71.6	9.7	16.1	43.2	9.3
		PatchCore [29]	<u>84.1</u>	<u>95.1</u>	92.5	<u>98.6</u>	33.7	38.5	<u>94.4</u>	24.5
		CFLOW-AD [14]	73.1	91.0	90.2	96.8	21.6	26.6	89.0	15.8
		PyramidalFlow [22]	58.7	85.6	88.6	90.8	7.2	12.0	74.9	6.4
	Rec.	RD [10]	75.8	91.2	91.5	98.4	29.6	35.5	93.9	22.2
		DiAD [16]	75.4	91.0	90.9	91.7	5.3	10.2	74.9	5.4
		ViTAD [40]	79.6	93.4	91.6	98.0	27.2	33.3	91.6	20.4
		InvAD [42]	86.9	96.2	93.3	98.7	<u>37.4</u>	<u>42.4</u>	95.2	<u>27.4</u>
		InvAD-lite [42]	84.7	95.6	<u>92.6</u>	98.6	<u>38.3</u>	<u>41.9</u>	94.2	<u>26.9</u>
		MambaAD [15]	<u>84.1</u>	<u>95.1</u>	92.2	98.6	36.9	40.8	<u>94.2</u>	25.9
	Hybrid	UniAD [35]	75.3	92.1	90.3	96.6	21.2	27.9	88.9	16.7
		RD++ [31]	81.8	93.9	<u>92.8</u>	<u>98.5</u>	34.4	39.6	94.1	25.2
		DesTSeg [44]	79.1	93.8	90.7	81.1	41.3	42.7	64.0	28.4

Table A3. Benchmarked results on MVTec LOCO dataset [5] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
Avg	Aug.	DRAEM [37]	52.5	65.4	77.6	46.7	4.5	10.4	12.4	38.5
		SimpleNet [27]	81.6	88.5	82.9	76.5	29.0	32.7	63.8	65.0
	Emb.	CFA [21]	66.5	78.6	77.9	58.5	14.2	16.3	31.1	49.0
		PatchCore [29]	80.5	89.0	81.5	75.1	29.9	31.8	69.9	65.4
		CFLOW-AD [14]	75.1	84.2	79.8	70.7	25.0	27.9	69.5	61.7
		PyramidalFlow [22]	53.4	69.3	77.5	57.7	15.0	14.5	25.7	44.7
	Rec.	RD [10]	74.6	85.3	78.9	70.7	21.0	26.1	67.7	60.6
		DiAD [16]	71.3	79.5	80.9	71.8	19.0	24.8	48.4	56.5
		ViTAD [40]	76.4	85.2	79.6	73.4	28.7	31.2	63.1	62.5
		InvAD [42]	82.0	89.9	82.0	76.4	31.1	34.8	73.0	67.0
		InvAD-lite [42]	79.4	87.8	80.9	75.8	28.5	32.2	69.4	64.9
		MambaAD [15]	75.8	85.5	81.0	76.5	28.8	32.5	70.2	64.3
	Hybrid	UniAD [35]	73.2	82.1	79.6	73.1	30.7	33.4	64.7	62.4
		RD++ [31]	76.4	86.8	79.2	71.5	24.3	28.3	68.8	62.2
		DesTSeg [44]	77.9	86.7	81.3	64.1	35.2	30.5	53.4	61.3

Table A4. Benchmarked results on VisA dataset [47] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
Avg	Aug.	DRAEM [37]	55.1	62.4	72.9	37.5	0.6	1.7	10.0	34.3
		SimpleNet [27]	86.4	89.1	82.8	96.6	34.0	37.8	79.2	72.3
		RealNet [45]	71.4	79.5	74.7	61.0	25.7	22.6	27.4	51.8
	Emb.	CFA [21]	66.3	74.3	74.2	81.3	22.1	26.2	50.8	56.5
		CFLOW-AD [14]	86.5	88.8	84.9	97.7	33.9	37.2	86.8	73.7
		PyramidalFlow [22]	58.2	66.3	74.4	77.0	7.2	9.6	42.8	47.9
	Rec.	RD [10]	90.6	90.9	89.3	98.0	35.4	42.5	91.9	76.9
		DiAD [16]	84.8	88.5	86.9	82.5	17.9	23.2	44.5	61.2
		ViTAD [40]	90.4	91.1	86.0	98.2	36.4	41.0	85.7	75.5
		InvAD [42]	95.4	95.7	91.6	98.9	43.3	46.8	93.1	80.7
		InvAD-lite [42]	94.9	95.2	90.7	98.6	40.2	44.0	93.1	79.5
		MambaAD [15]	94.5	94.9	90.2	98.4	39.3	43.7	92.1	79.0
		UniAD [35]	89.0	91.0	85.8	98.3	34.5	39.6	86.5	75.0
	Hybrid	RD++ [31]	93.9	94.7	90.2	98.4	42.3	46.3	91.9	79.7
		DesTSeg [44]	89.9	91.4	86.7	86.7	46.6	47.2	61.1	72.8

Table A5. Benchmarked results on BTAD dataset [28] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
Avg	Aug.	DRAEM [37]	71.3	78.5	78.0	49.0	3.7	6.5	16.2	43.3
		SimpleNet [27]	93.2	97.3	93.3	96.3	41.5	44.3	69.8	76.5
		RealNet [45]	89.7	95.3	92.8	84.0	48.1	52.7	53.4	73.7
	Emb.	CFA [21]	92.7	97.5	93.5	96.3	47.4	50.2	69.5	78.2
		PatchCore [29]	94.4	98.2	94.6	97.5	55.0	54.9	76.0	81.5
		CFLOW-AD [14]	91.2	94.8	88.3	96.8	45.6	50.1	72.7	77.1
		PyramidalFlow [22]	87.0	83.1	81.0	90.9	29.6	26.9	64.1	66.1
	Rec.	RD [10]	94.4	96.6	94.0	98.1	<u>59.6</u>	59.2	<u>80.7</u>	<u>83.2</u>
		DiAD [16]	90.1	88.4	92.6	91.7	19.6	26.7	70.4	68.5
		ViTAD [40]	93.6	96.8	93.3	97.6	<u>59.2</u>	56.7	73.2	81.5
		InvAD [42]	96.1	<u>97.8</u>	<u>94.3</u>	98.1	62.6	61.4	80.9	84.5
		InvAD-lite [42]	93.1	97.4	94.6	<u>97.9</u>	<u>59.2</u>	<u>59.7</u>	78.6	82.9
		MambaAD [15]	93.1	96.1	92.5	<u>97.7</u>	<u>52.5</u>	<u>56.0</u>	78.2	80.9
	Hybrid	UniAD [35]	<u>94.8</u>	98.3	<u>94.2</u>	97.2	50.3	53.8	78.8	81.1
		RD++ [31]	<u>94.6</u>	<u>97.8</u>	<u>94.1</u>	98.0	59.6	59.8	<u>79.0</u>	<u>83.3</u>
		DesTSeg [44]	92.8	95.9	92.3	92.2	34.8	44.3	70.0	74.6

Table A6. Benchmarked results on MPDD dataset [20] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
Avg	Aug.	DRAEM [37]	35.6	53.3	72.5	42.1	2.2	4.6	19.0	32.8
		SimpleNet [27]	88.4	92.0	87.9	96.5	32.0	34.6	89.0	74.3
		RealNet [45]	85.1	90.2	88.3	83.3	36.1	39.6	68.1	70.1
	Emb.	CFA [21]	81.6	87.7	85.7	84.9	19.6	22.9	53.5	62.3
		PatchCore [29]	94.6	96.9	93.4	98.9	46.1	47.6	95.7	81.9
		CFLOW-AD [14]	75.7	80.1	81.7	96.8	26.3	28.0	89.5	68.3
		PyramidalFlow [22]	73.6	77.0	79.4	94.1	21.1	17.8	77.2	62.9
	Rec.	RD [10]	<u>91.3</u>	<u>93.6</u>	<u>91.8</u>	<u>98.3</u>	40.4	41.8	<u>95.5</u>	79.0
		DiAD [16]	68.3	77.9	80.1	90.4	10.9	13.1	66.1	58.1
		ViTAD [40]	87.8	90.5	88.0	97.7	35.2	37.4	92.8	75.6
		InvAD [42]	<u>93.7</u>	<u>93.9</u>	<u>93.0</u>	98.2	<u>42.4</u>	<u>45.7</u>	<u>94.8</u>	<u>80.2</u>
		InvAD-lite [42]	90.9	92.9	89.5	98.0	39.7	42.6	94.0	78.2
		MambaAD [15]	88.7	93.2	90.8	97.5	33.6	38.1	92.3	76.3
	Hybrid	UniAD [35]	70.5	76.0	78.0	93.9	13.7	19.9	79.7	61.7
		RD++ [31]	90.2	93.3	90.5	<u>98.5</u>	43.0	<u>44.1</u>	<u>95.5</u>	<u>79.3</u>
		DesTSeg [44]	<u>91.3</u>	90.8	90.2	82.0	32.6	34.6	63.3	69.3

Table A7. Benchmarked results on MAD_Real dataset [46] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD	
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max				
Avg	Aug.	DRAEM [37]	59.1	88.1	90.4	49.4	0.6	1.7	22.3	0.8	44.5
		SimpleNet [27]	47.8	81.9	90.7	83.1	5.4	11.6	59.8	6.3	54.3
	Emb.	CFA [21]	49.3	81.7	91.4	83.3	10.5	15.2	64.2	8.7	56.5
		PatchCore [29]	59.7	84.8	<u>93.5</u>	95.4	<u>20.2</u>	27.3	85.5	<u>16.6</u>	66.6
		CFLOW-AD [14]	<u>59.8</u>	<u>86.0</u>	91.2	<u>90.9</u>	<u>10.7</u>	<u>15.4</u>	<u>74.4</u>	<u>8.8</u>	<u>61.2</u>
		PyramidalFlow [22]	52.1	83.6	90.3	88.4	5.0	9.4	68.2	5.1	56.7
	Rec.	RD [10]	55.5	85.8	90.6	87.0	8.2	12.8	67.8	7.2	58.2
		DiAD [16]	49.9	85.1	90.8	87.7	2.9	6.8	67.4	3.6	55.8
		ViTAD [40]	47.0	81.3	90.2	87.3	4.5	9.3	66.6	5.0	55.2
		InvAD [42]	66.5	<u>87.7</u>	93.8	88.3	22.1	<u>26.2</u>	<u>73.2</u>	16.8	<u>65.4</u>
		InvAD-lite [42]	<u>60.4</u>	84.3	92.2	88.2	9.0	14.3	72.9	8.1	60.2
		MambaAD [15]	56.2	84.3	90.3	87.8	7.5	12.8	68.5	7.2	58.2
	Hybrid	UniAD [35]	47.6	81.3	90.4	88.2	5.8	10.6	68.6	5.8	56.1
		RD++ [31]	54.7	83.9	<u>92.3</u>	<u>88.5</u>	9.4	14.9	70.4	8.5	59.2
		DesTSeg [44]	45.4	80.3	90.7	72.7	5.0	8.2	48.3	4.5	50.1

Table A8. Benchmarked results on MAD_Sim dataset [46] by the suggested metrics in Sec. 3.3.

Method		Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD	
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max				
Avg	Aug.	DRAEM [37]	49.5	88.3	<u>93.8</u>	48.4	0.8	1.5	24.5	0.7	43.8
		SimpleNet [27]	58.9	91.7	<u>93.8</u>	85.5	4.2	8.0	63.9	4.2	58.0
	Emb.	CFA [21]	56.4	91.1	<u>93.8</u>	76.6	4.2	8.7	54.7	4.6	55.1
		CFLOW-AD [14]	55.8	90.6	<u>93.8</u>	86.9	3.4	5.2	63.9	2.7	57.1
		PyramidalFlow [22]	50.8	88.9	<u>93.8</u>	82.0	2.3	4.8	58.8	2.5	54.5
	Rec.	RD [10]	58.6	91.7	<u>93.8</u>	88.3	4.7	8.5	<u>74.2</u>	4.5	60.0
		DiAD [16]	<u>65.7</u>	<u>93.3</u>	94.1	87.2	3.9	7.9	60.1	4.2	58.9
		ViTAD [40]	58.5	91.5	<u>93.8</u>	89.0	5.0	<u>9.5</u>	73.5	<u>5.0</u>	60.1
		InvAD [42]	70.4	94.6	<u>93.9</u>	90.5	8.8	15.7	79.3	8.6	64.7
		InvAD-lite [42]	<u>64.7</u>	<u>93.3</u>	<u>93.8</u>	<u>89.4</u>	<u>6.4</u>	<u>11.2</u>	<u>76.1</u>	<u>6.0</u>	<u>62.1</u>
		MambaAD [15]	63.0	<u>92.9</u>	<u>93.8</u>	88.3	5.2	9.4	73.3	<u>5.0</u>	<u>60.8</u>
	Hybrid	UniAD [35]	54.2	90.0	<u>93.8</u>	88.1	3.5	6.8	71.8	3.5	58.3
		RD++ [31]	59.3	91.7	<u>93.8</u>	88.3	4.6	8.5	73.8	4.4	60.0
		DesTSeg [44]	57.9	91.8	<u>93.8</u>	54.5	<u>6.2</u>	7.7	35.8	4.1	49.7

Table A9. Benchmarked results on Uni-Medical dataset [40] by the suggested metrics in Sec. 3.3.

		Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
			mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
Avg	Aug.	DRAEM [37]	51.6	60.6	70.6	33.8	2.0	5.7	10.5	3.0	33.5
		SimpleNet [27]	77.5	77.7	76.7	94.3	34.4	36.0	77.0	23.3	67.7
	Emb.	CFA [21]	71.0	73.3	73.1	78.3	19.5	24.9	44.7	14.7	55.0
		CFLOW-AD [14]	79.2	79.6	77.2	95.4	40.4	26.9	81.8	17.7	68.6
		PyramidalFlow [22]	53.9	57.3	70.5	78.8	8.4	17.1	34.2	9.4	45.7
	Rec.	RD [10]	76.1	75.7	78.2	96.5	38.8	39.8	86.8	26.9	70.3
		DiAD [16]	78.8	77.2	77.7	95.8	34.2	35.5	84.3	23.2	69.1
		ViTAD [40]	<u>81.8</u>	<u>80.7</u>	<u>80.0</u>	<u>97.1</u>	48.3	48.2	86.7	33.7	<u>74.7</u>
		InvAD [42]	<u>82.4</u>	<u>80.5</u>	<u>80.5</u>	97.3	<u>46.2</u>	<u>46.1</u>	89.3	<u>32.6</u>	<u>74.6</u>
		InvAD-lite [42]	77.9	<u>77.3</u>	79.1	96.2	39.0	39.3	85.8	26.5	70.7
		MambaAD [15]	83.9	80.8	81.9	<u>96.8</u>	<u>45.8</u>	<u>47.5</u>	<u>88.2</u>	<u>33.5</u>	75.0
	Hybrid	UniAD [35]	79.0	76.1	77.1	96.6	39.3	41.1	86.0	27.6	70.7
		RD++ [31]	77.2	76.5	79.2	96.7	41.5	42.2	<u>87.8</u>	29.4	71.6
		DesTSeg [44]	78.5	77.0	78.2	65.7	41.7	34.0	35.3	21.2	58.6

Table A10. Benchmarked results on Real-IAD dataset [32] by the suggested metrics in Sec. 3.3.

Method		Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD	
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max				
Avg	Aug.	DRAEM [37]	50.9	45.9	61.3	44.0	0.2	0.4	13.6	0.2	30.9
		SimpleNet [27]	54.9	50.6	61.5	76.1	1.9	4.9	42.4	2.5	41.8
	Emb.	CFA [21]	55.7	50.5	61.9	81.3	1.6	3.8	48.8	2.0	43.4
		CFLOW-AD [14]	77.0	75.8	69.9	94.8	17.6	21.7	80.4	12.4	62.5
		PyramidalFlow [22]	54.4	48.0	62.0	71.1	1.2	1.1	34.9	0.5	39.0
	Rec.	RD [10]	82.7	79.3	74.1	97.2	25.2	32.8	90.0	20.0	68.8
		DiAD [16]	75.6	66.4	69.9	88.0	2.9	7.1	58.1	3.7	52.6
		ViTAD [40]	82.7	80.2	73.7	97.2	24.3	32.3	84.8	19.6	67.9
		InvAD [42]	89.4	87.0	80.2	98.4	32.6	38.9	92.7	24.6	74.2
		InvAD-lite [42]	<u>87.2</u>	<u>85.2</u>	<u>77.8</u>	<u>98.0</u>	31.7	37.9	<u>92.0</u>	23.8	<u>72.8</u>
		MambaAD [15]	<u>87.0</u>	<u>85.3</u>	<u>77.6</u>	98.6	<u>32.4</u>	<u>38.1</u>	<u>91.2</u>	<u>23.9</u>	<u>72.9</u>
		UniAD [35]	83.1	81.2	74.5	97.4	23.3	30.9	87.1	18.6	68.2
		RD++ [31]	83.6	80.6	74.8	97.7	25.9	33.6	90.7	20.5	69.6
	Hybrid	DesTSeg [44]	79.3	76.7	70.7	80.3	36.9	40.3	56.1	26.2	62.9

Table A11. Benchmarked results on COCO-AD dataset [42] by the suggested metrics in Sec. 3.3.

Method		Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD	
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max				
Avg	Aug.	DRAEM [37]	53.5	48.5	62.5	49.9	7.6	14.4	15.3	8.0	36.0
		SimpleNet [27]	55.6	49.4	62.3	60.2	14.5	19.2	26.1	11.5	41.0
	Emb.	CFA [21]	56.7	51.2	62.6	56.2	10.3	16.0	17.9	8.9	38.7
		CFLOW-AD [14]	67.7	57.9	64.5	76.0	<u>20.3</u>	26.4	47.7	<u>16.0</u>	<u>51.5</u>
		PyramidalFlow [22]	51.6	47.4	61.6	50.0	13.4	14.4	15.0	8.0	36.2
	Rec.	RD [10]	57.6	49.9	62.0	66.5	13.9	20.0	39.8	11.5	44.2
		DiAD [16]	59.0	53.0	63.2	68.1	<u>20.5</u>	14.2	30.8	11.6	44.1
		ViTAD [40]	<u>66.9</u>	59.3	<u>63.7</u>	76.2	27.6	32.2	39.1	20.1	52.1
		InvAD [42]	<u>64.2</u>	<u>56.0</u>	<u>63.4</u>	<u>71.2</u>	18.5	<u>24.1</u>	<u>45.8</u>	<u>14.3</u>	<u>49.0</u>
		InvAD-lite [42]	63.3	<u>56.0</u>	62.9	69.9	18.2	23.1	39.7	13.7	47.6
		MambaAD [15]	62.8	55.2	62.8	68.9	16.7	22.0	41.6	12.9	47.1
		UniAD [35]	55.2	49.3	61.7	64.6	12.8	19.0	34.3	10.9	42.4
		RD++ [31]	57.5	49.3	62.0	68.2	15.5	20.1	<u>42.2</u>	11.8	45.0
	Hybrid	DesTSeg [44]	54.4	49.4	61.8	54.5	10.6	15.4	24.4	8.5	38.6

C. Detailed Quantitative Results on All Dataset
Under 300 epochs

Table A12. Benchmarked results on MVTec AD dataset [3] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
Avg	Aug.	DRAEM [37]	55.2	77.0	83.9	48.7	3.1	6.3	15.8	41.4
		SimpleNet [27]	79.2	90.8	87.6	82.4	24.0	29.0	62.0	65.0
		RealNet [45]	82.9	93.3	90.9	69.8	50.0	40.4	51.2	68.4
	Emb.	CFA [21]	55.8	78.8	84.5	43.9	4.8	8.9	19.3	42.3
		PatchCore [29]	<u>98.8</u>	<u>99.5</u>	98.4	98.3	<u>59.9</u>	<u>61.0</u>	<u>94.2</u>	88.6
		CFLOW-AD [14]	92.7	97.2	94.0	95.8	46.8	49.6	89.0	80.7
		PyramidalFlow [22]	66.2	84.3	85.1	74.2	17.2	19.6	40.0	55.2
	Rec.	RD [10]	90.5	95.0	95.1	95.9	47.1	52.1	91.2	81.0
		DiAD [16]	92.0	96.8	94.4	89.3	27.3	32.7	64.4	71.0
		ViTAD [40]	98.4	<u>99.4</u>	97.5	97.5	55.2	58.1	91.7	85.4
		InvAD [42]	98.9	99.6	<u>98.2</u>	<u>98.1</u>	<u>57.1</u>	<u>59.6</u>	94.4	<u>86.6</u>
		InvAD-lite [42]	98.1	99.1	96.8	97.3	55.0	58.1	93.1	85.4
		MambaAD [15]	<u>98.5</u>	<u>99.5</u>	<u>97.7</u>	<u>97.6</u>	56.1	58.7	<u>93.6</u>	86.0
		UniAD [35]	96.8	98.9	97.0	96.8	45.0	50.2	91.0	82.2
	Hybrid	RD++ [31]	95.8	98.0	96.6	97.3	53.0	57.0	92.9	84.4
		DesTSeg [44]	96.3	98.8	96.1	92.6	75.8	71.3	82.6	<u>87.6</u>

Table A13. Benchmarked results on MVTec 3D dataset [6] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
Avg	Aug.	DRAEM [37]	49.2	79.4	89.0	50.7	0.7	2.2	23.4	42.1
		SimpleNet [27]	74.9	91.8	90.2	94.0	14.4	21.4	79.2	66.6
	Emb.	CFA [21]	60.1	86.3	89.5	52.0	7.0	11.9	28.7	47.9
		PatchCore [29]	84.1	95.1	<u>92.5</u>	<u>98.6</u>	33.7	38.5	<u>94.4</u>	78.4
		CFLOW-AD [14]	74.8	91.4	90.5	96.9	21.6	26.8	89.2	70.2
		PyramidalFlow [22]	52.5	80.8	88.6	87.2	5.9	10.4	68.0	56.2
	Rec.	RD [10]	79.3	93.0	92.3	98.3	28.6	35.4	93.5	74.3
		DiAD [16]	78.8	91.3	91.7	91.8	5.2	10.5	75.1	63.5
		ViTAD [40]	78.7	93.3	91.5	98.0	27.0	33.0	91.3	73.3
		InvAD [42]	86.3	95.9	93.4	98.7	<u>36.2</u>	<u>41.1</u>	94.9	<u>78.1</u>
		InvAD-lite [42]	<u>85.1</u>	95.6	92.3	<u>98.4</u>	34.4	39.0	93.4	76.9
		MambaAD [15]	<u>85.8</u>	<u>95.5</u>	<u>92.6</u>	<u>98.6</u>	<u>37.1</u>	<u>40.8</u>	<u>94.1</u>	<u>77.8</u>
		UniAD [35]	77.0	92.6	91.0	96.8	23.7	30.6	89.4	71.6
	Hybrid	RD++ [31]	80.1	93.5	92.2	<u>98.4</u>	31.5	37.2	93.6	75.2
		DesTSeg [44]	82.5	95.1	90.9	82.1	43.8	45.2	65.1	72.1

Table A14. Benchmarked results on MVTec LOCO dataset [5] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
Avg	Aug.	DRAEM [37]	51.4	66.9	77.5	48.0	5.2	10.5	13.7	39.0
		SimpleNet [27]	<u>81.8</u>	<u>89.1</u>	82.5	70.9	28.3	32.1	61.2	63.7
	Emb.	CFA [21]	60.6	73.7	77.6	64.7	16.5	18.8	36.4	49.8
		PatchCore [29]	80.5	<u>89.0</u>	81.5	75.1	29.9	31.8	69.9	20.4
		CFLOW-AD [14]	76.0	85.0	79.9	70.9	25.6	28.4	<u>70.0</u>	17.7
		PyramidalFlow [22]	58.1	70.4	77.4	55.5	16.8	14.4	20.4	8.1
	Rec.	RD [10]	73.7	84.6	79.4	70.7	21.0	26.2	67.5	15.9
		DiAD [16]	77.2	84.6	81.5	72.1	18.6	25.3	54.4	15.2
		ViTAD [40]	76.2	85.0	80.1	73.2	27.9	30.6	62.0	19.3
		InvAD [42]	82.3	89.9	<u>82.4</u>	77.7	<u>30.9</u>	<u>34.1</u>	72.8	<u>22.4</u>
		InvAD-lite [42]	78.0	86.8	81.6	<u>77.0</u>	28.0	32.0	69.4	20.4
		MambaAD [15]	78.2	87.1	<u>81.8</u>	<u>77.5</u>	28.0	<u>32.9</u>	68.6	20.8
	Hybrid	UniAD [35]	78.7	87.1	80.9	74.6	32.6	35.8	<u>70.7</u>	23.4
		RD++ [31]	75.7	85.9	79.3	72.1	24.2	28.5	67.9	17.8
		DesTSeg [44]	<u>81.2</u>	88.6	<u>81.8</u>	63.7	<u>31.8</u>	31.9	59.2	<u>21.1</u>

Table A15. Benchmarked results on VisA dataset [47] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
Avg	Aug.	DRAEM [37]	56.2	64.6	74.9	45.0	0.7	1.8	16.0	0.9
		SimpleNet [27]	80.7	83.8	79.3	94.4	29.2	33.1	74.2	22.1
		RealNet [45]	79.2	84.8	78.3	65.4	29.2	27.9	33.9	17.4
	Emb.	CFA [21]	67.1	73.8	75.3	83.0	13.7	18.7	48.7	11.3
		CFLOW-AD [14]	87.2	89.5	85.1	97.8	34.2	37.2	87.3	24.9
		PyramidalFlow [22]	69.0	72.9	75.8	79.1	7.9	8.7	52.6	4.7
	Rec.	RD [10]	<u>93.9</u>	<u>94.8</u>	<u>90.4</u>	98.1	38.4	43.7	<u>91.9</u>	29.0
		DiAD [16]	90.5	91.4	<u>90.4</u>	83.4	19.2	25.0	44.3	16.2
		ViTAD [40]	90.3	91.2	86.4	98.2	36.4	40.9	85.8	27.5
		InvAD [42]	95.6	96.0	92.3	99.0	43.7	46.9	<u>93.0</u>	32.6
		InvAD-lite [42]	<u>95.3</u>	<u>95.8</u>	<u>91.0</u>	<u>98.7</u>	<u>41.2</u>	<u>44.9</u>	93.2	<u>30.6</u>
		MambaAD [15]	93.6	93.9	89.8	98.2	34.0	39.3	90.5	25.9
	Hybrid	UniAD [35]	91.4	93.3	87.5	<u>98.5</u>	35.3	40.2	89.0	26.5
		RD++ [31]	93.1	94.1	90.0	98.4	40.4	<u>44.8</u>	91.4	29.9
		DesTSeg [44]	89.0	90.3	85.9	84.8	<u>43.3</u>	44.4	57.5	<u>30.1</u>

Table A16. Benchmarked results on BTAD dataset [28] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD	
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max				
Avg	Aug.	DRAEM [37]	69.3	76.8	79.5	47.7	3.2	6.1	16.1	3.2	42.7
		SimpleNet [27]	94.0	<u>97.9</u>	93.9	96.2	41.0	43.7	69.6	28.1	76.6
		RealNet [45]	93.1	96.3	92.5	87.2	48.0	55.5	57.9	38.7	75.8
	Emb.	CFA [21]	92.7	97.8	<u>94.6</u>	96.2	46.7	49.7	69.0	33.2	78.1
		PatchCore [29]	94.4	<u>98.2</u>	<u>94.6</u>	97.5	55.0	54.9	76.0	38.0	83.3
		CFLOW-AD [14]	91.6	95.6	89.7	96.9	46.0	49.0	72.7	33.0	77.4
		PyramidalFlow [22]	85.3	81.7	79.0	76.1	27.7	23.4	43.1	15.0	59.5
	Rec.	RD [10]	94.1	96.8	93.8	98.0	57.1	<u>58.0</u>	79.9	<u>41.0</u>	82.5
		DiAD [16]	90.2	88.3	92.6	91.9	20.5	27.0	70.3	16.0	68.7
		ViTAD [40]	94.0	97.0	93.7	97.6	<u>58.3</u>	56.5	72.8	39.9	81.4
		InvAD [42]	95.3	97.3	93.7	<u>97.9</u>	58.7	58.8	<u>78.8</u>	41.7	<u>82.9</u>
		InvAD-lite [42]	94.2	<u>97.9</u>	<u>94.4</u>	<u>97.7</u>	55.7	57.0	77.4	40.0	82.0
		MambaAD [15]	92.9	96.2	93.0	97.6	51.2	55.1	77.3	38.2	80.5
		UniAD [35]	<u>94.5</u>	98.4	94.9	97.4	52.4	55.5	<u>78.9</u>	38.4	81.7
	Hybrid	RD++ [31]	<u>94.5</u>	97.6	94.3	98.0	<u>57.7</u>	<u>58.2</u>	<u>78.9</u>	<u>41.2</u>	<u>82.7</u>
		DesTSeg [44]	93.5	96.7	93.8	94.8	39.1	38.5	72.9	24.6	75.6

Table A17. Benchmarked results on MPDD dataset [20] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD	
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max				
Avg	Aug.	DRAEM [37]	60.2	67.5	75.1	50.4	5.4	4.7	21.8	2.6	40.7
		SimpleNet [27]	90.6	<u>94.1</u>	89.7	97.1	33.6	35.7	90.0	25.6	75.8
		RealNet [45]	86.0	90.0	87.3	74.7	39.2	39.7	52.3	28.0	67.0
	Emb.	CFA [21]	92.0	93.5	90.2	95.7	29.0	33.0	83.2	23.8	73.8
		PatchCore [29]	94.6	<u>96.9</u>	<u>93.4</u>	98.9	46.1	47.6	95.7	35.0	83.5
		CFLOW-AD [14]	80.4	85.1	84.7	97.3	28.4	30.1	90.9	21.5	71.0
		PyramidalFlow [22]	72.5	76.2	77.6	89.0	12.4	15.8	68.5	9.1	58.9
	Rec.	RD [10]	90.3	92.8	90.5	98.3	39.6	40.6	<u>95.2</u>	30.2	78.2
		DiAD [16]	85.8	89.2	86.5	91.4	15.3	19.2	66.1	12.0	64.8
		ViTAD [40]	87.4	90.8	87.0	97.8	34.6	37.8	92.9	28.0	75.5
		InvAD [42]	96.0	97.1	94.5	<u>98.5</u>	<u>44.1</u>	<u>46.4</u>	<u>95.3</u>	<u>34.4</u>	<u>81.7</u>
		InvAD-lite [42]	<u>92.8</u>	93.2	91.4	98.3	41.4	<u>43.9</u>	94.6	32.1	<u>79.4</u>
		MambaAD [15]	89.2	93.1	90.3	97.7	33.5	38.6	92.8	27.2	76.5
		UniAD [35]	80.1	83.2	85.1	95.4	19.0	25.6	83.8	16.8	67.5
	Hybrid	RD++ [31]	90.6	93.3	90.0	<u>98.4</u>	<u>42.8</u>	43.0	<u>95.3</u>	<u>32.7</u>	79.1
		DesTSeg [44]	92.6	91.8	<u>92.8</u>	90.8	30.6	32.9	78.3	24.1	72.8

Table A18. Benchmarked results on MAD_Real dataset [46] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD	
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max				
Avg	Aug.	DRAEM [37]	46.3	82.5	90.2	42.5	0.5	1.2	14.9	0.6	39.7
		SimpleNet [27]	36.1	77.0	89.6	77.2	2.6	6.3	48.9	3.3	48.2
	Emb.	CFA [21]	48.5	81.2	91.4	83.3	10.4	15.0	64.1	8.6	56.3
		PatchCore [29]	59.7	84.8	93.5	95.4	20.2	27.3	85.5	16.6	68.2
		CFLOW-AD [14]	57.4	85.9	91.2	90.9	10.8	15.3	74.1	8.8	60.8
		PyramidalFlow [22]	50.6	82.9	90.5	88.6	7.5	12.0	68.8	6.7	57.3
	Rec.	RD [10]	56.0	84.9	90.7	86.9	8.7	13.2	66.9	7.4	58.2
		DiAD [16]	58.0	85.7	91.1	87.8	5.1	9.6	69.4	5.2	58.1
		ViTAD [40]	44.5	81.3	90.2	86.9	4.5	8.9	65.0	4.8	54.5
		InvAD [42]	63.5	86.5	92.7	91.6	18.9	24.2	77.2	14.9	64.9
		InvAD-lite [42]	57.3	84.8	91.9	90.8	11.4	16.3	74.7	9.5	61.0
		MambaAD [15]	54.7	83.1	92.2	90.8	13.1	19.2	74.7	11.4	61.1
	Hybrid	UniAD [35]	45.4	80.3	90.8	87.8	6.4	11.6	68.3	6.4	55.8
		RD++ [31]	52.3	84.0	91.3	88.7	9.3	14.4	70.4	8.2	58.6
		DesTSeg [44]	36.1	77.9	89.8	82.5	3.2	6.0	52.7	3.2	49.7

Table A19. Benchmarked results on MAD_Sim dataset [46] by the suggested metrics in Sec. 3.3.

Method		Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD	
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max				
Avg	Aug.	DRAEM [37]	48.8	88.1	93.8	47.9	0.7	1.5	20.0	0.8	43.0
		SimpleNet [27]	51.5	88.6	93.8	86.1	2.3	4.5	63.9	2.3	55.8
	Emb.	CFA [21]	55.7	91.1	93.8	71.8	3.7	7.7	45.3	4.1	52.7
		CFLOW-AD [14]	56.9	90.9	93.8	86.9	3.4	5.1	63.7	2.6	57.2
		PyramidalFlow [22]	49.0	88.1	93.8	84.4	2.4	5.0	62.7	2.6	55.1
	Rec.	RD [10]	57.9	91.3	93.8	88.3	4.4	8.2	73.7	4.3	59.7
		DiAD [16]	<u>65.6</u>	<u>93.4</u>	94.1	87.7	4.4	8.8	61.4	4.7	59.4
		ViTAD [40]	59.0	91.4	93.8	<u>89.0</u>	4.8	<u>9.3</u>	73.6	<u>4.9</u>	60.1
		InvAD [42]	70.4	94.5	<u>94.0</u>	90.7	8.9	15.3	79.1	8.4	64.7
		InvAD-lite [42]	<u>65.3</u>	<u>93.4</u>	<u>93.9</u>	<u>89.7</u>	<u>6.6</u>	<u>11.4</u>	<u>76.4</u>	<u>6.1</u>	<u>62.4</u>
		MambaAD [15]	61.4	<u>92.4</u>	93.8	88.3	4.8	9.0	73.0	4.8	<u>60.4</u>
	Hybrid	UniAD [35]	59.4	91.5	93.8	<u>89.0</u>	4.4	8.4	<u>74.6</u>	4.4	60.2
		RD++ [31]	58.6	91.7	93.8	88.3	4.4	8.1	73.2	4.2	59.7
		DesTSeg [44]	59.2	91.9	93.8	56.8	<u>5.7</u>	8.6	41.8	4.5	51.1

Table A20. Benchmarked results on Uni-Medical dataset [40] by the suggested metrics in Sec. 3.3.

		Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
			mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
Avg	Aug.	DRAEM [37]	58.5	63.2	71.7	32.5	2.0	6.1	9.1	3.2	34.7
		SimpleNet [27]	72.5	75.3	76.7	94.9	35.9	37.0	79.2	24.2	67.4
	Emb.	CFA [21]	56.3	62.8	70.4	38.1	4.8	6.6	8.9	3.4	35.4
		CFLOW-AD [14]	79.0	78.5	77.3	95.4	39.6	26.3	81.7	17.0	68.3
		PyramidalFlow [22]	60.0	62.8	71.9	82.2	8.8	14.9	46.9	8.3	49.6
	Rec.	RD [10]	76.4	75.8	77.9	96.4	38.9	39.8	86.5	27.0	70.2
		DiAD [16]	82.9	<u>81.9</u>	79.4	96.0	35.9	38.2	85.4	25.2	71.4
		ViTAD [40]	81.5	<u>80.6</u>	<u>80.1</u>	<u>97.0</u>	<u>46.8</u>	<u>46.9</u>	86.5	<u>32.7</u>	74.2
		InvAD [42]	81.3	80.0	<u>79.9</u>	97.2	<u>45.4</u>	<u>45.5</u>	89.0	32.3	<u>74.0</u>
		InvAD-lite [42]	77.6	77.2	79.3	96.2	<u>38.7</u>	39.7	85.7	27.1	70.6
		MambaAD [15]	<u>82.3</u>	78.9	81.3	<u>96.7</u>	43.0	<u>46.1</u>	<u>87.9</u>	<u>32.4</u>	<u>73.7</u>
	Hybrid	UniAD [35]	80.4	76.6	77.5	96.5	39.0	41.3	85.8	27.8	71.0
		RD++ [31]	77.2	76.1	78.5	<u>96.7</u>	41.0	41.9	<u>87.4</u>	29.1	71.3
		DesTSeg [44]	<u>82.0</u>	85.0	79.7	83.2	50.6	50.5	66.1	34.1	71.0

**D. Detailed Quantitative Results on MVTec
AD Dataset Under 100 epochs**

Table A21. Benchmarked results on MVTec AD dataset [3] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
bottle	Aug.									
	DRAEM [37]	49.4	74.0	86.3	57.8	6.5	13.2	17.3	7.1	43.5
	SimpleNet [27]	100.	100.	100.	97.4	57.3	65.9	89.1	49.1	87.1
	RealNet [45]	95.6	98.8	95.1	69.8	53.9	46.6	60.9	30.4	74.4
	Emb.									
	CFA [21]	64.2	87.4	86.3	65.3	11.0	15.1	35.5	8.2	52.1
	PatchCore [29]	100.	100.	100.	98.9	79.0	<u>77.1</u>	96.1	62.7	93.0
	CFLOW-AD [14]	<u>99.9</u>	100.	<u>99.2</u>	97.4	61.8	63.6	91.9	46.6	87.7
	PyramidalFlow [22]	77.1	93.1	86.3	77.7	16.9	23.9	40.9	13.6	59.4
	Rec.									
	RD [10]	40.6	77.5	86.3	93.4	29.6	48.5	80.4	32.0	65.2
	DiAD [16]	97.7	99.1	<u>99.2</u>	93.5	45.7	49.5	76.0	32.9	80.1
	ViTAD [40]	100.	100.	100.	98.8	79.9	<u>75.8</u>	94.9	61.0	<u>92.8</u>
	InvAD [42]	100.	100.	100.	98.6	75.2	73.6	<u>95.7</u>	58.2	91.9
	InvAD-lite [42]	100.	100.	100.	98.4	75.2	73.5	<u>95.7</u>	58.1	91.8
	MambaAD [15]	<u>99.8</u>	100.	<u>99.2</u>	<u>98.7</u>	<u>79.7</u>	75.7	<u>96.0</u>	60.9	92.7
	Hybrid									
	UniAD [35]	<u>99.4</u>	<u>99.8</u>	<u>98.4</u>	98.1	<u>73.5</u>	70.7	95.3	54.7	90.7
	RD++ [31]	<u>99.8</u>	<u>99.9</u>	<u>98.4</u>	98.2	72.5	71.6	95.0	55.8	90.8
	DesTSeg [44]	100.	100.	100.	94.9	87.2	81.1	91.8	68.3	93.6
cable	Aug.									
	DRAEM [37]	50.2	61.7	76.0	55.6	3.2	5.7	16.6	2.9	38.4
	SimpleNet [27]	97.1	98.3	93.9	<u>96.6</u>	<u>48.5</u>	<u>55.0</u>	86.0	<u>37.9</u>	82.2
	RealNet [45]	70.0	83.0	76.0	61.5	23.5	25.9	33.3	14.9	53.3
	Emb.									
	CFA [21]	50.3	59.9	76.3	52.8	3.7	7.5	22.3	3.9	39.0
	PatchCore [29]	99.8	99.9	99.5	97.7	51.6	55.2	93.6	38.1	85.3
	CFLOW-AD [14]	89.6	93.7	86.0	89.8	27.3	33.3	78.0	20.0	71.1
	PyramidalFlow [22]	58.2	73.7	76.0	82.8	19.0	16.4	41.6	8.9	52.5
	Rec.									
	RD [10]	81.9	88.7	81.4	84.0	26.6	34.4	77.3	20.8	67.8
	DiAD [16]	88.5	94.3	88.9	90.7	27.0	33.3	63.9	20.0	69.5
	ViTAD [40]	<u>98.8</u>	<u>99.3</u>	<u>96.3</u>	96.3	43.6	46.8	<u>90.6</u>	30.6	81.7
	InvAD [42]	97.9	98.7	95.1	<u>97.1</u>	46.7	50.8	<u>92.1</u>	34.0	<u>82.6</u>
	InvAD-lite [42]	97.0	98.2	94.0	90.9	39.4	47.5	87.7	31.2	<u>79.2</u>
	MambaAD [15]	<u>99.3</u>	<u>99.6</u>	<u>97.4</u>	95.2	42.0	47.9	90.4	31.5	81.7
	Hybrid									
	UniAD [35]	93.0	95.7	89.3	96.1	45.0	50.7	84.9	34.0	79.2
	RD++ [31]	93.7	96.3	91.3	93.2	37.7	45.1	86.8	29.1	77.7
	DesTSeg [44]	97.5	98.7	94.6	95.2	67.2	64.0	85.1	47.1	86.0
capsule	Aug.									
	DRAEM [37]	58.0	86.3	90.5	48.3	0.8	1.8	14.8	0.9	42.9
	SimpleNet [27]	85.4	96.7	92.7	98.1	36.9	46.8	87.1	30.6	77.7
	RealNet [45]	64.4	90.3	90.5	54.6	23.7	12.1	23.4	6.4	51.3
	Emb.									
	CFA [21]	40.8	82.5	90.5	27.0	0.6	1.8	7.0	0.9	35.7
	PatchCore [29]	99.2	99.8	98.6	99.0	49.0	52.9	<u>95.7</u>	35.9	84.9
	CFLOW-AD [14]	86.1	96.7	93.4	98.5	41.0	44.2	92.8	28.4	79.0
	PyramidalFlow [22]	55.6	87.0	90.5	90.3	13.5	19.6	57.3	10.9	59.1
	Rec.									
	RD [10]	<u>98.4</u>	<u>99.7</u>	<u>96.9</u>	<u>98.8</u>	45.4	51.8	<u>96.1</u>	34.9	<u>83.9</u>
	DiAD [16]	88.6	97.7	91.8	90.9	16.0	23.5	54.5	13.3	66.1
	ViTAD [40]	95.3	<u>99.0</u>	95.9	98.2	42.0	47.1	92.4	30.8	81.4
	InvAD [42]	94.3	98.7	96.0	<u>98.9</u>	46.7	50.8	95.5	34.0	83.0
	InvAD-lite [42]	93.9	98.6	94.8	98.4	42.2	47.4	94.4	31.1	81.4
	MambaAD [15]	91.8	98.2	93.2	98.3	43.5	47.8	93.0	31.4	80.8
	Hybrid									
	UniAD [35]	69.8	90.4	91.6	97.5	32.6	36.9	86.9	22.6	72.2
	RD++ [31]	<u>98.3</u>	<u>99.7</u>	<u>97.3</u>	99.0	<u>47.1</u>	<u>52.1</u>	96.3	<u>35.3</u>	<u>84.3</u>
	DesTSeg [44]	90.3	97.6	94.6	89.3	56.4	58.1	60.6	41.0	78.1
carpet	Aug.									
	DRAEM [37]	66.7	87.4	87.0	51.9	1.7	3.2	16.6	1.6	44.9
	SimpleNet [27]	97.1	99.1	94.6	97.7	42.8	46.9	90.0	30.6	81.2
	RealNet [45]	96.5	99.1	96.0	89.2	69.0	<u>64.3</u>	84.0	47.4	85.4
	Emb.									
	CFA [21]	47.5	78.0	86.4	50.9	7.0	11.4	31.9	6.1	44.7
	PatchCore [29]	98.4	99.5	<u>97.8</u>	<u>99.1</u>	<u>66.4</u>	64.6	95.2	47.7	88.7
	CFLOW-AD [14]	<u>99.2</u>	<u>99.8</u>	<u>97.2</u>	98.8	55.9	59.4	94.3	42.3	86.4
	PyramidalFlow [22]	44.6	73.5	86.4	79.2	8.5	15.1	52.3	8.2	51.4
	Rec.									
	RD [10]	99.0	<u>99.7</u>	<u>98.3</u>	<u>99.1</u>	59.8	61.1	95.8	44.0	87.5
	DiAD [16]	64.5	87.8	86.4	87.9	17.0	26.5	67.0	15.3	62.4
	ViTAD [40]	99.5	99.9	99.4	<u>99.0</u>	59.8	64.1	94.7	47.2	<u>88.1</u>
	InvAD [42]	98.6	99.6	97.2	<u>99.1</u>	60.8	62.1	95.8	45.1	87.6
	InvAD-lite [42]	99.8	99.9	99.4	<u>99.1</u>	58.0	61.4	<u>96.4</u>	44.3	87.7
	MambaAD [15]	99.8	99.9	99.4	99.2	64.0	63.8	97.3	46.8	89.1
	Hybrid									
	UniAD [35]	99.8	99.9	99.4	98.5	53.6	55.6	<u>95.9</u>	38.5	86.1
	RD++ [31]	97.6	99.3	96.0	98.9	57.2	58.5	94.8	41.3	86.0
	DesTSeg [44]	95.9	98.7	95.0	95.7	<u>68.7</u>	64.9	93.4	48.0	87.5

Table A22. Benchmarked results on MVTec AD dataset [3] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD	
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max				
grid	Aug.	DRAEM [37]	47.3	72.2	84.4	46.4	0.6	1.4	13.5	0.7	38.0
		SimpleNet [27]	98.2	99.5	<u>98.2</u>	96.9	26.4	33.0	88.3	19.7	77.2
		RealNet [45]	97.2	99.2	<u>96.4</u>	82.6	41.2	45.7	77.7	29.7	77.1
	Emb.	CFA [21]	51.1	76.4	84.4	39.9	0.5	1.4	5.2	0.7	37.0
		PatchCore [29]	99.4	<u>99.8</u>	<u>98.2</u>	98.9	40.8	44.3	94.0	28.4	82.2
		CFLOW-AD [14]	86.7	<u>95.5</u>	<u>88.0</u>	92.9	18.2	25.1	81.0	14.4	69.6
		PyramidalFlow [22]	75.5	89.9	85.1	85.7	9.8	16.6	66.9	9.0	61.4
	Rec.	RD [10]	98.7	99.6	<u>97.4</u>	99.2	47.6	48.8	<u>97.5</u>	32.3	84.1
		DiAD [16]	99.0	99.7	<u>98.2</u>	85.7	4.0	9.5	<u>56.7</u>	5.0	64.7
		ViTAD [40]	99.6	<u>99.9</u>	<u>99.1</u>	98.6	31.3	36.5	95.8	22.3	80.1
		InvAD [42]	99.5	<u>99.8</u>	97.4	<u>99.1</u>	45.1	46.6	<u>97.1</u>	30.4	83.5
		InvAD-lite [42]	100.	100.	100.	99.2	49.4	<u>49.5</u>	97.7	<u>32.9</u>	85.1
		MambaAD [15]	99.8	99.9	<u>99.1</u>	98.9	48.4	48.5	96.9	32.0	<u>84.5</u>
	Hybrid	UniAD [35]	99.0	99.7	<u>98.2</u>	94.8	26.6	34.0	89.3	20.5	77.4
		RD++ [31]	99.2	99.7	97.3	99.2	46.8	<u>50.2</u>	97.0	<u>33.5</u>	<u>84.2</u>
		DesTSeg [44]	99.6	<u>99.9</u>	<u>98.2</u>	96.6	<u>47.7</u>	52.0	91.9	35.1	<u>83.7</u>
hazelnut	Aug.	DRAEM [37]	45.7	68.1	77.8	41.1	3.6	4.2	12.4	2.1	36.1
		SimpleNet [27]	100.	100.	100.	98.1	49.0	52.4	93.9	35.5	84.8
		RealNet [45]	100.	100.	100.	77.5	44.2	48.9	75.4	32.4	78.0
	Emb.	CFA [21]	51.8	67.7	78.0	45.7	4.5	8.3	17.3	4.3	39.0
		PatchCore [29]	100.	100.	100.	99.0	61.2	63.6	96.2	46.6	88.6
		CFLOW-AD [14]	99.9	100.	<u>99.3</u>	98.5	59.1	57.9	95.6	40.7	87.2
		PyramidalFlow [22]	92.1	95.0	91.2	92.7	33.2	36.9	84.2	22.6	75.0
	Rec.	RD [10]	100.	100.	100.	98.7	58.6	59.6	<u>96.5</u>	42.5	87.6
		DiAD [16]	96.9	<u>98.6</u>	96.3	95.3	27.2	36.9	81.3	22.6	76.1
		ViTAD [40]	100.	100.	100.	99.0	<u>64.8</u>	<u>64.3</u>	95.6	<u>47.4</u>	<u>89.1</u>
		InvAD [42]	100.	100.	100.	99.0	61.8	62.6	96.6	45.5	88.6
		InvAD-lite [42]	99.7	99.8	99.3	98.9	58.4	63.0	95.7	46.0	87.8
		MambaAD [15]	100.	100.	100.	99.1	67.0	66.1	95.3	49.4	<u>89.6</u>
	Hybrid	UniAD [35]	99.6	99.8	<u>98.6</u>	98.0	53.0	53.9	93.7	36.9	85.2
		RD++ [31]	94.8	96.2	92.0	98.8	59.1	58.7	<u>96.4</u>	41.6	85.1
		DesTSeg [44]	99.6	99.8	<u>98.6</u>	96.8	84.7	80.2	92.9	66.9	93.2
leather	Aug.	DRAEM [37]	53.2	81.4	85.2	45.4	1.1	2.9	16.3	1.5	40.8
		SimpleNet [27]	100.	100.	100.	98.5	27.8	33.9	95.5	20.4	79.4
		RealNet [45]	100.	100.	100.	97.9	70.4	68.0	98.0	<u>51.5</u>	90.6
	Emb.	CFA [21]	62.2	<u>82.7</u>	87.8	65.4	7.7	14.8	40.7	8.0	51.6
		PatchCore [29]	100.	100.	100.	99.4	52.1	51.2	97.8	34.5	85.8
		CFLOW-AD [14]	100.	100.	100.	99.2	45.0	46.1	98.1	30.0	84.1
		PyramidalFlow [22]	<u>67.2</u>	77.3	<u>89.9</u>	87.7	6.4	15.2	74.0	8.2	59.7
	Rec.	RD [10]	100.	100.	100.	<u>99.3</u>	39.1	46.6	97.9	30.4	83.3
		DiAD [16]	97.6	99.1	<u>95.8</u>	90.6	5.9	11.9	68.3	6.3	67.0
		ViTAD [40]	100.	100.	100.	99.5	51.1	<u>55.8</u>	98.0	<u>38.7</u>	86.3
		InvAD [42]	100.	100.	100.	99.5	<u>54.3</u>	54.3	98.1	37.3	<u>86.6</u>
		InvAD-lite [42]	100.	100.	100.	<u>99.3</u>	45.6	47.4	<u>98.5</u>	31.0	84.4
		MambaAD [15]	100.	100.	100.	<u>99.3</u>	50.6	50.4	98.7	33.7	85.6
	Hybrid	UniAD [35]	100.	100.	100.	99.1	41.1	43.5	98.3	27.8	83.1
		RD++ [31]	100.	100.	100.	99.3	40.4	47.1	97.5	30.8	83.5
		DesTSeg [44]	100.	100.	100.	<u>99.3</u>	79.6	71.9	<u>98.4</u>	56.2	92.7
metal_nut	Aug.	DRAEM [37]	58.1	82.5	89.4	38.8	8.9	21.3	11.0	11.9	44.3
		SimpleNet [27]	99.0	<u>99.8</u>	97.8	<u>97.7</u>	<u>82.2</u>	79.2	87.6	65.6	91.9
		RealNet [45]	78.6	94.7	89.4	52.5	32.3	21.0	39.6	11.7	58.3
	Emb.	CFA [21]	78.3	94.4	89.9	71.4	37.4	36.5	30.1	22.4	62.6
		PatchCore [29]	100.	100.	100.	98.8	88.9	85.8	95.6	75.1	95.6
		CFLOW-AD [14]	96.9	99.3	96.2	96.0	71.2	71.7	88.5	55.8	88.5
		PyramidalFlow [22]	63.0	89.9	90.2	81.6	41.9	45.8	37.3	29.7	64.2
	Rec.	RD [10]	99.9	100.	<u>99.5</u>	93.9	62.8	64.7	92.0	47.9	87.5
		DiAD [16]	88.1	97.4	89.9	94.5	74.0	72.7	53.5	57.2	81.4
		ViTAD [40]	99.7	<u>99.9</u>	<u>98.9</u>	96.1	74.0	75.7	93.0	60.9	91.0
		InvAD [42]	100.	100.	100.	<u>97.4</u>	79.0	<u>81.2</u>	93.1	<u>68.4</u>	<u>93.0</u>
		InvAD-lite [42]	99.8	100.	<u>98.9</u>	97.2	78.3	79.5	93.8	66.0	92.5
		MambaAD [15]	99.7	99.9	<u>98.4</u>	96.7	74.2	78.3	92.9	64.4	91.4
	Hybrid	UniAD [35]	98.0	99.5	98.4	93.4	55.0	67.2	80.8	50.6	84.6
		RD++ [31]	100.	100.	100.	96.7	74.7	78.4	<u>94.1</u>	64.5	92.0
		DesTSeg [44]	99.8	100.	<u>98.9</u>	95.8	<u>88.2</u>	<u>82.5</u>	<u>94.8</u>	<u>70.2</u>	<u>94.3</u>

Table A23. Benchmarked results on MVTec AD dataset [3] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
pill	Aug.	DRAEM [37]	57.1	87.5	92.1	34.8	2.0	6.6	4.4	40.6
		SimpleNet [27]	90.6	98.1	94.2	96.7	74.7	70.6	85.3	87.2
		RealNet [45]	68.5	92.8	91.6	54.4	47.8	8.9	35.1	57.0
	Emb.	CFA [21]	71.3	93.4	92.2	88.7	66.4	63.7	42.1	74.0
		PatchCore [29]	97.0	99.4	96.5	98.1	76.8	74.0	96.1	91.1
		CFLOW-AD [14]	84.3	96.5	93.2	96.7	59.5	56.3	90.5	82.4
		PyramidalFlow [22]	67.0	92.8	91.6	83.3	18.3	26.0	65.2	63.5
	Rec.	RD [10]	97.2	99.5	96.8	97.4	63.0	64.8	96.1	87.8
		DiAD [16]	94.7	98.9	97.2	92.8	49.1	49.7	65.2	78.2
		ViTAD [40]	96.9	99.5	96.1	98.7	77.7	75.0	95.5	91.3
		InvAD [42]	98.6	99.8	97.5	97.9	67.7	68.7	96.6	89.5
		InvAD-lite [42]	96.3	99.4	95.4	97.6	65.4	67.9	96.4	88.3
		MambaAD [15]	94.7	99.0	96.5	96.2	55.0	58.9	95.2	85.1
	Hybrid	UniAD [35]	75.1	94.3	91.6	90.0	21.4	28.6	89.2	70.0
		RD++ [31]	98.0	99.6	97.5	98.2	72.7	70.3	96.4	90.4
		DesTSeg [44]	92.7	98.6	94.8	90.1	78.7	73.9	70.2	85.6
screw	Aug.	DRAEM [37]	48.4	71.5	85.3	41.4	0.2	0.5	9.3	36.7
		SimpleNet [27]	77.5	90.6	86.7	95.8	15.8	23.8	83.1	67.6
		RealNet [45]	71.3	86.6	87.0	51.8	15.4	4.5	18.5	47.9
	Emb.	CFA [21]	62.4	78.6	88.5	26.5	0.2	0.7	9.9	38.1
		PatchCore [29]	98.3	99.4	97.1	99.5	41.5	44.6	97.2	82.5
		CFLOW-AD [14]	63.4	85.1	85.3	96.5	13.6	18.5	87.7	64.3
		PyramidalFlow [22]	63.7	78.7	87.0	71.4	0.9	2.1	21.5	46.5
	Rec.	RD [10]	97.8	99.3	96.3	99.4	42.3	47.3	97.1	82.8
		DiAD [16]	63.2	82.8	86.9	86.3	3.3	9.2	57.4	55.6
		ViTAD [40]	91.6	97.2	91.4	98.9	32.3	39.9	93.6	77.8
		InvAD [42]	91.7	95.1	96.0	99.5	44.0	46.4	97.6	81.5
		InvAD-lite [42]	93.0	97.4	93.6	99.4	47.2	48.9	97.5	82.4
		MambaAD [15]	92.7	96.8	94.0	99.3	45.3	45.1	97.0	81.5
	Hybrid	UniAD [35]	88.4	94.4	92.3	98.2	19.2	28.4	90.9	73.1
		RD++ [31]	97.5	99.2	95.8	99.5	45.5	48.9	97.7	83.4
		DesTSeg [44]	86.1	95.2	88.6	76.2	52.1	50.0	53.3	71.6
tile	Aug.	DRAEM [37]	68.0	84.7	84.0	48.2	6.3	13.3	14.0	45.5
		SimpleNet [27]	100.	100.	99.4	95.4	59.1	60.4	82.5	85.3
		RealNet [45]	97.5	99.3	97.6	93.9	84.1	76.8	90.5	91.4
	Emb.	CFA [21]	46.0	74.5	83.6	40.3	8.5	13.2	16.6	40.4
		PatchCore [29]	100.	100.	99.4	96.4	58.7	67.1	86.6	86.9
		CFLOW-AD [14]	99.8	99.9	99.4	96.0	56.0	62.1	86.5	85.7
		PyramidalFlow [22]	78.6	92.2	83.6	75.7	55.1	28.1	34.4	64.0
	Rec.	RD [10]	99.0	99.6	97.0	95.3	48.7	61.0	86.3	83.8
		DiAD [16]	93.4	96.6	95.1	76.1	24.1	32.9	49.7	66.8
		ViTAD [40]	100.	100.	100.	96.7	56.6	69.0	88.7	87.3
		InvAD [42]	100.	100.	100.	95.8	49.8	62.4	88.3	85.2
		InvAD-lite [42]	98.0	99.2	96.5	93.9	44.9	54.5	80.1	81.0
		MambaAD [15]	96.8	98.8	93.8	93.0	43.9	52.6	79.5	79.8
	Hybrid	UniAD [35]	96.7	98.8	95.8	89.2	38.9	47.5	77.6	77.8
		RD++ [31]	100.	100.	99.4	96.7	56.8	66.4	89.8	87.0
		DesTSeg [44]	99.7	99.9	98.2	97.5	89.4	81.9	95.7	94.6
toothbrush	Aug.	DRAEM [37]	44.2	72.8	83.3	46.8	1.4	3.1	14.5	38.0
		SimpleNet [27]	89.4	95.8	90.9	98.0	53.6	55.9	80.6	80.6
		RealNet [45]	76.4	91.5	83.3	84.8	50.1	56.1	34.1	68.0
	Emb.	CFA [21]	61.4	72.0	87.9	69.6	3.3	8.5	43.8	49.5
		PatchCore [29]	91.9	96.2	95.2	99.0	54.8	58.5	91.0	83.8
		CFLOW-AD [14]	84.4	94.5	86.2	98.2	45.7	47.1	84.5	77.2
		PyramidalFlow [22]	89.4	95.7	90.6	73.0	42.3	31.3	23.2	63.6
	Rec.	RD [10]	98.3	99.4	96.6	98.9	51.8	57.7	92.6	85.0
		DiAD [16]	95.3	98.1	95.2	89.6	11.0	17.5	65.3	67.4
		ViTAD [40]	98.6	99.5	96.8	99.1	51.8	62.2	91.3	85.6
		InvAD [42]	93.9	97.4	95.2	99.0	50.6	59.7	91.6	83.9
		InvAD-lite [42]	97.8	99.1	95.2	98.9	48.1	59.1	91.9	84.3
		MambaAD [15]	96.4	98.5	96.8	98.9	47.5	59.7	92.0	84.3
	Hybrid	UniAD [35]	83.9	93.1	90.9	98.4	39.7	49.9	85.8	77.4
		RD++ [31]	95.8	98.3	95.1	99.1	57.3	61.8	92.2	85.7
		DesTSeg [44]	91.7	96.5	95.2	95.6	60.6	72.1	65.5	82.5

Table A24. Benchmarked results on MVTec AD dataset [3] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
transistor	Aug.									
	DRAEM [37]	52.8	44.1	57.1	51.7	4.6	9.3	17.8	4.9	33.9
	SimpleNet [27]	97.8	96.6	91.6	95.4	60.4	57.6	82.5	40.4	83.1
	RealNet [45]	79.7	83.0	73.3	60.9	40.2	28.3	44.6	16.5	58.6
	Emb.									
	CFA [21]	68.9	64.8	63.4	60.5	17.6	20.4	22.0	11.3	45.4
	PatchCore [29]	99.8	99.7	97.5	96.0	62.3	59.2	90.8	42.0	86.5
	CFLOW-AD [14]	90.5	91.4	84.2	84.8	38.3	39.0	73.0	24.2	71.6
	PyramidalFlow [22]	50.8	53.8	57.1	75.9	13.2	19.5	26.1	10.8	42.3
	Rec.									
	RD [10]	94.2	94.8	89.5	85.1	41.8	44.7	74.5	28.8	74.9
	DiAD [16]	99.0	98.1	97.5	97.8	71.8	67.6	85.7	51.1	<u>88.2</u>
	ViTAD [40]	97.7	96.7	91.6	93.6	57.5	54.3	76.6	37.3	81.1
	InvAD [42]	97.8	96.8	92.7	95.7	62.0	59.7	<u>91.9</u>	42.6	85.2
	InvAD-lite [42]	98.2	97.4	92.3	95.0	61.0	58.9	88.3	41.8	84.4
	MambaAD [15]	99.9	99.8	98.7	96.0	<u>63.8</u>	<u>61.6</u>	90.4	<u>44.5</u>	<u>87.2</u>
	Hybrid									
	UniAD [35]	99.3	98.9	97.6	<u>97.3</u>	<u>66.8</u>	<u>66.4</u>	92.2	<u>49.7</u>	88.4
	RD++ [31]	95.2	95.0	89.5	89.3	47.7	49.0	77.9	32.4	77.7
	DesTSeg [44]	96.9	96.2	89.5	73.9	54.1	50.5	76.6	33.8	76.8
wood	Aug.									
	DRAEM [37]	74.3	90.2	87.2	49.7	4.4	7.5	14.6	3.9	46.8
	SimpleNet [27]	99.5	99.8	98.3	92.5	40.3	42.4	80.0	26.9	79.0
	RealNet [45]	99.6	99.9	99.2	90.4	<u>76.1</u>	<u>71.9</u>	88.8	<u>56.1</u>	89.4
	Emb.									
	CFA [21]	72.5	90.1	87.0	54.4	6.8	9.3	31.6	4.9	50.2
	PatchCore [29]	98.7	99.6	96.7	95.2	52.1	52.3	91.3	35.4	83.7
	CFLOW-AD [14]	98.4	99.5	96.6	94.2	45.7	49.8	90.2	33.1	82.1
	PyramidalFlow [22]	86.7	95.5	88.5	62.6	39.5	17.9	32.3	9.8	60.4
	Rec.									
	RD [10]	99.6	99.9	<u>98.3</u>	<u>95.5</u>	49.7	51.6	<u>91.7</u>	34.8	83.8
	DiAD [16]	94.3	97.8	94.3	82.8	15.1	22.2	57.5	12.5	66.3
	ViTAD [40]	98.8	99.6	96.7	96.3	<u>61.3</u>	<u>59.2</u>	89.3	42.0	<u>85.9</u>
	InvAD [42]	99.2	<u>99.8</u>	<u>98.3</u>	95.3	51.3	52.1	<u>91.7</u>	35.2	84.0
	InvAD-lite [42]	96.9	99.0	95.9	94.4	44.8	47.6	89.1	31.2	81.1
	MambaAD [15]	98.5	99.5	96.0	94.0	46.9	48.4	92.0	32.0	82.2
	Hybrid									
	UniAD [35]	98.2	99.5	96.6	93.1	40.6	45.1	89.5	29.1	80.4
	RD++ [31]	98.9	<u>99.7</u>	97.5	<u>95.6</u>	52.2	52.4	91.0	35.5	83.9
	DesTSeg [44]	98.6	99.5	<u>97.6</u>	93.2	79.5	72.5	95.0	56.8	90.8
zipper	Aug.									
	DRAEM [37]	44.4	79.9	88.1	55.4	2.7	6.1	20.7	3.2	42.5
	SimpleNet [27]	99.1	99.8	97.5	97.9	57.8	55.4	91.9	38.3	85.6
	RealNet [45]	77.3	94.1	88.1	67.6	51.9	42.6	47.7	27.1	67.0
	Emb.									
	CFA [21]	34.8	72.3	88.1	64.4	3.2	7.5	23.4	3.9	42.0
	PatchCore [29]	99.6	99.9	98.7	98.9	63.4	64.6	96.4	47.8	88.8
	CFLOW-AD [14]	95.6	98.5	96.7	97.9	50.2	54.8	92.4	37.7	83.7
	PyramidalFlow [22]	83.3	95.1	89.1	81.0	15.4	16.3	55.7	8.9	62.3
	Rec.									
	RD [10]	<u>99.5</u>	99.9	99.2	<u>98.5</u>	56.0	61.0	<u>95.5</u>	43.8	<u>87.1</u>
	DiAD [16]	73.5	90.3	90.0	84.4	14.3	24.0	56.7	13.7	61.9
	ViTAD [40]	97.5	99.2	97.0	95.9	44.1	50.1	89.5	33.4	81.9
	InvAD [42]	99.4	<u>99.8</u>	<u>98.3</u>	98.2	50.2	57.7	94.5	40.5	85.4
	InvAD-lite [42]	97.5	99.3	96.7	<u>98.6</u>	<u>58.4</u>	<u>61.4</u>	<u>95.8</u>	<u>44.3</u>	86.8
	MambaAD [15]	98.2	<u>99.5</u>	96.7	98.1	<u>55.0</u>	<u>58.9</u>	94.5	41.7	85.8
	Hybrid									
	UniAD [35]	86.9	<u>95.5</u>	92.8	95.8	33.5	41.0	88.7	25.8	76.3
	RD++ [31]	99.3	99.8	98.7	98.4	53.5	59.2	94.8	42.1	86.2
	DesTSeg [44]	97.6	99.0	<u>98.3</u>	90.6	71.9	66.9	86.2	50.3	<u>87.2</u>
Avg	Aug.									
	DRAEM [37]	54.5	76.3	83.6	47.6	3.2	6.7	14.3	3.5	40.9
	SimpleNet [27]	95.4	98.3	95.7	96.8	48.8	51.9	86.9	36.4	82.0
	RealNet [45]	84.8	94.1	90.9	72.6	48.2	41.4	56.8	28.8	69.8
	Emb.									
	CFA [21]	57.6	78.3	84.7	54.8	11.9	14.7	25.3	8.9	46.8
	PatchCore [29]	98.8	99.5	98.4	98.3	59.9	61.0	94.2	44.9	87.2
	CFLOW-AD [14]	91.6	96.7	93.4	95.7	45.9	48.6	88.3	33.2	80.0
	PyramidalFlow [22]	70.2	85.5	85.5	80.0	22.3	22.0	47.5	12.8	59.0
	Rec.									
	RD [10]	93.6	97.2	95.6	95.8	48.2	53.6	91.2	37.0	82.2
	DiAD [16]	88.9	95.8	93.5	89.3	27.0	32.5	63.9	21.1	70.1
	ViTAD [40]	98.3	99.3	<u>97.3</u>	<u>97.6</u>	55.2	58.4	92.0	42.3	85.4
	InvAD [42]	98.1	99.0	<u>97.6</u>	<u>98.0</u>	<u>56.3</u>	<u>59.2</u>	94.4	42.8	<u>86.1</u>
	InvAD-lite [42]	97.9	<u>99.2</u>	96.8	<u>97.3</u>	<u>54.4</u>	<u>57.8</u>	93.3	41.4	<u>85.2</u>
	MambaAD [15]	97.8	<u>99.3</u>	<u>97.3</u>	97.4	55.1	57.6	93.4	41.2	85.4
	Hybrid									
	UniAD [35]	92.5	97.3	<u>95.4</u>	95.8	42.7	48.0	<u>89.3</u>	32.5	80.1
	RD++ [31]	97.9	98.8	96.4	97.3	54.7	58.0	93.2	41.5	85.2
	DesTSeg [44]	96.4	98.6	96.2	92.0	71.1	68.2	83.4	52.8	<u>86.6</u>

E. Detailed Quantitative Results on MVTec 3D Dataset Under 100 epochs

Table A25. Benchmarked results on MVTec 3D dataset [6] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
bagel	Aug.	DRAEM [37]	54.3	84.7	88.9	53.5	2.5	6.3	32.2	46.1
		SimpleNet [27]	79.5	94.8	88.9	95.2	20.0	29.3	71.1	68.4
		CFA [21]	82.6	95.6	89.3	84.3	19.1	30.6	48.8	64.3
	Emb.	PatchCore [29]	91.8	98.0	92.9	98.8	43.7	46.8	93.3	80.8
		CFLOW-AD [14]	78.8	94.2	89.3	98.3	31.3	38.9	89.7	74.4
		PyramidalFlow [22]	50.5	84.4	88.9	94.3	5.3	11.5	79.3	59.2
	Rec.	RD [10]	86.2	96.5	90.5	98.7	40.2	44.5	92.2	78.4
		DiAD [16]	75.8	93.5	90.5	89.7	4.3	10.1	66.4	61.5
		ViTAD [40]	92.1	98.0	93.4	98.7	40.3	44.2	92.4	79.9
		InvAD [42]	95.3	98.8	94.6	99.1	45.4	49.6	95.0	82.5
		InvAD-lite [42]	87.8	97.0	90.9	98.6	41.9	45.6	92.1	79.1
		MambaAD [15]	93.4	98.3	93.3	98.7	41.0	45.3	94.6	80.7
	Hybrid	UniAD [35]	88.3	97.2	90.3	98.1	35.5	40.3	91.3	77.3
		RD++ [31]	87.2	96.6	91.5	98.7	39.5	46.9	92.5	79.0
		DesTSeg [44]	95.4	98.8	94.5	94.6	63.2	60.2	86.3	84.7
cable-gland	Aug.	DRAEM [37]	61.1	85.0	89.7	40.1	0.3	0.5	15.7	41.8
		SimpleNet [27]	75.8	92.5	91.1	96.3	15.6	23.9	87.9	69.0
		CFA [21]	61.2	87.5	89.2	71.0	1.8	4.6	38.7	50.6
	Emb.	PatchCore [29]	96.4	99.0	96.1	99.5	37.3	43.6	98.3	81.5
		CFLOW-AD [14]	69.7	90.2	90.1	96.7	9.4	16.2	90.0	66.0
		PyramidalFlow [22]	64.4	88.9	89.7	87.6	1.3	2.9	62.9	56.8
	Rec.	RD [10]	91.2	97.5	95.0	99.5	39.7	44.8	98.5	80.9
		DiAD [16]	88.0	97.1	92.6	95.0	4.6	10.1	84.2	67.4
		ViTAD [40]	84.5	94.2	92.1	98.7	22.6	31.4	95.7	74.2
		InvAD [42]	96.6	99.1	96.6	99.6	40.6	47.1	98.8	82.6
		InvAD-lite [42]	93.7	98.5	96.0	99.4	41.1	46.9	98.5	82.0
		MambaAD [15]	91.1	97.8	93.6	99.3	38.8	44.6	98.2	80.5
	Hybrid	UniAD [35]	73.3	91.0	89.8	97.1	14.2	22.0	91.7	68.4
		RD++ [31]	96.6	99.1	96.0	99.6	46.1	49.3	98.7	83.6
		DesTSeg [44]	89.9	97.5	92.9	89.9	47.8	52.3	85.3	79.4
carrot	Aug.	DRAEM [37]	50.8	83.6	90.7	56.2	0.6	0.9	35.4	45.5
		SimpleNet [27]	82.4	96.1	92.5	98.1	13.3	20.6	92.6	70.8
		CFA [21]	58.6	88.6	91.0	83.1	3.0	9.4	54.0	55.4
	Emb.	PatchCore [29]	95.2	99.0	95.6	99.4	25.9	30.8	97.7	77.7
		CFLOW-AD [14]	85.2	96.8	92.3	98.9	20.0	27.2	96.0	73.8
		PyramidalFlow [22]	59.9	87.4	90.7	97.8	13.0	18.8	92.5	65.7
	Rec.	RD [10]	85.4	96.2	92.5	99.4	27.9	33.8	97.7	76.1
		DiAD [16]	93.4	98.3	98.1	97.6	6.2	11.2	91.1	70.8
		ViTAD [40]	77.4	93.0	92.2	98.8	19.3	25.9	95.9	71.8
		InvAD [42]	90.5	97.6	94.5	99.3	24.9	30.1	97.6	76.4
		InvAD-lite [42]	87.7	96.9	94.6	99.4	27.6	32.7	98.0	76.7
		MambaAD [15]	90.1	97.7	93.9	99.3	29.0	32.7	97.9	77.2
	Hybrid	UniAD [35]	75.0	93.8	91.4	98.2	15.6	22.8	94.2	70.1
		RD++ [31]	89.3	97.2	93.9	99.4	28.2	34.0	97.7	77.1
		DesTSeg [44]	78.2	93.7	91.3	67.6	30.4	33.4	46.1	63.0
cookie	Aug.	DRAEM [37]	80.6	93.4	91.1	47.3	1.7	5.2	20.5	48.5
		SimpleNet [27]	66.9	89.0	88.0	92.5	27.2	34.6	71.5	67.1
		CFA [21]	61.2	86.8	88.4	72.4	19.4	27.6	38.3	56.3
	Emb.	PatchCore [29]	71.0	91.6	88.0	98.0	52.4	50.2	92.5	77.7
		CFLOW-AD [14]	46.3	78.0	88.4	96.9	30.3	32.6	89.2	66.0
		PyramidalFlow [22]	23.4	67.8	88.0	88.8	7.1	11.9	70.8	51.1
	Rec.	RD [10]	50.2	80.1	88.0	96.7	28.1	33.2	87.4	66.2
		DiAD [16]	52.6	84.7	88.0	87.2	5.6	10.5	67.2	56.6
		ViTAD [40]	70.7	90.9	88.2	97.7	47.6	48.8	87.6	75.9
		InvAD [42]	63.5	88.5	88.0	98.4	48.8	49.3	92.5	75.6
		InvAD-lite [42]	62.0	88.4	88.0	97.3	39.9	42.8	87.0	72.2
		MambaAD [15]	58.3	85.6	88.4	96.8	38.8	42.0	84.3	70.6
	Hybrid	UniAD [35]	62.3	86.9	88.0	96.0	24.2	29.6	88.1	67.9
		RD++ [31]	56.7	82.8	88.4	97.6	39.6	42.6	89.2	71.0
		DesTSeg [44]	61.7	87.9	88.4	83.7	43.9	45.2	57.8	66.9

Table A26. Benchmarked results on MVTec 3D dataset [6] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
dowel	Aug. DRAEM [37]	38.5	75.0	88.9	42.1	0.7	2.2	24.6	1.1	38.9
	Aug. SimpleNet [27]	90.3	97.5	92.5	97.8	16.2	21.5	90.2	12.0	72.3
	Emb. CFA [21]	88.8	96.8	92.9	85.0	7.1	11.1	56.9	5.9	62.7
	Emb. PatchCore [29]	98.2	99.6	97.5	99.3	44.5	46.7	96.3	30.5	83.2
	Emb. CFLOW-AD [14]	92.1	98.1	92.9	98.8	28.3	32.7	94.4	19.5	76.8
	Emb. PyramidalFlow [22]	66.5	89.3	89.7	93.9	6.3	10.5	74.9	5.5	61.6
	Rec. RD [10]	97.3	99.3	96.7	99.7	<u>51.1</u>	<u>50.6</u>	98.8	<u>33.9</u>	<u>84.8</u>
	Rec. DiAD [16]	65.3	89.1	91.9	79.7	4.6	9.2	47.9	4.8	55.4
	Rec. ViTAD [40]	94.1	98.5	94.8	99.2	37.8	41.7	95.9	26.3	80.3
	Rec. InvAD [42]	<u>99.3</u>	<u>99.8</u>	98.6	99.7	49.5	48.6	<u>98.6</u>	32.1	<u>84.9</u>
	Rec. InvAD-lite [42]	96.8	99.3	96.0	<u>99.6</u>	<u>51.4</u>	51.5	<u>97.7</u>	34.7	84.6
	Rec. MambaAD [15]	96.5	99.2	95.3	<u>99.5</u>	50.1	48.9	97.4	32.3	83.8
	Hybrid UniAD [35]	87.1	96.9	90.1	98.9	34.0	39.0	95.3	24.2	77.3
	Hybrid RD++ [31]	99.6	99.9	98.6	99.7	53.9	<u>51.3</u>	98.8	<u>34.5</u>	86.0
	Hybrid DesTSeg [44]	86.0	96.5	90.2	82.8	49.4	50.1	60.8	33.4	73.7
foam	Aug. DRAEM [37]	50.3	81.6	88.9	46.7	0.2	0.4	14.4	0.2	40.4
	Aug. SimpleNet [27]	78.7	94.5	89.4	86.4	12.1	22.1	67.9	12.4	64.4
	Emb. CFA [21]	66.1	90.6	89.4	45.1	8.0	21.0	32.6	11.8	50.4
	Emb. PatchCore [29]	78.9	94.4	89.9	94.9	18.8	29.6	<u>83.4</u>	17.4	70.0
	Emb. CFLOW-AD [14]	75.0	93.5	89.3	85.5	15.8	27.2	57.5	15.7	63.4
	Emb. PyramidalFlow [22]	65.6	90.2	88.9	71.4	11.0	18.2	49.9	10.0	56.5
	Rec. RD [10]	70.2	91.7	89.4	93.9	14.4	27.1	81.0	15.6	66.8
	Rec. DiAD [16]	78.3	94.4	89.2	87.5	1.4	3.9	59.7	2.0	59.2
	Rec. ViTAD [40]	<u>82.9</u>	<u>95.4</u>	<u>90.8</u>	<u>94.0</u>	14.3	26.0	81.3	14.9	69.2
	Rec. InvAD [42]	83.5	95.8	<u>91.2</u>	93.8	18.8	31.0	81.1	18.3	70.7
	Rec. InvAD-lite [42]	<u>82.6</u>	<u>95.4</u>	90.1	<u>94.4</u>	<u>24.1</u>	<u>32.9</u>	<u>82.8</u>	<u>19.7</u>	<u>71.8</u>
	Rec. MambaAD [15]	79.9	94.7	89.9	94.9	<u>23.8</u>	<u>33.4</u>	83.8	<u>20.1</u>	<u>71.5</u>
	Hybrid UniAD [35]	76.8	94.0	88.9	85.0	10.3	23.0	60.1	13.0	62.6
	Hybrid RD++ [31]	72.9	92.4	91.9	92.7	16.3	28.7	77.3	16.7	67.5
	Hybrid DesTSeg [44]	80.2	<u>95.0</u>	89.1	84.5	44.3	49.5	72.7	32.9	73.6
peach	Aug. DRAEM [37]	61.6	86.9	89.5	46.7	0.5	1.0	22.5	0.5	44.1
	Aug. SimpleNet [27]	70.0	90.5	90.1	92.2	5.5	11.0	73.3	5.8	61.8
	Emb. CFA [21]	49.9	81.6	89.1	67.4	1.2	5.7	39.0	2.9	47.7
	Emb. PatchCore [29]	75.2	92.7	91.2	98.2	26.4	32.4	93.3	19.3	72.8
	Emb. CFLOW-AD [14]	72.2	91.3	90.4	97.9	17.1	18.9	92.1	10.4	68.6
	Emb. PyramidalFlow [22]	62.0	86.7	89.8	96.4	6.6	11.0	87.3	5.8	62.8
	Rec. RD [10]	64.0	85.0	91.6	98.4	15.6	21.7	93.7	12.2	67.1
	Rec. DiAD [16]	92.4	93.5	99.1	95.5	4.4	8.0	84.9	4.2	68.3
	Rec. ViTAD [40]	66.6	88.8	89.1	98.1	19.5	25.2	92.5	14.4	68.5
	Rec. InvAD [42]	<u>90.4</u>	97.3	94.1	<u>99.3</u>	41.3	46.5	<u>97.1</u>	30.3	80.9
	Rec. InvAD-lite [42]	<u>85.4</u>	<u>95.3</u>	<u>94.1</u>	<u>99.3</u>	<u>42.8</u>	<u>44.0</u>	<u>97.2</u>	<u>28.2</u>	<u>79.7</u>
	Rec. MambaAD [15]	<u>89.3</u>	<u>97.1</u>	<u>93.4</u>	99.4	<u>42.9</u>	<u>44.0</u>	97.5	<u>28.2</u>	<u>80.5</u>
	Hybrid UniAD [35]	73.7	91.8	90.4	98.0	19.6	25.5	92.5	14.6	70.2
	Hybrid RD++ [31]	74.2	89.8	92.0	98.8	26.2	31.7	94.8	18.8	72.5
	Hybrid DesTSeg [44]	70.6	91.5	89.4	76.7	46.7	<u>45.5</u>	56.1	<u>29.5</u>	68.1
potato	Aug. DRAEM [37]	50.1	80.9	89.8	49.6	0.5	1.3	30.0	0.6	43.2
	Aug. SimpleNet [27]	61.9	85.3	89.9	95.2	2.6	5.6	83.7	2.9	60.6
	Emb. CFA [21]	39.1	77.4	89.3	64.9	0.3	1.0	30.7	0.5	43.2
	Emb. PatchCore [29]	56.8	83.9	90.2	98.9	9.8	17.0	96.0	9.3	64.7
	Emb. CFLOW-AD [14]	62.0	86.8	89.3	98.5	11.4	13.9	95.3	7.5	65.3
	Emb. PyramidalFlow [22]	<u>70.7</u>	<u>91.2</u>	89.8	97.8	9.9	15.9	92.5	8.6	66.8
	Rec. RD [10]	63.1	87.6	91.1	99.2	15.3	22.7	<u>96.6</u>	<u>12.8</u>	67.9
	Rec. DiAD [16]	82.2	95.8	90.2	98.5	8.6	14.7	94.8	7.9	<u>69.3</u>
	Rec. ViTAD [40]	58.2	86.7	89.8	98.7	11.6	17.9	95.1	9.8	65.4
	Rec. InvAD [42]	66.9	90.4	90.2	<u>99.1</u>	17.8	24.8	96.4	14.1	69.4
	Rec. InvAD-lite [42]	<u>67.8</u>	<u>90.5</u>	<u>90.5</u>	<u>99.1</u>	17.8	22.4	95.9	12.6	69.1
	Rec. MambaAD [15]	59.1	86.0	90.2	<u>99.0</u>	<u>17.7</u>	<u>22.8</u>	95.4	<u>12.8</u>	67.2
	Hybrid UniAD [35]	51.6	83.8	89.3	97.9	8.5	13.9	92.3	7.5	62.5
	Hybrid RD++ [31]	67.0	90.0	<u>90.6</u>	99.2	<u>17.5</u>	<u>23.7</u>	96.7	<u>13.5</u>	<u>69.2</u>
	Hybrid DesTSeg [44]	58.2	86.8	90.2	54.8	8.5	9.2	22.5	4.8	47.2

Table A27. Benchmarked results on MVTec 3D dataset [6] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD	
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max				
rope	Aug.	DRAEM [37]	56.5	69.4	83.6	43.0	0.5	1.0	13.1	0.5	38.2
		SimpleNet [27]	93.3	97.7	93.8	99.3	53.8	52.4	93.1	35.5	83.3
	Emb.	CFA [21]	92.5	96.8	90.1	90.4	35.7	44.1	74.5	28.3	74.9
		PatchCore [29]	96.7	98.7	95.5	99.6	55.6	56.9	97.4	39.7	85.8
		CFLOW-AD [14]	94.1	97.7	92.2	99.3	45.1	47.3	95.3	31.0	81.6
		PyramidalFlow [22]	79.7	90.9	83.2	86.4	8.0	11.9	61.3	6.3	60.2
	Rec.	RD [10]	95.9	98.4	93.1	99.6	50.6	55.2	97.9	38.1	84.4
		DiAD [16]	72.4	87.2	81.7	94.3	9.5	16.1	74.6	8.8	62.3
		ViTAD [40]	98.5	99.4	96.4	98.5	41.7	43.3	89.5	27.6	81.0
		InvAD [42]	97.0	98.8	94.9	99.6	57.8	58.9	97.1	41.7	86.3
		InvAD-lite [42]	94.5	98.0	94.7	99.4	54.2	53.0	96.3	36.1	84.3
		MambaAD [15]	96.1	98.4	93.2	99.3	45.1	48.1	96.1	31.7	82.3
	Hybrid	UniAD [35]	95.9	98.5	95.6	99.3	41.5	47.8	96.4	31.4	82.1
		RD++ [31]	95.9	98.5	96.3	99.6	52.7	56.2	97.8	39.0	85.3
		DesTSeg [44]	92.7	97.2	92.2	98.8	64.7	62.7	97.2	45.7	86.5
tire	Aug.	DRAEM [37]	52.7	76.9	87.4	40.6	0.1	0.3	10.2	0.2	38.3
		SimpleNet [27]	59.5	85.7	87.4	93.9	6.9	13.1	78.3	7.0	60.7
	Emb.	CFA [21]	70.7	90.8	87.4	52.5	1.2	5.3	18.9	2.7	46.7
		PatchCore [29]	80.1	93.6	87.9	99.1	22.6	31.1	95.8	18.4	72.9
		CFLOW-AD [14]	56.1	83.9	87.4	97.5	7.0	11.2	90.7	5.9	62.0
		PyramidalFlow [22]	44.2	79.2	87.4	93.7	3.7	7.3	78.0	3.8	56.2
	Rec.	RD [10]	54.2	79.2	87.4	99.0	13.5	21.5	95.5	12.1	64.3
		DiAD [16]	54.0	76.1	87.4	92.5	3.4	8.1	78.1	4.2	57.1
		ViTAD [40]	70.6	89.3	89.6	97.9	17.4	28.3	90.6	16.5	69.1
		InvAD [42]	86.2	95.8	89.9	99.5	29.3	38.2	97.5	23.6	76.6
		InvAD-lite [42]	89.0	96.7	91.3	99.3	42.3	47.4	96.4	31.1	80.3
		MambaAD [15]	87.3	95.9	91.1	99.3	42.1	46.3	96.7	30.1	79.8
	Hybrid	UniAD [35]	68.8	87.5	88.7	97.0	8.4	15.4	87.5	8.4	64.8
		RD++ [31]	78.4	92.6	88.7	99.4	23.6	31.8	97.0	18.9	73.1
		DesTSeg [44]	78.1	93.0	88.4	77.9	13.7	18.7	55.7	10.3	60.8
Avg	Aug.	DRAEM [37]	55.7	81.8	88.8	46.6	0.8	1.9	21.9	1.0	42.5
		SimpleNet [27]	75.8	92.3	90.4	94.7	17.3	23.4	81.0	13.9	67.8
	Emb.	CFA [21]	67.1	89.3	89.6	71.6	9.7	16.1	43.2	9.3	55.2
		PatchCore [29]	84.1	95.1	92.5	98.6	33.7	38.5	94.4	24.5	76.7
		CFLOW-AD [14]	73.1	91.0	90.2	96.8	21.6	26.6	89.0	15.8	69.8
		PyramidalFlow [22]	58.7	85.6	88.6	90.8	7.2	12.0	74.9	6.4	59.7
	Rec.	RD [10]	75.8	91.2	91.5	98.4	29.6	35.5	93.9	22.2	73.7
		DiAD [16]	75.4	91.0	90.9	91.7	5.3	10.2	74.9	5.4	62.8
		ViTAD [40]	79.6	93.4	91.6	98.0	27.2	33.3	91.6	20.4	73.5
		InvAD [42]	86.9	96.2	93.3	98.7	37.4	42.4	95.2	27.4	78.6
		InvAD-lite [42]	84.7	95.6	92.6	98.6	38.3	41.9	94.2	26.9	78.0
		MambaAD [15]	84.1	95.1	92.2	98.6	36.9	40.8	94.2	25.9	77.4
	Hybrid	UniAD [35]	75.3	92.1	90.3	96.6	21.2	27.9	88.9	16.7	70.3
		RD++ [31]	81.8	93.9	92.8	98.5	34.4	39.6	94.1	25.2	76.4
		DesTSeg [44]	79.1	93.8	90.7	81.1	41.3	42.7	64.0	28.4	70.4

**F. Detailed Quantitative Results on MVTec
LOCO Dataset Under 100 epochs**

Table A28. Benchmarked results on MVTec LOCO dataset [5] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
breakfast_box	Aug.	DRAEM [37]	62.6	76.9	77.2	50.0	4.4	12.5	14.9	42.6
		SimpleNet [27]	88.9	94.1	85.5	87.8	<u>56.9</u>	<u>55.3</u>	73.0	<u>77.4</u>
		CFA [21]	64.3	79.1	77.6	68.0	<u>29.7</u>	<u>28.5</u>	33.9	54.4
	Emb.	PatchCore [29]	77.1	88.4	78.0	89.4	55.4	49.3	<u>76.1</u>	73.4
		CFLOW-AD [14]	74.9	86.4	77.8	88.6	48.0	46.5	71.1	70.5
		PyramidalFlow [22]	58.3	75.3	77.4	59.7	44.2	28.1	20.6	51.9
	Rec.	RD [10]	66.2	80.7	77.2	83.7	27.1	35.6	65.0	62.2
		DiAD [16]	68.5	82.0	77.2	84.6	26.3	37.6	39.7	59.4
		ViTAD [40]	77.7	88.0	78.8	<u>89.1</u>	56.1	53.1	70.3	73.3
		InvAD [42]	82.7	<u>91.1</u>	<u>80.5</u>	90.2	<u>63.7</u>	60.8	79.7	78.4
		InvAD-lite [42]	77.1	87.9	77.6	88.6	50.5	49.0	<u>77.2</u>	72.6
		MambaAD [15]	69.7	83.6	77.5	<u>89.1</u>	54.5	50.1	74.5	71.3
	Hybrid	UniAD [35]	73.1	85.5	77.2	<u>89.0</u>	48.8	46.2	71.0	70.1
		RD++ [31]	69.8	84.3	77.2	86.8	41.4	45.1	69.6	67.7
		DesTSeg [44]	<u>85.5</u>	<u>92.7</u>	<u>82.1</u>	82.6	64.1	59.4	72.6	<u>77.0</u>
juice_bottle	Aug.	DRAEM [37]	52.1	74.3	83.4	31.3	3.9	10.1	7.3	37.5
		SimpleNet [27]	96.7	98.8	94.8	91.6	48.9	54.6	86.1	81.6
		CFA [21]	85.1	94.3	85.4	73.6	20.3	22.0	51.7	61.8
	Emb.	PatchCore [29]	95.2	98.3	94.1	89.9	<u>56.2</u>	<u>57.8</u>	87.1	<u>82.7</u>
		CFLOW-AD [14]	95.9	98.4	93.6	91.7	44.1	47.3	84.1	79.3
		PyramidalFlow [22]	48.6	74.9	83.5	54.2	9.7	10.1	24.9	43.7
	Rec.	RD [10]	90.1	96.6	89.3	89.2	46.9	47.7	84.4	77.7
		DiAD [16]	<u>97.3</u>	<u>98.8</u>	<u>96.1</u>	83.2	40.0	42.4	74.9	76.1
		ViTAD [40]	90.3	96.4	88.7	88.6	48.4	49.1	83.4	77.8
		InvAD [42]	95.8	<u>98.5</u>	94.2	<u>90.6</u>	<u>53.9</u>	58.3	88.4	41.2
		InvAD-lite [42]	93.0	97.3	92.7	<u>90.6</u>	53.4	<u>57.2</u>	<u>87.5</u>	81.7
		MambaAD [15]	92.0	97.0	92.3	89.7	47.8	53.2	85.3	79.6
	Hybrid	UniAD [35]	92.2	97.0	90.5	<u>90.6</u>	52.5	54.6	<u>87.3</u>	80.7
		RD++ [31]	90.6	96.5	88.8	90.1	49.2	50.9	85.2	78.8
		DesTSeg [44]	98.5	99.5	97.2	78.8	57.0	<u>57.2</u>	79.7	81.1
pushpins	Aug.	DRAEM [37]	54.5	55.1	72.8	52.4	0.8	1.8	14.8	36.0
		SimpleNet [27]	74.8	81.8	74.0	68.9	<u>3.7</u>	<u>8.8</u>	62.0	53.4
		CFA [21]	53.7	63.2	71.4	43.6	0.8	1.7	22.5	36.7
	Emb.	PatchCore [29]	74.3	82.8	72.7	56.1	3.1	7.5	63.6	51.4
		CFLOW-AD [14]	60.8	69.1	71.4	39.4	1.2	3.0	52.4	42.5
		PyramidalFlow [22]	51.7	60.9	71.4	58.8	1.3	3.2	29.3	39.5
	Rec.	RD [10]	71.4	80.4	71.7	51.2	2.2	7.6	<u>68.1</u>	50.4
		DiAD [16]	57.6	65.7	73.0	<u>62.8</u>	1.4	3.2	36.4	42.9
		ViTAD [40]	66.8	73.6	72.2	46.1	2.2	6.0	57.1	46.3
		InvAD [42]	81.0	87.4	76.7	<u>67.2</u>	<u>3.8</u>	<u>9.1</u>	75.1	4.8
		InvAD-lite [42]	77.9	<u>84.0</u>	<u>76.1</u>	60.0	3.0	8.4	67.8	4.4
		MambaAD [15]	<u>79.8</u>	<u>85.9</u>	<u>76.3</u>	58.8	2.6	9.4	<u>72.7</u>	<u>55.1</u>
	Hybrid	UniAD [35]	63.5	70.1	71.4	41.6	1.0	3.9	53.8	2.0
		RD++ [31]	77.0	<u>84.0</u>	74.6	52.3	2.5	7.5	67.5	3.9
		DesTSeg [44]	59.9	<u>71.1</u>	71.7	54.0	3.9	8.2	42.3	4.3
screw_bag	Aug.	DRAEM [37]	53.1	65.9	78.4	49.3	6.7	13.7	10.1	39.6
		SimpleNet [27]	63.5	76.5	78.3	61.2	10.3	16.5	46.8	50.4
		CFA [21]	63.2	77.2	78.4	50.2	7.5	13.6	30.2	7.3
	Emb.	PatchCore [29]	70.1	82.8	78.2	72.1	13.1	22.0	<u>62.1</u>	57.2
		CFLOW-AD [14]	64.4	77.7	78.4	68.7	11.2	20.4	67.0	11.3
		PyramidalFlow [22]	52.7	68.5	78.5	59.0	9.9	15.6	35.5	8.5
	Rec.	RD [10]	66.3	79.8	78.2	71.5	<u>12.6</u>	21.8	52.1	12.2
		DiAD [16]	57.6	68.1	79.3	70.2	11.3	21.2	58.5	11.9
		ViTAD [40]	65.2	77.7	79.0	<u>72.5</u>	13.2	<u>21.9</u>	42.2	<u>12.3</u>
		InvAD [42]	68.5	<u>82.1</u>	<u>78.7</u>	71.9	13.2	<u>21.9</u>	53.0	<u>12.3</u>
		InvAD-lite [42]	68.2	79.7	78.7	<u>72.2</u>	<u>13.1</u>	<u>21.9</u>	49.1	<u>12.3</u>
		MambaAD [15]	55.2	70.5	78.2	73.1	13.2	22.7	53.6	12.8
	Hybrid	UniAD [35]	56.9	69.1	<u>78.8</u>	66.8	10.8	19.2	<u>64.8</u>	10.6
		RD++ [31]	66.8	80.8	<u>78.2</u>	69.4	12.1	20.2	53.0	11.3
		DesTSeg [44]	<u>68.4</u>	<u>81.9</u>	78.4	51.2	9.7	13.6	44.0	7.3

Table A29. Benchmarked results on MVTec LOCO dataset [5] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
splicing_connectors	Aug.	DRAEM [37]	40.1	54.7	76.4	50.4	6.5	14.1	15.0	36.7
		SimpleNet [27]	83.8	91.4	81.9	73.2	25.1	28.5	51.1	62.1
	Emb.	CFA [21]	66.2	79.3	76.6	57.2	12.9	15.7	17.4	46.5
		PatchCore [29]	85.6	92.9	84.4	68.1	21.5	22.3	60.8	12.6
		CFLOW-AD [14]	79.3	89.3	77.8	65.2	20.3	22.3	73.1	12.5
		PyramidalFlow [22]	55.9	67.0	76.4	56.7	9.8	15.7	18.2	8.5
	Rec.	RD [10]	79.2	89.1	78.0	58.0	16.3	17.9	68.8	9.9
		DiAD [16]	75.7	83.0	78.8	58.1	15.9	19.6	32.4	10.9
		ViTAD [40]	82.1	90.6	79.6	70.5	23.7	25.8	62.4	14.8
		InvAD [42]	81.9	90.5	79.7	62.2	20.8	23.8	68.7	13.5
		InvAD-lite [42]	80.8	89.9	79.3	67.9	22.6	24.5	65.5	14.0
		MambaAD [15]	82.4	90.7	80.4	71.8	26.0	26.8	64.9	15.5
		UniAD [35]	80.4	88.7	80.1	77.7	40.5	43.2	46.5	27.5
	Hybrid	RD++ [31]	77.7	88.5	77.3	59.2	16.2	17.5	68.9	9.6
		DesTSeg [44]	77.5	88.1	77.0	53.8	41.3	14.0	28.4	7.5
Avg	Aug.	DRAEM [37]	52.5	65.4	77.6	46.7	4.5	10.4	12.4	5.6
		SimpleNet [27]	81.6	88.5	82.9	76.5	29.0	32.7	63.8	21.2
	Emb.	CFA [21]	66.5	78.6	77.9	58.5	14.2	16.3	31.1	9.1
		PatchCore [29]	80.5	89.0	81.5	75.1	29.9	31.8	69.9	20.4
		CFLOW-AD [14]	75.1	84.2	79.8	70.7	25.0	27.9	69.5	17.3
		PyramidalFlow [22]	53.4	69.3	77.5	57.7	15.0	14.5	25.7	8.0
	Rec.	RD [10]	74.6	85.3	78.9	70.7	21.0	26.1	67.7	15.8
		DiAD [16]	71.3	79.5	80.9	71.8	19.0	24.8	48.4	14.9
		ViTAD [40]	76.4	85.2	79.6	73.4	28.7	31.2	63.1	19.8
		InvAD [42]	82.0	89.9	82.0	76.4	31.1	34.8	73.0	23.1
		InvAD-lite [42]	79.4	87.8	80.9	75.8	28.5	32.2	69.4	20.6
		MambaAD [15]	75.8	85.5	81.0	76.5	28.8	32.5	70.2	20.6
		UniAD [35]	73.2	82.1	79.6	73.1	30.7	33.4	64.7	21.6
	Hybrid	RD++ [31]	76.4	86.8	79.2	71.5	24.3	28.3	68.8	17.6
		DesTSeg [44]	77.9	86.7	81.3	64.1	35.2	30.5	53.4	20.3

G. Detailed Quantitative Results on VisA Dataset Under 100 epochs

Table A30. Benchmarked results on VisA dataset [47] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF ₁ -max	mAU-ROC	mAP	mF ₁ -max			
candle	Aug.	DRAEM [37]	36.0	45.5	66.7	32.0	0.1	0.3	5.5	26.6
		SimpleNet [27]	93.6	94.5	84.9	96.4	9.9	19.9	88.4	69.7
		RealNet [45]	52.7	57.8	66.7	51.8	9.8	5.2	28.5	38.9
	Emb.	CFA [21]	71.8	73.7	70.6	76.2	3.7	12.2	59.7	52.6
		CFLOW-AD [14]	93.0	93.3	85.3	98.8	13.9	23.0	93.8	71.6
		PyramidalFlow [22]	43.4	44.9	66.7	77.9	0.5	2.3	55.8	41.6
	Rec.	RD [10]	93.1	93.4	86.9	99.1	24.2	35.4	95.5	75.4
		DiAD [16]	92.3	93.6	84.5	80.2	1.0	4.1	43.1	57.0
		ViTAD [40]	90.0	91.3	81.6	96.1	16.2	27.9	86.6	70.0
		InvAD [42]	95.3	94.8	90.6	99.2	23.3	34.1	95.8	76.2
		InvAD-lite [42]	97.1	97.2	92.0	99.0	21.7	30.6	96.0	76.2
		MambaAD [15]	95.8	96.4	89.6	99.0	21.3	31.5	95.8	75.6
		UniAD [35]	95.7	95.6	89.2	99.0	24.1	32.8	93.7	75.7
	Hybrid	RD++ [31]	92.5	92.9	87.8	99.3	26.2	37.1	95.5	75.9
		DesTSeg [44]	89.7	90.5	86.1	79.6	41.1	43.9	61.7	70.4
capsules	Aug.	DRAEM [37]	49.0	68.2	76.9	54.8	0.4	0.7	20.3	38.6
		SimpleNet [27]	76.8	87.0	78.3	95.5	42.0	45.5	66.1	70.2
		RealNet [45]	72.8	85.0	77.0	65.9	31.8	34.8	31.8	57.0
	Emb.	CFA [21]	56.5	71.2	77.2	55.2	0.4	0.9	5.9	38.2
		CFLOW-AD [14]	54.8	72.8	76.9	94.2	26.4	30.4	64.3	60.0
		PyramidalFlow [22]	55.8	69.4	76.9	86.9	3.3	8.7	62.4	51.9
	Rec.	RD [10]	81.8	90.5	81.3	99.3	60.2	60.7	93.0	81.0
		DiAD [16]	51.5	71.2	78.1	90.6	2.9	6.5	49.7	50.1
		ViTAD [40]	80.4	88.2	78.9	98.2	31.0	41.6	75.5	70.5
		InvAD [42]	90.1	94.2	86.8	99.6	68.6	64.9	95.0	85.6
		InvAD-lite [42]	91.7	94.7	90.1	99.3	60.5	58.5	95.2	84.3
		MambaAD [15]	91.1	94.4	89.6	99.0	58.4	56.7	93.2	83.2
		UniAD [35]	71.2	83.9	78.4	97.5	42.2	45.5	73.6	70.3
	Hybrid	RD++ [31]	84.3	91.4	83.5	99.4	64.1	63.6	93.2	82.8
		DesTSeg [44]	85.4	91.8	83.3	95.9	39.0	43.6	82.6	74.5
cashew	Aug.	DRAEM [37]	84.4	92.9	84.0	32.3	0.7	2.2	8.7	43.6
		SimpleNet [27]	93.2	96.8	90.2	98.6	67.8	65.0	82.0	84.8
		RealNet [45]	79.8	89.6	84.5	51.0	22.4	3.1	19.7	50.0
	Emb.	CFA [21]	74.9	88.1	81.0	97.6	57.3	56.1	76.2	75.9
		CFLOW-AD [14]	95.8	98.2	93.3	99.0	53.8	54.9	94.6	84.2
		PyramidalFlow [22]	84.1	90.7	87.7	49.7	0.6	2.2	15.7	47.2
	Rec.	RD [10]	92.1	95.7	91.3	91.3	43.8	49.4	85.1	78.4
		DiAD [16]	77.0	88.3	83.3	85.5	42.4	46.6	19.4	63.2
		ViTAD [40]	89.1	94.9	87.5	98.2	62.5	61.5	79.9	81.9
		InvAD [42]	96.1	98.3	93.2	96.5	58.4	61.1	90.6	84.9
		InvAD-lite [42]	94.1	97.0	90.8	94.4	51.6	55.5	90.5	82.0
		MambaAD [15]	93.8	97.0	91.7	94.0	46.7	51.7	88.2	80.4
		UniAD [35]	94.8	97.4	91.5	99.2	61.3	63.9	91.0	85.6
	Hybrid	RD++ [31]	93.4	96.3	92.2	95.1	56.4	58.9	87.2	82.8
		DesTSeg [44]	88.0	94.2	87.5	85.9	65.9	62.6	58.8	77.6
chewinggum	Aug.	DRAEM [37]	56.4	72.6	79.0	34.4	0.3	1.1	1.1	35.0
		SimpleNet [27]	97.4	98.8	93.8	98.3	31.5	36.9	75.1	76.0
		RealNet [45]	87.7	94.6	86.0	72.4	40.0	42.0	36.4	65.6
	Emb.	CFA [21]	76.3	88.7	80.7	95.6	33.1	36.5	70.6	68.8
		CFLOW-AD [14]	97.3	98.9	95.3	99.2	60.3	60.3	87.9	85.6
		PyramidalFlow [22]	36.3	63.6	80.0	68.5	1.3	1.1	39.2	41.4
	Rec.	RD [10]	95.8	98.0	92.6	98.7	60.4	62.6	78.7	83.8
		DiAD [16]	82.5	90.9	83.5	64.0	14.7	29.3	15.7	54.4
		ViTAD [40]	95.8	98.0	93.2	97.8	61.1	58.5	72.2	82.4
		InvAD [42]	98.0	99.0	94.9	98.7	60.4	62.8	81.3	85.0
		InvAD-lite [42]	97.5	98.9	94.8	98.3	56.0	57.6	80.6	83.4
		MambaAD [15]	97.4	98.8	94.7	98.0	54.6	60.0	80.0	83.4
		UniAD [35]	97.4	98.9	96.3	99.1	60.3	58.5	85.9	85.2
	Hybrid	RD++ [31]	97.1	98.7	94.2	98.7	58.8	61.8	79.8	84.2
		DesTSeg [44]	96.3	98.6	95.8	98.0	79.2	71.9	68.9	87.0

Table A31. Benchmarked results on VisA dataset [47] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
fryum	Aug.	DRAEM [37]	46.5	68.9	80.0	59.6	4.3	10.3	32.0	43.1
		SimpleNet [27]	84.0	92.8	83.6	94.9	46.2	48.5	81.7	76.0
		RealNet [45]	66.2	83.4	80.6	53.8	35.7	10.4	19.2	49.9
	Emb.	CFA [21]	68.7	84.0	81.0	79.4	26.1	32.5	49.8	60.2
		CFLOW-AD [14]	90.1	95.5	88.3	97.5	<u>53.6</u>	<u>53.3</u>	87.4	<u>36.3</u>
		PyramidalFlow [22]	68.7	83.5	81.0	81.7	12.7	19.0	62.7	58.5
	Rec.	RD [10]	95.4	97.9	92.5	96.9	47.5	51.6	93.2	34.8
		DiAD [16]	83.7	92.6	84.3	97.1	55.7	58.1	69.0	40.9
		ViTAD [40]	93.9	97.2	90.6	97.4	46.4	50.3	88.7	33.6
		InvAD [42]	96.0	98.2	<u>91.9</u>	97.0	48.5	52.5	92.1	35.6
		InvAD-lite [42]	<u>95.6</u>	98.0	90.9	96.8	47.2	51.6	<u>92.8</u>	34.7
		MambaAD [15]	<u>95.5</u>	97.8	<u>91.5</u>	97.0	48.3	51.7	92.3	34.9
	Hybrid	UniAD [35]	86.0	93.4	<u>85.7</u>	<u>97.2</u>	46.3	<u>53.1</u>	81.9	<u>36.2</u>
		RD++ [31]	94.8	97.8	91.9	96.9	47.3	<u>52.7</u>	<u>92.5</u>	35.8
		DesTSeg [44]	92.2	96.6	88.8	68.9	<u>48.9</u>	43.8	49.2	28.0
macaroni1	Aug.	DRAEM [37]	53.4	47.5	64.6	22.3	0.0	0.1	2.6	27.2
		SimpleNet [27]	77.4	75.7	71.4	97.0	3.8	10.6	87.0	5.6
		RealNet [45]	76.2	81.5	72.0	60.1	13.2	19.7	27.5	10.9
	Emb.	CFA [21]	57.9	61.6	68.1	73.5	0.4	2.7	58.8	1.4
		CFLOW-AD [14]	80.6	77.5	75.3	99.1	7.6	13.3	94.9	7.1
		PyramidalFlow [22]	41.9	43.4	66.0	81.2	0.1	0.2	39.9	0.1
	Rec.	RD [10]	<u>94.8</u>	<u>92.8</u>	<u>88.9</u>	99.8	<u>23.8</u>	<u>31.1</u>	97.4	<u>18.4</u>
		DiAD [16]	97.9	97.2	<u>92.1</u>	54.1	0.0	0.1	3.3	0.0
		ViTAD [40]	84.8	82.5	75.4	98.5	7.2	16.0	90.2	8.7
		InvAD [42]	94.3	<u>92.8</u>	87.1	<u>99.7</u>	<u>21.7</u>	<u>30.1</u>	97.4	<u>17.7</u>
		InvAD-lite [42]	92.9	<u>90.4</u>	86.0	<u>99.7</u>	18.6	25.6	<u>97.2</u>	14.7
		MambaAD [15]	91.5	89.6	82.3	<u>99.5</u>	17.6	26.1	96.0	15.0
	Hybrid	UniAD [35]	84.2	81.4	77.0	99.0	8.0	16.4	94.0	8.9
		RD++ [31]	93.4	91.6	86.0	<u>99.7</u>	24.1	34.2	<u>96.9</u>	20.7
		DesTSeg [44]	95.2	93.3	92.7	79.7	15.7	24.4	46.2	13.9
macaroni2	Aug.	DRAEM [37]	52.3	51.5	62.8	48.7	0.0	0.1	12.2	0.0
		SimpleNet [27]	66.7	61.2	66.9	90.9	0.7	4.2	79.1	2.2
		RealNet [45]	57.6	57.5	69.4	51.4	5.3	3.6	16.0	1.8
	Emb.	CFA [21]	50.9	51.1	67.6	79.0	0.2	1.6	52.5	0.8
		CFLOW-AD [14]	64.3	62.7	66.2	97.2	1.5	5.5	88.2	2.8
		PyramidalFlow [22]	67.8	71.0	69.2	63.9	0.0	0.1	8.3	0.0
	Rec.	RD [10]	87.4	83.0	82.8	99.6	12.8	22.4	<u>97.2</u>	12.6
		DiAD [16]	50.6	42.5	63.4	56.2	0.0	0.1	12.3	0.0
		ViTAD [40]	77.1	69.9	71.4	98.0	3.4	9.1	87.5	4.8
		InvAD [42]	85.9	81.9	<u>81.2</u>	99.6	10.8	18.1	97.4	10.0
		InvAD-lite [42]	<u>86.5</u>	83.0	<u>80.4</u>	99.6	<u>10.9</u>	17.9	97.9	9.8
		MambaAD [15]	84.5	<u>80.6</u>	<u>77.1</u>	<u>99.5</u>	8.8	16.9	96.5	9.2
	Hybrid	UniAD [35]	76.5	76.6	69.4	97.3	5.0	12.4	88.0	6.6
		RD++ [31]	83.7	78.6	77.8	99.5	10.3	<u>18.7</u>	96.3	<u>10.3</u>
		DesTSeg [44]	70.6	70.0	71.7	69.2	<u>11.3</u>	<u>19.1</u>	44.7	<u>10.6</u>
pcb1	Aug.	DRAEM [37]	56.1	52.2	68.4	33.6	0.3	0.9	11.4	0.5
		SimpleNet [27]	92.8	93.9	87.9	98.7	80.0	74.9	78.9	59.8
		RealNet [45]	76.6	79.6	71.2	70.5	36.9	41.9	25.1	26.5
	Emb.	CFA [21]	80.9	81.5	75.6	93.0	62.4	65.3	46.0	48.5
		CFLOW-AD [14]	93.5	93.5	86.5	99.1	72.4	68.7	87.8	52.3
		PyramidalFlow [22]	83.3	80.9	82.1	92.8	49.3	45.5	40.5	29.5
	Rec.	RD [10]	54.8	47.6	74.9	98.6	18.8	38.3	92.5	23.7
		DiAD [16]	92.8	<u>95.3</u>	94.5	96.6	27.9	38.4	60.8	23.8
		ViTAD [40]	95.3	93.7	90.7	99.4	63.2	61.1	89.0	43.9
		InvAD [42]	<u>96.5</u>	<u>96.1</u>	93.1	99.8	81.3	75.9	96.1	61.2
		InvAD-lite [42]	<u>96.2</u>	94.4	<u>93.7</u>	99.8	<u>79.3</u>	<u>73.2</u>	96.1	<u>57.8</u>
		MambaAD [15]	95.7	94.5	<u>93.3</u>	99.8	<u>79.0</u>	<u>72.9</u>	<u>94.3</u>	<u>57.4</u>
	Hybrid	UniAD [35]	94.4	93.1	<u>91.1</u>	<u>99.3</u>	62.9	59.9	89.1	42.8
		RD++ [31]	96.6	96.2	91.7	<u>99.3</u>	67.7	61.0	<u>95.2</u>	43.9
		DesTSeg [44]	82.7	81.2	77.0	96.3	70.0	66.4	71.9	49.7

Table A32. Benchmarked results on VisA dataset [47] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
pcb2	Aug.	DRAEM [37]	59.6	70.8	66.7	38.0	0.1	0.4	7.3	34.7
		SimpleNet [27]	90.1	91.8	83.4	96.6	13.9	23.5	80.6	68.6
		RealNet [45]	71.6	78.8	67.4	64.1	12.9	19.8	32.7	49.6
	Emb.	CFA [21]	74.3	75.9	71.5	74.7	6.5	14.9	46.5	52.0
		CFLOW-AD [14]	92.4	93.0	85.8	96.6	12.5	18.7	82.3	68.8
		PyramidalFlow [22]	72.8	76.3	70.8	93.9	8.8	15.9	71.9	58.6
	Rec.	RD [10]	97.3	96.9	94.1	97.8	22.1	30.0	91.6	75.7
		DiAD [16]	97.7	98.0	92.8	83.8	3.8	9.9	50.9	5.2
		ViTAD [40]	90.2	89.4	85.4	97.9	12.9	21.0	82.7	11.7
		InvAD [42]	97.0	97.1	93.1	99.1	16.1	23.8	92.5	13.5
		InvAD-lite [42]	94.7	94.7	89.9	98.9	12.9	23.0	91.4	13.0
		MambaAD [15]	95.2	95.0	90.2	98.8	13.9	24.1	90.0	13.7
		UniAD [35]	90.8	91.5	85.4	97.9	9.0	17.3	83.6	9.4
	Hybrid	RD++ [31]	98.3	98.5	94.9	97.9	28.6	34.6	91.1	20.9
		DesTSeg [44]	90.1	89.1	83.0	93.6	20.9	29.6	66.3	17.4
pcb3	Aug.	DRAEM [37]	36.1	46.1	66.4	38.5	0.2	0.5	7.9	0.3
		SimpleNet [27]	86.4	88.3	78.0	97.6	19.7	27.7	80.8	16.1
		RealNet [45]	78.8	84.0	72.5	71.5	29.8	36.6	35.7	22.4
	Emb.	CFA [21]	63.0	68.7	66.9	85.5	11.5	20.3	39.6	11.3
		CFLOW-AD [14]	80.5	83.6	73.6	96.3	22.6	26.8	80.3	15.4
		PyramidalFlow [22]	53.8	56.4	66.4	56.4	0.5	2.7	7.6	1.3
	Rec.	RD [10]	96.2	96.1	90.7	98.0	25.3	34.8	93.6	21.1
		DiAD [16]	94.2	93.8	89.1	88.5	3.8	10.2	48.0	5.4
		ViTAD [40]	90.4	90.6	84.6	98.2	23.5	29.6	87.9	17.4
		InvAD [42]	96.6	97.0	92.1	99.2	17.3	28.7	93.1	16.8
		InvAD-lite [42]	93.8	94.3	86.1	99.1	17.6	28.2	92.6	16.4
		MambaAD [15]	95.0	95.2	88.8	99.1	21.7	27.6	92.0	16.0
		UniAD [35]	82.8	83.8	76.9	98.2	13.6	24.1	80.9	13.7
	Hybrid	RD++ [31]	95.7	95.8	89.9	98.0	33.2	35.6	93.7	21.6
		DesTSeg [44]	93.4	94.1	87.3	89.9	31.9	33.6	56.9	20.2
pcb4	Aug.	DRAEM [37]	68.0	58.0	76.4	32.8	0.5	1.3	6.6	0.7
		SimpleNet [27]	97.6	97.8	92.0	95.2	22.1	30.9	79.0	18.2
		RealNet [45]	72.5	79.2	68.3	58.3	28.0	23.1	24.0	13.1
	Emb.	CFA [21]	72.5	75.7	69.8	75.2	10.0	19.1	44.2	10.6
		CFLOW-AD [14]	98.5	98.4	96.1	96.7	21.9	30.9	85.4	18.3
		PyramidalFlow [22]	48.9	52.7	66.4	89.5	5.0	8.9	66.3	4.7
	Rec.	RD [10]	100.	100.	99.5	97.8	30.2	36.0	89.2	22.0
		DiAD [16]	99.7	99.7	99.0	95.4	9.9	18.2	83.5	10.0
		ViTAD [40]	99.1	98.7	97.0	99.0	42.8	47.9	93.4	31.5
		InvAD [42]	99.8	99.8	98.0	98.6	46.6	45.1	91.1	29.2
		InvAD-lite [42]	99.8	99.8	98.0	98.7	50.6	49.4	90.8	32.8
		MambaAD [15]	99.6	99.7	97.0	98.7	47.4	47.6	90.8	31.2
		UniAD [35]	99.2	99.2	95.5	97.1	29.1	33.7	83.1	20.3
	Hybrid	RD++ [31]	100.	100.	99.0	97.4	32.8	38.7	86.8	24.0
		DesTSeg [44]	98.8	98.7	95.1	94.3	53.4	52.2	74.3	35.3
pipe_fryum	Aug.	DRAEM [37]	63.5	74.5	83.1	22.9	0.7	2.5	4.9	1.2
		SimpleNet [27]	80.7	90.9	83.2	98.8	70.8	66.2	71.3	49.5
		RealNet [45]	64.0	83.5	80.5	61.3	43.2	31.4	32.3	18.6
	Emb.	CFA [21]	48.2	71.5	80.0	90.9	53.7	52.7	59.2	35.8
		CFLOW-AD [14]	97.4	98.8	96.0	99.2	60.8	61.3	94.6	44.2
		PyramidalFlow [22]	41.6	63.3	80.0	81.3	4.7	9.1	43.0	4.8
	Rec.	RD [10]	98.1	99.0	96.5	99.1	55.8	58.2	96.3	41.1
		DiAD [16]	97.4	98.5	98.0	98.6	52.5	57.1	78.4	40.0
		ViTAD [40]	98.1	99.1	95.5	99.5	67.0	67.2	95.0	50.6
		InvAD [42]	99.2	99.6	97.5	99.4	66.3	64.7	94.8	47.9
		InvAD-lite [42]	98.6	99.3	96.0	99.0	55.3	57.4	95.7	40.2
		MambaAD [15]	99.0	99.5	97.0	99.0	53.9	57.5	95.6	40.3
		UniAD [35]	95.5	97.7	92.9	99.0	52.1	58.2	93.3	41.1
	Hybrid	RD++ [31]	96.8	98.3	94.1	99.0	57.6	58.8	95.4	41.6
		DesTSeg [44]	96.3	98.4	92.1	88.8	81.4	75.2	51.5	60.2

Table A33. Benchmarked results on VisA dataset [47] by the suggested metrics in Sec. 3.3.

Method		Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD		
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max					
Avg	Aug.	DRAEM [37]	55.1	62.4	72.9	37.5	0.6	1.7	10.0	0.9	34.3	
		SimpleNet [27]	86.4	89.1	82.8	96.6	34.0	37.8	79.2	25.7	72.3	
		RealNet [45]	71.4	79.5	74.7	61.0	25.7	22.6	27.4	13.5	51.8	
	Emb.	CFA [21]	66.3	74.3	74.2	81.3	22.1	26.2	50.8	17.0	56.5	
		CFLOW-AD [14]	86.5	88.8	84.9	97.7	33.9	37.2	86.8	24.9	73.7	
		PyramidalFlow [22]	58.2	66.3	74.4	77.0	7.2	9.6	42.8	5.6	47.9	
	Rec.	RD [10]	90.6	90.9	89.3	98.0	35.4	42.5	91.9	27.9	76.9	
		DiAD [16]	84.8	88.5	86.9	82.5	17.9	23.2	44.5	14.9	61.2	
		ViTAD [40]	90.4	91.1	86.0	98.2	36.4	41.0	85.7	27.5	75.5	
		InvAD [42]	95.4	95.7	91.6	98.9	<u>43.3</u>	<u>46.8</u>	93.1	<u>32.5</u>	80.7	
		InvAD-lite [42]	94.9	<u>95.2</u>	<u>90.7</u>	<u>98.6</u>	40.2	44.0	93.1	29.8	<u>79.5</u>	
		MambaAD [15]	94.5	<u>94.9</u>	<u>90.2</u>	<u>98.4</u>	39.3	43.7	<u>92.1</u>	29.5	<u>79.0</u>	
		Hybrid	UniAD [35]	89.0	<u>91.0</u>	<u>85.8</u>	<u>98.3</u>	34.5	39.6	86.5	26.4	75.0
			RD++ [31]	93.9	94.7	<u>90.2</u>	<u>98.4</u>	<u>42.3</u>	<u>46.3</u>	<u>91.9</u>	<u>31.2</u>	<u>79.7</u>
	DesTSeg [44]		89.9	91.4	<u>86.7</u>	86.7	46.6	47.2	61.1	32.7	72.8	

**H. Detailed Quantitative Results on BTAD
Dataset Under 100 epochs**

Table A34. Benchmarked results on BTAD dataset [28] by the suggested metrics in Sec. 3.3.

		Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
			mAU-ROC	mAP	mF ₁ -max	mAU-ROC	mAP	mF ₁ -max			
1.0	Aug.	DRAEM [37]	82.6	93.6	84.7	47.0	3.0	6.3	14.3	3.3	47.4
		SimpleNet [27]	98.3	99.4	97.9	95.0	41.6	45.1	64.7	29.1	77.4
		RealNet [45]	100.	100.	100.	95.7	69.5	67.6	81.3	51.1	87.7
	Emb.	CFA [21]	98.2	99.4	99.0	94.7	37.8	44.2	64.6	28.4	76.8
		PatchCore [29]	99.6	99.8	99.0	97.1	55.5	56.6	75.8	39.5	83.3
		CFLOW-AD [14]	94.8	98.1	93.5	94.7	36.6	43.4	66.2	27.7	75.3
		PyramidalFlow [22]	94.5	96.7	98.0	89.2	18.9	6.3	66.6	3.3	67.2
	Rec.	RD [10]	99.8	99.9	99.0	97.8	57.5	58.5	84.4	41.4	85.3
		DiAD [16]	99.4	99.8	99.0	90.5	24.3	31.4	73.7	18.6	74.0
		ViTAD [40]	97.9	99.2	95.9	96.5	55.0	55.1	69.8	38.1	81.3
		InvAD [42]	99.9	100.	99.0	98.0	63.7	62.9	84.1	45.9	86.8
		InvAD-lite [42]	97.8	99.2	96.9	97.3	59.3	61.4	77.3	44.3	84.2
		MambaAD [15]	97.4	99.0	94.7	97.1	55.3	58.1	76.5	41.0	82.6
	Hybrid	UniAD [35]	99.7	99.9	98.0	97.4	57.2	58.4	79.2	41.3	84.3
		RD++ [31]	98.6	99.5	97.9	97.5	53.6	57.8	80.9	40.6	83.7
		DesTSeg [44]	98.1	99.3	96.9	85.8	25.4	39.3	68.2	24.4	73.3
2.0	Aug.	DRAEM [37]	70.6	94.7	92.8	51.7	7.9	11.5	18.2	6.1	49.6
		SimpleNet [27]	81.7	96.8	93.6	94.5	46.3	49.4	47.4	32.8	72.8
		RealNet [45]	72.9	95.3	92.8	83.9	38.8	50.3	38.6	33.6	67.5
	Emb.	CFA [21]	80.3	96.6	92.8	94.7	51.2	53.9	48.8	36.9	74.0
		PatchCore [29]	83.8	97.3	92.8	96.0	59.3	59.8	54.1	42.7	77.6
		CFLOW-AD [14]	79.6	96.7	92.8	96.4	61.4	61.0	54.5	43.9	77.5
		PyramidalFlow [22]	73.7	95.6	92.8	86.8	64.1	62.5	38.0	45.4	73.4
	Rec.	RD [10]	84.0	97.3	93.4	96.7	64.5	64.3	58.8	47.4	79.9
		DiAD [16]	72.6	95.4	92.8	86.9	27.3	35.5	44.8	21.6	65.0
		ViTAD [40]	83.5	97.2	93.0	96.9	74.1	67.8	51.9	51.2	80.6
		InvAD [42]	88.7	98.1	93.5	96.6	62.0	61.9	59.6	44.9	80.1
		InvAD-lite [42]	81.8	97.0	93.2	96.6	61.8	62.4	60.2	45.4	79.0
		MambaAD [15]	82.5	97.2	93.0	96.3	55.1	60.0	59.6	42.8	77.7
	Hybrid	UniAD [35]	85.0	97.6	92.8	94.8	41.8	51.8	59.4	35.0	74.7
		RD++ [31]	85.5	97.6	93.2	96.7	65.2	64.2	57.2	47.2	79.9
		DesTSeg [44]	81.2	96.9	92.8	94.6	45.9	58.4	50.9	41.2	74.4
3.0	Aug.	DRAEM [37]	60.7	47.1	56.5	48.4	0.3	1.5	16.0	0.8	32.9
		SimpleNet [27]	99.7	95.7	88.6	99.4	36.5	38.5	97.5	23.8	79.4
		RealNet [45]	96.3	90.5	85.7	72.2	36.0	40.1	40.3	25.1	65.9
	Emb.	CFA [21]	99.7	96.6	88.9	99.4	53.3	52.5	95.2	35.6	83.7
		PatchCore [29]	99.8	97.3	92.1	99.5	50.1	48.2	98.0	31.8	83.6
		CFLOW-AD [14]	99.0	89.5	78.6	99.4	38.8	46.0	97.3	29.9	78.4
		PyramidalFlow [22]	92.9	57.1	52.2	96.7	5.9	12.0	87.7	6.4	57.8
	Rec.	RD [10]	99.4	92.5	89.6	99.8	56.8	54.6	98.9	37.6	84.5
		DiAD [16]	98.3	69.9	86.1	97.6	7.2	13.1	92.7	7.0	66.4
		ViTAD [40]	99.6	94.2	90.9	99.6	48.5	47.2	98.0	30.9	82.6
		InvAD [42]	99.7	95.2	90.3	99.8	62.0	59.4	98.9	42.2	86.5
		InvAD-lite [42]	99.7	96.0	93.8	99.6	56.5	55.3	98.4	38.2	85.6
		MambaAD [15]	99.5	92.2	89.9	99.6	47.1	49.9	98.4	33.2	82.4
	Hybrid	UniAD [35]	99.8	97.5	91.8	99.5	51.9	51.3	97.9	34.5	84.2
		RD++ [31]	99.7	96.4	91.2	99.8	60.1	57.6	99.0	40.4	86.3
		DesTSeg [44]	99.2	91.4	87.1	96.3	33.1	35.4	90.8	21.5	76.2
Avg	Aug.	DRAEM [37]	71.3	78.5	78.0	49.0	3.7	6.5	16.2	3.4	43.3
		SimpleNet [27]	93.2	97.3	93.3	96.3	41.5	44.3	69.8	28.6	76.5
		RealNet [45]	89.7	95.3	92.8	84.0	48.1	52.7	53.4	36.6	73.7
	Emb.	CFA [21]	92.7	97.5	93.5	96.3	47.4	50.2	69.5	33.6	78.2
		PatchCore [29]	94.4	98.2	94.6	97.5	55.0	54.9	76.0	38.0	81.5
		CFLOW-AD [14]	91.2	94.8	88.3	96.8	45.6	50.1	72.7	33.8	77.1
		PyramidalFlow [22]	87.0	83.1	81.0	90.9	29.6	26.9	64.1	18.3	66.1
	Rec.	RD [10]	94.4	96.6	94.0	98.1	59.6	59.2	80.7	42.1	83.2
		DiAD [16]	90.1	88.4	92.6	91.7	19.6	26.7	70.4	15.7	68.5
		ViTAD [40]	93.6	96.8	93.3	97.6	59.2	56.7	73.2	40.1	81.5
		InvAD [42]	96.1	97.8	94.3	98.1	62.6	61.4	80.9	44.3	84.5
		InvAD-lite [42]	93.1	97.4	94.6	97.9	59.2	59.7	78.6	42.6	82.9
		MambaAD [15]	93.1	96.1	92.5	97.7	52.5	56.0	78.2	39.0	80.9
	Hybrid	UniAD [35]	94.8	98.3	94.2	97.2	50.3	53.8	78.8	36.9	81.1
		RD++ [31]	94.6	97.8	94.1	98.0	59.6	59.8	79.0	42.8	83.3
		DesTSeg [44]	92.8	95.9	92.3	92.2	34.8	44.3	70.0	29.0	74.6

**I. Detailed Quantitative Results on MPDD
Dataset Under 100 epochs**

Table A35. Benchmarked results on MPDD dataset [20] by the suggested metrics in Sec. 3.3.

		Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
			mAU-ROC	mAP	mF ₁ -max	mAU-ROC	mAP	mF ₁ -max			
bracket_black	Aug.	DRAEM [37]	39.0	51.7	74.6	45.1	0.1	0.4	24.0	0.2	33.6
		SimpleNet [27]	74.0	83.3	78.5	92.8	3.1	9.7	86.1	5.1	61.1
		RealNet [45]	63.0	72.7	75.2	65.9	2.3	6.8	50.7	3.5	48.1
	Emb.	CFA [21]	58.4	72.8	74.6	74.6	0.2	0.5	31.9	0.2	44.7
		PatchCore [29]	88.4	92.7	83.9	98.5	11.0	21.0	96.7	11.8	70.3
		CFLOW-AD [14]	60.8	70.3	75.8	95.5	1.7	4.1	85.2	2.1	56.2
		PyramidalFlow [22]	65.8	72.7	77.0	95.3	1.8	5.0	81.4	2.6	57.0
	Rec.	RD [10]	84.2	88.3	83.1	97.7	6.6	12.7	94.1	6.8	66.7
		DiAD [16]	70.9	81.7	79.0	89.8	0.4	1.0	65.3	0.5	55.5
		ViTAD [40]	78.3	86.2	83.6	95.5	2.5	8.0	89.1	4.2	63.3
		InvAD [42]	83.4	90.9	81.0	97.4	7.1	15.2	94.0	8.2	67.0
		InvAD-lite [42]	75.4	84.6	78.6	95.2	7.9	16.8	89.6	9.1	64.0
		MambaAD [15]	81.9	88.3	81.7	94.5	5.3	11.2	88.4	5.9	64.5
	Hybrid	UniAD [35]	78.1	84.9	79.2	93.0	0.6	1.6	79.2	0.8	59.5
		RD++ [31]	82.7	86.6	82.9	98.0	4.2	10.1	94.1	5.3	65.5
		DesTSeg [44]	83.4	87.3	85.7	72.4	5.7	13.5	59.0	7.3	58.1
bracket_brown	Aug.	DRAEM [37]	42.5	61.1	79.7	46.8	0.8	1.9	27.5	1.0	37.2
		SimpleNet [27]	90.4	93.8	93.6	94.4	7.9	16.9	86.7	9.2	69.1
		RealNet [45]	91.0	94.0	92.6	69.9	12.1	19.1	50.5	10.6	61.3
	Emb.	CFA [21]	88.7	94.9	88.9	85.1	3.2	6.9	52.6	3.6	60.0
		PatchCore [29]	95.6	97.2	95.3	98.6	26.2	32.0	95.4	19.0	77.2
		CFLOW-AD [14]	74.4	77.6	85.2	95.9	5.9	12.0	91.1	6.4	63.2
		PyramidalFlow [22]	63.6	76.4	81.0	94.0	5.7	12.5	69.6	6.7	57.5
	Rec.	RD [10]	86.2	89.6	92.7	96.0	13.1	23.1	93.9	13.1	70.7
		DiAD [16]	53.2	69.1	82.9	90.0	2.8	7.0	66.6	3.6	53.1
		ViTAD [40]	86.5	86.0	92.6	98.0	16.3	24.9	95.0	14.2	71.3
		InvAD [42]	93.7	95.5	95.2	95.5	15.2	22.8	90.8	12.8	72.7
		InvAD-lite [42]	89.5	93.0	90.1	97.9	14.9	25.0	94.3	14.3	72.1
		MambaAD [15]	95.7	97.5	95.3	97.5	26.3	30.8	92.8	18.2	76.6
	Hybrid	UniAD [35]	91.4	95.0	92.7	98.0	23.9	32.0	90.7	19.0	74.8
		RD++ [31]	84.4	89.9	91.9	96.6	17.2	24.4	94.9	13.9	71.3
		DesTSeg [44]	95.0	92.5	96.2	61.6	4.8	10.5	30.1	5.5	55.8
bracket_white	Aug.	DRAEM [37]	34.0	44.3	66.7	42.3	0.0	0.1	9.0	0.0	28.1
		SimpleNet [27]	85.6	89.3	80.0	97.7	2.1	6.5	85.6	3.4	63.8
		RealNet [45]	77.3	86.2	80.8	85.2	18.4	30.6	47.4	18.0	60.8
	Emb.	CFA [21]	80.2	86.0	77.8	89.8	3.9	14.9	47.3	8.0	57.1
		PatchCore [29]	93.3	94.8	88.9	98.8	10.0	19.3	93.9	10.7	71.3
		CFLOW-AD [14]	62.9	64.1	69.8	98.2	1.2	3.5	93.0	1.8	56.1
		PyramidalFlow [22]	76.8	84.8	78.4	98.9	5.6	14.5	91.1	7.8	64.3
	Rec.	RD [10]	85.3	86.5	81.4	99.0	2.3	6.4	95.2	3.3	65.2
		DiAD [16]	84.0	90.7	88.9	96.5	1.0	3.6	82.5	1.8	63.9
		ViTAD [40]	78.9	84.0	78.7	95.7	0.9	2.9	86.7	1.5	61.1
		InvAD [42]	92.1	94.7	90.0	98.9	9.8	21.9	94.1	12.3	71.6
		InvAD-lite [42]	90.2	92.2	84.7	99.2	5.2	10.6	94.8	5.6	68.1
		MambaAD [15]	97.1	97.5	90.9	99.3	12.2	20.4	95.0	11.3	73.2
	Hybrid	UniAD [35]	63.6	67.1	69.6	95.0	0.3	0.8	79.6	0.4	53.7
		RD++ [31]	81.4	86.0	76.4	98.7	2.9	10.0	93.4	5.2	64.1
		DesTSeg [44]	91.1	89.8	88.5	90.4	1.0	2.7	51.2	1.4	59.2
connector	Aug.	DRAEM [37]	21.7	22.2	48.3	35.1	0.6	2.1	16.8	1.1	21.0
		SimpleNet [27]	96.2	92.0	90.3	98.3	46.4	47.0	94.5	30.7	80.7
		RealNet [45]	99.0	97.9	96.6	85.8	38.9	44.1	75.8	28.3	76.9
	Emb.	CFA [21]	96.9	89.0	93.3	83.5	11.2	16.3	59.2	8.9	64.2
		PatchCore [29]	100.	100.	100.	99.5	71.2	63.3	98.4	46.3	90.3
		CFLOW-AD [14]	91.2	85.3	78.6	96.7	27.9	29.3	89.4	17.2	71.2
		PyramidalFlow [22]	69.0	42.7	63.4	90.7	3.7	7.2	70.0	3.7	49.5
	Rec.	RD [10]	100.	100.	100.	99.2	60.6	55.5	97.5	38.4	87.5
		DiAD [16]	57.1	48.0	56.3	90.1	2.9	6.5	68.4	3.4	47.1
		ViTAD [40]	96.2	91.9	86.7	99.3	44.3	47.6	97.7	31.2	80.5
		InvAD [42]	96.7	83.4	96.6	98.9	57.9	58.1	96.4	41.0	84.0
		InvAD-lite [42]	97.1	90.8	93.3	99.2	62.2	58.1	97.3	41.0	85.4
		MambaAD [15]	99.5	99.1	96.3	99.2	54.5	56.5	97.3	39.3	86.1
	Hybrid	UniAD [35]	69.8	49.9	58.5	95.2	7.6	14.9	83.9	8.1	54.3
		RD++ [31]	100.	100.	100.	99.2	67.0	61.8	97.4	44.8	89.3
		DesTSeg [44]	92.1	81.4	82.4	76.6	33.8	37.6	61.1	23.1	66.4

Table A36. Benchmarked results on MPDD dataset [20] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
metal_plate	Aug.	DRAEM [37]	41.9	76.3	84.5	36.3	10.8	21.2	13.3	40.6
		SimpleNet [27]	100.	100.	100.	98.4	89.8	81.7	89.2	94.2
		RealNet [45]	<u>99.9</u>	100.	<u>99.3</u>	<u>97.7</u>	90.5	84.1	93.6	95.0
	Emb.	CFA [21]	<u>99.7</u>	<u>99.9</u>	<u>98.6</u>	<u>97.6</u>	89.8	81.8	83.1	69.2
		PatchCore [29]	100.	100.	100.	<u>99.0</u>	<u>93.5</u>	86.1	94.1	75.7
		CFLOW-AD [14]	<u>99.9</u>	100.	<u>99.3</u>	<u>98.5</u>	89.0	83.3	92.4	71.4
		PyramidalFlow [22]	<u>96.7</u>	<u>98.7</u>	95.2	88.7	61.3	21.1	60.8	11.8
	Rec.	RD [10]	100.	100.	100.	<u>99.1</u>	<u>92.9</u>	<u>87.7</u>	96.7	<u>78.1</u>
		DiAD [16]	89.3	96.4	89.9	88.4	54.6	52.8	55.5	35.9
		ViTAD [40]	100.	100.	100.	99.3	95.5	88.0	94.9	78.6
		InvAD [42]	100.	100.	100.	<u>99.0</u>	92.2	<u>87.2</u>	96.0	77.2
		InvAD-lite [42]	<u>99.8</u>	<u>99.9</u>	<u>98.6</u>	98.4	86.4	82.9	94.2	70.8
		MambaAD [15]	<u>99.8</u>	<u>99.9</u>	<u>98.6</u>	98.2	83.8	82.2	94.3	69.8
		UniAD [35]	47.5	74.3	85.0	90.7	41.2	56.9	73.6	39.8
	Hybrid	RD++ [31]	<u>99.8</u>	<u>99.9</u>	<u>98.6</u>	<u>99.1</u>	92.1	<u>87.2</u>	<u>95.7</u>	<u>77.3</u>
		DesTSeg [44]	100.	100.	100.	95.6	91.4	87.0	88.8	77.0
tubes	Aug.	DRAEM [37]	34.8	64.0	81.2	47.0	1.1	2.0	23.2	1.0
		SimpleNet [27]	84.0	93.9	85.0	97.6	42.8	45.8	91.7	29.7
		RealNet [45]	80.1	90.1	85.2	95.3	54.3	53.0	90.4	36.1
	Emb.	CFA [21]	65.4	83.7	81.2	78.8	9.2	17.4	47.1	9.5
		PatchCore [29]	90.4	96.6	92.4	<u>98.8</u>	64.5	63.8	95.5	46.9
		CFLOW-AD [14]	65.0	83.3	81.7	<u>96.2</u>	32.0	35.6	86.0	21.7
		PyramidalFlow [22]	69.8	86.6	81.2	<u>97.1</u>	48.2	46.4	90.3	30.2
	Rec.	RD [10]	<u>91.9</u>	<u>97.1</u>	<u>93.3</u>	<u>99.0</u>	<u>67.1</u>	<u>65.6</u>	<u>96.0</u>	<u>48.8</u>
		DiAD [16]	55.4	81.1	83.6	87.7	3.9	7.6	58.2	4.0
		ViTAD [40]	86.6	94.8	86.6	98.5	51.5	53.3	93.5	36.4
		InvAD [42]	96.4	98.6	95.5	99.3	<u>72.3</u>	<u>69.0</u>	97.4	<u>52.7</u>
		InvAD-lite [42]	<u>93.0</u>	96.9	91.3	98.3	61.4	62.0	94.0	44.9
		MambaAD [15]	58.4	77.0	81.7	96.1	19.6	27.8	85.8	16.1
		UniAD [35]	72.5	84.8	83.1	91.4	8.6	13.5	71.1	7.2
	Hybrid	RD++ [31]	<u>93.0</u>	<u>97.5</u>	<u>93.0</u>	99.3	74.6	70.8	<u>97.2</u>	54.8
		DesTSeg [44]	86.4	93.8	88.4	95.6	59.2	56.1	89.4	39.0
Avg	Aug.	DRAEM [37]	35.6	53.3	72.5	42.1	2.2	4.6	19.0	2.5
		SimpleNet [27]	88.4	92.0	87.9	96.5	32.0	34.6	89.0	24.5
		RealNet [45]	85.1	90.2	88.3	83.3	36.1	39.6	68.1	28.2
	Emb.	CFA [21]	81.6	87.7	85.7	84.9	19.6	22.9	53.5	16.6
		PatchCore [29]	94.6	96.9	93.4	98.9	46.1	47.6	95.7	35.0
		CFLOW-AD [14]	75.7	80.1	81.7	96.8	26.3	28.0	89.5	20.1
		PyramidalFlow [22]	73.6	77.0	79.4	94.1	21.1	17.8	77.2	10.4
	Rec.	RD [10]	<u>91.3</u>	<u>93.6</u>	<u>91.8</u>	<u>98.3</u>	40.4	41.8	<u>95.5</u>	31.4
		DiAD [16]	68.3	77.9	80.1	90.4	10.9	13.1	66.1	8.2
		ViTAD [40]	87.8	90.5	88.0	97.7	35.2	37.4	92.8	27.7
		InvAD [42]	<u>93.7</u>	<u>93.9</u>	<u>93.0</u>	98.2	<u>42.4</u>	<u>45.7</u>	<u>94.8</u>	<u>34.0</u>
		InvAD-lite [42]	90.9	92.9	89.5	98.0	39.7	42.6	94.0	30.9
		MambaAD [15]	88.7	93.2	90.8	97.5	33.6	38.1	92.3	26.8
		UniAD [35]	70.5	76.0	78.0	93.9	13.7	19.9	79.7	12.5
	Hybrid	RD++ [31]	90.2	93.3	90.5	<u>98.5</u>	<u>43.0</u>	<u>44.1</u>	<u>95.5</u>	<u>33.6</u>
		DesTSeg [44]	<u>91.3</u>	90.8	90.2	82.0	32.6	34.6	63.3	25.6

**J. Detailed Quantitative Results on MAD-Real
Dataset Under 100 epochs**

Table A37. Benchmarked results on MAD_Real dataset [46] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD	
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max				
Bear	Aug.	DRAEM [37]	43.3	83.5	92.3	54.0	0.2	1.1	34.1	0.5	44.1
		SimpleNet [27]	24.2	72.7	90.6	94.9	3.0	10.4	87.2	5.5	54.7
	Emb.	CFA [21]	15.0	69.1	90.6	99.1	4.2	10.3	96.5	5.5	55.0
		PatchCore [29]	84.2	96.8	91.7	99.6	17.6	29.5	98.6	17.3	74.0
		CFLOW-AD [14]	76.7	94.4	92.3	99.4	6.0	12.3	97.6	6.6	68.4
		PyramidalFlow [22]	46.7	78.6	90.6	98.2	2.3	4.9	93.9	2.5	59.3
	Rec.	RD [10]	76.7	94.6	94.1	97.7	5.2	7.9	93.2	4.1	67.1
		DiAD [16]	52.5	88.7	90.6	97.4	5.1	13.5	90.3	7.2	62.6
		ViTAD [40]	35.0	76.8	90.6	97.3	1.9	6.9	91.0	3.6	57.1
		InvAD [42]	95.8	99.1	98.0	99.7	39.9	44.1	98.9	28.3	82.2
		InvAD-lite [42]	82.5	96.1	93.9	98.4	5.0	11.6	95.1	6.2	68.9
		MambaAD [15]	32.5	75.1	90.6	93.3	1.0	4.0	80.3	2.0	53.8
	Hybrid	UniAD [35]	83.3	96.5	90.6	99.0	4.0	9.6	96.3	5.0	68.5
		RD++ [31]	77.5	94.4	93.9	99.0	8.5	15.3	96.8	8.3	69.3
		DesTSeg [44]	26.7	76.9	90.6	80.3	0.4	1.3	56.6	0.6	47.5
Bird	Aug.	DRAEM [37]	60.9	89.6	89.8	57.7	0.7	1.0	22.1	0.5	46.0
		SimpleNet [27]	58.2	87.8	91.7	82.7	2.4	6.2	53.7	3.2	54.7
	Emb.	CFA [21]	55.5	83.1	89.8	86.6	4.6	10.9	56.9	5.7	55.3
		PatchCore [29]	71.8	92.6	93.6	96.4	32.2	39.7	84.2	24.8	72.9
		CFLOW-AD [14]	35.5	74.4	89.8	89.3	2.7	6.3	64.4	3.3	51.8
		PyramidalFlow [22]	17.3	69.0	89.8	91.2	2.9	6.4	66.7	3.3	49.0
	Rec.	RD [10]	51.8	85.9	89.8	87.1	7.7	16.6	57.2	9.1	56.6
		DiAD [16]	9.1	70.5	89.8	93.1	4.3	10.4	71.1	5.5	49.8
		ViTAD [40]	67.3	89.7	93.6	89.6	9.8	17.6	62.6	9.7	61.5
		InvAD [42]	84.5	96.4	93.3	89.0	10.1	20.0	66.1	11.1	65.6
		InvAD-lite [42]	53.6	78.6	91.7	92.8	6.2	13.4	73.8	7.2	58.6
		MambaAD [15]	86.4	97.1	91.3	95.1	17.8	28.5	77.9	16.6	70.6
	Hybrid	UniAD [35]	38.2	74.3	89.8	87.1	2.4	6.5	63.3	3.4	51.7
		RD++ [31]	45.5	82.2	89.8	89.6	6.8	15.4	63.2	8.4	56.1
		DesTSeg [44]	60.0	82.7	93.6	66.2	5.4	13.8	35.4	7.4	51.0
Elephant	Aug.	DRAEM [37]	77.8	93.9	90.0	50.1	0.4	1.2	18.7	0.6	47.4
		SimpleNet [27]	20.0	68.9	87.8	76.4	6.1	14.5	42.9	7.8	45.2
	Emb.	CFA [21]	35.6	71.5	87.8	86.8	5.7	10.6	58.4	5.6	50.9
		PatchCore [29]	27.8	69.5	87.8	93.7	11.1	18.3	78.8	10.1	55.3
		CFLOW-AD [14]	23.3	71.6	87.8	90.6	8.6	11.5	66.4	6.1	51.4
		PyramidalFlow [22]	51.1	84.2	87.8	93.0	2.8	6.0	76.5	3.1	57.3
	Rec.	RD [10]	43.3	82.7	87.8	88.2	2.1	5.4	65.6	2.8	53.6
		DiAD [16]	36.7	76.9	90.0	91.8	2.0	4.3	74.1	2.2	53.7
		ViTAD [40]	46.7	77.4	87.8	96.1	9.1	18.0	85.6	9.9	60.1
		InvAD [42]	32.2	72.6	87.8	91.3	6.5	13.2	71.4	7.0	53.6
		InvAD-lite [42]	36.7	72.7	87.8	91.5	4.7	10.1	75.2	5.3	54.1
		MambaAD [15]	47.8	79.2	87.8	90.7	4.7	9.2	72.5	4.8	56.0
	Hybrid	UniAD [35]	11.1	63.1	87.8	79.1	1.3	4.0	38.7	2.0	40.7
		RD++ [31]	41.1	80.3	87.8	85.2	1.7	4.1	59.6	2.1	51.4
		DesTSeg [44]	58.9	83.6	90.0	66.6	1.2	5.0	32.6	2.6	48.3
Parrot	Aug.	DRAEM [37]	64.3	87.0	92.0	49.2	0.6	1.3	14.6	0.6	44.1
		SimpleNet [27]	16.5	71.6	90.2	61.9	0.9	1.8	32.7	0.9	39.4
	Emb.	CFA [21]	4.3	65.9	90.2	42.3	0.5	1.3	17.0	0.7	31.6
		PatchCore [29]	5.2	66.2	90.2	81.7	2.1	5.1	64.0	2.6	44.9
		CFLOW-AD [14]	16.5	68.0	90.2	66.7	1.0	2.5	41.9	1.3	41.0
		PyramidalFlow [22]	25.2	77.3	90.2	64.2	0.9	2.2	31.8	1.1	41.7
	Rec.	RD [10]	1.7	64.6	90.2	64.3	0.9	2.0	34.3	1.0	36.9
		DiAD [16]	60.9	91.6	90.2	63.6	0.9	2.0	41.7	1.0	50.1
		ViTAD [40]	16.5	69.8	90.2	69.8	1.1	2.6	40.8	1.3	41.5
		InvAD [42]	11.3	68.6	90.2	52.1	0.7	1.4	32.7	0.7	36.7
		InvAD-lite [42]	4.3	65.4	90.2	60.4	0.8	1.8	38.4	0.9	37.3
		MambaAD [15]	6.1	66.6	90.2	72.4	1.1	2.6	45.6	1.3	40.7
	Hybrid	UniAD [35]	33.9	76.4	90.2	61.2	0.8	1.8	37.7	0.9	43.1
		RD++ [31]	7.0	66.2	90.2	63.1	0.9	2.0	33.5	1.0	37.6
		DesTSeg [44]	3.5	65.1	90.2	48.7	0.6	1.3	18.5	0.6	32.6

Table A38. Benchmarked results on MAD_Real dataset [46] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
Pig	Aug. DRAEM [37]	67.1	89.5	<u>87.2</u>	52.2	0.5	1.2	23.8	0.6	45.9
	Aug. SimpleNet [27]	49.4	76.5	<u>87.2</u>	93.9	10.1	21.9	72.9	12.3	58.8
	Emb. CFA [21]	55.3	77.6	<u>89.5</u>	93.0	5.0	11.2	73.0	5.9	57.8
	Emb. PatchCore [29]	56.5	78.8	<u>89.5</u>	98.5	<u>19.9</u>	<u>28.7</u>	89.7	<u>16.7</u>	<u>65.9</u>
	Emb. CFLOW-AD [14]	57.6	78.8	<u>87.2</u>	96.5	5.8	12.0	85.2	6.4	60.4
	Emb. PyramidalFlow [22]	57.6	84.2	<u>87.2</u>	95.7	5.2	10.0	81.9	5.3	60.3
	Rec. RD [10]	<u>60.0</u>	<u>80.2</u>	<u>89.5</u>	<u>98.4</u>	21.1	31.0	<u>92.5</u>	18.3	67.5
	Rec. DiAD [16]	56.5	<u>87.9</u>	<u>87.2</u>	92.9	2.7	5.9	71.7	3.0	57.8
	Rec. ViTAD [40]	37.6	71.6	<u>87.2</u>	97.7	8.6	17.2	89.8	9.4	58.5
	Rec. InvAD [42]	58.8	77.1	<u>89.5</u>	<u>98.1</u>	11.7	22.1	<u>91.1</u>	12.4	64.1
	Rec. InvAD-lite [42]	47.1	73.7	<u>89.5</u>	<u>98.4</u>	13.0	<u>24.1</u>	92.9	<u>13.7</u>	62.7
	Rec. MambaAD [15]	61.2	80.3	<u>87.2</u>	97.7	12.2	22.8	87.1	12.8	64.1
	Hybrid UniAD [35]	50.6	83.9	<u>87.2</u>	88.8	1.6	4.2	62.2	2.1	54.1
	Hybrid RD++ [31]	<u>61.2</u>	80.3	91.4	98.0	<u>14.3</u>	23.0	91.0	13.0	<u>65.6</u>
	Hybrid DesTSeg [44]	48.2	74.8	<u>89.5</u>	71.1	2.3	6.0	43.6	3.1	47.9
Puppy	Aug. DRAEM [37]	53.0	82.9	88.9	46.3	0.4	1.9	23.9	1.0	42.5
	Aug. SimpleNet [27]	68.0	90.6	90.9	94.5	4.1	10.3	72.4	5.4	61.5
	Emb. CFA [21]	<u>83.0</u>	<u>95.3</u>	<u>93.0</u>	98.6	7.1	14.5	92.3	7.8	69.1
	Emb. PatchCore [29]	100.	100.	100.	<u>99.2</u>	13.4	<u>25.1</u>	92.1	<u>14.3</u>	<u>75.7</u>
	Emb. CFLOW-AD [14]	79.0	94.3	<u>93.0</u>	<u>99.2</u>	<u>27.9</u>	<u>33.3</u>	<u>94.2</u>	<u>20.0</u>	<u>74.4</u>
	Emb. PyramidalFlow [22]	56.0	85.5	88.9	95.1	7.6	16.9	75.0	9.3	60.7
	Rec. RD [10]	78.0	94.4	90.0	95.8	4.4	9.1	87.2	4.7	65.6
	Rec. DiAD [16]	76.0	94.7	88.9	94.6	1.8	5.0	78.3	2.6	62.8
	Rec. ViTAD [40]	58.0	87.6	88.9	92.5	1.2	2.9	75.8	1.5	58.1
	Rec. InvAD [42]	100.	100.	100.	99.8	45.6	44.9	98.1	28.9	84.1
	Rec. InvAD-lite [42]	<u>96.0</u>	<u>99.0</u>	<u>97.6</u>	96.9	5.9	11.9	90.3	6.3	71.1
	Rec. MambaAD [15]	82.0	94.7	92.3	88.1	1.8	5.3	71.1	2.7	62.2
	Hybrid UniAD [35]	74.0	92.9	90.9	98.6	<u>14.1</u>	21.9	91.0	12.3	69.1
	Hybrid RD++ [31]	66.0	87.6	<u>93.0</u>	98.1	<u>4.8</u>	11.2	<u>92.4</u>	5.9	64.7
	Hybrid DesTSeg [44]	49.0	81.8	88.9	97.6	11.2	11.6	87.7	6.2	61.1
Scorpion	Aug. DRAEM [37]	33.0	80.7	<u>90.2</u>	46.8	1.4	2.9	14.6	1.5	38.5
	Aug. SimpleNet [27]	43.5	84.0	<u>90.2</u>	70.9	<u>6.0</u>	<u>13.0</u>	33.4	<u>6.9</u>	48.7
	Emb. CFA [21]	30.4	81.6	<u>90.2</u>	60.9	<u>5.6</u>	<u>13.4</u>	26.4	<u>7.2</u>	44.1
	Emb. PatchCore [29]	13.0	70.7	<u>90.2</u>	88.2	8.8	17.0	61.6	9.3	49.9
	Emb. CFLOW-AD [14]	64.3	<u>90.1</u>	<u>90.2</u>	79.1	4.0	7.8	<u>35.9</u>	4.1	53.1
	Emb. PyramidalFlow [22]	47.8	85.3	<u>90.2</u>	68.0	2.7	5.9	22.1	3.0	46.0
	Rec. RD [10]	64.3	91.8	<u>90.2</u>	64.7	2.0	4.8	20.3	2.5	48.3
	Rec. DiAD [16]	<u>56.5</u>	79.2	93.9	73.2	2.9	7.0	30.8	3.6	<u>49.1</u>
	Rec. ViTAD [40]	46.1	84.4	<u>90.2</u>	62.9	1.9	4.2	17.3	2.2	43.9
	Rec. InvAD [42]	45.2	<u>86.6</u>	<u>90.2</u>	68.4	2.3	5.0	22.0	2.6	45.7
	Rec. InvAD-lite [42]	50.4	83.8	<u>90.2</u>	67.4	2.2	4.9	18.6	2.5	45.4
	Rec. MambaAD [15]	<u>53.0</u>	84.0	<u>90.2</u>	66.6	2.1	4.8	17.0	2.4	45.4
	Hybrid UniAD [35]	32.2	75.9	<u>90.2</u>	<u>81.2</u>	4.8	10.1	<u>44.9</u>	5.3	48.5
	Hybrid RD++ [31]	22.6	73.5	<u>90.2</u>	70.9	2.5	5.8	26.5	3.0	41.7
	Hybrid DesTSeg [44]	31.3	81.2	<u>90.2</u>	48.6	1.3	2.9	11.1	1.5	38.1
Turtle	Aug. DRAEM [37]	73.3	93.3	89.4	47.9	1.3	4.0	31.0	2.0	48.6
	Aug. SimpleNet [27]	95.2	99.0	95.2	98.2	15.2	24.7	93.1	14.1	74.4
	Emb. CFA [21]	100.	100.	100.	99.3	<u>41.9</u>	<u>43.0</u>	96.8	27.4	<u>83.0</u>
	Emb. PatchCore [29]	100.	100.	100.	<u>99.5</u>	<u>43.1</u>	<u>48.4</u>	<u>97.9</u>	<u>31.9</u>	<u>84.1</u>
	Emb. CFLOW-AD [14]	99.0	99.8	<u>97.7</u>	99.1	30.0	34.8	96.7	21.1	79.6
	Emb. PyramidalFlow [22]	81.9	95.6	<u>90.5</u>	97.7	15.1	24.5	92.8	13.9	71.2
	Rec. RD [10]	90.5	98.0	<u>92.3</u>	98.4	22.8	29.0	94.4	17.0	75.1
	Rec. DiAD [16]	<u>96.2</u>	99.1	<u>95.5</u>	93.2	7.0	13.8	82.6	7.4	69.6
	Rec. ViTAD [40]	83.8	96.0	91.3	95.6	6.3	12.8	85.6	6.9	67.3
	Rec. InvAD [42]	100.	100.	100.	99.7	53.8	55.4	98.7	38.3	86.8
	Rec. InvAD-lite [42]	<u>96.2</u>	<u>99.2</u>	<u>95.2</u>	97.9	17.7	25.3	94.8	14.5	75.2
	Rec. MambaAD [15]	87.6	<u>97.1</u>	91.3	96.3	13.7	20.1	90.2	11.2	70.9
	Hybrid UniAD [35]	94.3	98.7	<u>95.5</u>	97.8	18.7	28.5	89.6	16.6	74.7
	Hybrid RD++ [31]	100.	100.	100.	99.2	24.3	38.2	96.7	23.6	79.8
	Hybrid DesTSeg [44]	67.6	90.7	89.4	95.1	20.6	26.3	86.2	15.2	68.0

Table A39. Benchmarked results on MAD_Real dataset [46] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
Unicorn	Aug. DRAEM [37]	72.4	91.3	91.3	47.5	0.2	0.5	14.5	0.2	45.4
	Aug. SimpleNet [27]	17.1	70.1	89.4	61.4	0.4	1.5	23.8	0.7	37.7
	Emb. CFA [21]	34.3	76.8	89.4	68.2	0.8	3.5	33.8	1.8	43.8
	Emb. PatchCore [29]	43.8	74.1	93.3	97.3	6.8	14.1	90.3	7.6	60.0
	Emb. CFLOW-AD [14]	72.4	93.2	91.3	90.3	1.4	3.0	66.6	1.5	59.7
	Emb. PyramidalFlow [22]	46.7	77.8	89.4	83.6	0.9	2.3	52.2	1.2	50.4
	Rec. RD [10]	40.0	76.4	89.4	77.0	0.6	1.4	39.3	0.7	46.3
	Rec. DiAD [16]	42.9	85.6	89.4	83.4	0.8	2.0	56.4	1.0	51.5
	Rec. ViTAD [40]	20.0	68.6	89.4	74.7	0.5	1.1	32.1	0.6	40.9
	Rec. InvAD [42]	37.1	76.5	89.4	85.3	1.0	2.5	54.8	1.3	49.5
	Rec. InvAD-lite [42]	40.0	75.4	89.4	79.0	0.9	2.3	51.5	1.2	48.4
	Rec. MambaAD [15]	18.1	70.9	89.4	79.1	0.9	3.1	47.0	1.6	44.1
	Hybrid UniAD [35]	21.9	68.2	89.4	91.8	1.7	4.1	72.6	2.1	50.0
	Hybrid RD++ [31]	37.1	77.2	89.4	83.1	0.8	1.8	48.4	0.9	48.3
	Hybrid DesTSeg [44]	33.3	74.0	89.4	59.0	0.4	1.3	29.3	0.7	41.0
Whale	Aug. DRAEM [37]	46.2	89.5	92.8	42.6	0.3	1.5	25.6	0.7	42.6
	Aug. SimpleNet [27]	86.2	97.4	94.1	96.4	5.6	11.7	86.4	6.2	68.3
	Emb. CFA [21]	80.0	96.2	93.5	98.6	29.5	32.8	90.5	19.6	74.4
	Emb. PatchCore [29]	95.0	99.1	98.5	99.7	46.8	47.4	97.8	31.0	83.5
	Emb. CFLOW-AD [14]	73.1	95.3	92.8	99.1	19.6	30.1	95.0	17.7	72.1
	Emb. PyramidalFlow [22]	90.6	98.1	98.5	97.4	9.3	15.4	88.7	8.3	71.1
	Rec. RD [10]	48.8	89.5	92.8	98.7	15.6	21.0	93.7	11.7	65.7
	Rec. DiAD [16]	11.9	76.2	92.8	94.0	1.7	4.4	76.4	2.2	51.0
	Rec. ViTAD [40]	58.8	91.4	92.8	96.8	4.1	9.8	85.2	5.2	62.7
	Rec. InvAD [42]	100.	100.	100.	99.8	49.4	53.9	98.6	36.9	86.0
	Rec. InvAD-lite [42]	96.9	99.5	97.0	99.6	34.2	37.8	98.5	23.3	80.5
	Rec. MambaAD [15]	86.9	97.9	92.8	99.1	19.3	28.1	96.5	16.4	74.4
	Hybrid UniAD [35]	36.2	83.4	92.8	97.8	8.2	14.9	89.7	8.0	60.4
	Hybrid RD++ [31]	88.8	97.8	97.0	99.3	29.9	32.3	96.0	19.2	77.3
	Hybrid DesTSeg [44]	75.6	92.1	95.4	94.1	6.3	12.9	81.9	6.9	65.5
Avg	Aug. DRAEM [37]	59.1	88.1	90.4	49.4	0.6	1.7	22.3	0.8	44.5
	Aug. SimpleNet [27]	47.8	81.9	90.7	83.1	5.4	11.6	59.8	6.3	54.3
	Emb. CFA [21]	49.3	81.7	91.4	83.3	10.5	15.2	64.2	8.7	56.5
	Emb. PatchCore [29]	59.7	84.8	93.5	95.4	20.2	27.3	85.5	16.6	66.6
	Emb. CFLOW-AD [14]	59.8	86.0	91.2	90.9	10.7	15.4	74.4	8.8	61.2
	Emb. PyramidalFlow [22]	52.1	83.6	90.3	88.4	5.0	9.4	68.2	5.1	56.7
	Rec. RD [10]	55.5	85.8	90.6	87.0	8.2	12.8	67.8	7.2	58.2
	Rec. DiAD [16]	49.9	85.1	90.8	87.7	2.9	6.8	67.4	3.6	55.8
	Rec. ViTAD [40]	47.0	81.3	90.2	87.3	4.5	9.3	66.6	5.0	55.2
	Rec. InvAD [42]	66.5	87.7	93.8	88.3	22.1	26.2	73.2	16.8	65.4
	Rec. InvAD-lite [42]	60.4	84.3	92.2	88.2	9.0	14.3	72.9	8.1	60.2
	Rec. MambaAD [15]	56.2	84.3	90.3	87.8	7.5	12.8	68.5	7.2	58.2
	Hybrid UniAD [35]	47.6	81.3	90.4	88.2	5.8	10.6	68.6	5.8	56.1
	Hybrid RD++ [31]	54.7	83.9	92.3	88.5	9.4	14.9	70.4	8.5	59.2
	Hybrid DesTSeg [44]	45.4	80.3	90.7	72.7	5.0	8.2	48.3	4.5	50.1

**K. Detailed Quantitative Results on MAD_Sim
Dataset Under 100 epochs**

Table A40. Benchmarked results on MAD_Sim dataset [46] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
02Unicorn	SimpleNet [27]	62.7	94.7	94.9	91.1	<u>8.0</u>	<u>15.0</u>	69.5	<u>8.1</u>	62.3
	Emb. CFA [21]	56.4	93.3	<u>94.9</u>	80.3	<u>9.9</u>	<u>19.5</u>	63.7	<u>10.8</u>	59.7
	CFLOW-AD [14]	51.4	92.1	95.1	90.8	4.6	5.2	65.1	2.7	57.8
	PyramidalFlow [22]	39.2	89.3	<u>94.9</u>	87.3	3.3	5.0	70.3	2.6	55.6
	Rec. RD [10]	57.6	92.0	<u>94.9</u>	93.3	4.9	9.6	<u>77.2</u>	5.0	61.4
	DiAD [16]	78.2	97.3	<u>94.9</u>	91.3	3.4	8.1	63.2	4.2	62.3
	ViTAD [40]	62.4	92.9	95.1	<u>93.5</u>	5.3	10.0	76.1	5.3	62.2
	InvAD [42]	66.9	<u>95.3</u>	<u>94.9</u>	95.1	15.8	25.2	82.8	14.4	68.0
	InvAD-lite [42]	<u>68.9</u>	95.0	95.1	<u>93.6</u>	6.7	12.9	<u>78.5</u>	6.9	<u>64.4</u>
	MambaAD [15]	<u>72.0</u>	<u>95.5</u>	<u>94.9</u>	92.8	5.5	10.4	75.6	5.5	<u>63.8</u>
	Hybrid UniAD [35]	49.6	91.1	<u>94.9</u>	91.9	4.1	7.9	76.1	4.1	59.4
	RD++ [31]	54.9	91.1	<u>94.9</u>	92.9	4.2	8.5	75.8	4.5	60.3
	DesTSeg [44]	55.4	92.5	<u>94.9</u>	54.4	4.2	6.3	32.1	3.2	48.5
	Aug. DRAEM [37]	51.6	91.4	<u>95.2</u>	57.1	0.7	0.9	23.6	0.5	45.8
	SimpleNet [27]	<u>76.0</u>	<u>96.7</u>	<u>95.2</u>	83.7	2.0	5.0	59.4	2.6	59.7
	Emb. CFA [21]	66.3	95.7	95.5	72.7	1.3	2.9	43.6	1.5	54.0
	CFLOW-AD [14]	53.7	93.0	<u>95.2</u>	84.5	2.6	3.7	55.2	1.9	55.4
	PyramidalFlow [22]	42.9	89.5	95.5	73.4	0.8	1.8	46.3	0.9	50.0
	Rec. RD [10]	60.1	93.9	<u>95.2</u>	85.3	2.0	4.2	<u>71.4</u>	2.1	58.9
	DiAD [16]	71.0	<u>96.6</u>	<u>95.2</u>	78.9	1.4	3.9	45.8	2.0	56.1
	ViTAD [40]	63.8	95.2	<u>95.2</u>	<u>86.4</u>	2.4	<u>5.6</u>	67.6	<u>2.9</u>	59.5
	InvAD [42]	79.4	97.5	<u>95.4</u>	87.5	<u>4.1</u>	11.1	75.6	5.9	64.4
	InvAD-lite [42]	<u>72.4</u>	<u>96.6</u>	<u>95.2</u>	<u>86.2</u>	2.5	5.4	<u>73.2</u>	2.8	<u>61.6</u>
	MambaAD [15]	66.8	95.7	<u>95.2</u>	84.6	<u>2.7</u>	5.4	69.6	2.8	<u>60.0</u>
	Hybrid UniAD [35]	64.7	95.1	<u>95.2</u>	<u>86.2</u>	2.1	5.3	61.9	2.7	58.6
	RD++ [31]	64.4	94.5	<u>95.2</u>	85.3	2.2	4.8	69.5	2.5	59.4
	DesTSeg [44]	68.3	95.5	95.5	53.2	4.7	<u>6.4</u>	29.3	<u>3.3</u>	50.4
03Mallard	Aug. DRAEM [37]	38.8	88.1	95.4	49.8	1.3	1.9	18.2	1.0	41.9
	SimpleNet [27]	36.2	87.6	95.4	84.9	4.8	<u>12.1</u>	55.4	<u>6.4</u>	53.8
	Emb. CFA [21]	32.2	87.5	95.4	75.4	4.6	<u>12.8</u>	46.7	<u>6.9</u>	50.7
	CFLOW-AD [14]	41.3	<u>91.4</u>	95.4	84.9	3.7	5.1	53.1	2.6	53.6
	PyramidalFlow [22]	46.0	88.7	95.4	82.1	2.4	4.9	55.0	2.5	53.5
	Rec. RD [10]	<u>47.9</u>	91.2	95.4	84.3	4.5	9.1	57.9	4.8	55.8
	DiAD [16]	74.2	96.4	95.4	82.4	2.3	4.5	47.5	2.3	<u>57.5</u>
	ViTAD [40]	44.9	91.3	95.4	85.5	<u>5.8</u>	11.9	<u>60.4</u>	6.3	56.5
	InvAD [42]	44.7	90.0	95.4	85.9	7.2	14.5	61.6	7.8	<u>57.0</u>
	InvAD-lite [42]	39.9	89.3	95.4	85.1	<u>5.2</u>	11.7	<u>59.6</u>	6.2	55.2
	MambaAD [15]	<u>57.4</u>	<u>93.6</u>	95.4	84.1	5.1	10.5	57.6	5.5	57.7
	Hybrid UniAD [35]	29.6	86.4	95.4	<u>85.3</u>	3.4	8.6	59.5	4.5	52.6
	RD++ [31]	41.2	88.7	95.4	84.2	3.5	7.8	57.7	4.1	54.1
	DesTSeg [44]	32.1	88.0	95.4	56.5	3.7	7.8	32.2	4.0	45.1
	Aug. DRAEM [37]	40.6	87.6	<u>94.9</u>	53.6	1.0	1.3	27.2	0.7	43.7
	SimpleNet [27]	41.9	90.6	<u>94.9</u>	82.8	2.9	6.0	51.7	3.1	53.0
	Emb. CFA [21]	27.8	87.2	<u>94.9</u>	71.7	2.6	3.9	45.7	2.0	47.7
	CFLOW-AD [14]	64.5	94.5	<u>94.9</u>	86.5	4.2	6.4	58.0	3.3	58.4
	PyramidalFlow [22]	33.7	86.7	<u>94.9</u>	80.1	1.6	4.0	48.3	2.0	49.9
	Rec. RD [10]	62.7	93.7	<u>94.9</u>	<u>91.3</u>	<u>9.4</u>	16.9	<u>72.5</u>	9.2	63.1
	DiAD [16]	86.2	98.4	95.8	91.2	6.1	12.6	60.9	6.7	<u>64.4</u>
	ViTAD [40]	59.0	93.6	<u>94.9</u>	90.8	7.8	15.6	70.0	8.5	61.7
	InvAD [42]	<u>75.8</u>	<u>96.0</u>	<u>95.1</u>	93.1	13.5	24.6	78.5	14.0	68.1
	InvAD-lite [42]	61.8	93.7	<u>94.9</u>	91.8	<u>10.8</u>	<u>19.7</u>	<u>74.2</u>	<u>10.9</u>	63.8
	MambaAD [15]	<u>68.9</u>	<u>95.5</u>	<u>94.9</u>	91.0	9.3	<u>18.0</u>	71.2	<u>9.9</u>	<u>64.1</u>
	Hybrid UniAD [35]	45.1	88.6	<u>94.9</u>	87.2	3.2	5.8	66.0	3.0	55.8
	RD++ [31]	61.9	94.4	<u>94.9</u>	90.5	6.9	12.8	71.2	6.8	61.8
	DesTSeg [44]	35.2	89.3	<u>94.9</u>	52.3	2.6	4.0	36.6	2.0	45.0

Table A41. Benchmarked results on MAD_Sim dataset [46] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD	
		mAU-ROC	mAP	mF ₁ -max	mAU-ROC	mAP	mF ₁ -max				
05Whale	Aug.	DRAEM [37]	54.6	91.4	94.4	47.3	0.7	1.4	25.9	0.7	45.1
		SimpleNet [27]	63.1	93.9	94.4	82.6	2.3	4.9	60.5	2.5	57.4
	Emb.	CFA [21]	65.2	94.4	94.4	73.4	2.3	3.8	54.3	1.9	55.4
		CFLOW-AD [14]	54.5	91.0	94.4	85.4	2.7	4.4	63.3	2.2	56.5
		PyramidalFlow [22]	37.9	84.7	94.4	73.6	1.0	2.4	49.4	1.2	49.1
	Rec.	RD [10]	56.5	92.6	94.5	87.0	3.6	7.1	74.8	3.7	59.4
		DiAD [16]	48.7	91.0	94.4	80.3	2.3	6.6	50.3	3.4	53.4
		ViTAD [40]	58.0	92.5	94.4	88.3	4.0	8.4	76.0	4.4	60.2
		InvAD [42]	75.7	96.6	94.4	89.7	8.6	17.6	81.5	9.6	66.3
		InvAD-lite [42]	64.9	94.5	94.4	89.0	6.1	11.7	78.5	6.2	62.7
		MambaAD [15]	60.2	93.5	94.4	87.5	4.9	9.8	74.4	5.1	60.7
	Hybrid	UniAD [35]	72.4	95.7	94.5	89.5	3.8	8.2	76.9	4.3	63.0
		RD++ [31]	52.4	91.7	94.4	86.7	3.7	8.0	74.4	4.1	58.8
		DesTSeg [44]	52.0	91.5	94.4	58.1	4.2	9.0	45.7	4.7	50.7
06Bird	Aug.	DRAEM [37]	44.4	88.1	94.4	44.1	1.0	2.0	23.7	1.0	42.5
		SimpleNet [27]	63.6	93.5	94.4	90.3	5.5	9.1	71.1	4.8	61.1
	Emb.	CFA [21]	65.7	92.3	94.7	83.8	4.6	10.8	62.3	5.7	59.2
		CFLOW-AD [14]	63.8	91.5	94.4	90.4	3.9	7.1	70.9	3.7	60.3
		PyramidalFlow [22]	75.7	96.1	94.4	92.6	7.0	13.5	76.6	7.2	65.1
	Rec.	RD [10]	58.5	91.8	94.4	90.6	4.7	8.3	75.4	4.3	60.5
		DiAD [16]	79.5	97.3	95.4	93.3	6.0	12.4	77.0	6.6	65.9
		ViTAD [40]	64.4	93.3	94.5	91.2	4.8	9.8	75.9	5.1	62.0
		InvAD [42]	83.3	97.6	94.7	91.9	6.7	12.5	78.5	6.7	66.5
		InvAD-lite [42]	74.8	95.6	94.7	91.5	5.6	9.9	77.2	5.2	64.2
		MambaAD [15]	64.5	93.7	94.5	91.2	5.0	9.1	76.4	4.7	62.1
	Hybrid	UniAD [35]	51.3	89.6	94.4	90.2	3.9	7.5	73.0	3.9	58.6
		RD++ [31]	62.9	92.1	94.5	90.9	4.7	8.3	75.7	4.4	61.3
		DesTSeg [44]	57.1	91.6	94.4	52.2	4.0	4.6	25.6	2.4	47.1
07Owl	Aug.	DRAEM [37]	59.2	88.7	92.8	47.6	0.7	1.8	27.1	0.9	45.4
		SimpleNet [27]	67.0	92.0	93.4	88.8	3.5	7.5	66.8	3.9	59.9
	Emb.	CFA [21]	58.3	90.8	93.0	73.4	3.2	7.4	53.8	3.8	54.3
		CFLOW-AD [14]	64.1	91.9	92.8	90.0	5.7	5.0	66.4	2.6	59.4
		PyramidalFlow [22]	44.7	85.0	93.0	85.3	2.2	5.2	64.2	2.7	54.2
	Rec.	RD [10]	63.4	92.2	93.0	91.9	5.0	9.2	77.9	4.8	61.8
		DiAD [16]	62.6	92.5	92.8	93.8	4.9	10.2	71.6	5.3	61.2
		ViTAD [40]	66.8	92.3	92.8	92.5	5.0	10.2	77.6	5.4	62.5
		InvAD [42]	71.0	93.8	93.4	94.0	10.3	19.4	82.5	10.8	66.3
		InvAD-lite [42]	67.4	93.7	92.8	92.4	6.5	11.9	78.6	6.3	63.3
		MambaAD [15]	67.8	93.6	92.8	91.2	4.6	8.2	76.0	4.3	62.0
	Hybrid	UniAD [35]	61.1	91.5	93.0	91.5	4.1	7.9	74.3	4.1	60.5
		RD++ [31]	69.4	93.4	92.8	92.0	5.1	9.2	78.2	4.8	62.9
		DesTSeg [44]	65.2	92.6	93.2	53.2	10.7	7.9	35.5	4.1	51.2
08Sabertooth	Aug.	DRAEM [37]	60.4	90.6	93.2	45.8	0.5	0.9	24.3	0.4	45.1
		SimpleNet [27]	54.4	90.2	93.0	83.8	1.7	2.8	57.6	1.4	54.8
	Emb.	CFA [21]	55.6	89.9	93.0	76.3	2.5	5.1	54.6	2.6	53.9
		CFLOW-AD [14]	61.5	90.9	93.2	86.7	1.8	3.4	58.7	1.7	56.6
		PyramidalFlow [22]	65.2	93.3	93.0	77.6	1.1	2.4	49.2	1.2	54.5
	Rec.	RD [10]	67.4	93.2	93.2	87.9	2.1	3.6	67.2	1.8	59.2
		DiAD [16]	89.2	98.4	93.8	85.1	1.5	3.0	48.5	1.5	59.9
		ViTAD [40]	61.8	91.9	93.2	88.8	2.1	3.8	67.5	2.0	58.4
		InvAD [42]	73.7	94.9	93.0	90.5	3.5	5.8	74.0	3.0	62.2
		InvAD-lite [42]	69.3	93.7	93.2	88.3	2.8	4.0	68.0	2.1	59.9
		MambaAD [15]	63.3	92.5	93.2	86.9	2.5	3.7	63.9	1.9	58.0
	Hybrid	UniAD [35]	55.5	89.1	93.0	88.2	2.1	3.7	71.2	1.9	57.5
		RD++ [31]	64.0	92.2	93.0	87.7	2.2	3.7	66.6	1.9	58.5
		DesTSeg [44]	61.1	92.1	93.0	51.6	4.5	4.5	31.0	2.3	48.3

Table A42. Benchmarked results on MAD_Sim dataset [46] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
09Swan	Aug. DRAEM [37]	41.6	83.8	93.1	44.7	0.6	1.0	23.4	0.5	41.2
	Aug. SimpleNet [27]	52.6	89.0	93.1	83.7	2.0	4.8	58.1	2.4	54.8
	Emb. CFA [21]	56.6	89.3	<u>93.3</u>	75.1	2.5	7.4	48.4	3.8	53.2
	Emb. CFLOW-AD [14]	47.4	86.7	93.1	85.8	2.2	4.0	60.6	2.0	54.3
	Emb. PyramidalFlow [22]	43.9	85.2	93.1	75.7	1.1	2.6	42.6	1.3	49.2
	Rec. RD [10]	55.6	89.6	93.1	87.7	2.5	4.5	71.1	2.3	57.7
	Rec. DiAD [16]	<u>59.6</u>	<u>90.5</u>	93.8	86.8	5.9	11.8	54.7	6.3	57.6
	Rec. ViTAD [40]	52.8	88.1	<u>93.2</u>	<u>90.0</u>	<u>3.0</u>	6.0	<u>73.1</u>	3.1	<u>58.0</u>
	Rec. InvAD [42]	68.9	93.7	93.1	91.6	5.9	<u>11.5</u>	80.1	<u>6.1</u>	63.5
	Rec. InvAD-lite [42]	59.9	90.7	93.1	<u>89.8</u>	<u>4.0</u>	<u>7.8</u>	<u>76.1</u>	<u>4.1</u>	<u>60.2</u>
	Rec. MambaAD [15]	54.7	88.7	93.1	87.2	2.4	4.3	69.0	2.2	57.1
	Hybrid UniAD [35]	52.5	87.5	93.1	88.4	2.7	5.0	71.3	2.5	57.2
	Hybrid RD++ [31]	53.9	88.9	93.1	87.6	2.4	4.5	70.6	2.3	57.3
	Hybrid DesTSeg [44]	54.7	89.3	93.1	50.9	2.5	2.3	29.0	1.2	46.0
10Sheep	Aug. DRAEM [37]	44.9	86.4	92.7	44.1	0.8	1.7	27.5	0.9	42.6
	Aug. SimpleNet [27]	60.4	91.3	92.7	90.5	3.8	6.8	76.8	3.5	60.3
	Emb. CFA [21]	65.9	92.2	93.1	85.1	3.9	8.6	67.7	4.5	59.5
	Emb. CFLOW-AD [14]	61.4	89.8	92.9	92.0	3.8	6.1	79.3	3.1	60.8
	Emb. PyramidalFlow [22]	54.4	89.6	92.7	90.6	2.3	5.0	71.8	2.6	58.1
	Rec. RD [10]	64.4	92.6	92.7	92.6	5.3	9.2	84.5	4.8	63.0
	Rec. DiAD [16]	85.0	<u>96.8</u>	94.1	93.3	4.1	8.5	76.0	4.4	<u>65.4</u>
	Rec. ViTAD [40]	64.8	92.0	92.7	<u>93.4</u>	4.8	9.3	<u>84.8</u>	4.9	63.1
	Rec. InvAD [42]	<u>84.6</u>	97.1	<u>93.6</u>	94.0	<u>8.2</u>	13.6	87.1	7.3	68.3
	Rec. InvAD-lite [42]	<u>78.7</u>	<u>95.9</u>	<u>93.4</u>	<u>93.5</u>	<u>6.7</u>	<u>10.1</u>	<u>85.2</u>	<u>5.3</u>	<u>66.2</u>
	Rec. MambaAD [15]	70.1	93.8	92.9	92.8	5.5	9.4	84.0	4.9	64.1
	Hybrid UniAD [35]	57.4	90.3	92.7	93.3	4.8	8.2	83.3	4.3	61.4
	Hybrid RD++ [31]	71.4	94.2	92.9	92.7	6.2	<u>10.6</u>	84.3	<u>5.6</u>	64.6
	Hybrid DesTSeg [44]	67.5	93.7	92.7	53.1	8.5	8.1	39.0	4.2	51.8
11Pig	Aug. DRAEM [37]	51.2	90.2	<u>94.0</u>	54.8	1.0	1.6	28.9	0.8	46.0
	Aug. SimpleNet [27]	54.8	90.9	<u>94.0</u>	94.0	6.4	12.8	75.7	6.8	61.2
	Emb. CFA [21]	54.7	90.6	<u>94.0</u>	87.4	7.5	14.9	61.9	8.1	58.7
	Emb. CFLOW-AD [14]	51.4	89.3	<u>94.0</u>	92.3	3.5	5.5	74.5	2.8	58.6
	Emb. PyramidalFlow [22]	56.4	91.0	<u>94.0</u>	89.8	2.7	5.5	66.9	2.8	58.0
	Rec. RD [10]	58.2	91.8	<u>94.0</u>	94.3	6.5	11.8	83.5	6.3	62.9
	Rec. DiAD [16]	44.0	90.1	<u>94.0</u>	93.7	9.4	16.8	70.9	9.2	59.9
	Rec. ViTAD [40]	58.4	91.1	<u>94.0</u>	<u>95.9</u>	8.8	17.0	83.3	9.3	64.1
	Rec. InvAD [42]	72.3	95.1	94.4	96.9	18.9	27.6	87.9	16.0	70.4
	Rec. InvAD-lite [42]	<u>71.8</u>	95.1	<u>94.2</u>	<u>96.3</u>	<u>16.4</u>	<u>24.4</u>	<u>86.4</u>	<u>13.9</u>	<u>69.2</u>
	Rec. MambaAD [15]	<u>67.4</u>	<u>94.2</u>	<u>94.2</u>	95.2	<u>10.6</u>	<u>18.5</u>	<u>84.5</u>	<u>10.2</u>	<u>66.4</u>
	Hybrid UniAD [35]	46.7	86.8	<u>94.0</u>	93.6	3.8	7.3	78.8	3.8	58.7
	Hybrid RD++ [31]	58.7	92.1	<u>94.0</u>	94.7	7.2	14.1	83.9	7.6	63.5
	Hybrid DesTSeg [44]	63.0	<u>92.9</u>	<u>94.0</u>	57.5	7.1	11.7	37.9	6.2	52.0
12Zalika	Aug. DRAEM [37]	43.6	84.1	<u>92.9</u>	43.4	1.1	2.3	25.0	1.2	41.8
	Aug. SimpleNet [27]	57.1	88.2	93.1	84.2	4.0	8.4	59.5	4.4	56.4
	Emb. CFA [21]	54.8	90.0	<u>92.9</u>	73.9	4.2	<u>9.2</u>	53.5	<u>4.8</u>	54.1
	Emb. CFLOW-AD [14]	51.4	88.0	<u>92.9</u>	86.0	4.4	6.9	55.3	3.6	55.0
	Emb. PyramidalFlow [22]	43.8	85.3	<u>92.9</u>	79.1	2.2	4.1	57.5	2.1	52.1
	Rec. RD [10]	<u>59.3</u>	<u>92.0</u>	<u>92.9</u>	87.2	4.9	8.6	<u>69.9</u>	4.5	<u>59.3</u>
	Rec. DiAD [16]	46.6	86.6	<u>92.9</u>	85.2	4.4	6.9	42.0	3.6	52.1
	Rec. ViTAD [40]	54.9	91.0	<u>92.9</u>	<u>87.3</u>	4.7	8.7	67.5	4.6	58.1
	Rec. InvAD [42]	64.0	92.3	<u>92.9</u>	90.2	10.0	18.1	76.5	10.0	63.4
	Rec. InvAD-lite [42]	<u>60.9</u>	<u>92.1</u>	<u>92.9</u>	<u>88.6</u>	<u>7.0</u>	<u>11.5</u>	<u>72.3</u>	<u>6.1</u>	<u>60.8</u>
	Rec. MambaAD [15]	58.3	91.6	<u>92.9</u>	87.2	<u>5.2</u>	8.7	68.9	4.5	59.0
	Hybrid UniAD [35]	52.1	88.9	<u>92.9</u>	85.9	3.4	6.0	64.8	3.1	56.3
	Hybrid RD++ [31]	55.5	90.5	<u>92.9</u>	87.0	5.1	8.2	69.3	4.3	58.4
	Hybrid DesTSeg [44]	52.3	88.9	<u>92.9</u>	52.2	4.0	5.7	38.5	2.9	47.8

Table A43. Benchmarked results on MAD_Sim dataset [46] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
13Pheonix	Aug. DRAEM [37]	51.9	89.6	<u>94.3</u>	45.4	0.6	1.0	22.8	0.5	43.7
	Aug. SimpleNet [27]	<u>55.7</u>	90.2	<u>94.4</u>	80.7	1.5	3.3	56.9	1.7	54.7
	Emb. CFA [21]	54.1	90.4	<u>94.3</u>	77.4	2.0	<u>5.5</u>	58.0	<u>2.8</u>	54.5
	Emb. CFLOW-AD [14]	52.1	89.7	<u>94.3</u>	82.4	1.4	2.7	57.2	1.4	54.3
	Emb. PyramidalFlow [22]	48.0	87.6	<u>94.3</u>	72.8	0.9	2.1	54.1	1.0	51.4
	Rec. RD [10]	53.5	90.5	<u>94.3</u>	83.6	2.5	3.5	70.0	1.8	56.8
	Rec. DiAD [16]	41.5	86.8	<u>94.3</u>	83.2	1.4	3.0	49.1	1.5	51.3
	Rec. ViTAD [40]	52.6	89.9	<u>94.3</u>	<u>84.8</u>	1.8	3.5	68.4	1.8	56.5
	Rec. InvAD [42]	62.7	92.9	94.6	87.0	3.6	7.2	77.5	3.7	60.8
	Rec. InvAD-lite [42]	56.0	<u>91.6</u>	<u>94.3</u>	<u>85.3</u>	<u>3.2</u>	<u>5.3</u>	<u>74.0</u>	<u>2.7</u>	<u>58.5</u>
	Rec. MambaAD [15]	<u>55.7</u>	<u>91.7</u>	<u>94.4</u>	83.7	<u>2.8</u>	3.7	70.7	1.9	<u>57.5</u>
	Hybrid UniAD [35]	55.1	90.2	<u>94.3</u>	83.8	1.5	3.1	64.5	1.6	56.1
	Hybrid RD++ [31]	54.7	90.6	<u>94.4</u>	84.1	1.9	3.6	<u>71.0</u>	1.8	57.2
	Hybrid DesTSeg [44]	53.3	91.0	<u>94.3</u>	52.5	2.2	4.2	<u>35.5</u>	2.1	47.6
	Aug. DRAEM [37]	50.4	89.5	93.9	52.4	1.1	1.9	25.9	0.9	45.0
	Aug. SimpleNet [27]	58.7	91.9	93.9	64.9	2.2	4.9	54.8	2.5	53.0
14Elephant	Emb. CFA [21]	54.2	90.9	93.9	61.8	1.9	3.8	45.8	1.9	50.3
	Emb. CFLOW-AD [14]	55.7	91.4	93.9	68.2	2.2	3.8	49.7	1.9	52.1
	Emb. PyramidalFlow [22]	44.5	87.3	93.9	63.7	1.4	3.1	45.2	1.6	48.4
	Rec. RD [10]	58.3	91.7	93.9	69.9	2.9	6.6	<u>64.6</u>	3.4	55.4
	Rec. DiAD [16]	68.7	95.1	93.9	74.2	1.9	3.9	44.7	2.0	54.6
	Rec. ViTAD [40]	57.4	91.9	93.9	<u>70.8</u>	3.1	7.4	64.0	3.8	55.5
	Rec. InvAD [42]	<u>63.1</u>	93.3	93.9	<u>72.3</u>	<u>4.4</u>	10.8	68.4	5.7	58.0
	Rec. InvAD-lite [42]	<u>66.2</u>	<u>94.2</u>	93.9	<u>70.5</u>	<u>3.6</u>	<u>8.2</u>	<u>66.0</u>	<u>4.3</u>	<u>57.5</u>
	Rec. MambaAD [15]	<u>66.2</u>	<u>94.4</u>	93.9	69.6	3.1	7.2	63.5	3.7	<u>56.8</u>
	Hybrid UniAD [35]	55.7	90.5	93.9	68.5	1.9	4.1	59.2	2.1	53.4
	Hybrid RD++ [31]	60.7	92.5	93.9	70.2	3.0	6.9	63.5	3.6	55.8
	Hybrid DesTSeg [44]	60.0	91.9	93.9	53.5	5.3	<u>8.1</u>	46.9	<u>4.2</u>	51.4
	Aug. DRAEM [37]	52.8	86.4	<u>91.8</u>	48.6	0.8	1.4	24.1	0.7	43.7
	Aug. SimpleNet [27]	62.2	<u>90.3</u>	<u>91.8</u>	80.3	2.4	4.8	53.2	2.4	55.0
	Emb. CFA [21]	55.6	88.6	<u>91.8</u>	69.4	2.2	5.0	44.5	2.5	51.0
	Emb. CFLOW-AD [14]	52.9	86.3	92.0	83.5	2.9	5.2	60.5	2.7	54.8
15Parrot	Emb. PyramidalFlow [22]	62.3	<u>90.4</u>	92.0	81.5	3.0	6.6	66.1	3.4	<u>57.4</u>
	Rec. RD [10]	54.6	87.9	92.0	83.9	3.2	6.7	<u>67.2</u>	3.5	56.5
	Rec. DiAD [16]	52.4	88.4	<u>91.8</u>	83.6	2.5	5.6	63.4	2.9	55.4
	Rec. ViTAD [40]	50.5	87.3	<u>91.8</u>	83.7	3.2	<u>7.1</u>	66.6	<u>3.7</u>	55.7
	Rec. InvAD [42]	<u>60.8</u>	90.9	92.0	86.3	<u>6.5</u>	13.4	73.9	7.2	60.5
	Rec. InvAD-lite [42]	57.0	89.6	<u>91.8</u>	<u>85.1</u>	<u>4.2</u>	<u>8.4</u>	<u>69.1</u>	<u>4.4</u>	<u>57.9</u>
	Rec. MambaAD [15]	55.1	88.9	<u>91.8</u>	84.1	3.5	6.5	65.9	3.4	56.5
	Hybrid UniAD [35]	42.9	83.7	<u>91.8</u>	84.4	2.9	5.4	65.8	2.8	53.8
	Hybrid RD++ [31]	49.2	86.2	92.0	84.1	3.2	6.6	66.7	3.4	55.4
	Hybrid DesTSeg [44]	52.4	88.7	<u>91.8</u>	52.0	9.9	5.6	24.8	2.9	46.5
	Aug. DRAEM [37]	50.5	89.9	<u>94.3</u>	43.0	0.6	1.5	24.4	0.7	43.5
	Aug. SimpleNet [27]	<u>58.3</u>	91.8	<u>94.3</u>	92.1	2.5	5.7	79.3	2.9	60.6
	Emb. CFA [21]	54.6	90.9	94.4	82.6	2.7	<u>8.1</u>	59.8	<u>4.2</u>	56.2
	Emb. CFLOW-AD [14]	52.0	90.1	<u>94.3</u>	93.1	2.3	4.8	80.5	2.5	59.6
	Emb. PyramidalFlow [22]	49.2	88.6	<u>94.3</u>	91.1	1.7	3.8	70.2	1.9	57.0
	Rec. RD [10]	52.4	90.1	<u>94.3</u>	93.6	3.1	6.3	84.8	3.3	60.7
16Cat	Rec. DiAD [16]	45.8	88.0	<u>94.3</u>	93.7	3.0	5.3	81.8	2.7	58.8
	Rec. ViTAD [40]	57.2	<u>92.0</u>	<u>94.3</u>	93.8	3.2	6.3	84.6	3.3	<u>61.6</u>
	Rec. InvAD [42]	58.9	<u>92.1</u>	<u>94.3</u>	94.5	5.3	11.0	86.9	5.8	63.3
	Rec. InvAD-lite [42]	<u>58.5</u>	92.5	<u>94.3</u>	<u>94.2</u>	<u>3.7</u>	<u>7.4</u>	<u>85.6</u>	<u>3.9</u>	<u>62.3</u>
	Rec. MambaAD [15]	54.5	91.0	94.4	<u>94.0</u>	<u>3.5</u>	<u>7.0</u>	<u>84.9</u>	3.6	61.3
	Hybrid UniAD [35]	51.7	89.5	<u>94.3</u>	93.8	2.7	5.6	82.4	2.9	60.0
	Hybrid RD++ [31]	53.9	90.8	<u>94.3</u>	93.4	3.4	6.3	84.5	3.3	60.9
	Hybrid DesTSeg [44]	56.2	90.5	<u>94.3</u>	52.8	1.4	3.1	30.6	1.6	47.0

Table A44. Benchmarked results on MAD_Sim dataset [46] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
17Scorpion	Aug. DRAEM [37]	48.4	86.4	92.9	51.5	0.7	1.4	25.6	0.7	43.8
	Aug. SimpleNet [27]	72.7	94.5	<u>93.1</u>	88.4	4.0	6.5	67.9	3.4	61.0
	Emb. CFA [21]	68.3	92.4	93.0	78.9	4.1	7.0	55.9	3.6	57.1
	Emb. CFLOW-AD [14]	59.7	91.0	92.9	89.6	4.6	4.9	68.1	2.5	58.7
	Emb. PyramidalFlow [22]	57.6	87.3	<u>93.1</u>	83.4	1.9	5.1	53.1	2.6	54.5
	Rec. RD [10]	60.1	91.2	92.9	91.3	4.8	7.4	82.3	3.8	61.4
	Rec. DiAD [16]	84.8	96.9	93.8	87.0	1.9	3.5	56.5	1.8	60.6
	Rec. ViTAD [40]	60.1	90.5	<u>93.1</u>	91.2	3.3	7.7	77.6	4.0	60.5
	Rec. InvAD [42]	<u>81.5</u>	<u>96.7</u>	<u>93.3</u>	93.6	7.2	10.5	86.1	5.6	67.0
	Rec. InvAD-lite [42]	73.5	94.7	92.9	<u>93.3</u>	<u>6.1</u>	<u>8.6</u>	84.8	<u>4.5</u>	64.8
	Rec. MambaAD [15]	73.0	94.6	93.0	<u>93.0</u>	<u>5.5</u>	8.2	<u>83.6</u>	4.3	<u>64.4</u>
	Hybrid UniAD [35]	63.5	90.9	92.9	91.7	4.4	7.2	79.1	3.8	61.4
	Hybrid RD++ [31]	64.1	92.3	92.9	91.7	5.4	7.9	82.4	4.1	62.4
	Hybrid DesTSeg [44]	<u>77.8</u>	<u>95.9</u>	<u>93.1</u>	60.6	5.4	<u>9.7</u>	44.3	<u>5.1</u>	55.3
18Obesobeso	Aug. DRAEM [37]	43.9	87.1	<u>94.1</u>	47.5	1.0	1.8	26.9	0.9	43.2
	Aug. SimpleNet [27]	63.3	93.6	<u>94.1</u>	92.4	15.8	21.7	81.6	12.2	66.1
	Emb. CFA [21]	62.9	93.2	<u>94.1</u>	81.8	12.6	20.0	64.6	11.1	61.3
	Emb. CFLOW-AD [14]	59.6	91.6	<u>94.1</u>	92.5	5.8	8.8	79.4	4.6	61.7
	Emb. PyramidalFlow [22]	61.7	93.2	<u>94.1</u>	91.9	4.5	8.8	74.7	4.6	61.3
	Rec. RD [10]	64.6	94.0	<u>94.1</u>	93.5	11.6	20.7	87.8	11.5	66.6
	Rec. DiAD [16]	87.5	98.3	94.4	95.1	10.2	17.7	82.9	9.7	69.4
	Rec. ViTAD [40]	67.5	94.4	<u>94.1</u>	94.3	18.2	<u>24.7</u>	<u>88.3</u>	<u>14.1</u>	<u>68.8</u>
	Rec. InvAD [42]	<u>83.5</u>	<u>97.6</u>	<u>94.2</u>	<u>94.8</u>	<u>16.6</u>	26.3	90.8	15.1	72.0
	Rec. InvAD-lite [42]	<u>70.3</u>	<u>95.3</u>	<u>94.2</u>	93.7	12.9	21.2	<u>88.1</u>	11.8	68.0
	Rec. MambaAD [15]	69.6	95.0	<u>94.2</u>	93.0	10.9	20.2	86.4	11.3	67.0
	Hybrid UniAD [35]	64.9	93.4	<u>94.1</u>	92.2	6.9	12.9	82.4	6.9	63.8
	Hybrid RD++ [31]	67.7	94.0	94.4	93.2	9.1	17.4	86.5	9.5	66.0
	Hybrid DesTSeg [44]	63.1	93.1	<u>94.2</u>	61.1	<u>16.2</u>	<u>22.4</u>	45.0	<u>12.6</u>	56.4
19Bear	Aug. DRAEM [37]	54.1	89.3	93.3	49.3	0.8	1.3	23.0	0.7	44.4
	Aug. SimpleNet [27]	63.0	92.8	<u>93.5</u>	88.4	7.0	12.8	68.6	6.8	60.9
	Emb. CFA [21]	63.0	92.4	<u>93.5</u>	80.7	5.5	12.1	57.5	6.4	57.8
	Emb. CFLOW-AD [14]	60.9	91.3	93.3	88.9	3.7	6.4	64.6	3.3	58.4
	Emb. PyramidalFlow [22]	52.6	89.6	<u>93.6</u>	87.2	3.6	6.3	61.0	3.3	56.3
	Rec. RD [10]	62.9	92.2	<u>93.6</u>	90.8	6.2	10.8	76.8	5.7	61.9
	Rec. DiAD [16]	59.1	92.9	93.3	89.4	4.2	10.5	62.6	5.5	58.8
	Rec. ViTAD [40]	60.9	91.2	<u>93.5</u>	91.1	5.5	11.5	75.1	6.1	61.3
	Rec. InvAD [42]	73.9	95.4	93.3	92.5	13.8	21.7	82.0	12.2	67.5
	Rec. InvAD-lite [42]	<u>67.7</u>	<u>93.2</u>	93.3	<u>92.2</u>	<u>11.3</u>	<u>18.1</u>	<u>78.9</u>	<u>10.0</u>	<u>65.0</u>
	Rec. MambaAD [15]	64.2	92.9	<u>93.5</u>	<u>91.2</u>	7.9	13.4	76.1	7.2	<u>62.7</u>
	Hybrid UniAD [35]	56.8	90.6	93.3	90.0	4.2	7.9	<u>77.2</u>	4.1	60.0
	Hybrid RD++ [31]	65.3	93.0	<u>93.5</u>	90.8	7.7	11.8	76.9	6.3	62.7
	Hybrid DesTSeg [44]	<u>66.8</u>	<u>93.5</u>	93.7	58.5	<u>9.4</u>	<u>13.7</u>	43.7	<u>7.3</u>	54.2
20Puppy	Aug. DRAEM [37]	44.7	84.1	<u>92.7</u>	47.9	0.5	0.9	20.7	0.4	41.6
	Aug. SimpleNet [27]	54.6	89.8	<u>92.9</u>	83.1	2.6	4.9	54.4	2.5	54.6
	Emb. CFA [21]	56.3	90.2	<u>92.9</u>	71.2	3.0	6.9	51.5	3.6	53.1
	Emb. CFLOW-AD [14]	57.5	90.1	<u>92.7</u>	85.2	1.9	4.5	57.1	2.3	55.6
	Emb. PyramidalFlow [22]	56.0	89.4	<u>92.9</u>	81.1	1.5	3.2	53.1	1.6	53.9
	Rec. RD [10]	54.0	89.6	93.0	86.8	3.6	6.3	66.5	3.3	57.1
	Rec. DiAD [16]	48.7	88.8	<u>92.7</u>	83.4	1.4	2.7	51.9	1.4	52.8
	Rec. ViTAD [40]	52.0	87.4	93.0	87.6	2.4	4.9	66.3	2.5	56.2
	Rec. InvAD [42]	<u>62.9</u>	<u>92.5</u>	<u>92.9</u>	89.3	<u>5.9</u>	11.0	73.3	5.8	61.1
	Rec. InvAD-lite [42]	54.0	90.0	93.0	<u>87.5</u>	3.5	6.2	<u>68.2</u>	3.2	57.5
	Rec. MambaAD [15]	49.2	87.7	<u>92.7</u>	86.6	2.6	5.3	64.8	2.7	55.6
	Hybrid UniAD [35]	55.6	89.8	<u>92.7</u>	86.5	3.4	7.9	68.4	4.1	<u>57.8</u>
	Hybrid RD++ [31]	<u>59.0</u>	<u>91.5</u>	<u>92.9</u>	87.1	<u>4.1</u>	<u>8.1</u>	66.8	<u>4.2</u>	<u>58.5</u>
	Hybrid DesTSeg [44]	64.6	93.0	<u>92.9</u>	53.7	13.3	<u>9.5</u>	32.9	<u>5.0</u>	51.4

L. Detailed Quantitative Results on Uni-Medical Dataset Under 100 epochs

Table A45. Benchmarked results on Uni-Medical dataset [40] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
brain	Aug.	DRAEM [37]	47.1	82.8	90.6	33.8	2.2	6.1	7.9	38.6
		SimpleNet [27]	84.8	96.3	91.0	94.5	43.4	43.9	71.4	75.0
	Emb.	CFA [21]	82.5	95.9	90.6	75.6	33.0	39.0	36.5	24.2
		CFLOW-AD [14]	85.7	96.2	91.9	94.5	56.6	17.2	73.8	9.4
		PyramidalFlow [22]	62.4	86.1	90.9	85.7	10.4	18.0	50.5	9.9
		RD [10]	83.9	94.6	91.9	96.5	45.6	48.9	82.8	32.4
	Rec.	DiAD [16]	93.2	97.7	95.2	94.9	35.2	39.8	79.5	24.8
		ViTAD [40]	89.4	97.3	93.0	97.7	61.8	58.8	84.0	41.7
		InvAD [42]	90.8	97.7	93.2	97.7	59.1	58.3	86.2	41.2
		InvAD-lite [42]	84.9	95.9	91.8	96.5	46.2	49.2	82.5	32.6
		MambaAD [15]	93.7	98.5	94.2	97.9	60.8	61.5	87.5	44.4
										84.9
	Hybrid	UniAD [35]	90.2	97.7	92.6	97.4	56.2	55.6	82.9	38.5
		RD++ [31]	84.8	95.5	91.8	96.9	48.5	51.5	84.2	34.6
		DesTSeg [44]	87.1	95.9	92.2	70.2	52.2	42.7	33.9	27.2
liver	Aug.	DRAEM [37]	53.1	49.7	61.6	20.0	0.4	1.5	10.2	0.7
		SimpleNet [27]	60.5	50.6	62.2	94.2	6.0	11.6	81.5	6.2
	Emb.	CFA [21]	52.9	48.1	61.3	88.0	4.7	11.1	60.5	5.9
		CFLOW-AD [14]	63.9	56.1	63.0	95.9	2.9	5.6	87.4	2.9
		PyramidalFlow [22]	47.2	43.2	60.9	75.0	3.3	11.5	9.0	6.1
		RD [10]	55.5	45.8	64.4	96.6	5.5	10.4	91.1	5.5
	Rec.	DiAD [16]	56.5	51.7	62.0	96.4	5.5	10.6	89.6	5.6
		ViTAD [40]	63.9	54.9	65.1	97.9	13.2	21.4	92.6	12.0
		InvAD [42]	64.2	52.8	65.9	97.0	7.8	14.5	92.9	7.8
		InvAD-lite [42]	57.0	46.6	63.8	96.4	5.3	9.8	90.6	5.1
		MambaAD [15]	64.2	54.6	64.5	97.0	10.0	17.4	92.6	9.5
										57.2
	Hybrid	UniAD [35]	60.3	48.3	63.1	97.1	7.9	14.0	92.7	7.5
		RD++ [31]	55.6	44.8	64.4	96.6	5.5	10.3	91.5	5.4
		DesTSeg [44]	58.5	47.8	61.4	57.6	13.8	15.6	31.4	8.5
retinal	Aug.	DRAEM [37]	54.7	49.4	59.7	47.8	3.5	9.6	13.3	5.1
		SimpleNet [27]	87.0	86.2	76.8	94.2	53.9	52.5	78.2	35.6
	Emb.	CFA [21]	77.7	75.8	67.4	71.4	20.7	24.5	37.3	14.0
		CFLOW-AD [14]	88.0	86.5	76.8	95.8	61.6	57.9	84.1	40.7
		PyramidalFlow [22]	52.3	42.7	59.7	75.9	11.4	21.8	43.2	12.2
		RD [10]	89.0	86.8	78.2	96.4	65.1	60.1	86.5	43.0
	Rec.	DiAD [16]	86.6	82.0	76.0	96.1	61.8	56.2	83.8	39.0
		ViTAD [40]	92.1	90.0	81.9	95.6	69.8	64.2	83.5	47.3
		InvAD [42]	92.2	91.0	82.4	97.1	71.9	65.5	88.7	48.7
		InvAD-lite [42]	91.7	89.2	81.8	95.7	65.3	59.0	84.4	41.9
		MambaAD [15]	93.8	89.1	86.9	95.5	66.4	63.5	84.6	46.6
										82.8
	Hybrid	UniAD [35]	86.3	82.4	75.8	95.3	53.8	53.7	82.5	36.7
		RD++ [31]	91.2	89.2	81.3	96.7	70.4	64.9	87.6	48.1
		DesTSeg [44]	90.0	87.4	81.0	69.2	59.0	43.7	40.4	27.9
Avg	Aug.	DRAEM [37]	51.6	60.6	70.6	33.8	2.0	5.7	10.5	3.0
		SimpleNet [27]	77.5	77.7	76.7	94.3	34.4	36.0	77.0	23.3
	Emb.	CFA [21]	71.0	73.3	73.1	78.3	19.5	24.9	44.7	14.7
		CFLOW-AD [14]	79.2	79.6	77.2	95.4	40.4	26.9	81.8	17.7
		PyramidalFlow [22]	53.9	57.3	70.5	78.8	8.4	17.1	34.2	9.4
		RD [10]	76.1	75.7	78.2	96.5	38.8	39.8	86.8	26.9
	Rec.	DiAD [16]	78.8	77.2	77.7	95.8	34.2	35.5	84.3	23.2
		ViTAD [40]	81.8	80.7	80.0	97.1	48.3	48.2	86.7	33.7
		InvAD [42]	82.4	80.5	80.5	97.3	46.2	46.1	89.3	32.6
		InvAD-lite [42]	77.9	77.3	79.1	96.2	39.0	39.3	85.8	26.5
		MambaAD [15]	83.9	80.8	81.9	96.8	45.8	47.5	88.2	33.5
										75.0
	Hybrid	UniAD [35]	79.0	76.1	77.1	96.6	39.3	41.1	86.0	27.6
		RD++ [31]	77.2	76.5	79.2	96.7	41.5	42.2	87.8	29.4
		DesTSeg [44]	78.5	77.0	78.2	65.7	41.7	34.0	35.3	21.2

**M. Detailed Quantitative Results on Real-IAD
Dataset Under 100 epochs**

Table A46. Benchmarked results on Real-IAD dataset [32] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
audiojack	Aug.	DRAEM [37]	53.0	36.9	51.4	42.8	0.1	0.3	13.7	28.3
		SimpleNet [27]	51.4	36.3	50.9	66.0	0.2	0.9	37.6	34.8
	Emb.	CFA [21]	57.3	41.9	52.1	86.5	0.5	1.6	57.1	42.4
		CFLOW-AD [14]	77.4	70.8	60.9	95.4	16.4	15.4	73.2	58.5
		PyramidalFlow [22]	51.7	34.9	50.7	81.7	0.2	0.4	40.7	37.2
	Rec.	RD [10]	76.0	62.8	60.6	96.7	13.1	22.1	80.6	58.8
		DiAD [16]	76.5	54.3	65.7	91.6	1.0	3.9	63.3	50.9
		ViTAD [40]	80.6	72.8	63.5	96.8	21.3	31.5	79.5	63.7
		InvAD [42]	85.2	80.7	69.3	98.5	<u>33.9</u>	<u>43.8</u>	89.6	<u>28.0</u>
		InvAD-lite [42]	<u>84.3</u>	<u>78.7</u>	<u>67.8</u>	<u>98.1</u>	<u>32.4</u>	<u>40.8</u>	<u>87.0</u>	<u>25.6</u>
		MambaAD [15]	<u>84.9</u>	<u>77.7</u>	<u>68.2</u>	<u>98.0</u>	22.2	30.4	<u>86.2</u>	66.8
	Hybrid	UniAD [35]	81.7	76.2	65.4	97.6	20.7	31.1	84.1	65.3
		RD++ [31]	76.0	60.0	61.5	96.6	10.6	20.1	80.4	57.9
		DesTSeg [44]	81.6	74.7	66.5	88.3	44.9	50.7	64.5	34.0
bottle_cap	Aug.	DRAEM [37]	46.9	40.9	60.2	35.2	0.0	0.1	9.7	27.6
		SimpleNet [27]	47.4	41.0	60.2	80.1	0.5	3.7	35.8	38.4
	Emb.	CFA [21]	55.7	49.7	60.2	85.2	0.5	2.4	57.0	44.4
		CFLOW-AD [14]	80.0	78.3	71.7	98.8	13.6	22.6	91.9	65.3
		PyramidalFlow [22]	55.4	46.7	60.3	93.2	0.7	2.6	72.0	47.3
	Rec.	RD [10]	89.6	86.3	81.2	<u>99.4</u>	18.6	28.6	96.3	71.4
		DiAD [16]	91.6	94.0	87.9	94.6	4.9	11.4	73.0	65.3
		ViTAD [40]	82.2	78.8	74.8	98.7	16.7	27.5	91.5	67.2
		InvAD [42]	95.5	94.9	<u>85.9</u>	<u>99.6</u>	<u>24.9</u>	33.9	<u>97.2</u>	20.4
		InvAD-lite [42]	<u>92.6</u>	91.2	81.9	<u>99.6</u>	21.2	28.5	97.5	<u>16.6</u>
		MambaAD [15]	<u>93.2</u>	<u>92.6</u>	<u>82.7</u>	99.7	29.9	33.8	<u>97.4</u>	<u>20.3</u>
	Hybrid	UniAD [35]	91.6	90.6	80.4	<u>99.4</u>	21.0	30.5	95.8	72.8
		RD++ [31]	89.7	86.7	81.5	99.3	18.9	30.4	95.6	71.7
		DesTSeg [44]	75.5	74.5	65.9	71.1	<u>27.3</u>	<u>31.7</u>	43.2	<u>18.9</u>
button_battery	Aug.	DRAEM [37]	34.4	46.9	72.4	51.8	0.5	0.9	17.8	32.1
		SimpleNet [27]	60.4	68.6	72.4	78.0	9.4	15.4	38.3	48.9
	Emb.	CFA [21]	53.2	57.9	72.5	84.3	1.6	3.2	54.8	46.8
		CFLOW-AD [14]	66.0	75.1	72.7	95.6	29.2	25.8	74.8	62.7
		PyramidalFlow [22]	52.5	56.4	72.5	50.2	17.5	0.8	15.0	37.8
	Rec.	RD [10]	74.7	79.7	75.9	97.7	34.5	39.4	86.4	69.8
		DiAD [16]	80.5	71.3	70.6	84.1	1.4	5.3	66.9	54.3
		ViTAD [40]	77.0	82.2	77.6	<u>98.3</u>	49.1	49.6	82.7	73.8
		InvAD [42]	90.4	92.5	84.6	99.1	57.2	56.1	92.6	39.0
		InvAD-lite [42]	82.0	86.9	78.4	<u>98.5</u>	<u>51.1</u>	<u>52.4</u>	<u>89.0</u>	<u>35.5</u>
		MambaAD [15]	<u>82.8</u>	<u>87.4</u>	<u>79.2</u>	<u>98.3</u>	48.6	49.6	<u>88.1</u>	<u>76.3</u>
	Hybrid	UniAD [35]	72.8	79.8	74.6	96.5	29.5	33.7	78.7	66.5
		RD++ [31]	76.5	82.2	75.8	97.9	38.4	42.7	87.1	71.5
		DesTSeg [44]	<u>84.6</u>	<u>87.8</u>	<u>81.2</u>	92.2	<u>55.7</u>	<u>53.7</u>	60.4	<u>36.7</u>
end_cap	Aug.	DRAEM [37]	48.1	57.5	72.9	54.9	0.1	0.3	21.0	36.4
		SimpleNet [27]	52.4	59.6	72.9	65.5	0.3	1.8	39.0	41.6
	Emb.	CFA [21]	55.3	62.5	73.3	72.8	0.4	2.7	40.0	43.9
		CFLOW-AD [14]	63.7	72.7	72.9	87.6	3.5	5.9	60.3	52.4
		PyramidalFlow [22]	55.7	63.8	73.0	77.2	0.4	1.9	33.2	43.6
	Rec.	RD [10]	80.0	84.0	78.2	96.5	12.3	<u>21.9</u>	89.4	<u>12.3</u>
		DiAD [16]	85.1	83.4	84.8	81.3	2.0	6.9	38.2	54.5
		ViTAD [40]	72.6	77.1	75.2	93.8	5.7	12.2	75.9	58.9
		InvAD [42]	<u>84.1</u>	87.7	<u>80.3</u>	98.0	14.7	22.7	93.5	12.8
		InvAD-lite [42]	79.8	84.2	<u>78.3</u>	<u>97.4</u>	<u>13.5</u>	21.0	<u>91.5</u>	<u>11.8</u>
		MambaAD [15]	78.6	83.1	<u>77.4</u>	<u>97.2</u>	12.2	19.5	90.3	65.5
	Hybrid	UniAD [35]	<u>80.9</u>	<u>86.3</u>	77.8	95.5	9.5	17.7	86.4	64.9
		RD++ [31]	79.7	<u>84.3</u>	77.8	96.8	<u>12.6</u>	<u>22.6</u>	<u>90.4</u>	<u>12.7</u>
		DesTSeg [44]	72.7	<u>76.8</u>	74.9	75.3	10.3	18.7	53.2	<u>54.6</u>

Table A47. Benchmarked results on Real-IAD dataset [32] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
eraser	Aug. DRAEM [37]	53.8	42.8	55.9	42.6	0.1	0.2	11.2	0.1	29.5
	Aug. SimpleNet [27]	53.4	46.3	55.8	87.6	3.8	8.7	59.8	4.6	45.1
	Emb. CFA [21]	51.2	43.0	55.9	78.5	1.8	5.8	57.6	3.0	42.0
	Emb. CFLOW-AD [14]	88.6	87.5	77.6	98.9	23.2	26.9	93.4	15.6	70.9
	Emb. PyramidalFlow [22]	57.8	42.5	57.3	88.8	0.7	2.6	60.3	1.3	44.3
	Rec. RD [10]	90.0	88.5	79.4	99.5	<u>30.6</u>	<u>35.9</u>	<u>96.3</u>	<u>21.9</u>	<u>74.3</u>
	Rec. DiAD [16]	80.0	80.0	77.3	91.1	7.7	15.4	67.5	8.4	59.9
	Rec. ViTAD [40]	86.0	85.1	74.5	98.5	24.8	32.4	89.3	19.3	70.1
	Rec. InvAD [42]	92.1	90.3	81.7	<u>99.4</u>	<u>30.4</u>	<u>36.1</u>	<u>95.1</u>	<u>22.0</u>	75.0
	Rec. InvAD-lite [42]	88.7	87.2	77.4	<u>99.3</u>	28.9	33.6	94.8	20.2	72.8
	Rec. MambaAD [15]	88.4	86.9	76.7	99.2	27.4	35.7	93.8	21.7	72.6
	Hybrid UniAD [35]	<u>90.2</u>	<u>88.8</u>	<u>80.2</u>	<u>99.3</u>	25.4	32.0	94.4	19.1	72.9
	Hybrid RD++ [31]	<u>90.6</u>	<u>89.4</u>	<u>79.7</u>	99.5	29.2	<u>35.9</u>	96.8	<u>21.9</u>	<u>74.4</u>
	Hybrid DesTSeg [44]	80.5	79.5	68.4	83.3	53.8	53.0	56.0	36.1	67.8
fire_hood	Aug. DRAEM [37]	56.3	39.5	53.4	42.7	0.1	0.2	9.9	0.1	28.9
	Aug. SimpleNet [27]	51.3	39.9	52.9	76.8	1.1	4.8	39.9	2.5	38.1
	Emb. CFA [21]	56.2	40.6	52.9	79.6	0.4	1.4	42.0	0.7	39.0
	Emb. CFLOW-AD [14]	80.3	73.8	<u>68.2</u>	98.1	21.6	22.7	86.0	12.8	64.4
	Emb. PyramidalFlow [22]	56.5	39.1	54.1	50.0	0.2	0.1	15.4	0.1	30.8
	Rec. RD [10]	78.4	70.8	64.5	<u>98.9</u>	<u>28.3</u>	<u>34.6</u>	<u>88.4</u>	<u>20.9</u>	66.3
	Rec. DiAD [16]	83.3	81.7	80.5	91.8	3.2	9.2	66.7	4.8	59.5
	Rec. ViTAD [40]	75.6	67.8	60.6	98.0	18.0	27.8	82.5	16.1	61.5
	Rec. InvAD [42]	<u>82.1</u>	<u>75.1</u>	<u>68.3</u>	99.0	<u>28.2</u>	<u>35.3</u>	89.4	<u>21.5</u>	68.2
	Rec. InvAD-lite [42]	80.0	73.6	65.6	<u>98.8</u>	24.4	31.6	<u>87.5</u>	18.7	65.9
	Rec. MambaAD [15]	79.9	73.5	65.4	<u>98.7</u>	25.9	33.0	<u>86.8</u>	19.7	66.2
	Hybrid UniAD [35]	80.3	<u>74.5</u>	66.8	98.6	25.6	33.5	84.8	20.1	<u>66.3</u>
	Hybrid RD++ [31]	<u>80.5</u>	73.7	66.7	<u>98.9</u>	29.2	36.6	89.4	22.4	<u>67.9</u>
	Hybrid DesTSeg [44]	75.6	65.6	61.5	78.4	26.7	34.1	45.9	20.6	55.4
mint	Aug. DRAEM [37]	51.8	46.9	64.0	45.3	0.1	0.1	13.9	0.1	31.7
	Aug. SimpleNet [27]	55.7	51.9	63.8	73.1	0.5	3.0	26.8	1.5	39.3
	Emb. CFA [21]	51.2	49.0	63.8	77.1	0.1	0.3	39.2	0.2	40.1
	Emb. CFLOW-AD [14]	63.6	64.1	63.7	92.8	8.7	12.8	61.4	6.8	52.4
	Emb. PyramidalFlow [22]	57.0	51.2	63.8	50.0	0.0	0.1	15.0	0.1	33.9
	Rec. RD [10]	66.3	64.6	65.1	94.9	12.8	23.8	73.5	13.5	57.3
	Rec. DiAD [16]	<u>76.7</u>	<u>76.7</u>	76.0	91.1	5.7	11.6	64.2	6.2	57.4
	Rec. ViTAD [40]	69.2	70.1	64.9	94.7	13.9	26.6	70.0	15.3	58.5
	Rec. InvAD [42]	76.8	77.1	<u>68.9</u>	98.2	<u>18.5</u>	29.1	82.8	17.0	64.5
	Rec. InvAD-lite [42]	72.0	73.1	<u>66.2</u>	<u>97.3</u>	<u>17.9</u>	<u>28.6</u>	<u>80.0</u>	<u>16.7</u>	<u>62.2</u>
	Rec. MambaAD [15]	<u>72.6</u>	<u>73.8</u>	<u>66.2</u>	<u>97.1</u>	16.7	27.2	<u>76.9</u>	15.8	<u>61.5</u>
	Hybrid UniAD [35]	67.6	68.6	64.4	94.6	9.3	22.2	63.2	12.5	55.7
	Hybrid RD++ [31]	67.6	66.6	65.2	96.2	13.7	25.2	<u>76.9</u>	14.4	58.8
	Hybrid DesTSeg [44]	62.8	60.6	64.2	66.5	21.1	<u>27.5</u>	27.5	<u>15.9</u>	47.2
mounts	Aug. DRAEM [37]	49.8	34.4	52.1	37.5	0.1	0.2	10.3	0.1	26.3
	Aug. SimpleNet [27]	49.9	39.2	52.1	87.2	1.4	4.2	63.0	2.2	42.4
	Emb. CFA [21]	62.8	49.5	53.9	89.9	3.3	9.3	68.6	4.9	48.2
	Emb. CFLOW-AD [14]	82.9	74.5	70.3	96.1	16.9	25.5	86.4	14.6	64.7
	Emb. PyramidalFlow [22]	56.1	41.1	52.1	82.7	1.0	4.0	54.3	2.0	41.6
	Rec. RD [10]	<u>88.6</u>	<u>79.8</u>	75.0	<u>99.3</u>	<u>30.7</u>	<u>37.5</u>	<u>95.1</u>	<u>23.0</u>	72.3
	Rec. DiAD [16]	75.3	74.5	82.5	84.3	0.4	1.1	48.8	0.5	52.4
	Rec. ViTAD [40]	84.9	74.8	71.4	98.8	25.1	32.2	91.7	19.2	68.4
	Rec. InvAD [42]	88.9	<u>79.3</u>	<u>77.2</u>	99.4	31.2	35.7	<u>94.2</u>	21.7	<u>72.3</u>
	Rec. InvAD-lite [42]	87.4	76.6	75.7	<u>99.3</u>	27.4	32.7	<u>94.2</u>	19.5	70.5
	Rec. MambaAD [15]	87.4	78.3	74.2	<u>99.1</u>	<u>30.9</u>	35.2	92.6	21.3	71.1
	Hybrid UniAD [35]	87.2	75.6	<u>76.2</u>	99.4	28.1	33.6	95.3	20.2	70.8
	Hybrid RD++ [31]	<u>88.5</u>	80.6	74.5	<u>99.3</u>	28.8	<u>36.2</u>	95.3	<u>22.1</u>	<u>71.9</u>
	Hybrid DesTSeg [44]	72.8	53.9	62.6	<u>79.6</u>	27.5	37.6	58.0	23.1	56.0

Table A48. Benchmarked results on Real-IAD dataset [32] by the suggested metrics in Sec. 3.3.

		Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
			mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
pcb	Aug.	DRAEM [37]	56.8	64.0	76.2	45.3	0.1	0.3	13.9	0.2	36.7
		SimpleNet [27]	54.2	63.4	75.5	76.8	0.4	1.0	45.8	0.5	45.3
	Emb.	CFA [21]	51.5	62.4	75.5	88.6	1.2	3.5	58.6	1.8	48.8
		CFLOW-AD [14]	74.3	83.2	76.6	95.1	15.0	23.8	75.6	13.5	63.4
		PyramidalFlow [22]	54.8	64.5	75.7	81.6	0.3	0.7	45.0	0.4	46.1
	Rec.	RD [10]	79.2	85.4	79.7	97.5	16.1	24.3	88.6	13.8	67.3
		DiAD [16]	86.0	85.1	85.4	92.0	3.7	7.4	66.5	3.8	60.9
		ViTAD [40]	83.3	89.2	81.2	98.2	25.7	33.6	88.2	20.2	71.3
		InvAD [42]	91.9	95.2	86.9	99.4	50.7	53.2	94.9	36.2	81.7
		InvAD-lite [42]	90.3	94.3	85.4	99.3	49.1	51.9	94.5	35.1	80.7
		MambaAD [15]	90.3	94.3	85.1	99.2	48.4	51.7	93.8	34.9	80.4
	Hybrid	UniAD [35]	81.0	88.2	78.9	97.2	22.0	32.1	81.7	19.1	68.7
		RD++ [31]	82.2	88.3	80.6	97.9	22.6	31.0	89.0	18.3	70.2
		DesTSeg [44]	82.0	89.2	79.0	90.0	50.6	52.6	66.1	35.7	72.8
phone_battery	Aug.	DRAEM [37]	51.7	46.1	58.0	45.8	0.1	0.2	14.6	0.1	30.9
		SimpleNet [27]	55.2	48.7	58.1	75.4	1.5	6.0	46.8	3.1	41.7
	Emb.	CFA [21]	49.9	43.5	58.0	64.0	0.9	3.1	40.6	1.6	37.1
		CFLOW-AD [14]	74.9	73.4	64.2	75.2	13.6	22.7	83.9	12.8	58.3
		PyramidalFlow [22]	45.5	36.1	58.4	71.6	0.4	1.2	27.2	0.6	34.3
	Rec.	RD [10]	87.5	82.5	77.4	77.3	22.3	32.1	94.6	19.1	67.7
		DiAD [16]	82.3	77.7	75.9	96.8	5.3	11.4	85.4	6.0	62.1
		ViTAD [40]	90.7	89.3	79.4	98.8	24.1	32.3	91.0	19.3	72.2
		InvAD [42]	91.2	87.7	80.8	86.2	22.2	30.4	95.1	17.9	70.5
		InvAD-lite [42]	91.2	89.6	81.8	80.3	25.5	33.8	95.7	20.3	71.1
		MambaAD [15]	90.2	88.6	80.6	99.4	35.2	39.9	95.5	24.9	75.6
	Hybrid	UniAD [35]	84.9	81.2	73.5	89.1	10.5	18.4	88.7	10.1	63.8
		RD++ [31]	88.6	85.1	78.4	83.4	22.5	31.9	95.1	19.0	69.3
		DesTSeg [44]	83.4	78.5	71.9	75.6	10.5	20.6	62.3	11.5	57.5
plastic_nut	Aug.	DRAEM [37]	53.7	34.0	51.7	51.4	0.1	0.1	16.7	0.0	29.7
		SimpleNet [27]	61.9	43.0	52.6	74.0	0.5	2.3	40.9	1.2	39.3
	Emb.	CFA [21]	60.2	39.8	52.9	75.3	0.2	0.8	39.1	0.4	38.3
		CFLOW-AD [14]	69.7	60.5	53.6	95.6	13.4	14.9	79.1	8.0	55.3
		PyramidalFlow [22]	45.0	29.3	49.7	76.3	0.1	0.4	29.3	0.2	32.9
	Rec.	RD [10]	81.3	70.0	64.5	98.8	22.4	30.4	92.6	17.9	65.7
		DiAD [16]	71.9	58.2	65.6	81.1	0.4	3.4	38.6	1.7	45.6
		ViTAD [40]	82.3	73.8	64.8	97.6	20.8	28.3	87.1	16.5	65.0
		InvAD [42]	89.7	82.7	74.6	99.5	29.0	32.7	96.9	19.6	72.2
		InvAD-lite [42]	88.7	81.6	73.3	99.5	30.3	34.6	97.0	20.9	72.1
		MambaAD [15]	87.8	82.0	71.9	99.5	34.3	38.0	96.8	23.4	72.9
	Hybrid	UniAD [35]	80.1	70.5	63.0	98.4	23.0	28.4	89.9	16.5	64.8
		RD++ [31]	79.8	69.1	63.7	98.9	21.9	28.8	92.5	16.8	65.0
		DesTSeg [44]	84.8	78.4	68.9	85.2	49.2	49.5	62.7	32.9	68.4
plastic_plug	Aug.	DRAEM [37]	64.1	52.9	54.8	41.6	0.0	0.1	9.4	0.0	31.8
		SimpleNet [27]	51.3	40.0	54.6	75.9	0.2	0.8	38.6	0.4	37.3
	Emb.	CFA [21]	42.0	33.4	54.6	85.6	0.2	0.9	53.7	0.5	38.6
		CFLOW-AD [14]	78.8	75.2	64.9	97.2	11.8	20.7	85.7	11.5	62.0
		PyramidalFlow [22]	46.2	35.2	54.6	79.7	0.1	0.3	40.5	0.2	36.7
	Rec.	RD [10]	82.6	75.5	68.8	99.1	21.3	30.2	95.5	17.8	67.6
		DiAD [16]	88.7	89.2	90.9	92.9	8.7	15.0	66.1	8.1	64.5
		ViTAD [40]	80.8	74.7	66.7	97.5	13.3	22.6	84.6	12.7	62.9
		InvAD [42]	89.0	82.9	76.2	99.0	22.9	30.7	94.3	18.1	70.7
		InvAD-lite [42]	88.0	83.9	74.6	99.1	26.2	33.7	94.3	20.2	71.4
		MambaAD [15]	86.5	83.4	72.8	99.0	25.2	32.3	93.0	19.3	70.3
	Hybrid	UniAD [35]	80.9	76.6	66.8	98.6	18.4	27.1	89.9	15.7	65.5
		RD++ [31]	85.5	77.9	73.2	99.2	21.3	28.8	95.8	16.8	68.8
		DesTSeg [44]	73.6	64.7	61.6	71.9	4.4	8.7	41.7	4.6	46.7

Table A49. Benchmarked results on Real-IAD dataset [32] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD	
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max				
porcelain_doll	Aug.	DRAEM [37]	45.1	29.1	49.8	46.6	0.1	0.1	14.6	0.1	26.5
		SimpleNet [27]	63.5	50.7	51.2	81.4	2.4	7.4	48.9	3.8	43.6
	Emb.	CFA [21]	69.4	55.1	55.2	80.1	0.1	0.3	41.7	0.2	43.1
		CFLOW-AD [14]	83.6	78.1	68.2	97.1	14.0	20.9	86.6	11.7	64.1
		PyramidalFlow [22]	48.7	34.0	49.8	84.5	0.2	0.3	48.7	0.2	38.0
	Rec.	RD [10]	87.3	78.2	72.3	99.2	25.1	33.8	96.1	20.3	70.3
		DiAD [16]	72.6	66.8	65.2	93.1	1.4	4.8	70.4	2.5	53.5
		ViTAD [40]	86.4	77.5	70.8	99.0	21.6	29.7	94.7	17.4	68.5
		InvAD [42]	87.1	78.2	70.5	98.5	23.3	33.0	92.7	19.7	69.0
		InvAD-lite [42]	88.6	82.8	74.4	99.3	32.0	36.6	96.4	22.4	72.9
		MambaAD [15]	88.4	82.7	74.4	99.2	32.2	36.9	95.9	22.6	72.8
	Hybrid	UniAD [35]	84.9	76.0	70.3	98.6	14.9	24.8	93.3	14.1	66.1
RD++ [31]		88.4	80.7	72.6	99.3	26.3	34.7	96.7	21.0	71.2	
DesTSeg [44]		75.0	61.4	59.4	76.3	35.4	38.7	44.5	24.0	55.8	
regulator	Aug.	DRAEM [37]	46.1	26.1	43.8	38.8	0.0	0.1	11.4	0.0	23.8
		SimpleNet [27]	47.5	26.2	43.8	79.9	0.1	0.7	40.8	0.4	34.1
	Emb.	CFA [21]	55.7	32.2	45.1	81.4	0.4	1.4	41.5	0.7	36.8
		CFLOW-AD [14]	50.5	29.5	43.9	88.2	1.2	2.1	58.0	1.0	39.1
		PyramidalFlow [22]	55.1	31.3	44.9	76.9	0.1	0.3	42.9	0.1	35.9
	Rec.	RD [10]	67.9	49.9	48.9	98.1	9.0	17.7	89.6	9.7	54.4
		DiAD [16]	72.1	71.4	78.2	84.2	0.4	1.5	44.4	0.7	50.3
		ViTAD [40]	61.3	45.6	44.7	95.6	7.6	17.8	78.3	9.8	50.1
		InvAD [42]	84.5	78.6	68.8	99.5	25.9	33.7	96.6	20.3	69.7
		InvAD-lite [42]	75.7	67.1	57.3	98.7	18.1	29.2	92.6	17.1	62.7
		MambaAD [15]	72.1	62.7	53.4	97.9	21.7	30.1	88.5	17.7	60.9
	Hybrid	UniAD [35]	51.9	34.4	44.3	94.2	7.3	14.9	72.1	8.1	45.6
RD++ [31]		70.3	54.4	51.2	98.3	11.1	20.1	90.8	11.2	56.6	
DesTSeg [44]		68.9	56.3	48.6	67.9	29.1	32.6	35.5	19.5	48.4	
rolled_strip_base	Aug.	DRAEM [37]	53.3	68.5	79.8	37.1	0.1	0.3	9.4	0.1	35.5
		SimpleNet [27]	66.7	80.1	79.9	77.7	1.5	4.9	50.3	2.5	51.6
	Emb.	CFA [21]	54.9	68.8	80.1	85.0	0.7	1.6	51.5	0.8	48.9
		CFLOW-AD [14]	92.6	96.6	88.9	97.8	10.6	15.0	93.2	8.1	70.7
		PyramidalFlow [22]	59.9	74.9	79.8	88.1	1.3	3.5	69.1	1.8	53.8
	Rec.	RD [10]	97.8	98.8	95.1	99.7	30.5	39.3	98.7	24.4	80.0
		DiAD [16]	68.4	55.9	56.8	87.7	0.6	3.2	63.4	1.6	48.0
		ViTAD [40]	98.3	99.1	95.5	99.5	27.1	35.5	97.8	21.6	79.0
		InvAD [42]	99.3	99.6	97.7	99.8	32.8	42.5	99.0	27.0	81.5
		InvAD-lite [42]	98.0	99.0	95.3	99.8	31.6	41.1	99.0	25.9	80.5
		MambaAD [15]	98.3	99.2	95.6	99.6	27.4	32.3	98.2	19.2	78.7
	Hybrid	UniAD [35]	98.7	99.3	96.1	99.5	21.6	32.9	98.2	19.7	78.0
RD++ [31]		96.3	97.9	93.5	99.7	26.8	36.4	98.5	22.2	78.4	
DesTSeg [44]		96.5	98.4	93.2	91.2	55.9	55.5	81.4	38.5	81.7	
sim_card_set	Aug.	DRAEM [37]	56.7	62.2	70.7	47.5	0.2	0.3	18.6	0.1	36.6
		SimpleNet [27]	50.3	57.9	70.7	73.9	2.8	7.1	30.3	3.7	41.9
	Emb.	CFA [21]	50.0	57.1	70.7	79.5	0.9	3.0	39.3	1.5	42.9
		CFLOW-AD [14]	91.5	92.9	85.3	98.2	30.3	35.2	87.9	21.3	74.5
		PyramidalFlow [22]	77.9	75.3	77.1	66.0	1.0	0.6	31.0	0.3	47.0
	Rec.	RD [10]	91.7	92.0	85.2	98.4	39.3	43.6	89.0	27.9	77.0
		DiAD [16]	72.6	53.7	61.5	89.9	1.7	5.8	60.4	3.0	49.4
		ViTAD [40]	92.9	92.4	89.5	96.2	23.3	31.1	75.4	18.4	71.5
		InvAD [42]	94.1	94.2	87.6	98.0	37.7	43.0	84.7	27.4	77.0
		InvAD-lite [42]	94.5	95.0	88.2	98.6	46.7	46.9	88.9	30.6	79.8
		MambaAD [15]	94.7	95.4	87.9	98.7	51.0	50.4	89.1	33.7	81.0
	Hybrid	UniAD [35]	91.4	91.9	84.3	97.8	34.7	41.2	85.8	25.9	75.3
RD++ [31]		93.7	94.1	87.2	98.6	40.4	43.2	89.9	27.6	78.2	
DesTSeg [44]		92.9	94.4	86.3	95.7	69.4	65.7	81.0	49.0	83.6	

Table A50. Benchmarked results on Real-IAD dataset [32] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
switch	Aug. DRAEM [37]	46.5	52.1	68.6	44.5	0.3	0.6	12.9	0.3	32.2
	Aug. SimpleNet [27]	47.8	53.1	68.6	69.9	1.2	3.1	49.3	1.6	41.9
	Emb. CFA [21]	52.2	56.1	68.6	76.0	1.1	2.9	44.1	1.5	43.0
	Emb. CFLOW-AD [14]	75.3	79.9	72.5	90.9	13.9	17.7	78.8	9.7	61.3
	Emb. PyramidalFlow [22]	60.8	62.0	69.9	50.0	0.3	0.6	15.0	0.3	36.9
	Rec. RD [10]	84.6	87.5	78.2	94.4	19.4	26.6	91.0	15.3	68.8
	Rec. DiAD [16]	73.4	49.4	61.2	90.5	1.4	5.3	64.2	2.7	49.3
	Rec. ViTAD [40]	87.8	90.0	80.6	96.4	28.8	39.2	88.5	24.4	73.0
	Rec. InvAD [42]	95.8	96.8	91.1	<u>98.9</u>	43.9	<u>51.5</u>	96.0	<u>34.7</u>	82.0
	Rec. InvAD-lite [42]	<u>92.8</u>	<u>94.5</u>	<u>86.7</u>	99.0	<u>44.3</u>	48.6	<u>95.1</u>	32.1	<u>80.1</u>
	Rec. MambaAD [15]	<u>92.4</u>	<u>94.3</u>	<u>86.3</u>	98.4	34.9	42.2	<u>93.8</u>	26.7	<u>77.5</u>
	Hybrid UniAD [35]	85.0	88.4	77.8	<u>98.8</u>	<u>51.4</u>	<u>55.4</u>	91.1	<u>38.3</u>	<u>78.3</u>
	Hybrid RD++ [31]	82.4	86.1	75.8	95.9	22.0	29.7	90.9	17.5	69.0
	Hybrid DesTSeg [44]	89.4	92.4	82.1	87.9	61.3	57.9	68.3	40.8	77.0
tape	Aug. DRAEM [37]	50.0	35.4	54.6	38.0	0.1	0.2	11.4	0.1	27.1
	Aug. SimpleNet [27]	46.3	37.4	54.6	82.8	1.3	4.0	42.8	2.0	38.5
	Emb. CFA [21]	54.5	42.1	55.1	80.2	0.5	1.9	51.1	1.0	40.8
	Emb. CFLOW-AD [14]	93.5	92.6	84.3	99.2	24.6	24.8	95.6	14.2	73.5
	Emb. PyramidalFlow [22]	60.4	43.3	58.3	66.9	0.2	0.4	10.6	0.2	34.3
	Rec. RD [10]	96.2	95.4	88.4	<u>99.7</u>	<u>42.0</u>	<u>47.4</u>	<u>98.4</u>	<u>31.1</u>	<u>81.1</u>
	Rec. DiAD [16]	73.9	57.8	66.1	81.7	0.4	2.7	47.3	1.3	47.1
	Rec. ViTAD [40]	93.6	92.6	84.6	99.4	30.7	38.7	95.9	24.0	76.5
	Rec. InvAD [42]	97.8	96.9	91.9	<u>99.7</u>	38.9	44.0	<u>98.3</u>	28.2	<u>81.1</u>
	Rec. InvAD-lite [42]	<u>97.3</u>	<u>96.4</u>	<u>90.1</u>	<u>99.7</u>	41.1	45.8	<u>98.4</u>	29.7	<u>81.3</u>
	Rec. MambaAD [15]	<u>97.1</u>	<u>96.2</u>	89.6	99.8	45.9	48.4	<u>98.4</u>	<u>31.9</u>	82.2
	Hybrid UniAD [35]	96.9	95.9	88.7	<u>99.6</u>	31.6	38.4	97.5	23.8	78.4
	Hybrid RD++ [31]	96.8	95.8	<u>89.8</u>	99.8	40.7	46.1	98.5	30.0	<u>81.1</u>
	Hybrid DesTSeg [44]	90.1	88.7	79.2	87.1	58.3	55.9	67.7	38.8	75.3
terminalblock	Aug. DRAEM [37]	44.5	49.0	68.7	46.6	0.1	0.1	13.6	0.1	31.8
	Aug. SimpleNet [27]	53.6	56.1	68.7	85.0	0.7	2.0	57.7	1.0	46.3
	Emb. CFA [21]	55.9	59.9	68.7	89.9	0.7	2.8	64.0	1.4	48.8
	Emb. CFLOW-AD [14]	81.1	84.3	76.0	97.0	12.1	17.7	86.5	9.7	65.0
	Emb. PyramidalFlow [22]	57.8	57.5	70.0	91.0	0.5	1.7	67.3	0.8	49.4
	Rec. RD [10]	89.5	90.0	83.2	<u>99.5</u>	<u>27.9</u>	<u>35.6</u>	<u>98.0</u>	<u>21.7</u>	74.8
	Rec. DiAD [16]	62.1	36.4	47.8	75.5	0.1	1.1	38.5	0.5	37.4
	Rec. ViTAD [40]	89.6	89.3	85.1	98.9	20.1	30.1	94.8	17.7	72.6
	Rec. InvAD [42]	97.4	98.0	92.5	99.8	35.5	39.1	98.8	24.3	80.2
	Rec. InvAD-lite [42]	<u>96.9</u>	<u>97.6</u>	<u>91.4</u>	99.8	<u>34.6</u>	<u>38.2</u>	98.8	<u>23.6</u>	<u>79.6</u>
	Rec. MambaAD [15]	<u>95.3</u>	<u>95.5</u>	<u>89.8</u>	<u>99.6</u>	26.8	32.8	97.6	19.6	<u>76.8</u>
	Hybrid UniAD [35]	87.0	88.6	80.6	99.1	22.7	30.8	94.6	18.2	71.9
	Hybrid RD++ [31]	89.3	90.2	82.3	<u>99.5</u>	27.7	35.0	<u>97.8</u>	21.2	74.5
	Hybrid DesTSeg [44]	68.4	73.3	69.4	69.3	22.2	27.2	40.3	15.7	52.9
toothbrush	Aug. DRAEM [37]	47.1	50.4	69.8	39.4	0.6	1.6	14.2	0.8	31.9
	Aug. SimpleNet [27]	61.7	63.5	70.2	79.1	3.0	7.3	46.3	3.8	47.3
	Emb. CFA [21]	58.4	60.3	70.4	84.6	3.8	6.7	48.3	3.5	47.5
	Emb. CFLOW-AD [14]	70.3	74.9	71.7	94.7	18.8	14.0	78.0	7.6	60.3
	Emb. PyramidalFlow [22]	48.1	50.9	70.1	50.8	8.4	2.6	15.6	1.3	35.2
	Rec. RD [10]	81.8	83.9	77.4	96.9	26.3	33.6	89.0	20.2	69.8
	Rec. DiAD [16]	91.2	93.7	90.9	82.0	1.9	6.6	54.5	3.4	60.1
	Rec. ViTAD [40]	81.8	84.8	76.5	96.7	25.3	34.9	87.1	21.1	69.6
	Rec. InvAD [42]	<u>88.2</u>	<u>90.0</u>	<u>81.6</u>	97.6	<u>29.5</u>	<u>37.8</u>	<u>91.0</u>	<u>23.3</u>	73.7
	Rec. InvAD-lite [42]	<u>87.0</u>	<u>88.5</u>	<u>80.9</u>	<u>97.4</u>	<u>29.3</u>	<u>37.0</u>	<u>90.8</u>	<u>22.7</u>	<u>73.0</u>
	Rec. MambaAD [15]	86.2	87.5	80.7	97.6	30.1	37.9	91.9	23.4	<u>73.1</u>
	Hybrid UniAD [35]	81.9	83.9	77.9	96.1	20.5	30.2	85.9	17.8	68.1
	Hybrid RD++ [31]	83.6	85.5	78.7	<u>97.2</u>	27.5	35.8	90.0	21.8	71.2
	Hybrid DesTSeg [44]	72.4	76.2	71.5	67.3	21.8	27.9	42.0	16.2	54.2

Table A51. Benchmarked results on Real-IAD dataset [32] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD	
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max				
toy	Aug.	DRAEM [37]	55.3	60.6	73.6	41.6	0.1	0.2	10.6	0.1	34.6
		SimpleNet [27]	53.7	61.8	73.4	75.2	0.2	0.9	36.9	0.5	43.2
	Emb.	CFA [21]	47.8	56.6	73.4	78.3	0.3	1.0	40.6	0.5	42.6
		CFLOW-AD [14]	60.6	68.8	73.7	87.5	2.1	8.2	56.9	4.3	51.1
		PyramidalFlow [22]	56.2	65.2	73.4	79.8	0.4	1.6	47.4	0.8	46.3
		RD [10]	70.4	74.8	75.7	95.1	5.1	13.0	82.6	7.0	59.5
	Rec.	DiAD [16]	66.2	57.3	59.8	82.1	1.1	4.2	50.3	2.1	45.9
		ViTAD [40]	76.5	82.9	76.0	92.8	9.2	19.8	79.2	11.0	62.3
		InvAD [42]	86.8	89.8	83.5	98.0	<u>16.6</u>	<u>25.7</u>	91.8	<u>14.8</u>	70.3
		InvAD-lite [42]	<u>84.4</u>	<u>88.9</u>	<u>80.3</u>	<u>96.6</u>	18.1	29.0	<u>89.2</u>	17.0	<u>69.5</u>
		MambaAD [15]	<u>83.7</u>	<u>88.4</u>	<u>79.7</u>	<u>96.2</u>	<u>16.8</u>	<u>26.1</u>	<u>88.0</u>	<u>15.0</u>	<u>68.4</u>
	Hybrid	UniAD [35]	68.5	75.1	74.4	93.6	4.8	11.8	73.0	6.3	57.3
		RD++ [31]	73.4	78.1	76.4	96.0	7.8	17.7	85.6	9.7	62.1
		DesTSeg [44]	71.5	77.5	75.8	67.5	12.9	19.6	47.5	10.8	53.2
toy_brick	Aug.	DRAEM [37]	51.5	42.9	57.9	48.5	0.1	0.3	11.3	0.1	30.4
		SimpleNet [27]	57.4	48.8	57.9	85.9	4.5	10.6	47.0	5.6	44.6
	Emb.	CFA [21]	56.7	45.9	58.3	78.7	1.3	3.9	40.6	2.0	40.8
		CFLOW-AD [14]	<u>74.2</u>	<u>69.7</u>	<u>64.0</u>	96.1	<u>24.2</u>	26.7	<u>79.2</u>	15.4	<u>62.0</u>
		PyramidalFlow [22]	54.6	43.4	58.2	50.1	0.1	0.3	15.3	0.2	31.7
		RD [10]	63.4	56.2	58.9	96.2	16.6	24.4	75.8	13.9	55.9
	Rec.	DiAD [16]	68.4	45.3	55.9	93.5	3.1	8.1	66.4	4.2	48.7
		ViTAD [40]	69.1	64.3	60.2	94.6	20.6	29.4	72.9	17.2	58.7
		InvAD [42]	<u>74.1</u>	67.4	<u>64.4</u>	<u>97.6</u>	<u>25.4</u>	<u>31.4</u>	<u>82.4</u>	<u>18.6</u>	<u>63.2</u>
		InvAD-lite [42]	69.1	62.4	61.1	96.4	17.5	24.2	78.0	13.8	58.4
		MambaAD [15]	70.6	64.0	61.8	96.6	18.9	26.8	75.9	15.5	59.2
	Hybrid	UniAD [35]	78.9	74.6	68.1	97.7	21.8	<u>30.4</u>	82.7	<u>17.9</u>	64.9
		RD++ [31]	66.7	58.3	60.6	<u>96.7</u>	17.1	25.3	77.3	14.5	57.4
		DesTSeg [44]	72.7	<u>68.5</u>	62.8	82.5	30.1	35.7	55.5	21.8	58.3
transistor1	Aug.	DRAEM [37]	57.2	59.6	72.2	43.3	0.2	0.6	13.0	0.3	35.2
		SimpleNet [27]	61.7	66.8	72.6	84.5	5.4	10.1	58.5	5.3	51.4
	Emb.	CFA [21]	53.9	63.0	72.1	87.7	3.5	8.7	56.8	4.5	49.4
		CFLOW-AD [14]	91.8	94.7	86.2	98.1	26.2	28.3	90.7	16.5	73.7
		PyramidalFlow [22]	49.1	56.2	72.4	77.1	0.4	0.9	35.3	0.4	41.6
		RD [10]	90.9	93.7	85.2	99.1	30.5	36.5	95.5	22.3	75.9
	Rec.	DiAD [16]	73.1	63.1	62.7	88.6	7.2	15.3	58.1	8.3	52.6
		ViTAD [40]	91.7	93.9	86.3	98.8	32.0	36.4	93.5	22.2	76.1
		InvAD [42]	97.6	98.2	94.2	99.5	<u>38.7</u>	<u>39.9</u>	97.5	<u>24.9</u>	<u>80.8</u>
		InvAD-lite [42]	<u>96.4</u>	<u>97.5</u>	<u>92.1</u>	99.5	<u>40.5</u>	<u>42.4</u>	<u>97.4</u>	<u>26.9</u>	80.8
		MambaAD [15]	<u>94.9</u>	<u>96.4</u>	<u>89.2</u>	<u>99.4</u>	38.1	39.4	<u>96.8</u>	24.5	<u>79.2</u>
	Hybrid	UniAD [35]	93.7	95.9	88.8	98.9	27.3	33.0	94.2	19.8	76.0
		RD++ [31]	93.4	95.5	89.0	<u>99.3</u>	34.6	38.5	96.2	23.8	78.1
		DesTSeg [44]	88.0	91.6	82.5	87.9	44.0	44.1	67.0	28.3	72.2
u_block	Aug.	DRAEM [37]	55.2	35.2	49.4	43.5	0.1	0.2	10.0	0.1	27.7
		SimpleNet [27]	58.4	40.0	51.2	72.8	0.6	2.5	40.2	1.3	38.0
	Emb.	CFA [21]	54.9	38.6	48.9	74.7	0.3	1.8	36.4	0.9	36.5
		CFLOW-AD [14]	80.3	73.0	63.8	98.4	19.9	24.7	89.3	14.1	64.2
		PyramidalFlow [22]	44.9	28.6	48.8	81.9	0.5	1.2	39.5	0.6	35.1
		RD [10]	90.1	85.5	75.4	99.6	<u>40.3</u>	<u>45.8</u>	<u>97.2</u>	<u>29.7</u>	76.3
	Rec.	DiAD [16]	75.2	68.4	67.9	88.8	1.6	5.4	54.2	2.8	51.6
		ViTAD [40]	84.3	78.2	67.8	99.0	30.3	38.4	90.8	23.8	69.8
		InvAD [42]	92.9	89.5	80.5	99.6	33.4	41.3	96.7	26.0	<u>76.3</u>
		InvAD-lite [42]	<u>90.4</u>	<u>86.4</u>	<u>76.2</u>	99.6	<u>34.5</u>	<u>43.0</u>	<u>96.8</u>	<u>27.4</u>	<u>75.3</u>
		MambaAD [15]	90.0	85.8	74.8	<u>99.5</u>	<u>33.2</u>	<u>42.8</u>	96.1	27.2	74.6
	Hybrid	UniAD [35]	88.2	83.7	74.4	<u>99.3</u>	24.2	32.7	94.9	19.6	71.1
		RD++ [31]	<u>90.2</u>	<u>85.9</u>	<u>75.7</u>	99.6	34.1	41.2	97.3	26.0	74.9
		DesTSeg [44]	76.7	70.4	61.0	83.6	57.6	55.0	53.3	37.9	65.4

Table A52. Benchmarked results on Real-IAD dataset [32] by the suggested metrics in Sec. 3.3.

		Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
			mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
usb	Aug.	DRAEM [37]	45.8	43.8	63.0	48.2	0.1	0.5	19.9	0.3	31.6
		SimpleNet [27]	52.2	49.0	63.0	80.4	0.8	2.8	50.8	1.4	42.7
	Emb.	CFA [21]	56.6	48.6	63.2	85.9	0.7	2.4	51.6	1.2	44.1
		CFLOW-AD [14]	68.0	69.8	63.4	94.8	13.0	15.8	75.0	8.6	57.1
		PyramidalFlow [22]	48.3	44.5	63.0	79.2	0.2	0.2	39.8	0.1	39.3
	Rec.	RD [10]	85.2	84.6	75.6	98.1	26.8	35.2	91.2	21.3	71.0
		DiAD [16]	58.9	37.4	45.7	78.0	1.0	3.1	28.0	1.6	36.0
		ViTAD [40]	86.9	87.3	77.7	98.3	26.1	34.8	90.6	21.1	71.7
		InvAD [42]	94.1	93.3	86.8	99.5	38.5	44.0	97.2	28.2	79.1
		InvAD-lite [42]	93.1	92.7	85.8	99.5	37.0	43.7	96.8	27.9	78.4
		MambaAD [15]	92.7	92.7	85.3	99.3	39.7	44.8	96.0	28.9	78.6
	Hybrid	UniAD [35]	80.8	81.8	70.9	98.0	21.0	30.9	85.8	18.3	67.0
		RD++ [31]	85.5	85.8	75.6	98.0	27.2	36.3	90.8	22.2	71.3
		DesTSeg [44]	87.6	88.3	78.5	91.5	45.0	50.9	70.5	34.2	73.2
usb adaptor	Aug.	DRAEM [37]	54.0	45.6	56.5	49.5	0.1	0.1	20.0	0.0	32.3
		SimpleNet [27]	49.9	40.6	56.7	52.3	0.1	0.4	19.2	0.2	31.3
	Emb.	CFA [21]	52.1	41.8	56.6	78.4	0.1	0.8	39.5	0.4	38.5
		CFLOW-AD [14]	69.9	64.1	59.5	96.2	8.1	16.6	80.8	9.1	56.5
		PyramidalFlow [22]	53.4	40.5	56.8	84.2	0.2	0.6	48.4	0.3	40.6
	Rec.	RD [10]	70.9	61.0	61.9	94.4	9.7	18.7	74.4	10.3	55.9
		DiAD [16]	76.9	60.2	67.2	94.0	2.3	6.6	75.5	3.4	54.7
		ViTAD [40]	76.1	66.1	66.2	90.8	5.9	13.9	56.2	7.5	53.6
		InvAD [42]	80.0	74.4	66.8	96.5	15.8	24.3	79.3	13.8	62.4
		InvAD-lite [42]	79.8	74.2	67.3	97.0	16.6	24.8	82.8	14.2	63.2
		MambaAD [15]	79.1	75.7	66.0	97.0	15.8	24.9	81.6	14.2	62.9
	Hybrid	UniAD [35]	76.9	71.5	64.3	96.5	10.9	19.8	80.1	11.0	60.0
		RD++ [31]	69.9	62.7	61.1	94.7	10.2	20.1	76.2	11.2	56.4
		DesTSeg [44]	78.0	73.3	66.1	80.8	27.6	36.7	51.2	22.4	59.1
vcpill	Aug.	DRAEM [37]	47.3	37.7	56.2	31.2	0.3	0.8	7.2	0.4	25.8
		SimpleNet [27]	62.8	52.2	58.6	82.0	6.5	12.0	47.6	6.4	46.0
	Emb.	CFA [21]	58.4	47.1	57.3	85.5	4.3	9.3	54.5	4.9	45.2
		CFLOW-AD [14]	81.4	79.1	67.5	97.3	35.6	41.3	84.6	26.0	69.5
		PyramidalFlow [22]	55.7	43.9	57.8	72.3	0.6	0.8	28.4	0.4	37.1
	Rec.	RD [10]	85.1	80.3	72.5	98.3	43.7	48.2	89.1	31.8	73.9
		DiAD [16]	64.1	40.4	56.2	90.2	1.3	5.2	60.8	2.7	45.5
		ViTAD [40]	82.2	80.5	70.4	97.6	44.4	50.0	81.3	33.3	72.3
		InvAD [42]	90.1	88.0	78.2	98.9	50.4	55.2	91.1	38.1	78.8
		InvAD-lite [42]	84.6	82.2	71.3	98.4	41.4	48.1	87.9	31.7	73.4
		MambaAD [15]	88.5	87.6	77.6	98.7	47.9	52.0	89.4	35.1	77.4
	Hybrid	UniAD [35]	88.6	86.3	75.8	99.2	47.3	47.7	92.7	31.3	76.8
		RD++ [31]	85.9	82.6	73.0	98.5	46.0	50.7	90.2	34.0	75.3
		DesTSeg [44]	69.5	65.1	58.6	75.3	44.1	45.1	43.5	29.1	57.3
wooden beads	Aug.	DRAEM [37]	52.8	44.9	60.2	43.9	0.1	0.3	12.5	0.1	30.7
		SimpleNet [27]	56.2	52.2	60.2	75.5	1.2	4.4	36.2	2.2	40.8
	Emb.	CFA [21]	55.3	46.2	60.2	83.6	0.8	3.1	48.4	1.6	42.5
		CFLOW-AD [14]	79.7	79.3	68.6	96.5	20.2	27.3	79.5	15.8	64.4
		PyramidalFlow [22]	66.4	56.3	64.8	50.1	0.6	0.3	15.1	0.1	36.2
	Rec.	RD [10]	81.1	79.1	70.1	97.9	27.2	35.5	85.8	21.6	68.1
		DiAD [16]	62.1	56.4	65.9	85.0	1.1	4.7	45.6	2.4	45.8
		ViTAD [40]	82.8	82.3	72.9	97.1	31.0	37.4	79.4	23.0	69.0
		InvAD [42]	86.6	85.6	76.2	98.4	35.5	40.3	88.0	25.3	72.9
		InvAD-lite [42]	85.6	84.6	75.1	98.2	30.5	37.3	87.9	22.9	71.3
		MambaAD [15]	83.3	82.3	72.7	98.1	32.4	39.7	85.3	24.8	70.5
	Hybrid	UniAD [35]	80.9	80.1	70.3	97.7	20.3	27.9	85.0	16.2	66.0
		RD++ [31]	83.4	81.4	72.5	98.2	28.9	36.5	87.8	22.3	69.8
		DesTSeg [44]	78.2	73.6	69.8	77.9	30.8	34.9	50.5	21.1	59.4

Table A53. Benchmarked results on Real-IAD dataset [32] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF ₁ -max	mAU-ROC	mAP	mF ₁ -max			
woodstick	Aug.	DRAEM [37]	52.9	28.3	45.2	57.3	0.1	0.2	22.9	29.6
		SimpleNet [27]	55.7	35.7	44.6	74.0	2.8	9.1	32.1	36.3
		CFA [21]	57.8	33.2	46.5	70.2	0.9	4.1	26.5	34.2
	Emb.	CFLOW-AD [14]	71.3	60.5	52.8	92.6	32.1	38.3	67.9	59.4
		PyramidalFlow [22]	50.1	28.1	44.4	50.0	0.0	0.2	15.0	26.8
	Rec.	RD [10]	77.5	61.9	58.5	97.8	31.2	38.8	85.0	64.4
		DiAD [16]	74.1	66.0	62.1	90.9	2.6	8.0	60.7	52.1
		ViTAD [40]	75.6	64.0	56.3	96.3	38.4	43.7	77.8	64.6
		InvAD [42]	80.8	67.6	62.7	98.0	39.0	45.1	85.9	68.4
		InvAD-lite [42]	78.7	65.9	59.3	97.6	36.3	41.0	83.8	66.1
		MambaAD [15]	81.8	71.0	64.4	97.9	42.8	47.0	85.5	70.1
		UniAD [35]	81.1	73.7	64.6	94.8	41.5	46.0	79.2	68.7
	Hybrid	RD++ [31]	77.2	61.2	58.2	97.9	30.6	38.0	85.3	64.1
		DesTSeg [44]	80.2	70.6	60.5	91.9	61.5	60.5	69.9	70.7
zipper	Aug.	DRAEM [37]	46.5	61.6	76.7	36.4	0.7	1.5	11.3	33.5
		SimpleNet [27]	56.8	67.7	76.7	52.7	1.2	3.8	24.3	40.5
		CFA [21]	80.6	88.0	79.9	92.5	15.6	22.6	78.3	65.4
	Emb.	CFLOW-AD [14]	94.3	97.1	90.3	98.2	34.9	35.6	91.0	77.3
		PyramidalFlow [22]	49.2	61.7	77.5	49.9	0.7	1.4	15.6	36.6
	Rec.	RD [10]	95.4	97.2	91.6	99.0	43.7	49.9	96.5	81.9
		DiAD [16]	86.0	87.0	84.0	90.2	12.5	18.8	53.5	61.7
		ViTAD [40]	98.8	99.3	95.9	99.1	47.8	50.3	96.4	83.9
		InvAD [42]	98.8	99.2	96.0	99.2	54.3	56.8	97.0	85.9
		InvAD-lite [42]	98.9	99.4	95.6	99.2	54.0	57.4	97.0	85.9
		MambaAD [15]	99.4	99.6	97.1	99.3	58.4	60.9	97.6	87.5
		UniAD [35]	98.2	98.9	95.3	98.4	33.1	36.9	95.1	79.4
	Hybrid	RD++ [31]	97.0	98.3	93.0	99.1	47.1	51.6	96.4	83.2
		DesTSeg [44]	93.4	96.0	89.6	70.5	18.9	25.2	71.2	66.4
Avg	Aug.	DRAEM [37]	50.9	45.9	61.3	44.0	0.2	0.4	13.6	30.9
		SimpleNet [27]	54.9	50.6	61.5	76.1	1.9	4.9	42.4	41.8
		CFA [21]	55.7	50.5	61.9	81.3	1.6	3.8	48.8	43.4
	Emb.	CFLOW-AD [14]	77.0	75.8	69.9	94.8	17.6	21.7	80.4	62.5
		PyramidalFlow [22]	54.4	48.0	62.0	71.1	1.2	1.1	34.9	39.0
	Rec.	RD [10]	82.7	79.3	74.1	97.2	25.2	32.8	90.0	68.8
		DiAD [16]	75.6	66.4	69.9	88.0	2.9	7.1	58.1	52.6
		ViTAD [40]	82.7	80.2	73.7	97.2	24.3	32.3	84.8	67.9
		InvAD [42]	89.4	87.0	80.2	98.4	32.6	38.9	92.7	74.2
		InvAD-lite [42]	87.2	85.2	77.8	98.0	31.7	37.9	92.0	72.8
		MambaAD [15]	87.0	85.3	77.6	98.6	32.4	38.1	91.2	72.9
		UniAD [35]	83.1	81.2	74.5	97.4	23.3	30.9	87.1	68.2
	Hybrid	RD++ [31]	83.6	80.6	74.8	97.7	25.9	33.6	90.7	69.6
		DesTSeg [44]	79.3	76.7	70.7	80.3	36.9	40.3	56.1	62.9

N. Detailed Quantitative Results on COCO-AD Dataset Under 100 epochs

Table A54. Benchmarked results on COCO-AD dataset [42] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
0	Aug.	DRAEM [37]	48.8	74.5	85.0	51.9	16.6	27.7	18.1	46.1
		SimpleNet [27]	63.4	82.1	85.0	78.2	39.1	44.6	44.4	62.4
	Emb.	CFA [21]	52.1	76.1	85.0	59.3	22.2	29.6	19.4	49.1
		CFLOW-AD [14]	80.2	91.2	87.1	81.9	46.4	48.9	51.8	69.6
		PyramidalFlow [22]	48.5	73.3	85.0	50.0	8.1	27.7	15.0	43.9
	Rec.	RD [10]	65.7	82.0	85.0	72.0	30.8	38.3	47.9	60.2
		DiAD [16]	57.5	77.5	85.3	67.0	33.4	26.2	28.8	53.7
		ViTAD [40]	84.8	93.9	88.0	83.1	55.3	53.2	51.0	72.8
		InvAD [42]	74.3	88.1	85.1	78.0	41.6	44.6	52.3	66.3
		InvAD-lite [42]	75.7	89.7	85.3	76.6	40.8	43.0	47.8	65.6
		MambaAD [15]	74.0	88.9	85.2	75.4	38.2	41.5	48.9	64.6
	Hybrid	UniAD [35]	66.2	84.5	85.1	70.4	29.3	36.7	39.8	58.9
		RD++ [31]	70.3	85.4	85.1	74.9	34.9	41.1	50.3	63.1
		DesTSeg [44]	57.1	77.4	85.0	54.2	21.2	27.7	28.2	50.1
1	Aug.	DRAEM [37]	47.4	42.7	60.9	48.1	2.4	5.8	13.6	31.6
		SimpleNet [27]	45.0	39.8	60.9	53.3	3.5	6.5	19.3	32.6
	Emb.	CFA [21]	52.4	44.8	61.0	56.6	3.4	6.9	13.1	34.0
		CFLOW-AD [14]	59.5	50.0	61.7	76.1	8.2	14.2	46.4	45.2
		PyramidalFlow [22]	52.4	45.7	60.9	50.1	19.5	5.8	15.0	35.6
	Rec.	RD [10]	54.6	46.3	61.0	70.1	5.9	10.7	40.9	41.4
		DiAD [16]	54.4	49.8	62.2	71.3	11.8	7.8	28.8	40.9
		ViTAD [40]	58.5	51.2	61.8	78.9	16.3	23.4	38.1	46.9
		InvAD [42]	55.7	47.9	61.0	73.4	7.9	13.4	43.0	43.2
		InvAD-lite [42]	54.0	47.0	61.1	71.9	7.3	12.2	36.6	41.4
		MambaAD [15]	54.9	47.7	61.0	70.8	6.2	11.0	38.4	41.4
	Hybrid	UniAD [35]	55.9	47.8	61.0	69.1	5.9	10.4	37.3	41.1
		RD++ [31]	55.8	46.6	61.1	69.2	6.2	8.8	41.1	41.3
		DesTSeg [44]	54.2	47.0	61.1	59.1	5.3	9.6	29.5	38.0
2	Aug.	DRAEM [37]	58.1	37.0	51.0	50.4	5.6	11.9	15.2	32.7
		SimpleNet [27]	55.3	36.8	49.9	55.7	7.8	12.9	22.7	34.4
	Emb.	CFA [21]	62.2	42.3	51.6	60.4	9.2	15.1	26.8	38.2
		CFLOW-AD [14]	65.5	44.8	53.7	75.8	14.0	22.8	46.1	46.1
		PyramidalFlow [22]	50.2	32.4	49.4	50.0	9.4	11.9	15.0	31.2
	Rec.	RD [10]	58.6	37.3	50.9	67.3	11.3	17.3	40.7	40.5
		DiAD [16]	63.8	43.4	52.5	68.0	19.2	12.2	33.2	41.8
		ViTAD [40]	67.5	53.9	52.6	80.5	28.9	35.9	40.2	51.4
		InvAD [42]	66.5	45.8	54.4	73.5	15.5	23.5	49.5	47.0
		InvAD-lite [42]	67.4	48.9	53.7	72.1	16.2	23.0	43.1	46.3
		MambaAD [15]	65.2	45.3	53.3	70.9	13.9	21.4	45.0	45.0
	Hybrid	UniAD [35]	48.8	31.6	49.5	60.0	7.6	14.6	27.9	34.3
		RD++ [31]	51.5	31.0	50.3	70.3	12.7	16.9	43.5	39.5
		DesTSeg [44]	56.6	37.8	50.0	53.8	8.8	11.9	22.3	34.5
3	Aug.	DRAEM [37]	59.6	39.8	53.3	49.1	5.8	12.4	14.3	33.5
		SimpleNet [27]	58.6	38.7	53.4	53.7	7.5	12.9	18.0	34.7
	Emb.	CFA [21]	60.0	41.5	52.9	48.4	6.4	12.4	12.2	33.4
		CFLOW-AD [14]	65.5	45.7	55.5	70.1	12.6	19.7	46.3	45.1
		PyramidalFlow [22]	55.2	38.1	51.2	50.0	16.7	12.4	15.0	34.1
	Rec.	RD [10]	51.4	34.1	51.3	56.7	7.8	13.7	29.7	35.0
		DiAD [16]	60.1	41.4	52.9	65.9	17.5	10.6	32.3	40.1
		ViTAD [40]	56.6	38.2	52.3	62.3	10.0	16.4	27.1	37.6
		InvAD [42]	60.2	42.0	53.1	59.7	9.0	14.9	38.5	39.6
		InvAD-lite [42]	56.2	38.6	51.6	59.1	8.6	14.3	31.3	37.1
		MambaAD [15]	57.1	38.9	51.5	58.6	8.5	14.2	34.0	37.5
	Hybrid	UniAD [35]	49.9	33.2	51.3	59.0	8.2	14.4	32.1	35.4
		RD++ [31]	52.5	34.3	51.6	58.5	8.3	13.5	33.7	36.1
		DesTSeg [44]	49.8	35.3	51.1	50.8	7.2	12.4	17.6	32.0

Table A55. Benchmarked results on COCO-AD dataset [42] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
Avg	Aug.	DRAEM [37]	53.5	48.5	62.5	49.9	7.6	14.4	15.3	36.0
		SimpleNet [27]	55.6	49.4	62.3	60.2	14.5	19.2	26.1	41.0
	Emb.	CFA [21]	56.7	51.2	62.6	56.2	10.3	16.0	17.9	38.7
		CFLOW-AD [14]	67.7	<u>57.9</u>	64.5	<u>76.0</u>	<u>20.3</u>	<u>26.4</u>	47.7	<u>16.0</u>
		PyramidalFlow [22]	51.6	47.4	61.6	50.0	13.4	14.4	15.0	36.2
	Rec.	RD [10]	57.6	49.9	62.0	66.5	13.9	20.0	39.8	44.2
		DiAD [16]	59.0	53.0	63.2	68.1	<u>20.5</u>	14.2	30.8	44.1
		ViTAD [40]	<u>66.9</u>	59.3	<u>63.7</u>	76.2	27.6	32.2	39.1	20.1
		InvAD [42]	<u>64.2</u>	<u>56.0</u>	<u>63.4</u>	<u>71.2</u>	18.5	<u>24.1</u>	<u>45.8</u>	<u>14.3</u>
		InvAD-lite [42]	63.3	<u>56.0</u>	62.9	69.9	18.2	23.1	39.7	<u>47.6</u>
		MambaAD [15]	62.8	55.2	62.8	68.9	16.7	22.0	41.6	47.1
		UniAD [35]	55.2	49.3	61.7	64.6	12.8	19.0	34.3	42.4
	Hybrid	RD++ [31]	57.5	49.3	62.0	68.2	15.5	20.1	<u>42.2</u>	45.0
		DesTSeg [44]	54.4	49.4	61.8	54.5	10.6	15.4	24.4	8.5

**O. Detailed Quantitative Results on MVTec
AD Dataset Under 300 epochs**

Table A56. Benchmarked results on MVTec AD dataset [3] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD	
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max				
bottle	Aug.	DRAEM [37]	42.8	73.8	86.3	55.0	6.2	11.3	15.8	6.0	41.6
		SimpleNet [27]	85.4	95.6	87.6	80.8	21.9	26.6	50.7	15.3	64.1
		RealNet [45]	98.7	<u>99.6</u>	96.9	72.5	60.5	53.4	61.5	36.4	77.6
	Emb.	CFA [21]	36.7	71.5	86.3	23.6	3.5	10.9	2.4	5.8	33.6
		PatchCore [29]	100.	100.	100.	98.9	79.0	<u>77.1</u>	<u>96.1</u>	<u>62.7</u>	93.9
		CFLOW-AD [14]	<u>99.9</u>	100.	<u>99.2</u>	97.3	62.3	63.9	92.1	47.0	87.8
		PyramidalFlow [22]	75.1	91.3	86.9	54.8	7.4	11.8	17.9	6.3	49.3
	Rec.	RD [10]	99.6	<u>99.9</u>	<u>98.4</u>	97.8	68.0	67.9	94.6	51.5	89.5
		DiAD [16]	97.8	99.1	<u>99.2</u>	93.5	45.9	49.4	75.9	32.8	80.1
		ViTAD [40]	100.	100.	100.	<u>98.8</u>	<u>80.0</u>	<u>75.3</u>	94.7	<u>60.4</u>	<u>92.7</u>
		InvAD [42]	100.	100.	100.	<u>98.4</u>	74.8	72.2	95.2	56.6	91.5
		InvAD-lite [42]	100.	100.	100.	<u>98.4</u>	74.8	73.2	<u>95.5</u>	57.7	91.7
		MambaAD [15]	100.	100.	100.	98.9	<u>80.3</u>	<u>77.1</u>	96.2	<u>62.7</u>	<u>93.2</u>
	Hybrid	UniAD [35]	<u>99.8</u>	100.	<u>99.2</u>	98.0	68.9	69.8	94.5	53.6	90.0
		RD++ [31]	<u>99.8</u>	100.	<u>99.2</u>	98.2	71.0	71.3	94.8	55.4	90.6
		DesTSeg [44]	100.	100.	100.	95.7	88.0	80.8	92.6	67.8	93.9
cable	Aug.	DRAEM [37]	53.6	66.2	76.0	52.4	2.7	5.6	14.7	2.9	38.7
		SimpleNet [27]	71.3	81.6	77.1	76.8	13.0	18.2	51.5	10.0	55.6
		RealNet [45]	63.3	80.1	76.0	59.8	29.4	26.6	29.1	15.3	52.0
	Emb.	CFA [21]	56.4	71.8	76.0	57.1	7.4	8.1	16.3	4.2	41.9
		PatchCore [29]	99.8	99.9	99.5	97.7	<u>51.6</u>	<u>55.2</u>	93.6	<u>38.1</u>	87.1
		CFLOW-AD [14]	90.3	94.1	88.2	89.9	27.7	33.8	79.4	20.3	71.9
		PyramidalFlow [22]	59.6	75.3	76.3	74.7	17.9	17.8	37.5	9.8	51.3
	Rec.	RD [10]	81.9	88.4	80.6	84.9	25.9	33.0	76.8	19.8	67.4
		DiAD [16]	85.9	92.4	85.7	90.8	27.2	33.0	64.4	19.8	68.5
		ViTAD [40]	98.8	99.2	<u>96.3</u>	95.4	41.0	45.0	88.9	29.1	80.7
		InvAD [42]	<u>99.2</u>	<u>99.5</u>	<u>96.8</u>	<u>97.3</u>	47.0	<u>51.1</u>	<u>92.1</u>	34.3	<u>83.3</u>
		InvAD-lite [42]	96.3	97.7	92.6	90.2	36.9	45.7	86.5	29.6	78.0
		MambaAD [15]	<u>98.9</u>	<u>99.3</u>	95.6	95.9	42.6	48.0	<u>90.9</u>	31.6	81.6
	Hybrid	UniAD [35]	96.6	98.0	91.8	<u>97.0</u>	<u>49.3</u>	<u>55.2</u>	86.6	<u>38.2</u>	<u>82.1</u>
		RD++ [31]	94.5	96.3	91.6	93.7	37.2	44.5	86.4	28.6	77.7
		DesTSeg [44]	93.0	96.2	88.3	92.2	62.8	62.3	70.9	45.3	80.8
capsule	Aug.	DRAEM [37]	41.4	81.7	90.5	47.9	1.1	1.8	17.6	0.9	40.3
		SimpleNet [27]	73.6	92.1	91.1	93.4	19.8	26.6	77.1	15.3	67.7
		RealNet [45]	51.0	85.4	90.5	51.8	23.3	5.7	18.8	2.9	46.6
	Emb.	CFA [21]	40.2	79.1	90.5	81.8	4.0	8.4	56.0	4.4	51.4
		PatchCore [29]	99.2	99.8	98.6	99.0	<u>49.0</u>	<u>52.9</u>	<u>95.7</u>	<u>35.9</u>	86.7
		CFLOW-AD [14]	87.8	97.2	93.4	98.5	39.9	43.7	93.3	28.0	79.1
		PyramidalFlow [22]	54.6	87.9	90.5	89.5	9.1	15.1	55.7	8.2	57.5
	Rec.	RD [10]	<u>98.2</u>	<u>99.6</u>	<u>96.9</u>	<u>98.8</u>	44.2	50.4	96.0	33.7	83.4
		DiAD [16]	<u>97.9</u>	<u>99.6</u>	<u>97.3</u>	90.3	16.2	23.1	54.2	13.0	68.4
		ViTAD [40]	95.8	99.1	95.4	98.1	41.6	47.5	92.2	31.2	81.4
		InvAD [42]	<u>98.2</u>	<u>99.6</u>	<u>96.9</u>	99.0	<u>47.5</u>	51.1	<u>95.8</u>	34.3	<u>84.0</u>
		InvAD-lite [42]	96.5	99.2	96.8	98.6	43.9	49.0	95.1	32.5	82.7
		MambaAD [15]	94.8	98.9	95.4	98.4	43.8	47.1	93.9	30.8	81.8
	Hybrid	UniAD [35]	87.5	96.9	93.5	<u>98.7</u>	45.6	48.5	92.5	32.0	80.5
		RD++ [31]	97.6	<u>99.5</u>	96.8	<u>98.8</u>	45.4	<u>51.2</u>	<u>95.7</u>	<u>34.4</u>	<u>83.6</u>
		DesTSeg [44]	91.3	98.2	93.4	86.0	57.5	58.4	59.0	41.3	77.7
carpet	Aug.	DRAEM [37]	34.4	72.8	86.4	50.2	1.6	3.2	15.2	1.6	37.7
		SimpleNet [27]	88.8	96.7	89.6	95.4	37.3	44.0	80.9	28.2	76.1
		RealNet [45]	97.3	99.2	96.1	87.8	73.0	68.3	82.3	51.8	86.3
	Emb.	CFA [21]	54.3	81.4	86.4	41.0	3.1	8.0	25.7	4.2	42.8
		PatchCore [29]	98.4	99.5	97.8	<u>99.1</u>	<u>66.4</u>	<u>64.6</u>	95.2	<u>47.7</u>	89.9
		CFLOW-AD [14]	99.2	<u>99.8</u>	<u>98.3</u>	98.9	59.0	61.4	94.7	44.3	87.3
		PyramidalFlow [22]	56.7	80.3	86.4	81.9	7.3	14.9	49.0	8.0	53.8
	Rec.	RD [10]	98.4	99.5	97.2	<u>99.0</u>	57.7	60.1	<u>95.6</u>	42.9	86.8
		DiAD [16]	91.3	97.6	90.5	87.7	16.9	26.6	65.5	15.4	68.0
		ViTAD [40]	99.4	<u>99.8</u>	99.4	98.9	61.1	64.2	94.3	47.3	<u>88.2</u>
		InvAD [42]	98.8	99.7	97.2	<u>99.1</u>	60.9	62.2	<u>95.6</u>	45.2	87.6
		InvAD-lite [42]	<u>99.5</u>	<u>99.8</u>	<u>98.9</u>	<u>99.0</u>	55.6	60.1	<u>96.0</u>	42.9	87.0
		MambaAD [15]	99.9	100.	99.4	99.2	62.7	63.3	97.2	46.3	<u>88.8</u>
	Hybrid	UniAD [35]	<u>99.8</u>	<u>99.9</u>	99.4	98.5	52.9	52.6	95.2	35.7	85.5
		RD++ [31]	97.4	99.3	96.6	98.8	52.1	56.3	94.5	39.2	85.0

Table A57. Benchmarked results on MVTec AD dataset [3] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF ₁ -max	mAU-ROC	mAP	mF ₁ -max			
grid	Aug.	DRAEM [37]	64.2	84.1	85.5	49.3	0.6	1.4	14.3	42.8
		SimpleNet [27]	40.5	69.4	85.7	38.2	0.5	1.4	3.6	34.2
		RealNet [45]	97.4	99.3	98.2	81.0	47.8	<u>49.2</u>	70.3	<u>77.6</u>
	Emb.	CFA [21]	51.2	79.2	85.1	27.5	0.4	1.4	1.7	35.2
		PatchCore [29]	99.4	<u>99.8</u>	98.2	98.9	40.8	44.3	94.0	28.4
		CFLOW-AD [14]	89.4	96.5	88.9	93.6	21.3	26.9	82.3	15.5
		PyramidalFlow [22]	78.4	90.2	88.7	90.0	13.9	22.4	75.5	12.6
	Rec.	RD [10]	97.8	99.3	96.6	<u>99.2</u>	45.9	47.6	97.3	31.2
		DiAD [16]	<u>99.7</u>	<u>99.9</u>	<u>98.3</u>	85.7	3.9	9.7	57.4	5.1
		ViTAD [40]	99.6	<u>99.9</u>	<u>99.1</u>	98.6	30.6	36.6	95.8	22.4
		InvAD [42]	100.	100.	100.	<u>99.2</u>	45.5	47.3	97.3	31.0
		InvAD-lite [42]	100.	100.	100.	99.3	<u>50.0</u>	<u>50.2</u>	<u>97.7</u>	<u>33.5</u>
		MambaAD [15]	100.	100.	100.	<u>99.2</u>	<u>48.6</u>	48.3	<u>97.6</u>	31.8
	Hybrid	UniAD [35]	98.8	99.6	96.6	97.0	23.8	30.0	92.1	17.6
		RD++ [31]	99.1	99.7	98.2	<u>99.1</u>	43.7	48.1	96.7	31.6
		DesTSeg [44]	<u>99.8</u>	<u>99.9</u>	<u>99.1</u>	99.3	65.9	64.9	97.8	48.0
hazelnut	Aug.	DRAEM [37]	51.0	69.7	77.8	32.8	2.2	4.2	11.2	35.6
		SimpleNet [27]	93.0	96.1	91.5	92.0	24.7	33.0	81.2	19.8
		RealNet [45]	99.4	99.6	<u>98.6</u>	70.2	47.1	44.9	64.3	29.0
	Emb.	CFA [21]	66.1	79.8	78.9	38.0	4.7	8.1	26.7	4.2
		PatchCore [29]	100.	100.	100.	99.0	61.2	<u>63.6</u>	<u>96.2</u>	<u>46.6</u>
		CFLOW-AD [14]	<u>99.9</u>	<u>99.9</u>	<u>99.3</u>	98.5	59.9	56.9	95.7	39.8
		PyramidalFlow [22]	88.5	93.6	87.7	88.1	31.8	39.3	75.5	24.5
	Rec.	RD [10]	100.	100.	100.	98.6	58.3	59.3	<u>96.4</u>	42.1
		DiAD [16]	96.6	98.5	96.3	95.3	27.9	37.2	81.0	22.9
		ViTAD [40]	<u>99.8</u>	<u>99.9</u>	<u>98.6</u>	<u>98.9</u>	<u>64.1</u>	62.6	95.2	45.5
		InvAD [42]	100.	100.	100.	<u>98.9</u>	58.7	60.3	96.6	43.2
		InvAD-lite [42]	100.	100.	100.	<u>98.8</u>	58.1	60.9	95.6	43.8
		MambaAD [15]	100.	100.	100.	99.0	64.8	65.6	95.8	<u>48.8</u>
	Hybrid	UniAD [35]	99.9	100.	<u>99.3</u>	98.1	53.5	55.2	94.6	38.1
		RD++ [31]	93.4	94.0	94.6	98.7	57.1	58.0	<u>96.4</u>	40.9
		DesTSeg [44]	99.7	<u>99.8</u>	<u>99.3</u>	97.9	90.2	84.2	90.5	72.7
leather	Aug.	DRAEM [37]	80.3	91.5	87.8	48.8	0.8	1.3	16.7	0.7
		SimpleNet [27]	87.3	<u>95.2</u>	90.1	82.2	5.3	11.7	74.6	6.2
		RealNet [45]	100.	100.	100.	95.8	<u>73.8</u>	<u>70.4</u>	93.9	<u>54.3</u>
	Emb.	CFA [21]	58.1	80.3	86.7	23.7	0.4	1.3	1.7	0.6
		PatchCore [29]	100.	100.	100.	<u>99.4</u>	<u>52.1</u>	51.2	97.8	34.5
		CFLOW-AD [14]	100.	100.	100.	<u>99.3</u>	48.8	49.0	98.3	32.4
		PyramidalFlow [22]	39.1	65.1	87.2	47.9	0.3	1.3	11.6	0.6
	Rec.	RD [10]	100.	100.	100.	<u>99.3</u>	38.2	45.4	97.8	29.4
		DiAD [16]	<u>97.4</u>	<u>99.0</u>	<u>96.8</u>	91.5	6.4	13.3	77.9	7.1
		ViTAD [40]	100.	100.	100.	99.5	51.3	<u>55.4</u>	98.0	<u>38.3</u>
		InvAD [42]	100.	100.	100.	<u>99.4</u>	49.9	52.1	97.9	35.2
		InvAD-lite [42]	100.	100.	100.	99.2	41.2	46.4	<u>98.4</u>	30.2
		MambaAD [15]	100.	100.	100.	<u>99.3</u>	47.7	50.1	<u>98.6</u>	33.4
	Hybrid	UniAD [35]	100.	100.	100.	98.9	36.3	38.1	97.6	23.5
		RD++ [31]	100.	100.	100.	99.2	39.7	44.4	97.4	28.5
		DesTSeg [44]	100.	100.	<u>99.5</u>	99.5	80.6	73.4	98.8	58.0
metal_nut	Aug.	DRAEM [37]	61.2	86.4	89.4	39.8	8.4	21.2	10.8	11.9
		SimpleNet [27]	74.3	92.3	90.1	79.9	33.0	36.8	52.7	22.5
		RealNet [45]	63.4	90.4	89.4	51.6	37.6	21.0	31.2	11.7
	Emb.	CFA [21]	55.7	87.0	89.4	58.4	16.2	24.9	10.0	14.2
		PatchCore [29]	100.	100.	100.	98.8	<u>88.9</u>	<u>85.8</u>	95.6	<u>75.1</u>
		CFLOW-AD [14]	97.8	<u>99.5</u>	97.3	96.0	71.4	68.3	88.8	51.9
		PyramidalFlow [22]	68.0	91.1	89.9	80.1	32.8	43.5	31.7	27.8
	Rec.	RD [10]	59.9	83.6	93.9	92.1	50.0	52.2	87.5	35.3
		DiAD [16]	94.6	98.8	94.2	94.4	73.7	72.5	53.9	56.9
		ViTAD [40]	<u>99.9</u>	100.	<u>99.5</u>	96.1	74.2	75.9	92.9	61.2
		InvAD [42]	100.	100.	100.	<u>97.7</u>	<u>81.3</u>	<u>82.0</u>	93.7	<u>69.5</u>
		InvAD-lite [42]	99.7	<u>99.9</u>	<u>98.9</u>	<u>97.4</u>	79.6	80.4	<u>93.8</u>	67.2
		MambaAD [15]	<u>99.8</u>	100.	<u>98.9</u>	97.1	77.3	80.2	<u>94.3</u>	66.9
	Hybrid	UniAD [35]	98.3	<u>99.5</u>	<u>98.9</u>	92.6	48.8	63.0	79.4	46.0
		RD++ [31]	100.	100.	<u>99.5</u>	96.6	74.0	77.4	93.4	63.1

Table A58. Benchmarked results on MVTec AD dataset [3] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD	
		mAU-ROC	mAP	mF ₁ -max	mAU-ROC	mAP	mF ₁ -max				
pill	Aug.	DRAEM [37]	68.0	91.5	92.5	46.0	3.3	6.6	18.4	3.4	46.6
		SimpleNet [27]	71.4	93.5	91.6	94.1	53.0	50.7	77.7	34.0	76.0
		RealNet [45]	63.3	91.6	91.6	51.1	41.1	6.5	28.3	3.4	53.4
	Emb.	CFA [21]	62.4	89.5	91.6	48.5	4.8	9.5	27.3	5.0	47.7
		PatchCore [29]	<u>97.0</u>	<u>99.4</u>	<u>96.5</u>	<u>98.1</u>	<u>76.8</u>	<u>74.0</u>	96.1	<u>58.7</u>	91.9
		CFLOW-AD [14]	85.0	96.8	92.3	96.5	56.2	55.8	90.9	38.7	81.9
		PyramidalFlow [22]	68.7	93.0	91.8	77.6	13.9	24.2	61.2	13.8	61.5
	Rec.	RD [10]	97.0	99.5	97.2	97.5	63.1	64.5	96.0	47.6	87.8
		DiAD [16]	94.7	99.0	<u>97.2</u>	93.0	50.4	50.6	65.7	33.9	78.6
		ViTAD [40]	96.2	<u>99.4</u>	96.4	98.7	<u>77.5</u>	<u>75.4</u>	95.5	<u>60.6</u>	<u>91.3</u>
		InvAD [42]	97.6	99.6	<u>97.2</u>	98.0	69.9	68.3	<u>96.4</u>	51.9	89.6
		InvAD-lite [42]	96.5	<u>99.4</u>	96.1	98.0	71.7	70.6	96.6	54.6	89.8
		MambaAD [15]	95.5	99.2	<u>96.5</u>	97.1	61.3	64.1	95.6	47.2	87.0
	Hybrid	UniAD [35]	94.1	98.9	95.1	95.1	40.7	45.9	94.7	29.8	80.6
		RD++ [31]	97.6	<u>99.5</u>	97.9	<u>98.2</u>	73.4	70.9	<u>96.3</u>	54.9	<u>90.5</u>
		DesTSeg [44]	88.9	97.8	93.0	89.5	83.5	77.4	48.9	63.1	82.7
screw	Aug.	DRAEM [37]	53.0	75.7	85.6	51.6	0.4	0.5	17.5	0.3	40.6
		SimpleNet [27]	63.0	84.6	85.3	91.3	1.7	3.8	70.5	1.9	57.2
		RealNet [45]	72.7	89.0	85.6	50.6	9.2	1.9	17.0	1.0	46.6
	Emb.	CFA [21]	64.2	82.6	85.9	32.2	0.2	0.8	13.1	0.4	39.9
		PatchCore [29]	<u>98.3</u>	<u>99.4</u>	97.1	<u>99.5</u>	41.5	44.6	97.2	28.7	84.5
		CFLOW-AD [14]	71.4	88.4	85.8	97.0	17.2	24.2	89.3	13.7	67.6
		PyramidalFlow [22]	46.7	72.0	85.3	58.5	0.3	1.3	10.7	0.6	39.3
	Rec.	RD [10]	<u>98.3</u>	<u>99.5</u>	<u>96.1</u>	<u>99.4</u>	41.3	44.9	97.1	29.0	82.4
		DiAD [16]	72.4	87.1	87.5	86.4	3.1	8.2	55.4	4.3	57.1
		ViTAD [40]	91.2	97.0	92.0	98.9	33.2	39.8	93.6	24.9	78.0
		InvAD [42]	<u>97.2</u>	99.0	95.9	99.6	<u>49.5</u>	51.6	<u>97.5</u>	34.8	<u>84.3</u>
		InvAD-lite [42]	93.9	97.8	93.5	<u>99.5</u>	46.9	<u>50.4</u>	97.7	<u>33.7</u>	82.8
		MambaAD [15]	93.9	97.6	94.0	<u>99.4</u>	50.1	<u>50.2</u>	<u>97.4</u>	<u>33.5</u>	<u>83.2</u>
	Hybrid	UniAD [35]	92.4	96.6	93.3	98.9	31.5	37.8	94.2	23.3	77.8
		RD++ [31]	98.7	99.6	<u>96.7</u>	99.5	41.7	47.5	97.7	31.1	83.1
		DesTSeg [44]	86.4	95.3	89.8	74.4	<u>49.2</u>	46.7	50.1	30.5	70.3
tile	Aug.	DRAEM [37]	63.4	83.5	83.8	48.8	6.4	13.2	14.2	7.0	44.8
		SimpleNet [27]	86.5	94.9	88.1	75.0	27.3	35.7	49.0	21.7	65.2
		RealNet [45]	98.7	<u>99.6</u>	98.2	91.9	84.8	<u>78.4</u>	87.3	<u>64.5</u>	91.3
	Emb.	CFA [21]	52.5	76.5	83.6	22.5	4.2	13.2	5.3	7.0	36.8
		PatchCore [29]	100.	100.	99.4	<u>96.4</u>	<u>58.7</u>	67.1	86.6	50.5	<u>88.5</u>
		CFLOW-AD [14]	<u>99.7</u>	<u>99.9</u>	<u>99.4</u>	95.9	55.9	62.1	86.7	45.0	<u>85.7</u>
		PyramidalFlow [22]	82.9	93.8	85.4	79.5	46.6	41.2	49.2	25.9	68.4
	Rec.	RD [10]	97.9	99.2	95.2	95.2	48.4	60.4	85.7	43.2	83.1
		DiAD [16]	93.0	96.6	96.3	76.2	25.0	33.8	50.5	20.3	67.4
		ViTAD [40]	<u>99.9</u>	100.	<u>98.8</u>	<u>96.5</u>	56.5	<u>68.7</u>	<u>88.0</u>	<u>52.3</u>	86.9
		InvAD [42]	100.	100.	100.	95.5	50.0	61.3	87.6	44.2	84.9
		InvAD-lite [42]	98.2	99.3	96.5	94.4	47.9	55.8	82.4	38.7	82.1
		MambaAD [15]	98.2	99.3	96.0	93.7	44.7	54.0	80.8	37.0	81.0
	Hybrid	UniAD [35]	100.	100.	100.	92.6	43.2	51.4	81.5	34.6	81.2
		RD++ [31]	<u>99.9</u>	100.	<u>99.4</u>	96.3	52.8	64.3	<u>88.7</u>	47.4	85.9
		DesTSeg [44]	100.	100.	100.	98.9	95.9	89.5	98.0	81.0	97.5
toothbrush	Aug.	DRAEM [37]	43.6	68.4	83.3	49.9	1.7	3.8	16.1	2.0	38.1
		SimpleNet [27]	91.4	96.5	90.9	94.4	36.7	40.9	72.1	25.7	74.7
		RealNet [45]	85.0	94.6	86.6	72.3	41.5	43.2	25.6	27.6	64.1
	Emb.	CFA [21]	43.6	72.2	83.3	52.5	5.6	9.5	39.9	5.0	43.8
		PatchCore [29]	91.9	96.2	<u>95.2</u>	<u>99.0</u>	<u>54.8</u>	58.5	91.0	41.3	<u>85.1</u>
		CFLOW-AD [14]	83.3	94.3	84.6	98.2	46.0	52.3	85.7	35.5	77.8
		PyramidalFlow [22]	60.3	82.9	83.3	75.0	17.5	18.1	16.5	10.0	50.5
	Rec.	RD [10]	35.8	62.6	85.7	97.3	21.3	40.0	86.1	25.0	61.3
		DiAD [16]	95.0	98.0	<u>95.2</u>	89.7	11.1	18.4	64.9	10.1	67.5
		ViTAD [40]	100.	100.	100.	99.1	54.7	<u>62.5</u>	91.0	<u>45.4</u>	86.8
		InvAD [42]	94.2	97.6	<u>95.2</u>	<u>99.0</u>	52.4	59.7	<u>91.5</u>	42.5	84.2
		InvAD-lite [42]	<u>98.1</u>	<u>99.2</u>	<u>96.8</u>	<u>99.0</u>	50.3	59.7	91.2	42.6	84.9
		MambaAD [15]	<u>98.9</u>	<u>99.6</u>	<u>96.8</u>	<u>99.0</u>	47.8	60.3	92.5	43.2	85.0
	Hybrid	UniAD [35]	90.3	95.6	<u>95.2</u>	<u>98.5</u>	39.1	49.9	87.9	33.2	79.5
		RD++ [31]	96.7	98.7	<u>95.1</u>	99.1	57.0	61.5	92.2	44.4	85.8

Table A59. Benchmarked results on MVTec AD dataset [3] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD	
		mAU-ROC	mAP	mF ₁ -max	mAU-ROC	mAP	mF ₁ -max				
transistor	Aug.	DRAEM [37]	42.0	36.8	57.6	50.4	4.2	9.2	14.9	4.8	30.7
		SimpleNet [27]	81.8	81.9	70.1	75.8	31.9	38.0	57.0	23.5	62.4
		RealNet [45]	73.2	76.8	68.8	57.5	48.6	22.7	31.6	12.8	54.2
	Emb.	CFA [21]	70.0	59.8	66.0	53.8	8.0	12.0	24.0	6.4	41.9
		PatchCore [29]	<u>99.8</u>	<u>99.7</u>	<u>97.5</u>	96.0	62.3	59.2	<u>90.8</u>	42.0	88.0
		CFLOW-AD [14]	92.4	93.4	88.9	84.6	38.8	40.3	74.1	25.3	73.2
		PyramidalFlow [22]	66.9	64.9	59.8	73.4	17.9	20.4	25.2	11.3	46.9
	Rec.	RD [10]	93.7	94.4	90.9	85.6	41.7	44.7	74.8	28.8	75.1
		DiAD [16]	99.0	98.7	<u>97.5</u>	98.1	72.8	68.5	85.3	52.1	<u>88.6</u>
		ViTAD [40]	98.5	97.9	92.1	93.7	57.6	54.5	77.0	37.5	81.6
		InvAD [42]	<u>99.7</u>	99.6	96.4	<u>97.1</u>	<u>69.4</u>	<u>66.3</u>	<u>93.1</u>	<u>49.6</u>	<u>88.8</u>
		InvAD-lite [42]	96.6	95.6	87.8	95.0	62.4	59.7	85.7	42.5	83.3
		MambaAD [15]	100.	99.9	98.8	95.7	64.4	63.5	86.4	46.5	87.0
	Hybrid	UniAD [35]	100.	100.	100.	<u>97.6</u>	<u>65.2</u>	<u>65.8</u>	94.4	<u>49.0</u>	89.0
		RD++ [31]	95.4	95.0	92.3	89.5	48.8	50.2	78.3	33.5	78.5
		DesTSeg [44]	99.5	99.3	96.3	76.6	60.4	56.6	78.2	39.5	81.0
wood	Aug.	DRAEM [37]	52.4	82.0	86.3	47.8	3.7	7.5	13.7	3.9	41.9
		SimpleNet [27]	84.4	93.4	91.5	74.6	15.1	23.3	53.6	13.2	62.3
		RealNet [45]	99.6	99.9	99.2	87.4	<u>77.0</u>	<u>73.7</u>	85.4	<u>58.3</u>	<u>88.9</u>
	Emb.	CFA [21]	81.7	92.4	90.3	64.8	7.7	12.9	31.0	6.9	54.4
		PatchCore [29]	98.7	99.6	96.7	95.2	52.1	52.3	91.3	35.4	<u>85.5</u>
		CFLOW-AD [14]	98.9	<u>99.7</u>	97.5	94.4	47.0	50.4	91.0	33.7	82.7
		PyramidalFlow [22]	86.8	95.2	89.9	71.2	35.9	15.2	50.3	8.2	63.5
	Rec.	RD [10]	<u>99.4</u>	<u>99.8</u>	<u>98.3</u>	<u>95.5</u>	49.4	51.7	<u>91.6</u>	34.9	83.7
		DiAD [16]	93.5	97.5	94.4	83.1	15.0	22.8	58.0	12.8	66.3
		ViTAD [40]	98.9	<u>99.7</u>	96.8	96.1	<u>60.8</u>	<u>57.9</u>	88.6	<u>40.8</u>	<u>85.5</u>
		InvAD [42]	98.9	99.6	<u>98.3</u>	94.8	<u>48.3</u>	50.0	89.9	33.3	82.8
		InvAD-lite [42]	97.3	99.1	95.9	94.9	47.3	48.4	88.7	31.9	81.7
		MambaAD [15]	98.7	99.6	96.8	94.2	46.7	47.7	<u>92.1</u>	31.3	82.3
		UniAD [35]	98.6	99.6	96.7	93.3	38.4	43.5	88.0	27.8	79.7
	Hybrid	RD++ [31]	<u>99.3</u>	<u>99.8</u>	<u>98.3</u>	<u>95.3</u>	50.2	51.1	90.3	34.3	83.5
		DesTSeg [44]	99.2	<u>99.7</u>	<u>98.4</u>	94.1	83.6	76.8	94.8	62.3	92.4
zipper		Aug.	DRAEM [37]	77.0	90.6	89.8	60.1	3.7	4.1	26.4	2.1
	SimpleNet [27]		95.0	98.7	93.5	92.6	39.2	44.6	78.3	28.7	77.4
	RealNet [45]		80.6	94.8	88.1	65.5	55.0	40.5	42.0	25.4	66.6
	Emb.	CFA [21]	43.4	78.6	88.1	32.7	1.6	4.2	9.1	2.1	36.8
		PatchCore [29]	99.6	99.9	<u>98.7</u>	98.9	<u>63.4</u>	<u>64.6</u>	96.4	<u>47.8</u>	<u>90.1</u>
		CFLOW-AD [14]	96.0	98.7	97.1	98.0	50.1	55.7	92.8	38.6	84.1
		PyramidalFlow [22]	60.9	87.5	88.1	70.0	6.0	8.1	32.7	4.2	50.5
	Rec.	RD [10]	<u>99.5</u>	99.9	99.2	<u>98.4</u>	52.4	59.9	<u>95.2</u>	42.8	86.4
		DiAD [16]	71.8	89.5	90.2	84.0	13.5	23.8	55.5	13.5	61.2
		ViTAD [40]	97.7	<u>99.3</u>	97.5	95.9	43.6	50.2	89.4	33.6	81.9
		InvAD [42]	99.6	99.9	99.2	<u>98.4</u>	50.8	58.0	95.0	40.9	85.8
		InvAD-lite [42]	99.3	<u>99.8</u>	97.5	<u>98.5</u>	57.7	<u>61.0</u>	<u>95.5</u>	<u>43.9</u>	<u>87.0</u>
		MambaAD [15]	99.1	<u>99.8</u>	97.4	<u>98.2</u>	<u>58.2</u>	60.5	95.0	43.3	86.9
		UniAD [35]	95.3	98.5	96.2	97.0	<u>37.7</u>	46.6	91.4	30.4	80.4
	Hybrid	RD++ [31]	68.2	89.3	92.2	98.3	50.8	57.9	94.5	40.7	78.7
		DesTSeg [44]	<u>99.4</u>	<u>99.8</u>	<u>98.3</u>	94.7	80.8	74.1	90.9	58.8	91.1
Avg		Aug.	DRAEM [37]	55.2	77.0	83.9	48.7	3.1	6.3	15.8	3.3
	SimpleNet [27]		79.2	90.8	87.6	82.4	24.0	29.0	62.0	17.8	65.0
	RealNet [45]		82.9	93.3	90.9	69.8	50.0	40.4	51.2	28.5	68.4
	Emb.	CFA [21]	55.8	78.8	84.5	43.9	4.8	8.9	19.3	4.7	42.3
		PatchCore [29]	98.8	<u>99.5</u>	98.4	98.3	59.9	<u>61.0</u>	<u>94.2</u>	<u>44.9</u>	88.6
		CFLOW-AD [14]	92.7	97.2	94.0	95.8	46.8	49.6	89.0	34.0	80.7
		PyramidalFlow [22]	66.2	84.3	85.1	74.2	17.2	19.6	40.0	11.4	55.2
	Rec.	RD [10]	90.5	95.0	95.1	95.9	47.1	52.1	91.2	35.8	81.0
		DiAD [16]	92.0	96.8	94.4	89.3	27.3	32.7	64.4	21.3	71.0
		ViTAD [40]	98.4	<u>99.4</u>	97.5	97.5	55.2	58.1	91.7	42.0	85.4
		InvAD [42]	98.9	99.6	<u>98.2</u>	<u>98.1</u>	<u>57.1</u>	<u>59.6</u>	94.4	<u>43.1</u>	<u>86.6</u>
		InvAD-lite [42]	98.1	99.1	96.8	97.3	55.0	58.1	93.1	41.7	85.4
		MambaAD [15]	<u>98.5</u>	<u>99.5</u>	<u>97.7</u>	<u>97.6</u>	56.1	58.7	<u>93.6</u>	42.3	86.0
		UniAD [35]	96.8	98.9	97.0	96.8	45.0	50.2	91.0	34.2	82.2
	Hybrid	RD++ [31]	95.8	98.0	96.6	97.3	53.0	57.0	92.9	40.5	84.4

**P. Detailed Quantitative Results on MVTec 3D
Dataset Under 300 epochs**

Table A60. Benchmarked results on MVTec 3D dataset [6] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
bagel	Aug.	DRAEM [37]	59.8	86.3	88.9	53.2	1.5	5.3	28.4	46.2
		SimpleNet [27]	80.8	94.3	91.3	95.7	19.2	28.0	78.1	69.6
		CFA [21]	68.2	90.2	88.9	71.5	12.8	23.4	34.8	55.7
	Emb.	PatchCore [29]	91.8	98.0	92.9	98.8	<u>43.7</u>	<u>46.8</u>	93.3	82.4
		CFLOW-AD [14]	79.6	94.4	89.8	98.3	31.0	39.1	89.6	74.5
		PyramidalFlow [22]	59.9	87.0	88.9	93.9	11.9	17.7	76.8	62.3
	Rec.	RD [10]	91.8	97.9	94.3	98.6	39.2	44.8	91.2	28.8
		DiAD [16]	89.6	97.6	91.5	89.6	4.5	10.3	66.2	5.4
		ViTAD [40]	89.3	97.1	93.4	98.6	38.6	43.6	91.8	27.9
		InvAD [42]	91.3	97.8	92.5	98.9	<u>44.7</u>	<u>48.5</u>	93.8	<u>32.0</u>
		InvAD-lite [42]	81.1	94.8	91.1	98.3	40.1	44.5	89.6	28.7
		MambaAD [15]	91.9	98.0	92.0	98.6	38.3	43.6	<u>93.1</u>	27.9
	Hybrid	UniAD [35]	84.9	96.1	89.9	98.0	32.9	37.6	<u>89.2</u>	23.2
		RD++ [31]	85.6	96.2	91.8	98.7	39.3	45.9	91.8	29.8
		DesTSeg [44]	96.8	99.3	95.2	96.6	66.6	64.1	89.2	47.1
cable_gland	Aug.	DRAEM [37]	26.1	68.5	89.2	56.9	0.4	0.9	26.6	0.5
		SimpleNet [27]	87.1	96.6	92.9	96.9	13.8	20.3	90.3	11.3
		CFA [21]	42.9	80.5	89.2	43.1	1.3	5.5	23.3	2.8
	Emb.	PatchCore [29]	96.4	99.0	96.1	99.5	37.3	43.6	<u>98.3</u>	27.9
		CFLOW-AD [14]	75.4	92.1	89.7	97.2	11.4	16.9	91.5	9.2
		PyramidalFlow [22]	55.4	83.9	89.2	75.4	0.8	2.2	47.2	1.1
	Rec.	RD [10]	91.5	97.7	93.6	<u>99.4</u>	36.8	41.9	98.2	26.5
		DiAD [16]	88.1	96.5	94.6	94.5	4.1	10.0	81.3	5.3
		ViTAD [40]	85.9	95.0	92.7	98.8	24.2	32.4	96.2	19.4
		InvAD [42]	97.3	99.3	97.7	99.5	40.6	<u>46.9</u>	98.7	30.6
		InvAD-lite [42]	95.1	98.8	94.8	<u>99.4</u>	<u>40.9</u>	<u>47.7</u>	<u>98.4</u>	<u>31.3</u>
		MambaAD [15]	94.6	98.7	94.9	<u>99.4</u>	<u>40.5</u>	46.1	<u>98.4</u>	29.9
	Hybrid	UniAD [35]	78.8	91.7	91.6	98.5	23.5	32.4	95.3	19.3
		RD++ [31]	94.6	98.6	<u>95.6</u>	99.5	<u>41.0</u>	45.3	<u>98.4</u>	29.3
		DesTSeg [44]	88.2	97.1	91.3	86.8	45.8	52.1	80.2	35.2
carrot	Aug.	DRAEM [37]	32.5	76.1	90.7	57.7	0.7	1.4	31.5	0.7
		SimpleNet [27]	68.2	91.5	91.0	96.5	8.8	15.7	86.3	8.5
		CFA [21]	48.3	85.8	90.7	56.3	2.6	5.8	32.4	3.0
	Emb.	PatchCore [29]	95.2	99.0	<u>95.6</u>	99.4	<u>25.9</u>	30.8	<u>97.7</u>	18.2
		CFLOW-AD [14]	86.8	97.2	92.6	98.9	18.6	25.6	96.0	14.7
		PyramidalFlow [22]	64.8	88.4	91.3	96.0	11.6	18.0	86.4	9.9
	Rec.	RD [10]	85.4	96.3	93.1	<u>99.3</u>	25.8	<u>32.3</u>	<u>97.6</u>	19.2
		DiAD [16]	92.7	98.1	98.1	97.6	6.3	12.0	91.0	6.4
		ViTAD [40]	79.4	94.0	92.5	98.8	19.5	26.2	95.9	15.1
		InvAD [42]	89.9	97.5	94.9	<u>99.2</u>	24.8	29.6	97.4	17.4
		InvAD-lite [42]	89.0	97.4	93.5	<u>99.3</u>	27.1	32.5	98.0	19.4
		MambaAD [15]	90.7	97.6	<u>95.2</u>	99.4	<u>27.1</u>	32.0	98.0	19.0
	Hybrid	UniAD [35]	73.1	93.0	92.0	98.2	13.6	20.5	94.0	11.4
		RD++ [31]	88.8	97.3	93.5	99.3	24.4	29.8	97.2	17.5
		DesTSeg [44]	77.4	94.0	90.7	66.8	34.7	33.5	42.8	20.1
cookie	Aug.	DRAEM [37]	51.8	80.7	89.2	44.9	1.2	3.5	14.5	1.8
		SimpleNet [27]	62.0	85.7	88.0	93.1	21.9	29.6	73.1	17.4
		CFA [21]	48.2	81.2	88.0	49.8	5.2	11.2	22.9	5.9
	Emb.	PatchCore [29]	71.0	91.6	88.0	98.0	52.4	50.2	92.5	<u>33.5</u>
		CFLOW-AD [14]	46.9	78.7	88.4	96.9	30.8	31.6	89.1	18.8
		PyramidalFlow [22]	24.9	69.8	88.0	85.7	6.3	12.3	62.7	6.6
	Rec.	RD [10]	49.9	81.2	88.0	96.3	24.4	31.4	86.4	18.6
		DiAD [16]	53.6	79.3	88.0	87.4	6.1	10.8	67.5	5.7
		ViTAD [40]	71.9	91.7	<u>88.5</u>	<u>97.5</u>	<u>46.3</u>	<u>47.5</u>	87.1	<u>31.2</u>
		InvAD [42]	62.8	87.8	88.0	98.0	<u>46.3</u>	46.6	<u>91.5</u>	30.4
		InvAD-lite [42]	67.1	89.2	88.3	96.2	29.1	34.2	83.9	20.7
		MambaAD [15]	67.2	89.2	88.0	96.5	36.7	39.2	83.4	24.4
	Hybrid	UniAD [35]	72.1	<u>90.8</u>	<u>88.5</u>	97.4	42.5	46.8	89.8	30.5
		RD++ [31]	56.1	83.8	88.0	97.3	36.7	39.6	88.5	24.7
		DesTSeg [44]	70.7	90.5	<u>88.6</u>	81.0	<u>50.2</u>	50.4	51.7	33.7

Table A61. Benchmarked results on MVTec 3D dataset [6] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
dowel	Aug. DRAEM [37]	41.9	77.5	88.9	34.5	0.5	2.5	17.0	1.2	37.5
	Aug. SimpleNet [27]	86.2	96.5	90.0	96.6	13.7	21.9	85.2	12.3	70.0
	Emb. CFA [21]	60.1	82.8	90.4	58.5	0.4	0.9	21.1	0.4	44.9
	Emb. PatchCore [29]	98.2	<u>99.6</u>	<u>97.5</u>	99.3	44.5	46.7	96.3	30.5	85.1
	Emb. CFLOW-AD [14]	94.9	98.8	<u>95.2</u>	98.9	29.9	34.1	94.8	20.6	78.1
	Emb. PyramidalFlow [22]	61.3	85.5	89.3	93.5	5.6	10.7	74.2	5.7	60.0
	Rec. RD [10]	99.4	99.9	<u>98.6</u>	99.7	<u>51.6</u>	51.4	98.8	34.5	<u>85.6</u>
	Rec. DiAD [16]	69.9	90.8	92.4	78.6	4.5	9.7	48.2	5.1	56.3
	Rec. ViTAD [40]	94.3	98.6	93.8	99.2	37.0	41.1	95.9	25.9	80.0
	Rec. InvAD [42]	<u>99.2</u>	<u>99.8</u>	99.0	99.7	<u>50.5</u>	<u>50.6</u>	<u>98.3</u>	<u>33.8</u>	<u>85.3</u>
	Rec. InvAD-lite [42]	96.5	99.2	96.2	<u>99.6</u>	<u>50.0</u>	<u>50.0</u>	97.4	33.3	84.1
	Rec. MambaAD [15]	97.6	99.4	96.1	<u>99.5</u>	<u>51.6</u>	<u>50.4</u>	97.4	33.7	84.6
	Hybrid UniAD [35]	94.0	98.6	93.0	99.1	35.6	41.2	96.1	25.9	79.7
	Hybrid RD++ [31]	99.6	99.9	99.0	99.7	52.2	<u>50.6</u>	<u>98.7</u>	<u>33.9</u>	85.7
	Hybrid DesTSeg [44]	82.3	95.5	89.8	84.4	39.8	45.8	63.0	29.7	71.5
foam	Aug. DRAEM [37]	50.1	83.0	88.9	57.0	0.3	0.4	19.2	0.2	42.7
	Aug. SimpleNet [27]	74.3	93.3	88.9	86.4	10.8	21.9	64.2	12.3	62.8
	Emb. CFA [21]	61.7	88.7	88.9	44.4	6.4	16.1	32.5	8.8	48.4
	Emb. PatchCore [29]	78.9	94.4	89.9	<u>94.9</u>	18.8	29.6	83.4	17.4	<u>72.2</u>
	Emb. CFLOW-AD [14]	73.8	93.3	89.3	85.3	16.2	26.4	57.3	15.2	<u>63.1</u>
	Emb. PyramidalFlow [22]	55.5	81.3	89.9	61.2	0.4	0.5	32.7	0.3	45.9
	Rec. RD [10]	74.7	92.9	89.9	93.5	14.1	27.3	79.6	15.8	67.4
	Rec. DiAD [16]	79.9	95.3	88.9	88.3	2.0	6.3	62.1	3.2	60.4
	Rec. ViTAD [40]	79.4	94.4	<u>90.8</u>	<u>94.0</u>	14.2	25.6	80.7	14.7	68.4
	Rec. InvAD [42]	87.4	96.8	91.6	93.8	18.9	30.1	81.3	17.7	71.4
	Rec. InvAD-lite [42]	<u>86.4</u>	<u>96.5</u>	<u>90.5</u>	<u>94.9</u>	<u>24.2</u>	<u>32.9</u>	<u>83.6</u>	<u>19.7</u>	<u>72.7</u>
	Rec. MambaAD [15]	84.3	95.9	89.9	95.3	<u>25.2</u>	<u>33.6</u>	84.8	<u>20.2</u>	<u>72.7</u>
	Hybrid UniAD [35]	75.0	93.2	88.9	83.2	9.8	22.4	57.1	12.6	61.4
	Hybrid RD++ [31]	69.2	91.5	89.0	92.4	14.7	26.6	75.8	15.4	65.6
	Hybrid DesTSeg [44]	<u>85.0</u>	<u>96.4</u>	89.8	85.5	44.7	49.6	74.4	33.0	75.1
peach	Aug. DRAEM [37]	48.5	82.0	89.1	47.4	0.6	2.3	19.3	1.2	41.3
	Aug. SimpleNet [27]	65.4	87.9	89.1	94.3	5.8	12.1	80.3	6.5	62.1
	Emb. CFA [21]	61.2	87.5	89.4	43.3	1.7	7.6	24.4	4.0	45.0
	Emb. PatchCore [29]	75.2	92.7	91.2	98.2	26.4	32.4	93.3	19.3	74.5
	Emb. CFLOW-AD [14]	74.4	91.8	90.5	97.9	16.2	18.4	92.3	10.2	68.8
	Emb. PyramidalFlow [22]	68.7	90.0	89.6	95.2	6.1	11.7	83.8	6.2	63.6
	Rec. RD [10]	64.3	86.3	91.7	98.3	12.9	20.5	93.2	11.4	66.7
	Rec. DiAD [16]	92.2	94.1	97.7	95.6	4.3	8.7	84.7	4.5	68.2
	Rec. ViTAD [40]	61.2	87.2	89.1	98.0	18.5	24.8	92.0	14.1	67.3
	Rec. InvAD [42]	82.5	94.2	<u>93.3</u>	<u>99.2</u>	<u>36.9</u>	<u>39.5</u>	<u>96.8</u>	<u>24.6</u>	<u>77.5</u>
	Rec. InvAD-lite [42]	<u>85.6</u>	96.1	<u>90.6</u>	<u>99.0</u>	<u>33.2</u>	<u>36.9</u>	<u>95.6</u>	<u>22.6</u>	<u>76.7</u>
	Rec. MambaAD [15]	<u>89.5</u>	96.9	<u>94.2</u>	99.4	44.0	44.3	97.2	<u>28.5</u>	80.8
	Hybrid UniAD [35]	70.0	89.8	91.2	98.0	18.5	23.5	92.6	13.3	69.1
	Hybrid RD++ [31]	73.0	89.2	92.6	98.8	22.4	29.9	94.7	17.6	71.5
	Hybrid DesTSeg [44]	80.3	<u>94.9</u>	89.8	84.9	46.6	46.6	70.6	30.4	73.4
potato	Aug. DRAEM [37]	49.0	82.9	89.3	58.8	0.9	3.3	36.1	1.7	45.8
	Aug. SimpleNet [27]	61.1	86.8	89.3	95.4	3.2	8.0	85.0	4.2	61.3
	Emb. CFA [21]	41.6	75.9	89.3	14.3	0.5	1.4	6.9	0.7	32.8
	Emb. PatchCore [29]	56.8	83.9	90.2	98.9	9.8	17.0	<u>96.0</u>	9.3	66.2
	Emb. CFLOW-AD [14]	63.9	86.8	89.3	<u>98.5</u>	10.3	13.8	<u>95.0</u>	7.4	65.4
	Emb. PyramidalFlow [22]	62.3	87.3	90.5	97.0	8.2	15.1	90.5	8.2	64.4
	Rec. RD [10]	62.9	87.4	<u>91.1</u>	99.1	14.6	21.7	96.4	12.2	<u>67.6</u>
	Rec. DiAD [16]	87.9	97.0	93.0	98.5	8.4	14.1	94.7	7.6	70.5
	Rec. ViTAD [40]	57.9	86.4	89.8	98.8	13.0	18.2	95.6	10.0	65.7
	Rec. InvAD [42]	<u>67.0</u>	<u>90.2</u>	<u>90.6</u>	99.1	<u>15.7</u>	23.6	<u>96.4</u>	13.4	<u>68.9</u>
	Rec. InvAD-lite [42]	63.3	87.8	90.4	<u>98.9</u>	11.6	17.5	95.2	9.6	66.4
	Rec. MambaAD [15]	58.6	85.3	90.2	<u>99.0</u>	16.4	22.8	95.5	<u>12.9</u>	66.8
	Hybrid UniAD [35]	51.6	82.7	89.3	97.9	7.2	11.9	92.6	6.3	61.9
	Hybrid RD++ [31]	62.3	88.0	90.1	99.1	<u>15.2</u>	<u>22.1</u>	96.5	<u>12.4</u>	<u>67.6</u>
	Hybrid DesTSeg [44]	<u>64.7</u>	<u>89.2</u>	90.2	54.3	12.8	10.9	21.7	5.7	49.1

Table A62. Benchmarked results on MVTec 3D dataset [6] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
rope	Aug.	DRAEM [37]	54.8	67.5	82.4	41.6	0.8	1.0	18.6	38.1
		SimpleNet [27]	95.5	98.2	92.9	98.9	41.7	46.1	90.4	80.5
	Emb.	CFA [21]	93.0	97.2	92.4	89.8	38.0	45.6	70.3	75.2
		PatchCore [29]	96.7	98.7	95.5	99.6	55.6	56.9	97.4	39.7
		CFLOW-AD [14]	93.8	97.6	92.2	99.3	43.6	47.2	95.4	81.3
		PyramidalFlow [22]	15.9	51.0	81.2	79.2	1.1	1.9	43.2	39.1
	Rec.	RD [10]	96.0	98.4	93.1	99.6	48.2	53.8	97.7	36.8
		DiAD [16]	76.9	86.1	85.1	94.5	6.8	13.8	74.5	7.4
		ViTAD [40]	97.0	98.9	95.6	98.5	41.3	42.7	89.0	27.1
		InvAD [42]	96.0	98.5	95.5	99.6	52.4	56.0	96.5	38.9
		InvAD-lite [42]	95.4	98.2	94.7	99.2	45.1	46.8	95.4	30.5
		MambaAD [15]	95.4	98.0	93.1	99.3	49.2	48.9	95.8	32.4
	Hybrid	UniAD [35]	97.4	99.0	96.2	99.3	39.4	45.5	96.5	29.5
		RD++ [31]	95.4	98.2	94.2	99.6	49.2	54.1	97.6	37.1
		DesTSeg [44]	94.1	97.9	93.3	96.9	55.6	56.8	92.3	39.6
tire	Aug.	DRAEM [37]	77.4	89.3	93.5	55.1	0.3	0.9	22.9	0.5
		SimpleNet [27]	68.4	87.4	89.0	86.0	5.0	10.0	59.0	5.3
	Emb.	CFA [21]	75.9	92.9	87.4	48.8	0.7	1.7	17.8	0.8
		PatchCore [29]	80.1	93.6	87.9	99.1	22.6	31.1	95.8	18.4
		CFLOW-AD [14]	58.0	83.3	87.9	97.6	7.7	14.8	91.0	8.0
		PyramidalFlow [22]	56.6	83.6	88.3	94.7	7.2	13.9	82.5	7.4
	Rec.	RD [10]	76.8	91.6	89.1	99.1	18.9	28.6	96.0	16.7
		DiAD [16]	57.7	78.0	87.4	93.2	4.9	9.6	80.6	5.0
		ViTAD [40]	71.0	89.2	88.7	97.6	17.0	28.2	89.1	16.4
		InvAD [42]	89.7	96.8	91.0	99.5	31.3	39.6	97.7	24.7
		InvAD-lite [42]	91.5	97.6	93.2	99.4	42.9	46.5	97.0	30.3
		MambaAD [15]	88.2	96.3	92.3	99.5	42.3	47.2	97.1	30.9
	Hybrid	UniAD [35]	72.8	91.3	88.8	98.1	14.0	24.6	90.9	14.0
		RD++ [31]	76.5	92.1	88.0	99.2	20.3	27.7	96.4	16.1
		DesTSeg [44]	85.6	95.9	90.1	84.3	40.9	42.5	65.1	27.0
Avg	Aug.	DRAEM [37]	49.2	79.4	89.0	50.7	0.7	2.2	23.4	1.1
		SimpleNet [27]	74.9	91.8	90.2	94.0	14.4	21.4	79.2	12.4
	Emb.	CFA [21]	60.1	86.3	89.5	52.0	7.0	11.9	28.7	6.9
		PatchCore [29]	84.1	95.1	92.5	98.6	33.7	38.5	94.4	24.5
		CFLOW-AD [14]	74.8	91.4	90.5	96.9	21.6	26.8	89.2	15.9
		PyramidalFlow [22]	52.5	80.8	88.6	87.2	5.9	10.4	68.0	5.6
	Rec.	RD [10]	79.3	93.0	92.3	98.3	28.6	35.4	93.5	22.1
		DiAD [16]	78.8	91.3	91.7	91.8	5.2	10.5	75.1	5.6
		ViTAD [40]	78.7	93.3	91.5	98.0	27.0	33.0	91.3	20.2
		InvAD [42]	86.3	95.9	93.4	98.7	36.2	41.1	94.9	26.4
		InvAD-lite [42]	85.1	95.6	92.3	98.4	34.4	39.0	93.4	24.6
		MambaAD [15]	85.8	95.5	92.6	98.6	37.1	40.8	94.1	26.0
	Hybrid	UniAD [35]	77.0	92.6	91.0	96.8	23.7	30.6	89.4	18.6
		RD++ [31]	80.1	93.5	92.2	98.4	31.5	37.2	93.6	23.4
		DesTSeg [44]	82.5	95.1	90.9	82.1	43.8	45.2	65.1	30.2

**Q. Detailed Quantitative Results on MVTec
LOCO Dataset Under 300 epochs**

Table A63. Benchmarked results on MVTec LOCO dataset [5] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
breakfast_box	Aug. DRAEM [37]	48.8	68.9	77.2	50.1	6.5	12.5	14.3	6.7	39.8
	Aug. SimpleNet [27]	89.4	94.5	85.9	89.6	<u>58.6</u>	<u>56.1</u>	75.4	39.0	78.5
	Emb. CFA [21]	72.0	83.2	78.7	75.6	34.3	32.6	39.1	19.5	59.4
	Emb. PatchCore [29]	77.1	88.4	78.0	89.4	55.4	49.3	76.1	32.8	74.4
	Emb. CFLOW-AD [14]	75.8	86.7	77.8	88.8	50.1	48.1	71.7	31.7	71.3
	Emb. PyramidalFlow [22]	61.2	78.0	77.2	70.6	34.9	32.5	34.4	19.4	55.5
	Rec. RD [10]	63.4	79.2	77.2	83.7	26.6	35.6	63.9	21.6	61.4
	Rec. DiAD [16]	56.8	74.3	77.2	81.6	22.9	34.2	35.5	20.6	54.6
	Rec. ViTAD [40]	75.0	86.2	78.7	88.1	52.4	50.8	65.7	34.1	71.0
	Rec. InvAD [42]	<u>78.8</u>	<u>88.5</u>	<u>79.2</u>	89.7	<u>58.9</u>	<u>56.2</u>	<u>75.7</u>	<u>39.1</u>	<u>75.3</u>
	Rec. InvAD-lite [42]	71.7	83.9	78.0	88.3	47.6	47.7	73.6	31.3	70.1
	Rec. MambaAD [15]	69.3	82.9	77.2	87.4	37.0	43.6	70.7	27.9	66.9
	Hybrid UniAD [35]	77.5	88.4	77.4	88.0	51.8	50.1	72.8	33.4	72.3
	Hybrid RD++ [31]	68.2	81.7	77.2	86.6	39.7	43.9	67.0	28.2	66.3
	Hybrid DesTSeg [44]	84.0	91.1	<u>82.2</u>	77.5	64.0	57.9	68.0	40.8	<u>75.0</u>
juice_bottle	Aug. DRAEM [37]	52.9	75.6	83.4	40.0	5.3	10.2	14.7	5.4	40.3
	Aug. SimpleNet [27]	96.0	98.6	93.6	86.4	47.5	55.1	84.8	38.0	80.3
	Emb. CFA [21]	73.0	88.2	83.4	85.1	26.9	29.1	57.4	17.1	63.3
	Emb. PatchCore [29]	95.2	<u>98.3</u>	<u>94.1</u>	89.9	<u>56.2</u>	57.8	87.1	40.6	84.3
	Emb. CFLOW-AD [14]	96.2	98.6	93.9	91.7	44.7	47.8	85.4	31.4	79.8
	Emb. PyramidalFlow [22]	77.3	91.1	83.7	51.9	36.9	10.1	17.6	5.3	52.7
	Rec. RD [10]	89.5	96.4	90.3	89.4	47.3	48.2	84.2	31.8	77.9
	Rec. DiAD [16]	96.0	<u>98.3</u>	<u>94.1</u>	81.1	41.0	45.2	76.0	29.2	76.0
	Rec. ViTAD [40]	90.5	96.4	88.6	88.6	48.1	49.2	83.4	32.6	77.8
	Rec. InvAD [42]	<u>96.1</u>	98.6	94.8	90.9	<u>56.1</u>	<u>58.7</u>	88.2	41.5	83.3
	Rec. InvAD-lite [42]	<u>94.7</u>	98.1	93.7	<u>90.8</u>	<u>52.9</u>	56.8	87.6	39.7	82.1
	Rec. MambaAD [15]	93.2	97.6	91.7	89.8	53.9	55.8	86.5	38.7	81.2
	Hybrid UniAD [35]	95.4	<u>98.3</u>	93.2	90.7	55.5	<u>58.3</u>	89.3	41.2	<u>83.0</u>
	Hybrid RD++ [31]	90.7	<u>96.7</u>	89.6	90.1	49.7	52.4	84.7	35.5	79.1
	Hybrid DesTSeg [44]	99.5	99.8	97.9	79.5	59.9	59.1	79.6	41.9	82.2
pushpins	Aug. DRAEM [37]	62.2	66.8	72.2	53.9	0.8	1.9	11.5	1.0	38.5
	Aug. SimpleNet [27]	76.5	83.6	74.9	55.8	2.7	7.4	59.6	3.8	51.5
	Emb. CFA [21]	47.2	57.8	71.4	51.1	0.9	1.7	22.7	0.9	36.1
	Emb. PatchCore [29]	74.3	82.8	72.7	56.1	3.1	7.5	63.6	3.9	54.6
	Emb. CFLOW-AD [14]	63.3	71.4	71.4	39.5	1.2	3.4	52.8	1.7	43.3
	Emb. PyramidalFlow [22]	45.7	52.1	71.5	55.2	0.8	1.7	18.8	0.9	35.1
	Rec. RD [10]	71.5	79.6	72.3	51.1	2.2	7.5	68.2	3.9	50.3
	Rec. DiAD [16]	69.0	73.8	72.9	61.4	1.6	4.6	49.7	2.4	47.6
	Rec. ViTAD [40]	68.3	74.6	73.6	46.5	2.3	5.7	57.4	2.9	46.9
	Rec. InvAD [42]	82.6	88.3	77.9	72.2	<u>4.2</u>	<u>9.3</u>	77.4	4.9	58.8
	Rec. InvAD-lite [42]	<u>78.2</u>	<u>84.1</u>	<u>76.4</u>	64.0	<u>3.2</u>	8.5	70.3	<u>4.5</u>	<u>55.0</u>
	Rec. MambaAD [15]	<u>78.8</u>	<u>85.1</u>	<u>76.9</u>	61.1	2.8	<u>8.7</u>	<u>70.5</u>	<u>4.5</u>	<u>54.8</u>
	Hybrid UniAD [35]	71.3	79.9	72.2	46.3	2.3	8.1	62.0	4.2	48.9
	Hybrid RD++ [31]	75.7	82.7	73.4	54.1	2.7	7.7	67.4	4.0	52.0
	Hybrid DesTSeg [44]	72.2	81.3	71.4	55.1	4.3	10.1	64.0	5.3	51.2
screw_bag	Aug. DRAEM [37]	49.1	66.4	78.4	45.6	6.0	13.8	10.6	7.4	38.6
	Aug. SimpleNet [27]	65.3	78.1	78.3	55.5	9.2	14.8	48.8	8.0	50.0
	Emb. CFA [21]	48.9	65.2	78.2	51.1	8.0	13.6	26.4	7.3	41.6
	Emb. PatchCore [29]	70.1	82.8	78.2	72.1	13.1	22.0	62.1	12.4	59.7
	Emb. CFLOW-AD [14]	64.8	78.7	78.4	68.9	11.4	20.6	66.8	11.5	<u>55.7</u>
	Emb. PyramidalFlow [22]	54.2	66.8	78.2	49.9	5.8	13.6	15.9	7.3	40.6
	Rec. RD [10]	63.7	78.1	78.2	71.6	12.6	21.8	52.0	12.3	54.0
	Rec. DiAD [16]	81.7	91.1	80.6	71.4	12.0	22.2	58.9	12.5	59.7
	Rec. ViTAD [40]	64.1	76.9	79.6	72.4	13.1	21.6	40.9	12.1	52.7
	Rec. InvAD [42]	<u>70.3</u>	<u>82.4</u>	<u>78.2</u>	73.4	13.7	22.8	52.8	12.9	<u>56.2</u>
	Rec. InvAD-lite [42]	63.7	<u>77.4</u>	78.5	<u>72.7</u>	<u>13.2</u>	<u>22.4</u>	48.1	<u>12.6</u>	53.7
	Rec. MambaAD [15]	62.6	76.4	78.2	<u>73.2</u>	<u>13.4</u>	<u>22.7</u>	49.0	<u>12.8</u>	53.6
	Hybrid UniAD [35]	65.0	77.1	78.5	67.5	11.3	19.3	<u>62.8</u>	10.7	54.5
	Hybrid RD++ [31]	64.9	79.3	78.2	69.8	12.2	20.5	51.3	11.4	53.7
	Hybrid DesTSeg [44]	70.0	81.1	<u>79.0</u>	50.3	8.6	13.6	46.4	7.3	49.9

Table A64. Benchmarked results on MVTec LOCO dataset [5] by the suggested metrics in Sec. 3.3.

		Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
			mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
splicing connectors	Aug.	DRAEM [37]	44.0	56.7	76.4	50.5	7.4	14.1	17.5	7.6	38.1
		SimpleNet [27]	81.7	90.9	80.0	67.0	23.5	27.2	37.6	15.8	58.3
		CFA [21]	61.6	74.3	76.5	60.3	12.4	16.6	36.1	9.1	48.3
		PatchCore [29]	85.6	92.9	84.4	68.1	21.5	22.3	60.8	12.6	65.4
		CFLOW-AD [14]	80.0	89.7	78.2	65.4	20.4	21.9	73.5	12.3	61.3
		PyramidalFlow [22]	52.3	64.1	76.4	49.8	5.9	14.0	15.1	7.5	39.7
	Rec.	RD [10]	80.5	89.6	78.9	58.0	16.4	18.0	69.0	9.9	58.6
		DiAD [16]	82.3	85.5	82.7	65.2	15.6	20.2	51.7	11.2	57.6
		ViTAD [40]	82.8	91.0	79.8	70.6	23.6	25.4	62.5	14.6	62.2
		InvAD [42]	83.8	91.6	81.7	62.4	21.4	23.7	70.1	13.4	62.1
		InvAD-lite [42]	81.5	90.3	81.4	69.0	23.1	24.4	67.5	13.9	62.5
		MambaAD [15]	87.3	93.7	84.8	76.0	32.7	33.7	66.1	20.3	67.8
	Hybrid	UniAD [35]	84.2	91.6	83.0	80.5	42.2	43.2	66.6	27.5	70.2
		RD++ [31]	78.7	89.0	78.1	60.0	16.6	18.0	69.3	9.9	58.5
		DesTSeg [44]	80.1	89.8	78.8	56.3	22.1	18.5	37.9	10.2	54.8
Avg	Aug.	DRAEM [37]	51.4	66.9	77.5	48.0	5.2	10.5	13.7	5.6	39.0
		SimpleNet [27]	81.8	89.1	82.5	70.9	28.3	32.1	61.2	20.9	63.7
	Emb.	CFA [21]	60.6	73.7	77.6	64.7	16.5	18.8	36.4	10.8	49.8
		PatchCore [29]	80.5	89.0	81.5	75.1	29.9	31.8	69.9	20.4	67.7
		CFLOW-AD [14]	76.0	85.0	79.9	70.9	25.6	28.4	70.0	17.7	62.3
		PyramidalFlow [22]	58.1	70.4	77.4	55.5	16.8	14.4	20.4	8.1	44.7
	Rec.	RD [10]	73.7	84.6	79.4	70.7	21.0	26.2	67.5	15.9	60.4
		DiAD [16]	77.2	84.6	81.5	72.1	18.6	25.3	54.4	15.2	59.1
		ViTAD [40]	76.2	85.0	80.1	73.2	27.9	30.6	62.0	19.3	62.1
		InvAD [42]	82.3	89.9	82.4	77.7	30.9	34.1	72.8	22.4	67.2
		InvAD-lite [42]	78.0	86.8	81.6	77.0	28.0	32.0	69.4	20.4	64.7
		MambaAD [15]	78.2	87.1	81.8	77.5	28.0	32.9	68.6	20.8	64.9
	Hybrid	UniAD [35]	78.7	87.1	80.9	74.6	32.6	35.8	70.7	23.4	65.8
		RD++ [31]	75.7	85.9	79.3	72.1	24.2	28.5	67.9	17.8	61.9
		DesTSeg [44]	81.2	88.6	81.8	63.7	31.8	31.9	59.2	21.1	62.6

**R. Detailed Quantitative Results on VisA
Dataset Under 300 epochs**

Table A65. Benchmarked results on VisA dataset [47] by the suggested metrics in Sec. 3.3.

Method		Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD	
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max				
candle	Aug.	DRAEM [37]	58.1	59.6	67.6	45.7	0.1	0.6	16.7	0.3	35.5
		SimpleNet [27]	83.3	85.8	77.7	91.3	7.6	17.6	80.4	9.7	63.4
		RealNet [45]	53.6	63.1	66.7	53.5	8.8	9.0	53.6	4.7	44.0
	Emb.	CFA [21]	86.6	85.0	80.0	79.4	2.6	9.0	58.0	4.7	57.2
		CFLOW-AD [14]	92.4	93.2	85.4	98.8	14.7	24.0	93.7	13.6	71.7
		PyramidalFlow [22]	80.6	75.9	77.0	84.5	2.2	7.7	79.7	4.0	58.2
	Rec.	RD [10]	91.8	92.7	83.9	99.0	19.1	30.5	95.2	18.0	73.2
		DiAD [16]	99.3	99.3	96.0	80.1	1.0	2.6	41.4	1.3	60.0
		ViTAD [40]	90.0	91.5	82.4	96.1	17.1	27.6	86.5	16.0	70.2
		InvAD [42]	95.2	94.9	92.2	99.3	23.3	33.5	95.7	20.1	76.3
		InvAD-lite [42]	97.2	97.5	92.9	99.1	20.5	30.9	96.2	18.3	76.3
		MambaAD [15]	95.5	95.8	89.6	99.1	22.4	32.4	96.1	19.3	75.8
	Hybrid	UniAD [35]	97.3	97.4	91.6	99.3	24.4	33.9	94.8	20.4	77.0
		RD++ [31]	92.7	92.8	87.6	99.3	25.5	36.3	95.4	22.2	75.7
		DesTSeg [44]	89.8	89.8	83.0	74.5	39.5	41.4	49.9	26.1	66.8
capsules	Aug.	DRAEM [37]	71.9	80.7	77.5	39.1	0.3	1.0	10.7	0.5	40.2
		SimpleNet [27]	66.9	79.4	77.2	90.0	21.2	28.3	57.5	16.5	60.1
		RealNet [45]	81.6	90.5	79.8	74.6	34.2	41.1	39.6	25.9	63.1
	Emb.	CFA [21]	59.6	70.8	78.7	60.6	0.5	1.0	24.3	0.5	42.2
		CFLOW-AD [14]	57.5	73.8	77.5	94.5	27.9	27.8	65.9	16.1	60.7
		PyramidalFlow [22]	60.5	72.8	77.8	81.9	2.3	6.5	61.3	3.3	51.9
	Rec.	RD [10]	81.0	89.7	81.6	99.3	57.3	59.4	91.9	42.3	80.0
		DiAD [16]	66.7	80.5	79.7	94.3	8.0	16.4	55.3	8.9	57.3
		ViTAD [40]	80.2	88.2	80.2	98.3	31.1	41.3	76.0	26.0	70.8
		InvAD [42]	87.2	92.8	84.5	99.6	67.1	61.9	94.9	44.8	84.0
		InvAD-lite [42]	88.8	92.5	87.4	99.3	60.7	59.1	94.9	42.0	83.2
		MambaAD [15]	83.4	88.4	83.8	98.8	32.8	41.6	87.6	26.2	73.8
	Hybrid	UniAD [35]	73.5	85.6	79.1	98.4	52.1	53.6	80.8	36.6	74.7
		RD++ [31]	79.5	88.6	79.8	99.1	56.8	59.7	91.4	42.6	79.3
		DesTSeg [44]	86.5	92.9	85.6	95.7	38.7	42.8	77.8	27.2	74.3
cashew	Aug.	DRAEM [37]	19.8	54.8	80.0	53.0	1.5	3.4	40.8	1.7	36.2
		SimpleNet [27]	87.1	93.3	87.2	98.5	68.0	65.2	85.0	48.3	83.5
		RealNet [45]	89.5	95.4	86.8	53.5	25.4	10.1	29.0	5.3	55.7
	Emb.	CFA [21]	78.3	87.5	83.8	82.3	23.2	29.5	28.8	17.3	59.1
		CFLOW-AD [14]	95.6	98.1	92.7	99.0	52.5	54.4	94.6	37.4	83.8
		PyramidalFlow [22]	89.0	93.8	90.6	49.8	0.6	2.2	15.2	1.1	48.7
	Rec.	RD [10]	93.3	96.5	91.5	92.3	44.9	50.1	84.5	33.4	79.0
		DiAD [16]	99.8	99.9	99.0	89.1	45.6	50.1	21.5	33.4	72.1
		ViTAD [40]	87.6	94.0	87.5	98.3	62.6	61.4	79.3	44.3	81.5
		InvAD [42]	96.0	98.3	93.9	97.6	65.5	65.5	89.7	48.7	86.6
		InvAD-lite [42]	92.7	96.4	88.8	94.6	55.4	57.9	88.9	40.7	82.1
		MambaAD [15]	92.5	96.3	90.3	94.7	50.8	55.0	86.2	37.9	80.8
	Hybrid	UniAD [35]	90.4	95.2	87.7	97.9	44.5	48.9	89.0	32.4	79.1
		RD++ [31]	93.5	96.4	92.7	95.9	56.3	56.7	85.1	39.6	82.4
		DesTSeg [44]	86.6	93.1	86.5	84.4	48.2	52.0	55.8	35.2	72.4
chewinggum	Aug.	DRAEM [37]	33.5	58.0	79.0	32.3	0.3	1.1	4.2	0.6	29.8
		SimpleNet [27]	94.6	97.6	91.3	97.9	39.7	45.3	74.7	29.3	77.3
		RealNet [45]	89.0	95.3	87.0	82.2	63.8	61.5	42.3	44.5	74.4
	Emb.	CFA [21]	75.9	87.8	82.7	84.4	16.6	26.5	43.1	15.3	59.6
		CFLOW-AD [14]	97.2	98.8	95.2	99.2	61.9	60.3	87.8	43.1	85.8
		PyramidalFlow [22]	74.5	84.3	83.3	50.1	0.7	1.1	15.1	0.6	44.2
	Rec.	RD [10]	95.5	98.0	93.8	98.7	58.4	61.0	78.1	43.9	83.4
		DiAD [16]	97.6	98.4	96.6	68.5	15.6	30.6	18.6	18.0	60.8
		ViTAD [40]	95.2	97.8	92.3	97.7	60.7	58.5	71.4	41.3	81.9
		InvAD [42]	97.7	99.0	95.8	98.6	57.2	59.0	80.0	41.9	83.9
		InvAD-lite [42]	97.6	99.0	95.3	98.3	56.7	56.4	78.8	39.3	83.2
		MambaAD [15]	97.3	98.8	94.7	97.3	27.4	38.0	78.2	23.4	76.0
	Hybrid	UniAD [35]	99.1	99.5	96.8	99.3	62.4	59.6	88.2	42.5	86.4
		RD++ [31]	96.2	98.3	93.0	98.8	58.8	61.8	80.1	44.7	83.9
		DesTSeg [44]	96.8	98.7	95.3	97.5	78.3	70.2	68.4	54.1	86.5

Table A66. Benchmarked results on VisA dataset [47] by the suggested metrics in Sec. 3.3.

Method		Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD	
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max				
fryum	Aug.	DRAEM [37]	46.2	65.7	80.0	51.2	3.5	8.7	25.5	4.6	40.1
		SimpleNet [27]	82.0	91.5	84.0	93.4	40.6	41.7	78.5	26.4	73.1
		RealNet [45]	80.1	90.6	81.0	57.0	32.4	17.8	22.8	9.8	54.5
	Emb.	CFA [21]	65.4	81.3	80.6	76.7	16.2	22.1	41.3	12.4	54.8
		CFLOW-AD [14]	91.2	96.0	90.3	97.6	<u>53.8</u>	<u>55.8</u>	87.4	<u>38.7</u>	81.7
		PyramidalFlow [22]	80.2	90.0	82.2	89.3	19.2	<u>18.3</u>	74.5	10.1	64.8
	Rec.	RD [10]	95.8	98.1	92.4	97.0	48.1	51.8	<u>93.1</u>	35.0	82.3
		DiAD [16]	97.0	98.3	95.6	<u>97.5</u>	59.0	61.8	68.9	44.7	82.6
		ViTAD [40]	94.3	97.5	91.1	<u>97.5</u>	47.2	52.0	88.9	35.1	81.2
		InvAD [42]	97.0	98.6	<u>93.1</u>	<u>97.5</u>	<u>52.5</u>	<u>56.2</u>	92.1	<u>39.1</u>	83.9
		InvAD-lite [42]	<u>96.0</u>	98.1	<u>92.8</u>	<u>97.3</u>	50.6	53.2	93.2	36.3	<u>83.0</u>
		MambaAD [15]	<u>96.3</u>	<u>98.2</u>	<u>93.1</u>	97.1	49.7	52.9	<u>92.4</u>	36.0	<u>82.8</u>
	Hybrid	UniAD [35]	91.0	96.0	87.9	<u>97.3</u>	45.3	52.4	<u>85.5</u>	35.5	<u>79.3</u>
		RD++ [31]	95.7	98.1	92.2	97.2	49.9	53.6	92.0	36.6	82.7
		DesTSeg [44]	92.3	96.6	88.5	67.0	47.6	41.3	35.4	26.0	67.0
macaroni1	Aug.	DRAEM [37]	89.4	86.6	81.5	38.7	0.0	0.1	6.2	0.0	43.2
		SimpleNet [27]	65.8	60.9	65.6	91.4	1.5	4.6	66.5	2.4	50.9
		RealNet [45]	69.9	75.2	66.7	54.7	14.6	12.4	19.7	6.6	44.7
	Emb.	CFA [21]	56.0	57.4	66.9	87.7	0.4	2.4	56.0	1.2	46.7
		CFLOW-AD [14]	81.8	78.7	75.7	99.1	7.9	13.2	95.2	7.1	64.5
		PyramidalFlow [22]	57.6	53.5	70.0	91.0	0.5	2.0	60.0	1.0	47.8
	Rec.	RD [10]	<u>95.2</u>	<u>93.7</u>	<u>88.8</u>	99.8	<u>23.6</u>	<u>31.1</u>	<u>97.2</u>	<u>18.4</u>	75.6
		DiAD [16]	96.3	94.9	92.4	55.2	0.0	0.1	3.6	0.0	48.9
		ViTAD [40]	85.3	83.5	76.0	98.6	7.1	15.4	90.7	8.3	65.2
		InvAD [42]	<u>95.2</u>	<u>93.4</u>	88.7	99.7	<u>21.8</u>	<u>30.5</u>	97.3	<u>18.0</u>	<u>75.2</u>
		InvAD-lite [42]	<u>94.2</u>	<u>92.5</u>	86.2	99.8	19.3	<u>27.7</u>	97.7	16.1	<u>73.9</u>
		MambaAD [15]	91.9	89.4	83.2	99.3	13.4	21.9	95.4	12.3	70.6
	Hybrid	UniAD [35]	88.1	86.2	80.0	<u>99.4</u>	10.8	20.1	95.6	11.2	68.6
		RD++ [31]	92.8	91.2	86.5	<u>99.7</u>	24.0	32.4	96.7	19.3	<u>74.8</u>
		DesTSeg [44]	93.5	89.9	<u>90.6</u>	73.3	15.2	25.7	36.6	14.7	60.7
macaroni2	Aug.	DRAEM [37]	57.7	53.4	63.4	58.9	0.0	0.1	25.1	0.1	36.9
		SimpleNet [27]	57.9	53.2	63.3	89.8	0.4	1.7	66.4	0.9	47.5
		RealNet [45]	59.0	60.2	67.3	53.5	6.8	8.3	20.1	4.3	39.3
	Emb.	CFA [21]	58.6	56.7	66.9	82.1	0.1	0.8	48.5	0.4	44.8
		CFLOW-AD [14]	67.1	65.5	65.6	97.4	1.9	6.3	89.9	3.3	56.2
		PyramidalFlow [22]	62.5	59.1	71.6	83.2	0.1	0.2	35.0	0.1	44.5
	Rec.	RD [10]	<u>85.6</u>	79.3	<u>81.0</u>	<u>99.6</u>	12.3	20.2	<u>97.0</u>	11.3	<u>67.9</u>
		DiAD [16]	56.0	46.8	68.2	56.8	0.0	0.1	15.8	0.0	34.8
		ViTAD [40]	77.2	70.3	74.2	98.1	3.5	9.5	88.1	5.0	60.1
		InvAD [42]	88.3	83.9	83.2	<u>99.6</u>	<u>11.4</u>	<u>19.1</u>	<u>97.8</u>	<u>10.6</u>	69.0
		InvAD-lite [42]	88.1	84.6	<u>80.4</u>	99.7	<u>11.7</u>	<u>19.8</u>	98.2	<u>11.0</u>	<u>68.9</u>
		MambaAD [15]	80.5	74.3	<u>75.7</u>	96.5	2.0	7.3	87.1	3.8	60.5
	Hybrid	UniAD [35]	81.3	<u>81.1</u>	71.9	98.3	5.6	13.2	92.8	7.0	63.5
		RD++ [31]	82.8	76.9	80.2	99.5	9.6	18.3	96.2	10.1	66.2
		DesTSeg [44]	72.2	70.4	73.1	62.8	10.3	17.2	36.0	9.4	48.9
pcb1	Aug.	DRAEM [37]	80.6	78.0	78.2	53.2	0.6	0.9	21.4	0.5	44.7
		SimpleNet [27]	85.2	87.0	78.1	98.6	73.1	69.7	79.0	53.5	81.5
		RealNet [45]	82.7	83.6	77.5	73.6	40.1	43.6	27.3	27.9	61.2
	Emb.	CFA [21]	58.0	63.9	66.7	88.4	19.7	29.9	39.1	17.5	52.2
		CFLOW-AD [14]	94.9	95.2	88.2	99.1	73.0	68.8	88.3	52.4	86.8
		PyramidalFlow [22]	67.7	64.6	71.9	53.4	34.1	11.3	15.3	6.0	45.5
	Rec.	RD [10]	<u>96.4</u>	<u>96.4</u>	91.8	<u>99.5</u>	66.8	62.2	<u>96.1</u>	45.1	87.0
		DiAD [16]	91.7	94.1	89.5	95.7	27.7	39.5	56.5	24.6	70.7
		ViTAD [40]	95.6	94.1	91.3	<u>99.4</u>	65.6	61.9	89.2	44.8	85.3
		InvAD [42]	<u>96.8</u>	<u>96.2</u>	<u>92.9</u>	99.8	80.3	75.4	<u>96.7</u>	60.5	<u>91.2</u>
		InvAD-lite [42]	97.7	97.2	94.2	99.8	<u>79.3</u>	<u>73.5</u>	97.1	<u>58.1</u>	91.3
		MambaAD [15]	96.0	94.7	94.1	99.8	<u>79.8</u>	<u>72.8</u>	94.9	<u>57.2</u>	<u>90.3</u>
	Hybrid	UniAD [35]	96.3	95.5	92.8	99.4	68.1	63.3	90.5	46.3	86.6
		RD++ [31]	96.3	96.0	90.9	<u>99.4</u>	64.9	59.1	95.5	42.0	86.0
		DesTSeg [44]	78.6	77.3	74.5	96.0	66.5	64.3	68.6	47.3	75.1

Table A67. Benchmarked results on VisA dataset [47] by the suggested metrics in Sec. 3.3.

Method		Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD	
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max				
pcb2	Aug.	DRAEM [37]	35.0	44.1	66.7	44.9	0.2	0.4	10.0	0.2	28.8
		SimpleNet [27]	82.5	83.8	75.6	94.9	7.2	15.1	76.0	8.2	62.2
		RealNet [45]	87.0	89.3	79.2	72.2	13.9	23.0	40.3	13.0	57.8
	Emb.	CFA [21]	57.2	65.9	66.7	80.0	2.7	7.5	47.7	3.9	46.8
		CFLOW-AD [14]	92.1	93.0	85.6	96.5	12.6	18.9	82.5	10.5	68.7
		PyramidalFlow [22]	66.8	71.1	68.7	92.7	7.4	8.6	74.9	4.5	55.7
	Rec.	RD [10]	97.3	96.9	94.2	97.7	21.1	30.1	91.7	17.7	75.6
		DiAD [16]	89.9	91.7	82.9	82.2	4.4	12.2	48.1	6.5	58.8
		ViTAD [40]	90.0	89.0	84.2	98.0	12.5	20.4	82.6	11.4	68.1
		InvAD [42]	97.0	97.3	93.9	99.1	15.7	23.4	92.8	13.2	74.2
		InvAD-lite [42]	96.2	96.4	90.1	99.0	11.7	23.4	92.5	13.3	72.8
		MambaAD [15]	96.1	96.3	91.0	99.0	14.2	24.1	91.2	13.7	73.1
	Hybrid	UniAD [35]	93.5	94.1	87.2	98.3	13.0	19.5	86.0	10.8	70.2
		RD++ [31]	97.9	98.3	96.0	98.0	25.5	33.4	91.7	20.0	77.3
		DesTSeg [44]	82.8	83.2	78.1	94.4	19.1	24.0	69.8	13.6	64.5
pcb3	Aug.	DRAEM [37]	45.6	50.3	66.7	41.2	0.2	0.5	11.0	0.3	30.8
		SimpleNet [27]	84.2	86.2	76.6	97.3	12.9	22.4	82.7	12.6	66.0
		RealNet [45]	87.0	90.8	82.9	76.9	24.6	32.2	40.9	19.2	62.2
	Emb.	CFA [21]	56.3	60.8	67.1	85.6	13.8	22.5	49.6	12.7	50.8
		CFLOW-AD [14]	80.8	84.1	74.2	96.4	20.6	26.0	81.1	14.9	66.2
		PyramidalFlow [22]	66.3	68.6	67.6	90.7	5.0	12.3	58.0	6.5	52.6
	Rec.	RD [10]	96.8	96.7	90.6	98.0	23.8	34.6	93.6	20.9	76.3
		DiAD [16]	94.0	94.4	88.1	87.2	4.0	10.7	41.8	5.7	60.0
		ViTAD [40]	91.2	91.1	86.1	98.3	22.6	28.7	88.0	16.8	72.3
		InvAD [42]	97.7	97.9	93.3	99.2	15.8	28.0	93.2	16.2	75.0
		InvAD-lite [42]	96.4	96.5	90.6	99.2	17.8	28.0	93.6	16.3	74.6
		MambaAD [15]	95.2	95.5	88.7	99.1	18.9	27.4	92.5	15.8	73.9
	Hybrid	UniAD [35]	89.8	90.6	83.3	98.5	13.4	23.9	86.1	13.5	69.4
		RD++ [31]	95.7	95.6	90.8	98.0	30.9	34.1	93.3	20.5	76.9
		DesTSeg [44]	95.8	96.3	89.8	90.6	27.5	31.6	61.2	18.7	70.4
pcb4	Aug.	DRAEM [37]	73.1	66.8	77.3	36.1	0.4	1.3	6.1	0.7	37.3
		SimpleNet [27]	95.4	95.1	91.1	92.2	13.9	23.4	67.1	13.2	68.3
		RealNet [45]	92.1	92.1	84.4	68.6	37.2	38.7	31.4	24.0	63.5
	Emb.	CFA [21]	89.5	87.4	83.7	91.4	7.6	14.1	70.0	7.6	63.4
		CFLOW-AD [14]	98.9	98.8	95.7	96.8	22.2	29.7	85.6	17.4	75.4
		PyramidalFlow [22]	62.6	64.8	69.5	92.7	6.9	12.4	78.4	6.6	55.3
	Rec.	RD [10]	99.9	99.9	98.5	97.7	30.0	35.4	88.4	21.5	78.5
		DiAD [16]	99.8	99.7	99.0	95.4	9.9	18.4	82.4	10.1	72.1
		ViTAD [40]	98.9	98.5	97.0	99.0	42.2	47.7	93.5	31.3	82.4
		InvAD [42]	99.9	99.9	98.5	98.5	44.1	43.4	90.6	27.7	82.1
		InvAD-lite [42]	99.7	99.7	97.5	98.8	49.7	48.7	92.0	32.2	83.7
		MambaAD [15]	99.7	99.7	96.4	98.6	44.0	44.9	90.6	28.9	82.0
	Hybrid	UniAD [35]	99.4	99.4	96.2	97.6	34.3	39.0	85.2	24.2	78.7
		RD++ [31]	99.9	99.9	99.0	97.1	27.4	35.9	85.8	21.9	77.9
		DesTSeg [44]	98.0	98.0	93.0	94.4	53.8	52.1	74.9	35.3	80.6
pipe_fryum	Aug.	DRAEM [37]	63.2	76.9	80.8	46.0	1.3	3.1	14.3	1.6	40.8
		SimpleNet [27]	83.7	92.1	84.2	97.9	64.1	61.6	76.6	44.5	80.0
		RealNet [45]	79.1	91.2	80.3	64.1	48.5	37.7	39.6	23.2	62.9
	Emb.	CFA [21]	63.7	81.4	80.0	96.8	61.0	59.4	77.8	42.3	74.3
		CFLOW-AD [14]	97.6	98.8	95.0	99.2	61.6	61.4	94.9	44.3	86.9
		PyramidalFlow [22]	59.7	76.7	80.0	89.8	15.7	21.5	64.2	12.1	58.2
	Rec.	RD [10]	98.2	99.1	96.6	99.1	55.1	58.1	95.9	41.0	86.0
		DiAD [16]	97.7	98.7	98.0	98.6	55.1	58.1	77.9	41.0	83.5
		ViTAD [40]	97.6	98.9	94.6	99.5	65.1	66.3	94.9	49.6	88.1
		InvAD [42]	99.5	99.7	98.0	99.5	69.7	67.1	95.1	50.5	89.8
		InvAD-lite [42]	98.3	99.2	95.6	99.2	61.5	60.5	95.1	43.4	87.1
		MambaAD [15]	98.8	99.3	97.6	98.8	52.4	53.0	94.2	36.0	84.9
	Hybrid	UniAD [35]	97.0	98.5	95.1	98.9	50.1	55.0	93.9	37.9	84.1
		RD++ [31]	94.1	96.9	91.9	98.9	54.9	57.0	94.2	39.9	84.0
		DesTSeg [44]	95.0	97.5	93.1	86.8	74.3	69.7	55.9	53.5	81.8

Table A68. Benchmarked results on VisA dataset [47] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
Avg	Aug.	DRAEM [37]	56.2	64.6	74.9	45.0	0.7	1.8	16.0	37.0
		SimpleNet [27]	80.7	83.8	79.3	94.4	29.2	33.1	74.2	67.8
		RealNet [45]	79.2	84.8	78.3	65.4	29.2	27.9	33.9	57.0
	Emb.	CFA [21]	67.1	73.8	75.3	83.0	13.7	18.7	48.7	54.3
		CFLOW-AD [14]	87.2	89.5	85.1	97.8	34.2	37.2	87.3	74.0
		PyramidalFlow [22]	69.0	72.9	75.8	79.1	7.9	8.7	52.6	52.3
	Rec.	RD [10]	93.9	94.8	90.4	98.1	38.4	43.7	91.9	78.7
		DiAD [16]	90.5	91.4	90.4	83.4	19.2	25.0	44.3	63.5
		ViTAD [40]	90.3	91.2	86.4	98.2	36.4	40.9	85.8	75.6
		InvAD [42]	95.6	96.0	92.3	99.0	43.7	46.9	93.0	80.9
		InvAD-lite [42]	95.3	95.8	91.0	98.7	41.2	44.9	93.2	80.0
		MambaAD [15]	93.6	93.9	89.8	98.2	34.0	39.3	90.5	77.0
	Hybrid	UniAD [35]	91.4	93.3	87.5	98.5	35.3	40.2	89.0	76.5
		RD++ [31]	93.1	94.1	90.0	98.4	40.4	44.8	91.4	78.9
		DesTSeg [44]	89.0	90.3	85.9	84.8	43.3	44.4	57.5	70.7

**S. Detailed Quantitative Results on BTAD
Dataset Under 300 epochs**

Table A69. Benchmarked results on BTAD dataset [28] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF ₁ -max	mAU-ROC	mAP	mF ₁ -max			
1.0	Aug.	DRAEM [37]	75.0	88.7	86.7	44.8	2.8	6.3	13.0	45.3
		SimpleNet [27]	99.2	99.7	98.0	94.6	38.0	42.6	64.2	76.6
		RealNet [45]	100.	100.	100.	94.2	63.8	63.6	84.3	86.6
	Emb.	CFA [21]	98.2	99.4	99.0	94.6	37.3	43.0	64.5	76.6
		PatchCore [29]	99.6	99.8	99.0	97.1	55.5	56.6	75.8	85.4
		CFLOW-AD [14]	95.5	98.4	93.6	94.8	36.2	45.6	66.4	75.8
		PyramidalFlow [22]	90.3	94.1	94.2	51.8	14.7	6.3	17.1	52.6
	Rec.	RD [10]	99.9	100.	99.0	97.6	55.3	57.2	82.6	84.5
		DiAD [16]	99.5	99.8	99.0	90.1	24.3	30.8	72.6	73.7
		ViTAD [40]	98.3	99.3	96.9	96.5	55.0	55.2	69.2	81.5
		InvAD [42]	99.9	100.	99.0	97.5	57.4	58.8	80.7	84.8
		InvAD-lite [42]	98.2	99.4	96.9	97.1	56.7	59.5	75.4	83.3
		MambaAD [15]	97.7	99.2	96.0	97.1	55.3	59.0	75.9	82.9
	Hybrid	UniAD [35]	99.8	99.9	99.0	97.4	55.7	57.7	80.1	84.2
		RD++ [31]	99.4	99.8	97.9	97.5	53.5	56.9	80.6	83.7
		DesTSeg [44]	98.3	99.4	96.0	91.9	29.9	43.9	69.9	75.6
2.0	Aug.	DRAEM [37]	63.6	92.6	92.8	47.9	6.6	10.4	16.2	47.2
		SimpleNet [27]	83.2	97.1	93.2	94.6	49.2	50.3	47.2	73.5
		RealNet [45]	80.0	96.7	93.0	90.4	31.8	51.8	44.0	69.7
	Emb.	CFA [21]	80.3	96.5	93.2	94.4	47.5	51.2	47.6	73.0
		PatchCore [29]	83.8	97.3	92.8	96.0	59.3	59.8	54.1	79.3
		CFLOW-AD [14]	79.9	96.7	92.8	96.3	59.3	62.8	54.3	77.4
		PyramidalFlow [22]	73.7	95.2	92.8	81.9	63.2	52.9	32.5	70.3
	Rec.	RD [10]	82.9	97.2	92.8	96.7	63.3	64.2	58.3	79.3
		DiAD [16]	72.9	95.2	92.8	87.8	29.4	37.1	45.1	65.8
		ViTAD [40]	84.0	97.3	93.2	96.7	72.9	67.2	51.2	80.4
		InvAD [42]	86.4	97.7	93.8	96.4	60.2	61.1	57.1	79.0
		InvAD-lite [42]	84.6	97.5	92.8	96.4	59.8	60.7	58.5	78.6
		MambaAD [15]	81.6	97.0	92.8	96.1	54.2	59.2	57.6	76.9
	Hybrid	UniAD [35]	84.0	97.3	92.8	95.1	43.5	53.6	57.9	74.9
		RD++ [31]	84.3	97.4	93.2	96.6	64.1	63.4	57.3	79.5
		DesTSeg [44]	82.7	97.0	92.8	93.6	58.6	51.0	52.7	75.5
3.0	Aug.	DRAEM [37]	69.2	49.0	59.1	50.4	0.3	1.7	19.2	35.6
		SimpleNet [27]	99.7	96.9	90.6	99.4	35.6	38.1	97.2	79.6
		RealNet [45]	99.3	92.2	84.5	76.9	48.6	51.1	45.3	71.1
	Emb.	CFA [21]	99.8	97.5	91.5	99.5	55.4	54.9	95.0	84.8
		PatchCore [29]	99.8	97.3	92.1	99.5	50.1	48.2	98.0	85.2
		CFLOW-AD [14]	99.3	91.8	82.7	99.4	42.5	38.5	97.5	78.8
		PyramidalFlow [22]	92.0	55.9	50.0	94.8	5.2	11.2	79.7	55.5
	Rec.	RD [10]	99.6	93.3	89.6	99.7	52.7	52.6	98.9	83.8
		DiAD [16]	98.3	69.9	86.1	97.9	7.7	13.1	93.3	66.6
		ViTAD [40]	99.6	94.3	90.9	99.6	47.0	47.1	98.1	82.4
		InvAD [42]	99.6	94.1	88.2	99.7	58.6	56.4	98.7	85.0
		InvAD-lite [42]	99.8	96.8	93.5	99.6	50.7	51.0	98.2	84.2
		MambaAD [15]	99.5	92.3	90.3	99.6	44.2	47.1	98.3	81.6
	Hybrid	UniAD [35]	99.8	97.8	93.1	99.7	57.8	55.1	98.7	86.0
		RD++ [31]	99.7	95.6	91.8	99.8	55.4	54.3	98.8	85.1
		DesTSeg [44]	99.6	93.9	92.5	98.9	28.8	20.6	96.1	75.8
Avg	Aug.	DRAEM [37]	69.3	76.8	79.5	47.7	3.2	6.1	16.1	42.7
		SimpleNet [27]	94.0	97.9	93.9	96.2	41.0	43.7	69.6	76.6
		RealNet [45]	93.1	96.3	92.5	87.2	48.0	55.5	57.9	75.8
	Emb.	CFA [21]	92.7	97.8	94.6	96.2	46.7	49.7	69.0	78.1
		PatchCore [29]	94.4	98.2	94.6	97.5	55.0	54.9	76.0	83.3
		CFLOW-AD [14]	91.6	95.6	89.7	96.9	46.0	49.0	72.7	77.4
		PyramidalFlow [22]	85.3	81.7	79.0	76.1	27.7	23.4	43.1	59.5
	Rec.	RD [10]	94.1	96.8	93.8	98.0	57.1	58.0	79.9	82.5
		DiAD [16]	90.2	88.3	92.6	91.9	20.5	27.0	70.3	68.7
		ViTAD [40]	94.0	97.0	93.7	97.6	58.3	56.5	72.8	81.4
		InvAD [42]	95.3	97.3	93.7	97.9	58.7	58.8	78.8	82.9
		InvAD-lite [42]	94.2	97.9	94.4	97.7	55.7	57.0	77.4	82.0
		MambaAD [15]	92.9	96.2	93.0	97.6	51.2	55.1	77.3	80.5
	Hybrid	UniAD [35]	94.5	98.4	94.9	97.4	52.4	55.5	78.9	81.7
		RD++ [31]	94.5	97.6	94.3	98.0	57.7	58.2	78.9	82.7
		DesTSeg [44]	93.5	96.7	93.8	94.8	39.1	38.5	72.9	75.6

**T. Detailed Quantitative Results on MPDD
Dataset Under 300 epochs**

Table A70. Benchmarked results on MPDD dataset [20] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD	
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max				
bracket_black	Aug.	DRAEM [37]	45.3	54.3	77.0	52.8	0.2	0.5	24.9	0.3	36.4
		SimpleNet [27]	78.7	85.3	80.4	94.9	3.6	9.1	89.3	4.7	63.0
		RealNet [45]	72.0	84.5	76.4	64.4	<u>9.5</u>	<u>16.7</u>	45.9	<u>9.1</u>	52.8
	Emb.	CFA [21]	87.9	92.7	84.1	93.8	2.9	8.8	83.8	4.6	64.9
		PatchCore [29]	88.4	92.7	83.9	98.5	11.0	21.0	96.7	11.8	72.6
		CFLOW-AD [14]	64.8	74.6	76.7	95.8	2.5	5.4	86.5	2.8	58.0
		PyramidalFlow [22]	75.3	81.8	79.3	89.5	0.4	1.0	66.2	0.5	56.2
	Rec.	RD [10]	83.7	87.0	85.7	<u>97.6</u>	5.9	12.3	93.3	6.5	66.5
		DiAD [16]	100.	100.	100.	90.8	0.5	1.4	63.8	0.7	65.2
		ViTAD [40]	78.7	86.1	81.5	96.0	2.7	7.8	89.8	4.1	63.2
		InvAD [42]	88.2	93.2	83.8	<u>98.1</u>	<u>8.2</u>	15.0	<u>95.5</u>	8.1	<u>68.9</u>
		InvAD-lite [42]	81.2	87.5	81.7	95.8	7.4	<u>16.2</u>	90.6	<u>8.8</u>	65.8
		MambaAD [15]	82.8	88.6	80.7	94.8	4.6	13.1	89.1	7.0	64.8
	Hybrid	UniAD [35]	<u>96.3</u>	<u>96.6</u>	<u>96.9</u>	94.8	0.9	2.2	84.5	1.1	67.5
		RD++ [31]	82.3	86.2	81.7	<u>97.6</u>	4.4	9.6	<u>93.8</u>	5.0	65.1
		DesTSeg [44]	<u>92.9</u>	<u>95.0</u>	<u>91.3</u>	91.9	6.0	14.2	87.6	7.6	<u>68.4</u>
bracket_brown	Aug.	DRAEM [37]	53.9	69.1	80.3	54.4	0.7	1.3	28.8	0.6	41.2
		SimpleNet [27]	92.4	95.3	93.5	94.9	8.8	17.0	87.4	9.3	69.9
		RealNet [45]	87.4	90.4	92.6	51.4	10.1	3.5	17.8	1.8	50.5
	Emb.	CFA [21]	93.5	95.8	<u>96.2</u>	91.5	7.4	17.7	69.6	9.7	67.4
		PatchCore [29]	<u>95.6</u>	<u>97.2</u>	<u>95.3</u>	98.6	<u>26.2</u>	<u>32.0</u>	95.4	<u>19.0</u>	<u>79.5</u>
		CFLOW-AD [14]	77.8	81.6	87.7	96.4	7.2	14.0	92.5	7.5	65.3
		PyramidalFlow [22]	70.0	78.6	84.4	93.9	5.5	12.6	75.4	6.8	60.1
	Rec.	RD [10]	83.1	87.0	91.7	96.0	14.2	23.2	94.0	13.1	69.9
		DiAD [16]	88.6	94.2	89.5	94.8	<u>22.5</u>	29.9	69.8	17.6	69.9
		ViTAD [40]	86.0	87.8	91.9	<u>98.3</u>	<u>16.2</u>	26.2	<u>95.0</u>	15.1	71.6
		InvAD [42]	<u>96.8</u>	<u>98.0</u>	98.1	96.3	18.7	29.4	91.4	17.2	75.5
		InvAD-lite [42]	93.4	<u>96.2</u>	92.7	<u>98.5</u>	21.4	<u>31.6</u>	<u>95.1</u>	<u>18.8</u>	75.6
		MambaAD [15]	97.2	98.5	<u>97.1</u>	97.8	19.6	27.3	92.8	15.8	<u>75.8</u>
	Hybrid	UniAD [35]	93.1	95.8	93.5	98.6	39.3	47.0	90.7	30.8	79.7
		RD++ [31]	85.7	90.5	92.7	96.8	19.8	27.7	<u>95.1</u>	16.1	72.6
		DesTSeg [44]	91.4	92.4	<u>96.2</u>	78.9	5.1	8.8	66.9	4.6	62.8
bracket_white	Aug.	DRAEM [37]	69.4	70.9	74.0	66.1	0.1	0.2	23.6	0.1	43.5
		SimpleNet [27]	88.4	91.4	83.0	97.8	2.2	5.6	86.4	2.9	65.0
		RealNet [45]	72.0	82.3	78.4	81.4	30.1	39.6	40.1	24.7	60.6
	Emb.	CFA [21]	89.2	91.7	81.5	94.9	0.8	2.9	72.4	1.4	61.9
		PatchCore [29]	93.3	<u>94.8</u>	88.9	98.8	<u>10.0</u>	<u>19.3</u>	93.9	<u>10.7</u>	73.9
		CFLOW-AD [14]	75.3	76.4	73.0	98.6	2.1	4.6	93.8	2.4	60.5
		PyramidalFlow [22]	76.3	78.5	76.9	<u>99.0</u>	6.3	14.2	90.1	7.7	63.0
	Rec.	RD [10]	85.0	86.9	80.6	<u>98.9</u>	1.7	5.0	94.4	2.5	64.6
		DiAD [16]	81.0	82.5	75.4	94.2	0.2	0.6	80.0	0.3	59.1
		ViTAD [40]	79.4	85.4	77.2	95.4	0.8	2.6	86.6	1.3	61.1
		InvAD [42]	<u>95.8</u>	96.9	<u>93.1</u>	99.3	<u>10.7</u>	<u>20.9</u>	<u>94.7</u>	<u>11.7</u>	<u>73.1</u>
		InvAD-lite [42]	<u>93.6</u>	<u>95.1</u>	87.3	99.3	6.8	10.7	<u>94.9</u>	5.6	69.7
		MambaAD [15]	<u>93.6</u>	<u>95.1</u>	<u>89.7</u>	99.3	8.9	18.9	95.0	10.5	<u>71.5</u>
	Hybrid	UniAD [35]	82.4	80.5	79.3	95.9	0.8	2.8	82.0	1.4	60.5
		RD++ [31]	83.4	86.4	76.2	98.7	1.6	4.3	93.4	2.2	63.4
		DesTSeg [44]	96.3	93.5	94.9	91.6	0.9	2.2	52.6	1.1	61.7
connector	Aug.	DRAEM [37]	63.3	47.7	53.1	30.3	0.5	1.5	12.2	0.8	29.8
		SimpleNet [27]	<u>99.3</u>	<u>98.5</u>	<u>96.6</u>	98.9	56.0	55.2	96.5	38.2	85.9
		RealNet [45]	93.3	86.8	85.7	70.7	47.9	42.9	48.0	27.3	67.9
	Emb.	CFA [21]	95.7	86.4	<u>93.3</u>	97.1	31.9	39.9	90.8	25.0	76.4
		PatchCore [29]	100.	100.	100.	99.5	71.2	63.3	98.4	46.3	91.5
		CFLOW-AD [14]	96.7	92.9	89.7	97.4	33.1	33.2	91.5	19.9	76.4
		PyramidalFlow [22]	58.3	38.3	54.5	91.3	4.4	8.5	73.7	4.4	47.0
	Rec.	RD [10]	99.8	99.5	96.6	99.1	58.3	54.5	97.2	37.5	86.4
		DiAD [16]	88.3	81.5	74.3	96.2	11.6	22.0	87.7	12.4	66.0
		ViTAD [40]	96.0	91.7	86.7	<u>99.3</u>	39.8	46.9	97.6	30.6	79.7
		InvAD [42]	98.3	95.7	<u>96.6</u>	99.2	<u>62.3</u>	<u>57.6</u>	97.3	<u>40.5</u>	<u>86.7</u>
		InvAD-lite [42]	96.7	83.4	<u>96.6</u>	<u>99.4</u>	<u>61.5</u>	<u>57.4</u>	<u>97.9</u>	<u>40.2</u>	<u>84.7</u>
		MambaAD [15]	98.8	97.9	92.9	99.2	55.4	53.4	97.5	36.4	85.0
	Hybrid	UniAD [35]	82.9	65.0	72.7	97.6	14.0	24.0	92.1	13.7	64.0
		RD++ [31]	100.	100.	100.	99.3	66.3	59.8	97.7	42.7	89.0

Table A71. Benchmarked results on MPDD dataset [20] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF ₁ -max	mAU-ROC	mAP	mF ₁ -max			
metal_plate	Aug.	DRAEM [37]	71.7	89.7	84.5	57.5	30.0	21.2	25.7	54.3
		SimpleNet [27]	100.	100.	100.	98.2	88.9	81.3	88.1	93.8
		RealNet [45]	100.	100.	100.	90.2	84.6	80.4	80.7	90.8
	Emb.	CFA [21]	100.	100.	100.	98.8	92.6	85.3	90.8	95.4
		PatchCore [29]	100.	100.	100.	<u>99.0</u>	<u>93.5</u>	86.1	94.1	<u>96.6</u>
		CFLOW-AD [14]	100.	100.	100.	<u>98.6</u>	<u>89.7</u>	83.7	92.9	95.0
		PyramidalFlow [22]	78.3	92.4	87.5	68.0	49.7	40.2	29.1	63.6
	Rec.	RD [10]	100.	100.	100.	<u>99.1</u>	92.6	<u>87.4</u>	96.6	<u>96.5</u>
		DiAD [16]	98.3	<u>99.5</u>	<u>98.6</u>	87.2	54.3	55.1	45.0	76.9
		ViTAD [40]	100.	100.	100.	99.3	95.5	88.2	94.8	96.8
		InvAD [42]	100.	100.	100.	<u>99.0</u>	91.6	86.6	<u>95.7</u>	96.1
		InvAD-lite [42]	100.	100.	100.	<u>98.6</u>	88.9	84.5	94.5	95.2
		MambaAD [15]	<u>99.8</u>	<u>99.9</u>	<u>99.3</u>	98.5	86.2	84.3	94.7	94.7
		UniAD [35]	58.8	79.6	85.0	93.3	50.4	62.8	80.8	73.0
	Hybrid	RD++ [31]	<u>99.9</u>	100.	<u>99.3</u>	<u>99.0</u>	91.1	87.0	<u>95.5</u>	96.0
		DesTSeg [44]	100.	100.	100.	96.9	<u>93.8</u>	<u>87.2</u>	91.4	<u>95.6</u>
tubes	Aug.	DRAEM [37]	57.4	73.4	81.7	40.9	1.0	3.5	15.6	39.1
		SimpleNet [27]	84.6	94.1	84.6	97.9	42.4	46.1	92.6	77.5
		RealNet [45]	91.3	95.9	<u>90.6</u>	90.3	53.0	55.2	81.2	79.6
	Emb.	CFA [21]	85.6	94.4	85.9	97.8	38.1	43.7	91.7	76.7
		PatchCore [29]	90.4	96.6	92.4	98.8	64.5	<u>63.8</u>	95.5	<u>86.9</u>
		CFLOW-AD [14]	68.0	85.0	81.2	96.9	35.7	39.6	88.2	70.7
		PyramidalFlow [22]	76.8	87.4	83.2	92.5	8.4	18.0	76.8	63.3
	Rec.	RD [10]	90.4	96.2	88.5	<u>98.9</u>	<u>64.7</u>	61.2	<u>95.7</u>	44.1
		DiAD [16]	58.7	77.3	81.2	85.6	2.8	5.9	50.3	51.7
		ViTAD [40]	84.3	93.6	84.5	98.5	52.5	55.0	93.6	80.3
		InvAD [42]	96.6	98.7	95.5	99.3	<u>73.1</u>	<u>69.0</u>	97.4	<u>52.7</u>
		InvAD-lite [42]	<u>91.6</u>	<u>96.8</u>	90.1	98.4	62.6	63.0	94.3	85.3
		MambaAD [15]	62.9	78.6	81.9	96.5	26.7	34.5	87.4	66.9
		UniAD [35]	67.3	81.6	83.3	92.1	8.3	14.7	72.7	7.9
	Hybrid	RD++ [31]	<u>92.1</u>	<u>96.9</u>	90.0	<u>99.2</u>	73.6	69.7	<u>96.6</u>	53.5
		DesTSeg [44]	84.0	92.3	87.2	96.5	46.3	46.7	89.9	30.4
Avg	Aug.	DRAEM [37]	60.2	67.5	75.1	50.4	5.4	4.7	21.8	40.7
		SimpleNet [27]	90.6	<u>94.1</u>	89.7	97.1	33.6	35.7	90.0	75.8
		RealNet [45]	86.0	90.0	87.3	74.7	39.2	39.7	52.3	67.0
	Emb.	CFA [21]	92.0	93.5	90.2	95.7	29.0	33.0	83.2	73.8
		PatchCore [29]	<u>94.6</u>	<u>96.9</u>	<u>93.4</u>	98.9	46.1	47.6	95.7	35.0
		CFLOW-AD [14]	80.4	85.1	84.7	97.3	28.4	30.1	90.9	71.0
		PyramidalFlow [22]	72.5	76.2	77.6	89.0	12.4	15.8	68.5	58.9
	Rec.	RD [10]	90.3	92.8	90.5	98.3	39.6	40.6	<u>95.2</u>	30.2
		DiAD [16]	85.8	89.2	86.5	91.4	15.3	19.2	66.1	12.0
		ViTAD [40]	87.4	90.8	87.0	97.8	34.6	37.8	92.9	28.0
		InvAD [42]	96.0	97.1	94.5	<u>98.5</u>	<u>44.1</u>	<u>46.4</u>	<u>95.3</u>	<u>34.4</u>
		InvAD-lite [42]	<u>92.8</u>	93.2	91.4	98.3	41.4	<u>43.9</u>	94.6	<u>32.1</u>
		MambaAD [15]	89.2	93.1	90.3	97.7	33.5	<u>38.6</u>	92.8	27.2
		UniAD [35]	80.1	83.2	85.1	95.4	19.0	25.6	83.8	16.8
	Hybrid	RD++ [31]	90.6	93.3	90.0	<u>98.4</u>	<u>42.8</u>	43.0	<u>95.3</u>	<u>32.7</u>
		DesTSeg [44]	92.6	91.8	<u>92.8</u>	90.8	30.6	32.9	78.3	24.1

U. Detailed Quantitative Results on MAD_Real Dataset Under 300 epochs

Table A72. Benchmarked results on MAD_Real dataset [46] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF ₁ -max	mAU-ROC	mAP	mF ₁ -max			
Bear	Aug. DRAEM [37]	62.5	91.6	90.6	47.4	0.3	1.8	25.3	0.9	45.6
	Aug. SimpleNet [27]	17.5	69.8	90.6	74.6	1.2	4.9	56.3	2.5	45.0
	Emb. CFA [21]	13.3	68.8	90.6	99.0	3.9	9.6	96.2	5.1	54.5
	Emb. PatchCore [29]	84.2	96.8	91.7	99.6	17.6	29.5	98.6	17.3	76.1
	Emb. CFLOW-AD [14]	77.5	94.6	<u>92.3</u>	<u>99.4</u>	6.3	12.2	<u>97.7</u>	6.5	68.6
	Emb. PyramidalFlow [22]	7.5	67.7	90.6	98.5	2.8	5.3	94.9	2.7	52.5
	Rec. RD [10]	86.7	<u>96.4</u>	96.0	97.7	6.9	10.5	92.9	5.5	<u>69.6</u>
	Rec. DiAD [16]	<u>85.0</u>	97.0	90.6	97.5	1.8	5.4	92.0	2.8	67.0
	Rec. ViTAD [40]	42.5	79.5	90.6	96.3	3.1	4.4	88.0	2.2	57.8
	Rec. InvAD [42]	80.8	96.0	<u>92.0</u>	99.6	<u>15.9</u>	<u>25.0</u>	<u>98.5</u>	<u>14.3</u>	<u>72.5</u>
	Rec. InvAD-lite [42]	47.5	82.3	90.6	97.8	4.2	5.7	93.3	2.9	60.2
	Rec. MambaAD [15]	58.3	87.2	90.6	<u>99.2</u>	<u>11.2</u>	<u>18.8</u>	97.1	<u>10.4</u>	66.1
	Hybrid UniAD [35]	78.3	95.5	<u>92.3</u>	99.0	<u>5.3</u>	12.8	96.4	6.8	68.5
	Hybrid RD++ [31]	74.2	93.9	<u>92.3</u>	99.0	8.1	15.0	96.6	8.1	68.4
	Hybrid DesTSeg [44]	22.5	75.9	90.6	91.4	0.5	1.2	71.4	0.6	50.5
Bird	Aug. DRAEM [37]	23.6	74.8	89.8	58.7	0.7	1.4	20.0	0.7	38.4
	Aug. SimpleNet [27]	60.0	86.9	89.8	58.3	0.6	1.4	20.8	0.7	45.4
	Emb. CFA [21]	54.5	83.0	89.8	86.7	4.7	10.9	57.1	5.8	55.2
	Emb. PatchCore [29]	71.8	92.6	<u>93.6</u>	96.4	32.2	39.7	84.2	24.8	74.6
	Emb. CFLOW-AD [14]	38.2	80.2	89.8	89.5	2.9	6.3	64.2	3.2	53.0
	Emb. PyramidalFlow [22]	15.5	68.6	89.8	90.7	2.7	6.4	66.5	3.3	48.6
	Rec. RD [10]	23.6	72.4	89.8	87.0	6.8	16.3	56.7	8.9	50.4
	Rec. DiAD [16]	90.9	98.3	<u>95.2</u>	94.5	19.5	28.0	77.3	16.3	72.0
	Rec. ViTAD [40]	62.7	87.5	91.7	89.9	8.3	16.9	61.9	9.2	59.8
	Rec. InvAD [42]	89.1	97.6	91.7	93.4	25.0	37.3	75.4	22.9	72.8
	Rec. InvAD-lite [42]	<u>84.5</u>	<u>96.4</u>	91.7	<u>96.2</u>	<u>23.1</u>	<u>29.3</u>	<u>83.5</u>	<u>17.2</u>	<u>72.1</u>
	Rec. MambaAD [15]	77.3	93.1	95.7	<u>95.0</u>	11.3	21.4	<u>78.7</u>	12.0	67.5
	Hybrid UniAD [35]	41.8	78.2	89.8	86.9	2.6	6.3	65.7	3.2	53.0
	Hybrid RD++ [31]	50.9	86.6	89.8	90.0	8.2	17.8	64.4	9.8	58.2
	Hybrid DesTSeg [44]	72.7	93.3	91.7	86.2	10.5	15.2	59.3	8.2	61.3
Elephant	Aug. DRAEM [37]	62.2	87.9	87.8	47.6	0.3	0.7	13.5	0.4	42.9
	Aug. SimpleNet [27]	5.6	61.1	87.8	64.1	0.8	2.8	24.7	1.4	35.3
	Emb. CFA [21]	33.3	70.9	87.8	87.5	6.0	11.0	59.6	5.8	50.9
	Emb. PatchCore [29]	27.8	69.5	<u>87.8</u>	<u>93.7</u>	11.1	18.3	<u>78.8</u>	10.1	<u>56.1</u>
	Emb. CFLOW-AD [14]	30.0	74.7	87.8	90.9	7.0	11.4	67.3	6.1	<u>52.7</u>
	Emb. PyramidalFlow [22]	60.0	86.0	<u>87.8</u>	92.5	<u>2.7</u>	<u>5.4</u>	75.1	2.8	58.5
	Rec. RD [10]	48.9	<u>84.7</u>	<u>87.8</u>	88.4	2.1	5.2	63.2	2.7	54.3
	Rec. DiAD [16]	20.0	64.3	90.0	91.8	2.0	4.4	73.1	2.2	49.4
	Rec. ViTAD [40]	43.3	79.9	<u>87.8</u>	95.5	<u>9.8</u>	<u>15.9</u>	83.6	<u>8.7</u>	59.4
	Rec. InvAD [42]	35.6	72.2	<u>87.8</u>	<u>92.9</u>	5.0	11.3	<u>76.6</u>	6.0	54.5
	Rec. InvAD-lite [42]	35.6	78.4	<u>87.8</u>	91.6	4.9	11.3	<u>73.7</u>	6.0	54.8
	Rec. MambaAD [15]	24.4	67.4	<u>87.8</u>	89.2	2.3	5.6	70.6	2.9	49.6
	Hybrid UniAD [35]	13.3	63.1	87.8	78.4	1.6	5.6	38.8	2.9	41.2
	Hybrid RD++ [31]	40.0	77.1	<u>87.8</u>	87.5	2.1	5.0	63.9	2.6	51.9
	Hybrid DesTSeg [44]	12.2	64.6	<u>87.8</u>	68.7	0.8	2.3	36.5	1.2	39.0
Parrot	Aug. DRAEM [37]	30.4	76.4	92.0	49.3	0.6	1.3	13.5	0.6	37.6
	Aug. SimpleNet [27]	<u>24.3</u>	<u>73.9</u>	<u>90.2</u>	58.3	0.8	1.8	35.1	0.9	<u>40.6</u>
	Emb. CFA [21]	5.2	66.2	<u>90.2</u>	42.0	0.5	1.3	16.9	0.7	31.8
	Emb. PatchCore [29]	5.2	66.2	<u>90.2</u>	81.7	2.1	5.1	64.0	2.6	46.0
	Emb. CFLOW-AD [14]	<u>15.7</u>	67.9	<u>90.2</u>	66.7	<u>1.0</u>	<u>2.5</u>	41.7	<u>1.2</u>	<u>40.8</u>
	Emb. PyramidalFlow [22]	9.6	69.4	<u>90.2</u>	67.7	<u>1.0</u>	<u>2.2</u>	32.4	1.1	38.9
	Rec. RD [10]	5.2	65.5	<u>90.2</u>	64.5	0.9	2.1	37.0	1.1	37.9
	Rec. DiAD [16]	0.0	64.3	<u>90.2</u>	56.3	0.7	1.7	37.9	0.9	35.9
	Rec. ViTAD [40]	10.4	67.8	<u>90.2</u>	70.3	<u>1.1</u>	<u>2.6</u>	40.7	<u>1.3</u>	40.4
	Rec. InvAD [42]	5.2	65.7	<u>90.2</u>	68.7	<u>1.1</u>	2.4	44.6	<u>1.2</u>	39.7
	Rec. InvAD-lite [42]	3.5	65.1	<u>90.2</u>	71.4	<u>1.1</u>	<u>2.5</u>	42.2	<u>1.3</u>	39.4
	Rec. MambaAD [15]	4.3	65.4	<u>90.2</u>	<u>72.5</u>	<u>1.1</u>	<u>2.5</u>	46.1	<u>1.3</u>	40.3
	Hybrid UniAD [35]	10.4	67.2	<u>90.2</u>	61.5	0.8	1.9	38.0	0.9	38.6
	Hybrid RD++ [31]	2.6	64.8	<u>90.2</u>	64.2	0.9	2.0	35.7	1.0	37.2
	Hybrid DesTSeg [44]	7.8	67.0	<u>90.2</u>	66.4	<u>1.1</u>	<u>2.5</u>	30.5	<u>1.3</u>	37.9

Table A73. Benchmarked results on MAD_Real dataset [46] by the suggested metrics in Sec. 3.3.

Method		Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD	
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max				
Pig	Aug.	DRAEM [37]	43.5	72.6	89.5	61.9	0.6	0.8	26.9	0.4	42.3
		SimpleNet [27]	14.1	63.4	87.2	76.6	1.7	6.1	37.0	3.2	40.9
	Emb.	CFA [21]	56.5	78.2	89.5	93.0	5.0	11.3	72.6	6.0	58.0
		PatchCore [29]	56.5	78.8	89.5	98.5	19.9	28.7	89.7	16.7	67.1
		CFLOW-AD [14]	57.6	78.4	87.2	96.8	7.1	12.7	86.1	6.8	60.8
		PyramidalFlow [22]	50.6	80.7	89.5	96.4	6.8	13.4	83.4	7.2	60.1
	Rec.	RD [10]	60.0	80.1	87.2	98.0	20.0	29.6	90.2	17.4	66.4
		DiAD [16]	57.6	79.8	87.2	96.4	9.0	18.9	81.6	10.4	61.5
		ViTAD [40]	44.7	75.3	87.2	97.6	9.2	19.4	88.0	10.7	60.2
		InvAD [42]	64.7	81.2	88.9	98.0	11.2	24.2	88.1	13.8	65.2
		InvAD-lite [42]	57.6	78.1	88.2	98.6	17.5	31.3	93.2	18.5	66.4
		MambaAD [15]	42.4	74.5	87.2	97.3	8.5	18.6	87.3	10.2	59.4
	Hybrid	UniAD [35]	48.2	76.9	89.5	89.5	2.1	4.9	61.6	2.5	53.2
		RD++ [31]	56.5	79.2	89.5	98.0	13.8	23.6	91.2	13.3	64.5
		DesTSeg [44]	45.9	75.2	87.2	84.8	1.4	3.3	50.5	1.7	49.8
Puppy	Aug.	DRAEM [37]	57.0	87.0	88.9	31.2	0.2	0.7	13.7	0.3	39.8
		SimpleNet [27]	52.0	82.2	88.9	90.8	1.7	4.4	65.1	2.3	55.0
	Emb.	CFA [21]	82.0	94.8	93.0	98.5	6.7	14.0	92.0	7.5	68.7
		PatchCore [29]	100.	100.	100.	99.2	13.4	25.1	92.1	14.3	78.7
		CFLOW-AD [14]	70.0	91.3	93.0	99.2	31.8	34.5	93.1	20.9	73.3
		PyramidalFlow [22]	68.0	91.2	88.9	95.9	11.7	20.7	77.6	11.5	64.9
	Rec.	RD [10]	82.0	95.6	88.9	95.7	5.5	8.5	83.8	4.4	65.7
		DiAD [16]	91.0	97.7	95.2	95.8	3.4	9.1	80.8	4.8	67.6
		ViTAD [40]	65.0	90.2	88.9	90.5	1.0	2.6	69.6	1.3	58.3
		InvAD [42]	100.	100.	100.	99.4	28.6	31.3	93.7	18.5	79.0
		InvAD-lite [42]	97.0	99.3	97.4	95.9	3.4	9.2	82.8	4.8	69.3
		MambaAD [15]	92.0	97.8	95.2	98.7	26.1	36.1	94.2	22.0	77.2
	Hybrid	UniAD [35]	78.0	94.7	88.9	98.7	12.0	20.2	92.8	11.2	69.3
		RD++ [31]	65.0	90.3	90.9	97.3	4.0	7.5	90.5	3.9	63.6
		DesTSeg [44]	54.0	82.7	88.9	93.1	1.5	3.9	66.6	2.0	55.8
Scorpion	Aug.	DRAEM [37]	46.1	83.9	90.2	41.4	1.2	2.9	10.8	1.5	39.5
		SimpleNet [27]	47.0	84.1	90.2	83.5	9.0	15.8	50.3	8.6	54.3
	Emb.	CFA [21]	27.8	80.3	90.2	61.0	5.4	13.1	26.3	7.0	43.4
		PatchCore [29]	13.0	70.7	90.2	88.2	8.8	17.0	61.6	9.3	50.9
		CFLOW-AD [14]	54.8	87.2	90.2	77.9	4.2	7.5	34.0	3.9	50.8
		PyramidalFlow [22]	47.0	84.3	90.2	65.5	2.6	5.8	20.3	3.0	45.1
	Rec.	RD [10]	55.7	87.9	90.2	66.3	2.1	4.9	21.8	2.5	47.0
		DiAD [16]	11.3	71.8	90.2	71.9	3.1	6.8	30.7	3.5	40.8
		ViTAD [40]	29.6	79.5	90.2	62.7	1.9	4.2	16.8	2.1	40.7
		InvAD [42]	31.3	80.4	90.2	74.4	3.1	6.5	30.8	3.4	45.2
		InvAD-lite [42]	32.2	79.2	90.2	74.6	3.0	6.0	28.1	3.1	44.8
		MambaAD [15]	42.6	80.8	90.2	75.0	2.9	6.3	27.1	3.2	46.4
	Hybrid	UniAD [35]	27.0	73.9	90.2	78.6	4.2	9.1	41.2	4.8	46.3
		RD++ [31]	25.2	75.8	90.2	70.7	2.5	5.8	24.6	3.0	42.1
		DesTSeg [44]	27.8	77.9	90.2	68.1	3.2	8.0	25.3	4.2	42.9
Turtle	Aug.	DRAEM [37]	58.1	85.3	91.3	24.4	0.3	1.5	9.2	0.8	38.6
		SimpleNet [27]	63.8	87.9	89.4	94.6	7.0	15.1	81.8	8.1	62.8
	Emb.	CFA [21]	100.	100.	100.	99.3	41.5	42.7	96.8	27.2	82.9
		PatchCore [29]	100.	100.	100.	99.5	43.1	48.4	97.9	31.9	86.1
		CFLOW-AD [14]	99.0	99.8	97.7	99.1	28.4	38.0	96.5	23.5	79.8
		PyramidalFlow [22]	93.3	98.5	93.3	98.4	23.9	33.3	95.3	20.0	76.6
	Rec.	RD [10]	95.2	99.0	95.2	98.5	23.2	30.4	94.9	18.0	76.6
		DiAD [16]	74.3	94.2	89.4	93.2	7.5	13.5	83.5	7.2	65.1
		ViTAD [40]	83.8	96.1	93.3	95.6	6.2	13.2	85.6	7.0	67.7
		InvAD [42]	100.	100.	100.	99.7	51.9	50.0	98.4	33.3	85.7
		InvAD-lite [42]	99.0	99.8	97.7	98.0	15.5	21.6	94.5	12.1	75.2
		MambaAD [15]	100.	100.	100.	99.3	32.8	39.2	97.2	24.4	81.2
	Hybrid	UniAD [35]	98.1	99.6	97.6	98.2	22.8	31.5	91.0	18.7	77.0
		RD++ [31]	100.	100.	100.	99.2	25.1	35.8	97.0	21.8	79.6
		DesTSeg [44]	54.3	86.7	89.4	95.2	9.8	16.1	77.0	8.8	61.2

Table A74. Benchmarked results on MAD_Real dataset [46] by the suggested metrics in Sec. 3.3.

		Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
			mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
Unicorn	Aug.	DRAEM [37]	36.2	79.8	<u>89.4</u>	43.0	0.2	0.5	9.9	0.2	37.0
		SimpleNet [27]	19.0	68.8	<u>89.4</u>	81.8	0.9	2.2	49.5	1.1	44.5
	Emb.	CFA [21]	31.4	73.8	<u>89.4</u>	67.8	0.8	3.6	33.2	<u>1.9</u>	42.9
		PatchCore [29]	43.8	74.1	93.3	97.3	6.8	14.1	90.3	7.6	61.3
		CFLOW-AD [14]	63.8	90.9	91.3	90.1	<u>1.5</u>	3.3	65.7	1.7	<u>58.1</u>
		PyramidalFlow [22]	65.7	84.4	<u>89.4</u>	82.2	0.9	2.2	51.8	1.1	53.8
	Rec.	RD [10]	21.0	71.0	<u>89.4</u>	73.5	0.5	1.3	33.8	0.6	41.5
		DiAD [16]	<u>62.9</u>	91.4	<u>89.4</u>	86.0	1.0	2.4	60.4	1.2	<u>56.2</u>
		ViTAD [40]	20.0	72.2	<u>89.4</u>	73.9	0.5	1.1	31.7	0.6	41.3
		InvAD [42]	31.4	72.8	<u>89.4</u>	89.9	<u>1.6</u>	<u>4.3</u>	<u>67.3</u>	<u>2.2</u>	51.0
		InvAD-lite [42]	32.4	72.3	<u>89.4</u>	84.4	1.4	<u>4.3</u>	57.0	<u>2.2</u>	48.7
		MambaAD [15]	18.1	67.6	<u>89.4</u>	81.7	0.8	2.1	50.0	1.1	44.2
	Hybrid	UniAD [35]	16.2	66.6	<u>89.4</u>	89.3	1.4	<u>3.7</u>	<u>66.1</u>	<u>1.9</u>	47.5
		RD++ [31]	29.5	75.7	<u>89.4</u>	81.4	0.7	1.5	43.7	0.8	46.0
		DesTSeg [44]	21.0	69.4	<u>89.4</u>	76.4	0.5	1.3	31.0	0.6	41.3
Whale	Aug.	DRAEM [37]	43.1	85.6	92.8	20.2	0.1	0.4	6.4	0.2	35.5
		SimpleNet [27]	58.1	91.5	92.8	89.1	2.5	8.2	68.5	4.3	58.7
	Emb.	CFA [21]	80.6	96.2	93.5	98.6	29.3	32.2	90.5	19.2	74.4
		PatchCore [29]	95.0	99.1	98.5	99.7	46.8	47.4	97.8	<u>31.0</u>	85.2
		CFLOW-AD [14]	67.5	94.4	92.8	99.1	17.5	24.7	95.1	14.1	70.2
		PyramidalFlow [22]	89.4	98.2	95.5	98.0	20.2	25.6	90.6	14.7	73.9
	Rec.	RD [10]	81.2	96.7	92.8	98.9	19.2	23.5	94.9	13.3	72.5
		DiAD [16]	86.9	98.0	94.1	94.6	2.9	5.4	77.2	2.8	65.6
		ViTAD [40]	42.5	85.4	92.8	96.3	3.6	8.5	83.6	4.5	59.0
		InvAD [42]	96.9	99.5	<u>97.0</u>	99.8	<u>45.3</u>	50.1	98.7	33.4	<u>83.9</u>
		InvAD-lite [42]	83.8	96.6	<u>95.5</u>	99.5	<u>39.4</u>	<u>41.9</u>	98.2	<u>26.5</u>	<u>79.3</u>
		MambaAD [15]	87.5	97.6	<u>95.5</u>	<u>99.7</u>	<u>33.8</u>	<u>41.7</u>	<u>98.6</u>	<u>26.3</u>	<u>79.2</u>
	Hybrid	UniAD [35]	42.5	87.3	92.8	98.1	11.1	19.6	91.1	10.9	63.2
		RD++ [31]	79.4	95.9	92.8	99.2	27.9	29.8	96.1	17.5	74.4
		DesTSeg [44]	42.5	86.4	92.8	95.1	2.6	6.0	79.3	3.1	57.8
Avg	Aug.	DRAEM [37]	46.3	82.5	90.2	42.5	0.5	1.2	14.9	0.6	39.7
		SimpleNet [27]	36.1	77.0	89.6	77.2	2.6	6.3	48.9	3.3	48.2
	Emb.	CFA [21]	48.5	81.2	91.4	83.3	10.4	15.0	64.1	8.6	56.3
		PatchCore [29]	59.7	84.8	93.5	95.4	20.2	27.3	85.5	16.6	68.2
		CFLOW-AD [14]	57.4	<u>85.9</u>	91.2	<u>90.9</u>	10.8	15.3	74.1	8.8	60.8
		PyramidalFlow [22]	50.6	82.9	90.5	88.6	7.5	12.0	68.8	6.7	57.3
	Rec.	RD [10]	56.0	84.9	90.7	86.9	8.7	13.2	66.9	7.4	58.2
		DiAD [16]	58.0	<u>85.7</u>	91.1	87.8	5.1	9.6	69.4	5.2	58.1
		ViTAD [40]	44.5	81.3	90.2	86.9	4.5	8.9	65.0	4.8	54.5
		InvAD [42]	63.5	86.5	<u>92.7</u>	91.6	<u>18.9</u>	<u>24.2</u>	<u>77.2</u>	<u>14.9</u>	<u>64.9</u>
		InvAD-lite [42]	57.3	84.8	91.9	90.8	11.4	16.3	<u>74.7</u>	9.5	61.0
		MambaAD [15]	54.7	83.1	<u>92.2</u>	90.8	<u>13.1</u>	<u>19.2</u>	<u>74.7</u>	<u>11.4</u>	<u>61.1</u>
	Hybrid	UniAD [35]	45.4	80.3	<u>90.8</u>	87.8	6.4	11.6	68.3	6.4	55.8
		RD++ [31]	52.3	84.0	91.3	88.7	9.3	14.4	70.4	8.2	58.6
		DesTSeg [44]	36.1	77.9	89.8	82.5	3.2	6.0	52.7	3.2	49.7

V. Detailed Quantitative Results on MAD_Sim Dataset Under 300 epochs

Table A75. Benchmarked results on MAD_Sim dataset [46] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
01Gorilla	Aug. DRAEM [37]	54.4	91.6	95.1	45.4	0.7	2.0	19.4	1.0	44.1
	Aug. SimpleNet [27]	53.0	91.5	<u>94.9</u>	90.9	2.7	5.7	65.5	2.9	57.7
	Emb. CFA [21]	55.9	93.6	<u>94.9</u>	79.0	<u>7.2</u>	<u>15.4</u>	55.8	<u>8.3</u>	57.4
	Emb. CFLOW-AD [14]	54.4	92.8	<u>94.9</u>	90.8	4.8	5.1	65.4	2.6	58.3
	Emb. PyramidalFlow [22]	46.5	90.4	<u>94.9</u>	91.5	3.7	6.0	75.1	3.1	58.3
	Rec. RD [10]	62.7	93.3	95.1	93.1	4.5	9.0	76.4	4.7	62.0
	Rec. DiAD [16]	64.4	<u>94.6</u>	<u>94.9</u>	91.6	3.6	8.3	64.6	4.3	60.3
	Rec. ViTAD [40]	<u>66.1</u>	93.9	95.1	<u>93.7</u>	5.9	10.6	76.3	5.6	<u>63.1</u>
	Rec. InvAD [42]	<u>67.4</u>	95.7	<u>94.9</u>	95.2	17.1	24.1	82.0	13.7	68.1
	Rec. InvAD-lite [42]	70.6	<u>95.5</u>	<u>94.9</u>	<u>94.1</u>	<u>8.0</u>	<u>15.1</u>	<u>78.3</u>	<u>8.2</u>	<u>65.2</u>
	Rec. MambaAD [15]	65.2	93.8	<u>94.9</u>	92.8	5.0	10.7	75.6	5.7	62.6
	Hybrid UniAD [35]	52.6	92.3	<u>94.9</u>	92.7	6.3	11.0	<u>79.7</u>	5.8	61.4
	Hybrid RD++ [31]	53.6	91.1	<u>94.9</u>	92.7	4.0	8.3	74.6	4.3	59.9
	Hybrid DesTSeg [44]	46.5	90.3	<u>94.9</u>	58.2	5.0	9.0	34.4	4.7	48.3
02Unicorn	Aug. DRAEM [37]	41.9	90.6	<u>95.2</u>	47.3	0.4	0.8	14.1	0.4	41.5
	Aug. SimpleNet [27]	55.0	91.6	<u>95.2</u>	83.2	1.3	2.6	61.3	1.3	55.7
	Emb. CFA [21]	63.8	94.8	95.5	67.8	1.4	3.9	32.1	2.0	51.3
	Emb. CFLOW-AD [14]	59.0	93.5	<u>95.2</u>	84.4	2.3	3.4	55.4	1.7	56.2
	Emb. PyramidalFlow [22]	37.0	87.7	95.5	80.3	1.1	2.3	52.2	1.2	50.9
	Rec. RD [10]	61.4	94.1	<u>95.2</u>	85.3	2.0	4.1	<u>70.7</u>	2.1	59.0
	Rec. DiAD [16]	<u>79.3</u>	<u>97.2</u>	<u>95.4</u>	80.0	1.6	4.5	48.0	2.3	58.0
	Rec. ViTAD [40]	63.9	94.7	<u>95.2</u>	86.5	2.4	5.8	67.8	3.0	59.5
	Rec. InvAD [42]	79.7	97.6	<u>95.4</u>	87.3	<u>3.8</u>	<u>9.8</u>	74.6	<u>5.2</u>	64.0
	Rec. InvAD-lite [42]	71.3	96.0	<u>95.2</u>	<u>86.6</u>	<u>2.9</u>	<u>6.4</u>	<u>73.2</u>	<u>3.3</u>	<u>61.7</u>
	Rec. MambaAD [15]	65.7	95.2	<u>95.4</u>	84.3	2.1	4.7	68.7	2.4	59.4
	Hybrid UniAD [35]	71.4	<u>96.2</u>	<u>95.4</u>	<u>87.1</u>	2.5	6.3	64.5	<u>3.3</u>	<u>60.5</u>
	Hybrid RD++ [31]	60.6	93.8	<u>95.2</u>	85.1	2.3	4.6	69.2	2.3	58.7
	Hybrid DesTSeg [44]	<u>72.0</u>	96.1	95.5	55.9	6.4	10.5	40.0	5.6	53.8
03Mallard	Aug. DRAEM [37]	36.6	88.0	95.4	46.6	1.3	1.5	15.3	0.8	40.7
	Aug. SimpleNet [27]	<u>55.2</u>	<u>91.6</u>	95.4	<u>85.5</u>	2.6	5.6	58.6	2.9	56.4
	Emb. CFA [21]	31.3	87.1	95.4	63.8	2.9	10.0	36.7	5.3	46.7
	Emb. CFLOW-AD [14]	40.1	90.5	95.4	84.8	3.8	5.1	53.1	2.6	53.3
	Emb. PyramidalFlow [22]	44.2	89.9	95.4	83.9	2.5	5.0	56.3	2.6	53.9
	Rec. RD [10]	44.4	89.1	95.4	83.5	3.4	7.9	56.7	4.1	54.3
	Rec. DiAD [16]	73.9	96.0	95.4	83.0	2.4	4.6	48.7	2.4	57.7
	Rec. ViTAD [40]	<u>46.6</u>	91.4	95.4	85.2	<u>5.3</u>	<u>11.2</u>	<u>60.4</u>	<u>5.9</u>	<u>56.5</u>
	Rec. InvAD [42]	46.5	91.3	95.4	<u>85.9</u>	7.8	13.4	<u>61.5</u>	7.2	<u>57.4</u>
	Rec. InvAD-lite [42]	40.9	90.2	95.4	85.2	<u>6.0</u>	<u>11.1</u>	60.2	<u>5.9</u>	55.6
	Rec. MambaAD [15]	<u>55.2</u>	<u>93.6</u>	95.4	84.2	4.9	10.5	57.9	<u>5.6</u>	<u>57.4</u>
	Hybrid UniAD [35]	33.9	87.0	95.4	86.1	3.8	8.9	61.8	4.7	53.8
	Hybrid RD++ [31]	37.1	87.9	95.4	84.0	3.4	7.8	57.1	4.1	53.2
	Hybrid DesTSeg [44]	33.2	88.1	95.4	58.7	3.4	8.0	39.0	4.1	46.5
04Turtle	Aug. DRAEM [37]	45.6	87.8	94.9	47.2	0.6	1.3	12.0	0.7	41.3
	Aug. SimpleNet [27]	48.7	90.2	94.9	85.7	2.3	4.7	60.9	2.4	55.3
	Emb. CFA [21]	40.8	90.8	94.9	71.1	2.4	3.6	38.6	1.8	48.9
	Emb. CFLOW-AD [14]	63.1	94.7	94.9	86.3	4.1	6.3	57.1	3.2	58.1
	Emb. PyramidalFlow [22]	16.8	81.8	94.9	76.6	1.2	3.1	39.7	1.6	44.9
	Rec. RD [10]	64.1	94.1	94.9	91.1	<u>9.3</u>	16.8	<u>72.6</u>	9.2	63.3
	Rec. DiAD [16]	85.5	98.3	96.3	<u>91.8</u>	<u>7.1</u>	14.3	63.1	7.7	<u>65.2</u>
	Rec. ViTAD [40]	59.0	93.5	94.9	91.0	7.9	15.4	70.5	8.3	61.7
	Rec. InvAD [42]	83.0	<u>97.7</u>	<u>95.1</u>	93.4	15.5	25.9	78.8	14.9	69.9
	Rec. InvAD-lite [42]	<u>76.8</u>	<u>96.9</u>	<u>95.6</u>	<u>92.3</u>	<u>12.4</u>	<u>21.3</u>	<u>75.4</u>	<u>11.9</u>	<u>67.2</u>
	Rec. MambaAD [15]	66.6	95.2	94.9	91.0	<u>9.3</u>	<u>17.7</u>	70.8	<u>9.7</u>	63.6
	Hybrid UniAD [35]	55.7	92.0	94.9	88.9	4.3	7.6	70.9	4.0	59.2
	Hybrid RD++ [31]	60.1	94.2	94.9	90.2	7.0	13.2	69.8	7.1	61.3
	Hybrid DesTSeg [44]	34.1	88.5	94.9	55.0	1.6	3.6	38.8	1.8	45.2

Table A76. Benchmarked results on MAD_Sim dataset [46] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
05Whale	Aug. DRAEM [37]	50.5	90.3	94.4	47.6	0.6	1.5	20.6	0.8	43.6
	Aug. SimpleNet [27]	50.4	89.2	94.4	85.1	1.8	3.7	62.4	1.9	55.3
	Emb. CFA [21]	51.6	91.5	94.4	71.3	2.2	4.1	41.0	2.1	50.9
	Emb. CFLOW-AD [14]	54.0	91.1	94.4	85.3	2.8	4.4	63.2	2.2	56.5
	Emb. PyramidalFlow [22]	27.7	82.7	94.4	78.9	1.2	2.8	52.5	1.4	48.6
	Rec. RD [10]	52.4	91.0	94.4	86.8	3.3	7.1	74.0	3.7	58.4
	Rec. DiAD [16]	51.0	90.8	94.4	81.1	2.6	7.5	51.9	3.9	54.2
	Rec. ViTAD [40]	58.5	92.7	94.4	88.3	4.1	8.3	76.5	4.3	60.4
	Rec. InvAD [42]	<u>74.0</u>	<u>96.3</u>	94.4	<u>89.9</u>	8.8	16.9	81.1	9.2	65.9
	Rec. InvAD-lite [42]	<u>68.1</u>	<u>95.2</u>	94.4	<u>89.3</u>	<u>6.2</u>	<u>11.2</u>	<u>78.5</u>	<u>5.9</u>	<u>63.3</u>
	Rec. MambaAD [15]	60.4	93.5	94.4	87.3	4.4	8.9	74.1	4.6	60.4
	Hybrid UniAD [35]	79.4	97.1	94.4	90.8	<u>5.2</u>	<u>11.6</u>	<u>80.1</u>	<u>6.2</u>	<u>65.5</u>
	Hybrid RD++ [31]	54.1	91.8	94.4	86.5	3.5	7.0	73.0	3.6	58.6
	Hybrid DesTSeg [44]	57.1	92.1	94.4	61.4	3.2	8.3	55.5	4.3	53.1
06Bird	Aug. DRAEM [37]	44.1	87.6	<u>94.5</u>	48.6	1.0	2.3	27.2	1.1	43.6
	Aug. SimpleNet [27]	52.9	91.4	<u>94.4</u>	91.8	5.1	9.4	75.9	4.9	60.1
	Emb. CFA [21]	65.1	92.8	<u>94.5</u>	73.3	4.0	9.7	47.2	5.1	55.2
	Emb. CFLOW-AD [14]	63.8	91.8	<u>94.4</u>	90.4	3.8	7.1	70.8	3.7	60.3
	Emb. PyramidalFlow [22]	<u>77.2</u>	<u>96.3</u>	<u>94.4</u>	<u>92.7</u>	<u>5.9</u>	<u>11.1</u>	<u>77.8</u>	<u>5.9</u>	<u>65.1</u>
	Rec. RD [10]	60.4	92.0	<u>94.4</u>	90.6	4.9	8.4	75.2	4.4	60.8
	Rec. DiAD [16]	<u>77.3</u>	97.0	<u>94.4</u>	93.6	6.5	12.9	<u>77.3</u>	6.9	65.6
	Rec. ViTAD [40]	65.7	93.5	<u>94.5</u>	91.2	4.9	9.8	76.1	5.2	62.2
	Rec. InvAD [42]	82.8	97.4	94.9	<u>91.9</u>	<u>6.3</u>	<u>12.8</u>	78.0	<u>6.8</u>	66.3
	Rec. InvAD-lite [42]	72.0	95.5	<u>94.5</u>	91.6	5.8	10.0	77.0	5.3	63.8
	Rec. MambaAD [15]	66.9	94.7	<u>94.7</u>	91.1	4.7	8.6	76.1	4.5	62.4
	Hybrid UniAD [35]	67.0	93.2	<u>94.4</u>	90.8	4.8	9.1	74.8	4.8	62.0
	Hybrid RD++ [31]	60.0	91.4	<u>94.5</u>	90.8	4.8	8.3	75.4	4.3	60.7
	Hybrid DesTSeg [44]	68.2	93.5	<u>94.5</u>	60.3	4.1	8.8	40.5	4.6	52.8
07Owl	Aug. DRAEM [37]	56.3	87.8	<u>92.8</u>	45.4	0.5	1.2	16.4	0.6	42.9
	Aug. SimpleNet [27]	55.0	87.5	<u>92.8</u>	87.7	1.9	4.1	64.6	2.1	56.2
	Emb. CFA [21]	60.8	91.7	<u>93.0</u>	77.1	3.2	7.0	47.4	3.6	54.3
	Emb. CFLOW-AD [14]	<u>66.9</u>	92.8	<u>92.8</u>	89.9	3.8	5.0	66.2	2.6	59.6
	Emb. PyramidalFlow [22]	48.4	85.1	<u>93.0</u>	90.0	3.5	7.8	71.1	4.1	57.0
	Rec. RD [10]	62.2	91.8	<u>93.0</u>	91.9	5.3	9.4	77.7	4.9	61.6
	Rec. DiAD [16]	62.0	91.4	<u>92.8</u>	<u>94.4</u>	6.1	<u>13.1</u>	72.8	<u>7.0</u>	61.8
	Rec. ViTAD [40]	65.6	91.9	<u>92.8</u>	<u>92.7</u>	5.2	<u>10.9</u>	77.8	<u>5.7</u>	<u>62.4</u>
	Rec. InvAD [42]	72.6	94.3	<u>93.0</u>	94.6	12.5	22.7	83.6	12.8	67.6
	Rec. InvAD-lite [42]	66.6	<u>93.1</u>	93.2	<u>93.3</u>	<u>7.6</u>	<u>13.7</u>	<u>80.1</u>	<u>7.3</u>	<u>63.9</u>
	Rec. MambaAD [15]	<u>67.5</u>	<u>93.5</u>	<u>92.8</u>	91.5	4.8	9.3	76.0	4.9	62.2
	Hybrid UniAD [35]	63.7	92.1	<u>93.0</u>	92.5	4.9	9.8	77.6	5.2	61.9
	Hybrid RD++ [31]	66.1	92.5	<u>92.8</u>	92.2	5.2	9.0	<u>78.4</u>	4.7	62.3
	Hybrid DesTSeg [44]	64.8	92.4	93.2	54.3	<u>11.1</u>	10.0	39.1	5.3	52.1
08Sabertooth	Aug. DRAEM [37]	58.0	88.3	<u>93.0</u>	47.1	0.5	1.1	18.6	0.6	43.8
	Aug. SimpleNet [27]	55.1	88.3	<u>93.2</u>	87.3	1.9	3.9	65.6	2.0	56.5
	Emb. CFA [21]	53.8	90.6	<u>93.0</u>	72.0	2.2	3.8	36.8	1.9	50.3
	Emb. CFLOW-AD [14]	60.8	90.8	<u>93.2</u>	86.6	1.7	3.4	58.3	1.7	56.4
	Emb. PyramidalFlow [22]	65.2	93.2	<u>93.0</u>	82.5	1.2	2.6	58.6	1.3	56.6
	Rec. RD [10]	66.0	93.2	<u>93.4</u>	88.0	2.0	3.6	67.2	1.9	59.1
	Rec. DiAD [16]	69.2	<u>94.0</u>	94.5	86.1	1.9	3.4	51.3	1.7	57.2
	Rec. ViTAD [40]	61.6	91.3	<u>93.2</u>	89.0	2.2	4.0	68.0	2.0	58.5
	Rec. InvAD [42]	78.0	95.8	<u>93.4</u>	91.3	3.9	6.2	74.7	3.2	63.3
	Rec. InvAD-lite [42]	<u>73.7</u>	<u>94.6</u>	<u>93.4</u>	<u>89.4</u>	<u>3.1</u>	<u>4.6</u>	<u>69.4</u>	<u>2.4</u>	<u>61.2</u>
	Rec. MambaAD [15]	64.4	92.6	<u>93.4</u>	87.1	2.2	3.5	63.9	1.8	58.2
	Hybrid UniAD [35]	62.5	91.0	<u>93.2</u>	<u>89.5</u>	<u>2.5</u>	<u>4.2</u>	<u>74.5</u>	<u>2.1</u>	<u>59.6</u>
	Hybrid RD++ [31]	63.2	91.9	<u>93.0</u>	88.1	2.3	3.7	66.6	1.9	58.4
	Hybrid DesTSeg [44]	<u>70.0</u>	93.6	<u>93.2</u>	52.0	2.3	4.0	33.9	2.0	49.9

Table A77. Benchmarked results on MAD_Sim dataset [46] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
09Swan	Aug. DRAEM [37]	46.6	86.6	<u>93.1</u>	47.7	0.6	1.4	19.9	0.7	42.3
	Aug. SimpleNet [27]	49.8	85.9	<u>93.1</u>	86.1	1.9	3.9	62.4	2.0	54.7
	Emb. CFA [21]	54.9	88.2	<u>93.1</u>	72.0	2.0	6.7	37.8	3.5	50.7
	Emb. CFLOW-AD [14]	47.0	86.9	<u>93.1</u>	85.7	2.2	3.9	60.1	2.0	54.1
	Emb. PyramidalFlow [22]	43.7	85.4	<u>93.1</u>	80.2	1.3	2.9	53.9	1.5	51.5
	Rec. RD [10]	55.8	89.3	<u>93.1</u>	87.7	2.4	4.6	71.0	2.3	57.7
	Rec. DiAD [16]	78.8	95.5	94.3	87.8	9.2	16.7	57.8	9.1	<u>62.9</u>
	Rec. ViTAD [40]	54.1	88.1	<u>93.2</u>	<u>90.1</u>	3.1	6.2	73.7	3.2	58.4
	Rec. InvAD [42]	<u>65.8</u>	<u>92.6</u>	<u>93.2</u>	91.8	<u>6.2</u>	<u>11.6</u>	80.0	<u>6.2</u>	63.0
	Rec. InvAD-lite [42]	<u>60.1</u>	<u>90.5</u>	<u>93.1</u>	<u>90.1</u>	<u>4.1</u>	<u>8.3</u>	<u>76.8</u>	<u>4.3</u>	<u>60.4</u>
	Rec. MambaAD [15]	56.3	89.5	<u>93.1</u>	87.3	2.5	4.4	69.4	2.2	57.5
	Hybrid UniAD [35]	58.4	89.7	<u>93.1</u>	<u>89.5</u>	3.2	6.8	<u>74.7</u>	3.5	59.3
	Hybrid RD++ [31]	53.9	89.4	<u>93.2</u>	87.6	2.4	4.4	69.8	2.3	57.2
	Hybrid DesTSeg [44]	53.3	89.8	<u>93.1</u>	51.5	2.2	3.2	36.0	1.6	47.0
10Sheep	Aug. DRAEM [37]	36.8	81.6	<u>92.7</u>	47.2	0.6	1.3	20.8	0.7	40.1
	Aug. SimpleNet [27]	44.9	85.1	<u>92.7</u>	91.3	2.8	5.2	76.4	2.7	56.9
	Emb. CFA [21]	66.4	92.3	<u>92.7</u>	71.9	2.9	7.4	50.2	3.8	54.8
	Emb. CFLOW-AD [14]	63.0	90.1	<u>92.9</u>	91.9	3.9	6.8	79.2	3.5	61.1
	Emb. PyramidalFlow [22]	58.6	90.6	<u>92.7</u>	90.6	2.2	5.0	75.9	2.6	59.4
	Rec. RD [10]	62.6	91.8	<u>92.7</u>	92.5	5.1	8.8	84.1	4.6	62.5
	Rec. DiAD [16]	87.4	97.3	94.3	<u>93.6</u>	4.5	8.8	76.6	4.6	<u>66.1</u>
	Rec. ViTAD [40]	65.0	91.1	<u>92.7</u>	93.4	4.4	8.7	<u>84.7</u>	4.5	62.9
	Rec. InvAD [42]	<u>84.5</u>	<u>96.8</u>	<u>93.5</u>	94.3	8.1	13.9	87.0	7.5	68.3
	Rec. InvAD-lite [42]	<u>80.5</u>	<u>96.2</u>	<u>93.9</u>	<u>93.7</u>	7.0	<u>10.7</u>	<u>85.7</u>	<u>5.7</u>	<u>66.8</u>
	Rec. MambaAD [15]	66.0	93.0	<u>92.7</u>	92.6	5.2	9.4	83.9	5.0	63.3
	Hybrid UniAD [35]	65.9	92.4	<u>92.9</u>	<u>93.6</u>	5.6	9.9	84.2	5.2	63.5
	Hybrid RD++ [31]	70.4	94.2	<u>92.7</u>	92.6	<u>6.5</u>	<u>10.6</u>	84.1	<u>5.6</u>	64.4
	Hybrid DesTSeg [44]	71.1	94.1	<u>92.9</u>	54.8	<u>5.9</u>	8.2	43.4	4.3	52.9
11Pig	Aug. DRAEM [37]	52.4	89.4	<u>94.0</u>	47.2	0.5	1.1	22.2	0.5	43.8
	Aug. SimpleNet [27]	50.2	88.7	<u>94.0</u>	89.8	2.0	4.2	73.3	2.1	57.5
	Emb. CFA [21]	57.1	91.4	<u>94.0</u>	84.7	<u>9.7</u>	<u>17.7</u>	56.1	<u>9.7</u>	58.7
	Emb. CFLOW-AD [14]	52.6	90.1	<u>94.0</u>	92.4	6.5	5.6	74.5	2.9	59.4
	Emb. PyramidalFlow [22]	50.9	89.4	<u>94.0</u>	91.3	2.6	5.7	71.5	2.9	57.9
	Rec. RD [10]	59.3	92.0	<u>94.0</u>	94.1	6.0	11.7	83.2	6.2	62.9
	Rec. DiAD [16]	53.1	92.4	<u>94.0</u>	93.9	9.2	16.3	71.5	8.9	61.5
	Rec. ViTAD [40]	58.8	91.6	<u>94.5</u>	<u>95.7</u>	8.1	15.6	83.0	8.5	63.9
	Rec. InvAD [42]	72.2	94.9	94.6	96.8	17.6	25.1	87.6	14.3	69.8
	Rec. InvAD-lite [42]	<u>66.3</u>	<u>93.6</u>	<u>94.2</u>	<u>96.1</u>	<u>13.6</u>	<u>21.2</u>	<u>85.8</u>	<u>11.8</u>	<u>67.3</u>
	Rec. MambaAD [15]	63.5	92.9	<u>94.0</u>	95.1	8.8	15.5	<u>83.8</u>	8.4	<u>64.8</u>
	Hybrid UniAD [35]	52.6	88.9	<u>94.0</u>	94.5	5.1	9.6	81.2	5.0	60.8
	Hybrid RD++ [31]	60.8	92.4	<u>94.0</u>	94.5	6.5	12.7	83.6	6.8	63.5
	Hybrid DesTSeg [44]	<u>65.5</u>	<u>93.0</u>	<u>94.0</u>	62.3	8.1	13.1	48.0	7.0	54.9
12Zalika	Aug. DRAEM [37]	50.4	87.0	92.9	40.9	0.9	2.2	17.0	1.1	41.6
	Aug. SimpleNet [27]	50.4	86.8	92.9	84.1	2.5	5.0	57.9	2.5	54.2
	Emb. CFA [21]	56.2	90.5	92.9	70.8	4.3	8.7	47.5	4.5	53.0
	Emb. CFLOW-AD [14]	53.0	88.4	92.9	86.0	4.4	7.0	55.4	3.6	55.3
	Emb. PyramidalFlow [22]	42.1	85.2	92.9	83.4	2.3	4.7	63.7	2.4	53.5
	Rec. RD [10]	<u>56.8</u>	91.0	92.9	87.3	5.0	8.3	<u>69.2</u>	4.3	<u>58.6</u>
	Rec. DiAD [16]	34.5	82.3	92.9	85.4	3.5	6.1	43.2	3.2	49.7
	Rec. ViTAD [40]	56.4	91.0	92.9	<u>87.4</u>	4.8	8.6	68.2	4.5	58.5
	Rec. InvAD [42]	61.2	92.2	92.9	90.2	9.4	15.5	75.4	8.4	62.4
	Rec. InvAD-lite [42]	<u>58.6</u>	<u>91.2</u>	92.9	<u>88.9</u>	<u>7.1</u>	<u>11.7</u>	<u>72.6</u>	<u>6.2</u>	<u>60.4</u>
	Rec. MambaAD [15]	<u>58.6</u>	<u>91.5</u>	92.9	86.8	4.7	8.0	68.0	4.2	<u>58.6</u>
	Hybrid UniAD [35]	50.8	88.9	92.9	86.8	3.8	6.7	67.9	3.4	56.8
	Hybrid RD++ [31]	52.7	90.3	92.9	87.3	<u>5.5</u>	<u>8.8</u>	69.1	<u>4.6</u>	58.1
	Hybrid DesTSeg [44]	50.7	88.9	92.9	52.8	4.7	6.0	38.8	3.1	47.8

Table A78. Benchmarked results on MAD_Sim dataset [46] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD	
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max				
13Pheonix	Aug.	DRAEM [37]	48.9	89.6	94.3	51.2	0.6	1.6	27.8	0.8	44.9
		SimpleNet [27]	49.2	89.3	94.3	82.2	1.3	2.8	52.3	1.4	53.1
	Emb.	CFA [21]	56.9	91.0	94.4	66.2	1.6	4.6	50.0	2.4	52.1
		CFLOW-AD [14]	52.5	90.2	94.4	82.3	1.5	2.9	57.6	1.5	54.5
		PyramidalFlow [22]	44.6	86.1	94.3	78.0	1.1	2.5	61.6	1.2	52.6
		RD [10]	52.1	90.1	94.4	83.5	2.2	3.3	69.3	1.7	56.4
	Rec.	DiAD [16]	39.7	87.8	94.3	83.6	1.5	3.0	49.9	1.5	51.4
		ViTAD [40]	53.3	90.5	94.3	84.6	1.7	3.4	68.0	1.8	56.5
		InvAD [42]	64.2	92.8	94.6	87.5	3.7	8.2	77.4	4.3	61.2
		InvAD-lite [42]	56.3	91.9	94.5	86.0	3.1	4.6	74.2	2.3	58.7
	Hybrid	MambaAD [15]	57.5	92.1	94.4	83.4	2.7	3.4	69.8	1.7	57.6
		UniAD [35]	55.3	90.6	94.3	85.2	1.8	3.6	68.1	1.8	57.0
RD++ [31]		56.6	91.9	94.4	84.1	1.9	3.7	70.3	1.9	57.6	
DesTSeg [44]		56.9	92.0	94.3	52.9	2.3	4.8	35.7	2.5	48.4	
14Elephant	Aug.	DRAEM [37]	44.6	87.2	93.9	50.3	1.0	1.9	19.3	0.9	42.6
		SimpleNet [27]	48.0	87.8	93.9	71.8	1.8	4.0	49.8	2.0	51.0
	Emb.	CFA [21]	57.4	91.5	93.9	54.1	1.8	4.1	39.0	2.1	48.8
		CFLOW-AD [14]	55.8	91.3	93.9	68.1	2.2	3.5	49.6	1.8	52.1
		PyramidalFlow [22]	47.0	88.0	93.9	63.8	1.4	3.2	51.1	1.6	49.8
		RD [10]	58.9	91.7	93.9	69.8	2.8	6.1	64.1	3.2	55.3
	Rec.	DiAD [16]	65.8	94.4	93.9	74.3	2.0	3.9	45.9	2.0	54.3
		ViTAD [40]	57.0	91.9	93.9	70.7	3.1	7.2	64.2	3.7	55.4
		InvAD [42]	66.7	93.9	94.0	72.5	4.6	11.5	68.5	6.1	58.8
		InvAD-lite [42]	65.9	93.9	93.9	70.8	3.6	8.2	65.8	4.3	57.4
		MambaAD [15]	63.3	93.4	93.9	69.6	2.8	6.3	62.8	3.2	56.0
		UniAD [35]	58.2	91.5	93.9	69.5	2.2	5.1	62.2	2.6	54.7
Hybrid	RD++ [31]	58.7	92.3	94.0	70.2	2.9	6.5	63.3	3.3	55.4	
	DesTSeg [44]	63.7	92.9	94.0	54.5	4.9	8.0	50.1	4.2	52.6	
	15Parrot	Aug.	DRAEM [37]	52.1	86.0	91.8	48.6	0.8	1.8	18.7	0.9
SimpleNet [27]			49.4	82.6	91.8	83.3	2.4	4.8	62.1	2.5	53.8
Emb.		CFA [21]	57.1	89.2	91.8	65.9	2.3	4.8	48.2	2.4	51.3
		CFLOW-AD [14]	53.0	87.0	92.0	83.4	3.0	5.3	60.2	2.7	54.8
		PyramidalFlow [22]	59.2	86.3	92.2	80.0	2.2	4.7	59.7	2.4	54.9
		RD [10]	50.7	86.7	92.0	84.0	3.2	6.9	67.1	3.6	55.8
Rec.		DiAD [16]	53.1	88.9	91.8	83.4	2.5	5.8	63.9	3.0	55.6
		ViTAD [40]	49.8	86.9	91.8	83.4	3.1	6.7	66.4	3.5	55.4
		InvAD [42]	53.9	88.6	92.0	86.6	6.6	14.5	74.0	7.8	59.5
		InvAD-lite [42]	50.0	87.3	91.8	85.4	4.6	9.6	69.8	5.0	56.9
		MambaAD [15]	49.9	86.8	91.8	83.9	3.2	6.3	65.1	3.3	55.3
		UniAD [35]	46.9	86.0	91.8	85.5	3.5	6.5	69.9	3.4	55.7
Hybrid	RD++ [31]	53.9	88.1	92.0	84.1	3.1	6.7	66.5	3.5	56.3	
	DesTSeg [44]	54.4	88.4	91.8	52.7	4.9	6.0	25.8	3.1	46.3	
	16Cat	Aug.	DRAEM [37]	53.8	90.8	94.3	51.5	0.5	1.6	27.3	0.8
SimpleNet [27]			54.2	90.1	94.3	93.2	2.5	5.0	79.3	2.6	59.8
Emb.		CFA [21]	53.5	90.3	94.4	71.8	1.4	4.9	42.5	2.5	51.3
		CFLOW-AD [14]	54.5	90.6	94.3	93.1	2.4	4.8	80.3	2.5	60.0
		PyramidalFlow [22]	46.7	87.7	94.4	91.7	1.7	4.1	74.2	2.1	57.2
		RD [10]	49.3	88.8	94.3	93.6	3.0	6.1	84.3	3.1	59.9
Rec.		DiAD [16]	63.5	93.3	94.3	93.9	2.9	5.6	82.0	2.9	62.2
		ViTAD [40]	57.2	91.7	94.3	93.9	3.2	6.4	84.6	3.3	61.6
		InvAD [42]	57.8	92.4	94.3	94.4	5.1	10.7	86.2	5.6	63.0
		InvAD-lite [42]	56.8	91.4	94.3	94.3	3.9	8.0	85.6	4.2	62.0
		MambaAD [15]	53.7	90.3	94.3	93.9	3.2	6.5	84.5	3.4	60.9
		UniAD [35]	52.8	89.8	94.3	94.1	3.0	6.4	83.3	3.3	60.5
Hybrid	RD++ [31]	54.2	91.3	94.3	93.5	3.3	6.1	84.6	3.1	61.0	
	DesTSeg [44]	54.8	90.7	94.3	57.7	1.6	4.5	45.0	2.3	49.8	

Table A79. Benchmarked results on MAD_Sim dataset [46] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
17Scorpion	Aug. DRAEM [37]	48.2	86.3	92.9	50.6	0.5	1.2	21.5	0.6	43.0
	Aug. SimpleNet [27]	52.6	88.2	92.9	83.8	1.5	3.0	55.5	1.5	53.9
	Emb. CFA [21]	63.8	92.1	<u>93.1</u>	76.6	3.2	6.8	46.9	3.5	54.6
	Emb. CFLOW-AD [14]	62.4	91.7	92.9	89.5	3.3	4.8	67.4	2.5	58.9
	Emb. PyramidalFlow [22]	55.3	86.5	92.9	86.4	2.0	5.1	58.1	2.6	55.2
	Rec. RD [10]	62.9	91.2	92.9	91.4	4.7	7.4	81.9	3.8	61.8
	Rec. DiAD [16]	<u>70.9</u>	<u>94.4</u>	93.9	87.4	2.1	4.1	56.6	2.1	58.5
	Rec. ViTAD [40]	59.1	89.8	<u>93.1</u>	91.1	3.3	7.2	77.2	3.8	60.1
	Rec. InvAD [42]	80.9	96.6	<u>93.4</u>	93.7	7.2	10.2	85.4	5.4	66.8
	Rec. InvAD-lite [42]	<u>74.5</u>	<u>95.0</u>	93.0	<u>93.4</u>	<u>6.1</u>	<u>8.5</u>	<u>84.6</u>	<u>4.4</u>	<u>65.0</u>
	Rec. MambaAD [15]	65.1	92.4	92.9	<u>92.7</u>	4.8	7.3	<u>82.3</u>	3.8	62.5
	Hybrid UniAD [35]	70.1	93.4	92.9	92.2	<u>5.7</u>	<u>9.1</u>	81.1	<u>4.8</u>	<u>63.5</u>
	Hybrid RD++ [31]	64.2	92.4	92.9	91.6	4.8	6.9	81.6	3.6	62.1
	Hybrid DesTSeg [44]	70.0	93.8	<u>93.1</u>	62.6	4.3	8.0	48.8	4.2	54.4
18Obesobeso	Aug. DRAEM [37]	50.7	89.7	94.1	51.4	0.9	1.9	24.9	1.0	44.8
	Aug. SimpleNet [27]	49.3	89.8	94.1	90.9	3.5	6.5	72.7	3.3	58.1
	Emb. CFA [21]	61.4	92.8	94.1	78.8	12.4	18.1	60.4	10.0	59.7
	Emb. CFLOW-AD [14]	62.0	91.9	94.1	92.6	6.0	7.8	79.6	4.0	62.0
	Emb. PyramidalFlow [22]	62.9	93.1	94.1	93.5	5.5	10.6	79.8	5.6	62.8
	Rec. RD [10]	63.0	93.4	94.1	93.4	10.7	19.2	87.0	10.6	65.8
	Rec. DiAD [16]	92.2	99.0	95.2	95.8	13.2	21.9	84.5	12.3	<u>71.7</u>
	Rec. ViTAD [40]	66.9	94.4	94.1	<u>94.2</u>	<u>16.5</u>	<u>24.1</u>	<u>88.1</u>	<u>13.7</u>	<u>68.3</u>
	Rec. InvAD [42]	<u>83.7</u>	<u>97.5</u>	<u>95.1</u>	<u>94.9</u>	<u>16.6</u>	25.8	90.4	14.8	72.0
	Rec. InvAD-lite [42]	<u>73.4</u>	<u>95.7</u>	<u>94.2</u>	93.7	12.2	20.2	87.9	11.2	68.2
	Rec. MambaAD [15]	69.6	95.1	<u>94.2</u>	93.1	11.2	21.6	86.5	12.1	67.3
	Hybrid UniAD [35]	71.7	94.8	<u>94.2</u>	93.1	9.5	15.8	84.8	8.6	66.3
	Hybrid RD++ [31]	67.0	93.2	<u>94.2</u>	93.1	7.9	15.6	86.0	8.4	65.3
	Hybrid DesTSeg [44]	71.3	95.4	94.1	63.7	18.5	<u>23.7</u>	53.0	<u>13.4</u>	60.0
19Bear	Aug. DRAEM [37]	52.3	88.6	93.3	48.7	0.6	1.3	19.1	0.6	43.4
	Aug. SimpleNet [27]	50.9	87.4	93.3	85.0	2.0	3.9	65.0	2.0	55.4
	Emb. CFA [21]	56.1	90.7	<u>93.5</u>	78.6	4.2	8.8	50.1	4.6	54.6
	Emb. CFLOW-AD [14]	61.1	91.7	93.3	88.9	4.0	6.3	64.4	3.3	58.5
	Emb. PyramidalFlow [22]	53.6	89.5	93.3	87.3	3.1	5.7	61.6	2.9	56.3
	Rec. RD [10]	61.5	92.1	<u>93.6</u>	90.8	5.6	10.0	76.1	5.3	61.4
	Rec. DiAD [16]	64.3	<u>93.7</u>	<u>93.3</u>	90.1	5.1	<u>13.0</u>	65.0	<u>7.0</u>	60.6
	Rec. ViTAD [40]	60.1	90.8	<u>93.5</u>	91.1	5.3	11.1	75.0	5.9	61.0
	Rec. InvAD [42]	71.0	94.5	93.8	92.5	11.7	18.3	81.2	10.1	66.1
	Rec. InvAD-lite [42]	<u>67.9</u>	93.4	93.4	<u>92.2</u>	<u>11.2</u>	<u>17.0</u>	<u>78.8</u>	<u>9.3</u>	<u>64.8</u>
	Rec. MambaAD [15]	63.5	92.3	<u>93.5</u>	<u>91.2</u>	<u>7.2</u>	12.7	75.9	6.8	62.3
	Hybrid UniAD [35]	61.7	91.9	<u>93.6</u>	90.6	5.0	9.4	79.4	4.9	61.7
	Hybrid RD++ [31]	64.9	92.9	<u>93.5</u>	90.9	6.5	11.2	76.6	5.9	<u>62.4</u>
	Hybrid DesTSeg [44]	<u>68.3</u>	<u>93.5</u>	<u>93.5</u>	60.4	6.8	11.7	52.0	6.2	55.2
20Puppy	Aug. DRAEM [37]	51.7	86.3	<u>92.7</u>	47.5	0.5	1.0	17.2	0.5	42.4
	Aug. SimpleNet [27]	55.6	88.5	<u>92.7</u>	83.1	1.3	2.6	55.6	1.3	54.2
	Emb. CFA [21]	50.2	88.6	<u>92.9</u>	68.5	1.9	5.0	42.2	2.6	49.9
	Emb. CFLOW-AD [14]	<u>59.0</u>	<u>90.3</u>	<u>92.7</u>	84.9	2.0	4.4	56.5	2.2	55.7
	Emb. PyramidalFlow [22]	52.4	87.6	<u>92.9</u>	84.8	1.9	4.9	59.9	2.5	54.9
	Rec. RD [10]	50.9	89.0	<u>92.7</u>	87.0	3.5	5.6	66.1	2.9	56.4
	Rec. DiAD [16]	46.2	88.9	<u>92.7</u>	83.4	1.4	2.8	52.7	1.4	52.6
	Rec. ViTAD [40]	55.4	88.2	93.0	<u>87.5</u>	2.4	4.8	66.3	2.4	56.8
	Rec. InvAD [42]	61.9	92.0	<u>92.9</u>	89.7	<u>5.7</u>	<u>9.7</u>	73.8	<u>5.1</u>	60.8
	Rec. InvAD-lite [42]	55.2	90.0	<u>92.7</u>	<u>87.9</u>	3.7	5.9	<u>69.1</u>	3.0	57.8
	Rec. MambaAD [15]	48.8	87.3	<u>92.7</u>	86.6	2.3	4.9	64.6	2.5	55.3
	Hybrid UniAD [35]	56.7	90.2	<u>92.7</u>	87.2	<u>4.5</u>	<u>10.8</u>	70.9	<u>5.7</u>	59.0
	Hybrid RD++ [31]	<u>59.3</u>	<u>91.4</u>	93.0	86.9	3.5	6.9	65.4	3.6	<u>58.1</u>
	Hybrid DesTSeg [44]	57.5	<u>91.4</u>	<u>92.9</u>	55.2	11.9	11.7	37.9	6.2	51.2

W. Detailed Quantitative Results on Uni-Medical Dataset Under 300 epochs

Table A80. Benchmarked results on Uni-Medical dataset [40] by the suggested metrics in Sec. 3.3.

	Method	Image-level			Pixel-level			mAU-PRO	mIoU-max	mAD
		mAU-ROC	mAP	mF_1 -max	mAU-ROC	mAP	mF_1 -max			
brain	Aug.	DRAEM [37]	53.0	84.2	90.6	28.7	2.0	6.2	5.7	38.6
		SimpleNet [27]	77.7	94.1	90.7	93.7	36.4	39.3	71.1	71.9
	Emb.	CFA [21]	67.0	90.8	90.6	45.2	6.2	7.4	7.5	45.0
		CFLOW-AD [14]	85.8	96.2	92.1	94.5	55.8	17.8	73.6	73.7
		PyramidalFlow [22]	66.6	89.6	90.6	87.0	12.4	18.9	54.6	60.0
	Rec.	RD [10]	85.0	95.4	92.1	96.4	45.6	49.0	82.3	78.0
		DiAD [16]	93.6	98.2	95.2	95.3	37.3	42.3	80.4	77.5
		ViTAD [40]	89.0	97.3	<u>92.9</u>	97.6	60.2	58.0	83.6	<u>82.7</u>
		InvAD [42]	89.5	97.2	92.5	97.6	56.5	<u>57.4</u>	<u>85.6</u>	<u>82.3</u>
		InvAD-lite [42]	84.4	95.5	91.7	96.3	44.8	48.1	81.9	77.5
		MambaAD [15]	91.9	98.0	<u>93.5</u>	97.6	<u>56.6</u>	58.0	<u>86.4</u>	83.1
	Hybrid	UniAD [35]	<u>90.2</u>	<u>97.6</u>	<u>92.9</u>	97.6	<u>58.8</u>	<u>57.2</u>	83.3	<u>82.5</u>
		RD++ [31]	85.8	96.0	91.6	<u>96.9</u>	48.3	52.2	<u>83.8</u>	79.2
		DesTSeg [44]	80.4	93.8	91.2	82.1	49.3	51.0	55.4	71.9
liver	Aug.	DRAEM [37]	56.2	47.3	64.0	26.2	0.5	2.4	9.8	29.5
		SimpleNet [27]	52.5	44.7	62.3	96.8	<u>8.5</u>	13.7	86.9	52.2
	Emb.	CFA [21]	37.1	35.0	61.2	14.0	0.2	0.8	0.7	21.3
		CFLOW-AD [14]	63.8	54.0	63.5	96.0	2.9	5.7	87.8	53.4
		PyramidalFlow [22]	<u>65.7</u>	<u>56.1</u>	<u>65.7</u>	82.0	1.7	2.3	41.4	45.0
	Rec.	RD [10]	55.4	45.4	64.1	96.5	5.3	10.0	90.6	52.5
		DiAD [16]	<u>65.8</u>	<u>60.1</u>	63.9	<u>96.9</u>	7.6	13.9	91.5	<u>57.1</u>
		ViTAD [40]	63.5	54.5	<u>65.4</u>	97.8	<u>11.1</u>	<u>18.9</u>	<u>92.5</u>	<u>57.7</u>
		InvAD [42]	62.5	52.1	65.2	96.8	6.8	12.6	<u>92.3</u>	55.5
		InvAD-lite [42]	56.4	46.1	63.5	96.1	4.8	9.3	89.7	52.3
		MambaAD [15]	61.1	50.9	63.8	96.8	8.3	<u>15.5</u>	91.7	<u>55.4</u>
	Hybrid	UniAD [35]	64.7	51.5	64.9	<u>97.1</u>	7.9	14.1	92.8	56.1
		RD++ [31]	55.5	44.6	64.1	96.4	5.3	9.9	90.9	52.4
		DesTSeg [44]	74.8	72.4	66.0	87.6	38.6	41.8	84.5	66.5
retinal	Aug.	DRAEM [37]	66.1	57.9	60.4	42.5	3.3	9.6	11.9	36.0
		SimpleNet [27]	87.3	87.1	77.1	94.2	62.8	58.0	79.6	78.0
	Emb.	CFA [21]	64.6	62.6	59.5	55.2	8.1	11.5	18.6	40.0
		CFLOW-AD [14]	87.4	85.5	76.3	95.6	60.0	55.5	83.7	77.7
		PyramidalFlow [22]	47.7	42.8	59.5	77.7	12.2	23.4	44.7	44.0
	Rec.	RD [10]	88.8	86.7	77.7	<u>96.4</u>	65.7	60.6	<u>86.6</u>	80.4
		DiAD [16]	89.2	87.5	79.0	<u>95.7</u>	62.7	58.3	84.3	79.5
		ViTAD [40]	<u>92.0</u>	<u>90.0</u>	82.0	95.5	<u>69.3</u>	<u>63.8</u>	83.3	<u>82.3</u>
		InvAD [42]	<u>92.1</u>	90.6	<u>82.1</u>	97.2	72.9	66.5	89.0	84.3
		InvAD-lite [42]	<u>92.1</u>	<u>90.2</u>	<u>82.8</u>	96.1	66.5	61.8	85.7	82.2
		MambaAD [15]	93.8	87.9	86.6	95.9	64.2	64.7	85.5	<u>82.7</u>
	Hybrid	UniAD [35]	86.2	80.7	74.8	94.9	50.4	52.7	81.2	74.4
		RD++ [31]	90.3	87.7	79.9	<u>96.7</u>	<u>69.5</u>	<u>63.8</u>	<u>87.5</u>	82.2
		DesTSeg [44]	90.9	88.9	81.9	80.0	64.0	58.7	58.5	74.7
Avg	Aug.	DRAEM [37]	58.5	63.2	71.7	32.5	2.0	6.1	9.1	34.7
		SimpleNet [27]	72.5	75.3	76.7	94.9	35.9	37.0	79.2	67.4
	Emb.	CFA [21]	56.3	62.8	70.4	38.1	4.8	6.6	8.9	35.4
		CFLOW-AD [14]	79.0	78.5	77.3	95.4	39.6	26.3	81.7	68.3
		PyramidalFlow [22]	60.0	62.8	71.9	82.2	8.8	14.9	46.9	49.6
	Rec.	RD [10]	76.4	75.8	77.9	96.4	38.9	39.8	86.5	70.2
		DiAD [16]	82.9	81.9	79.4	96.0	35.9	38.2	85.4	71.4
		ViTAD [40]	81.5	<u>80.6</u>	<u>80.1</u>	<u>97.0</u>	46.8	46.9	86.5	74.2
		InvAD [42]	81.3	80.0	<u>79.9</u>	97.2	<u>45.4</u>	45.5	89.0	<u>74.0</u>
		InvAD-lite [42]	77.6	77.2	<u>79.3</u>	96.2	38.7	39.7	85.7	70.6
		MambaAD [15]	<u>82.3</u>	78.9	81.3	<u>96.7</u>	43.0	<u>46.1</u>	<u>87.9</u>	<u>73.7</u>
	Hybrid	UniAD [35]	80.4	76.6	77.5	96.5	39.0	41.3	85.8	71.0
		RD++ [31]	77.2	76.1	78.5	<u>96.7</u>	41.0	41.9	<u>87.4</u>	71.3
		DesTSeg [44]	<u>82.0</u>	85.0	79.7	83.2	50.6	50.5	66.1	71.0