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# **Learning Topology-Aware Representations via Test-Time Adaptation for Anomaly Segmentation - Supplementary Material**

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# 1 Supplementary Material

## 2 1.1 2D AD&S

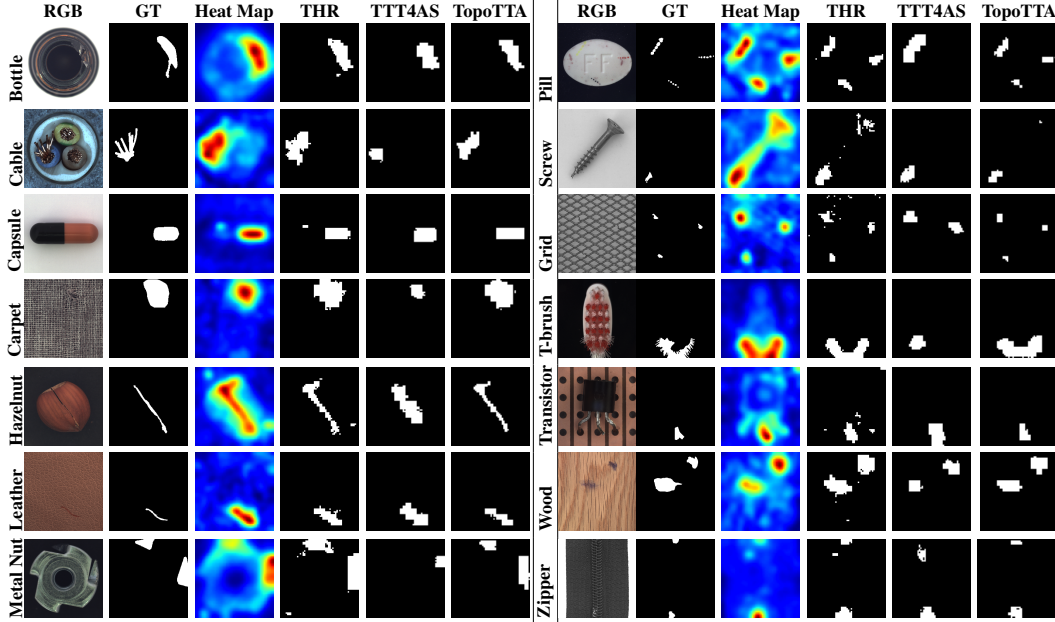


Figure 1: Qualitative comparison of various anomaly detection methods for different objects using PaDiM [1] model on 2D MvTec AD dataset.

Table 1: Performance evaluation of PaDiM [1] across 15 categories of the MVTec AD dataset and their mean, comparing three binary map strategies: (a) THR ( $\mu + 3\sigma$ ), (b) TTT4AS, and (c) TopoTTA. The table highlights the best result for each Precision, Recall, and F1 Score metric in **bold black** and the second-best in **blue**.

Metric	Bottle	Cable	Capsule	Carpet	Grid	Hazelnut	Leather	MetalNut	Pill	Screw	Tile	T-brush	Transistor	Wood	Zipper	Mean
(a) PaDiM - Binary Map - THR ( $\mu + 3\sigma$ ) [2]																
Precision	0.729	0.580	0.287	0.561	0.327	0.586	0.306	0.540	0.410	0.196	0.131	0.416	0.462	0.576	0.676	0.452
Recall	0.321	0.249	0.813	0.736	0.708	0.477	0.927	0.281	0.493	0.712	0.005	0.514	0.349	0.399	0.615	0.506
F1 Score	0.343	0.280	0.325	0.523	0.407	0.433	0.396	0.292	0.337	0.295	0.009	0.391	0.307	0.375	0.596	0.392
(b) PaDiM - Binary Map - TTT4AS [3]																
Precision	0.585	0.412	0.176	0.429	0.199	0.349	0.208	0.519	0.269	0.088	0.137	0.258	0.472	0.355	0.499	0.330
Recall	0.438	0.500	0.707	0.769	0.726	0.637	0.916	0.491	0.568	0.735	0.123	0.595	0.425	0.416	0.648	0.579
F1 Score	0.429	0.395	0.214	0.459	0.290	0.376	0.293	0.386	0.262	0.153	0.103	0.283	0.291	0.319	0.512	0.317
(c) PaDiM - Binary Map - TopoTTA																
Precision	0.750	0.648	0.355	0.523	0.463	0.358	0.246	0.574	0.307	0.266	0.685	0.268	0.492	0.439	0.678	0.470
Recall	0.689	0.670	0.828	0.942	0.805	0.885	0.987	0.636	0.783	0.905	0.742	0.920	0.547	0.756	0.724	0.787
F1 Score	0.718	0.658	0.496	0.672	0.587	0.509	0.393	0.603	0.441	0.411	0.712	0.415	0.518	0.555	0.700	0.559

## 3 References

- [1] T. Defard, A. Setkov, A. Loesch, and R. Audigier, “Padim: a patch distribution modeling framework for anomaly detection and localization,” in *International Conference on Pattern Recognition*, pp. 475–489, Springer, 2021.
- [2] K. Roth, L. Pemula, J. Zepeda, B. Schölkopf, T. Brox, and P. Gehler, “Towards total recall in industrial anomaly detection,” in *Proceedings of the IEEE/CVF conference on computer vision and pattern recognition*, pp. 14318–14328, 2022.
- [3] A. Costanzino, P. Z. Ramirez, M. Del Moro, A. Aiezzo, G. Lisanti, S. Salti, and L. Di Stefano, “Test time training for industrial anomaly segmentation,” in *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*, pp. 3910–3920, 2024.