

Beyond Single Images: Retrieval Self-Augmented Unsupervised Camouflaged Object Detection

–Supplementary Material–

Ji Du^{1,2}, Xin Wang², Fangwei Hao^{1,*}, Mingyang Yu¹
 Chunyuan Chen¹, Jiesheng Wu³, Bin Wang¹, Jing Xu^{1,*}, Ping Li^{2,*}

¹College of Artificial Intelligence, Nankai University, China

²Department of Computing, The Hong Kong Polytechnic University, Hong Kong

³School of Computer and Information, Anhui Normal University, China

Generalization We adapt RISE to the challenging task of Marine Animal Segmentation (MAS) [3], which is also complicated by complex environmental conditions. As shown in Tab. 1, RISE consistently outperforms all SOTAs on two widely used datasets, MAS3K [2] and RMAS [1].

Method	MAS3K				RMAS			
	$S_\alpha \uparrow$	$E_\phi \uparrow$	$F_\beta^\omega \uparrow$	$M \downarrow$	$S_\alpha \uparrow$	$E_\phi \uparrow$	$F_\beta^\omega \uparrow$	$M \downarrow$
LOST	0.704	0.758	0.523	0.097	0.626	0.691	0.380	0.116
DeepSpectral	0.682	0.695	0.480	0.136	0.582	0.588	0.350	0.207
TokenCut	0.748	0.805	0.586	0.078	0.613	0.659	0.352	0.136
MaskCut	0.714	0.727	0.514	0.129	0.568	0.581	0.334	0.206
FOUND	0.597	0.598	0.373	0.196	0.515	0.509	0.264	0.247
ProMerge	<u>0.774</u>	<u>0.818</u>	<u>0.620</u>	<u>0.065</u>	<u>0.683</u>	<u>0.769</u>	<u>0.486</u>	<u>0.071</u>
VoteCut	0.753	0.814	0.598	0.077	0.601	0.667	0.385	0.152
DiffCut	0.698	0.747	0.497	0.109	0.619	0.672	0.395	0.126
RISE	0.796	0.868	0.673	0.047	0.756	0.861	0.625	0.045

Table 1. Comparison experiments on two MAS datasets. The best and second-best results are **bolded** and underlined to highlight, respectively.

References

- [1] Zhenqi Fu, Ruizhe Chen, Yue Huang, En Cheng, Xinghao Ding, and Kai-Kuang Ma. MASNet: A robust deep marine animal segmentation network. *IEEE Journal of Oceanic Engineering*, 49(3):1104–1115, 2024. 1
- [2] Lin Li, Eric Rigall, Junyu Dong, and Geng Chen. MAS3K: An open dataset for marine animal segmentation. In *Benchmarking, Measuring, and Optimizing*, pages 194–212, 2021. 1
- [3] Pingping Zhang, Tianyu Yan, Yang Liu, and Huchuan Lu. Fantastic animals and where to find them: Segment any marine animal with dual SAM. In *IEEE Conference on Computer Vision and Pattern Recognition*, pages 2578–2587, 2024. 1

*Corresponding authors: Fangwei Hao, Jing Xu (xujing@nankai.edu.cn) and Ping Li (p.li@polyu.edu.hk).