Dual-attention Guided Dropblock Module for Weakly Supervised Object Localization

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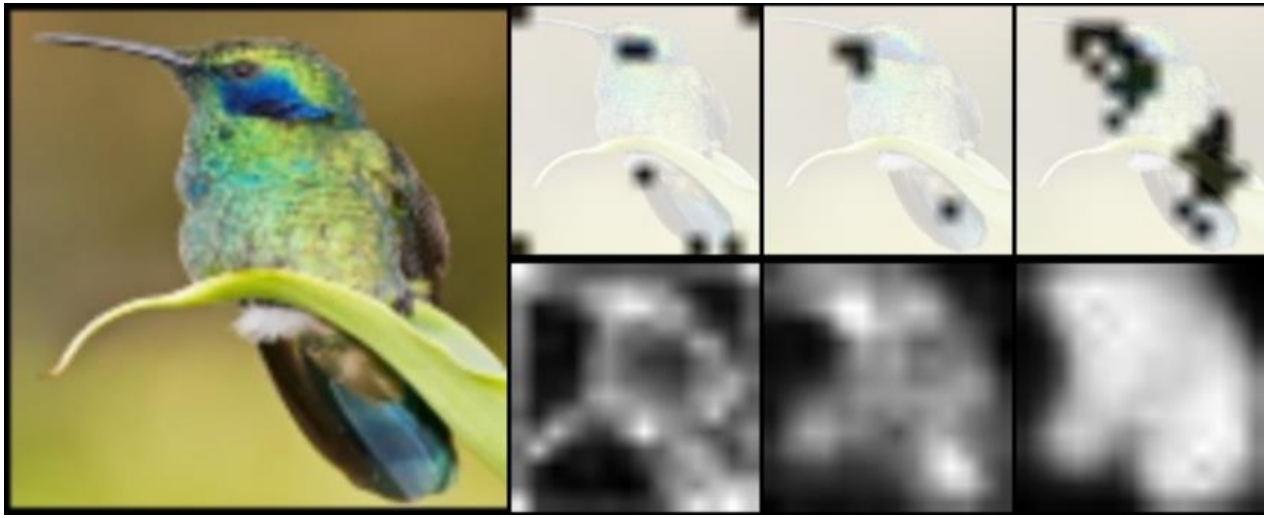
Weakly Supervised Object Localization

Weakly supervised object localization (WSOL) identify the object location in a given image only with image-level labels.

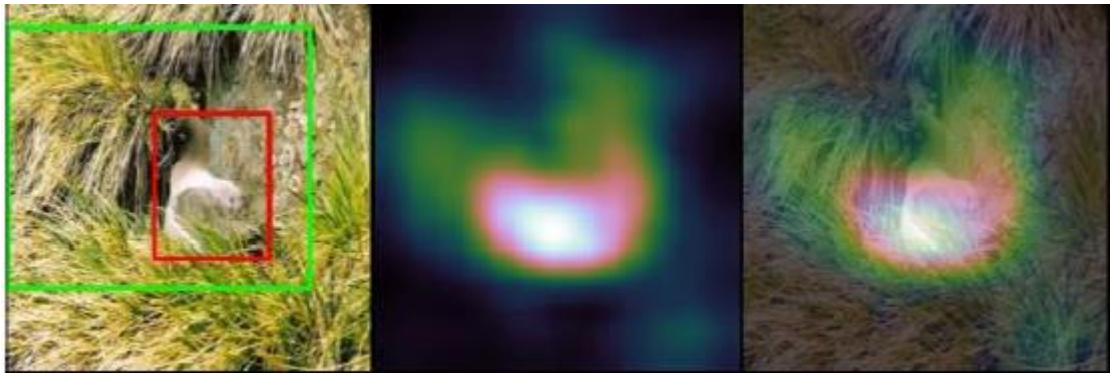
Motivation



Erasing the most discriminative parts is a simple yet powerful method.

However, the erasing methods sometimes capture useless information of the background.

Motivation



The attention misdirection and the biased localization

Approach

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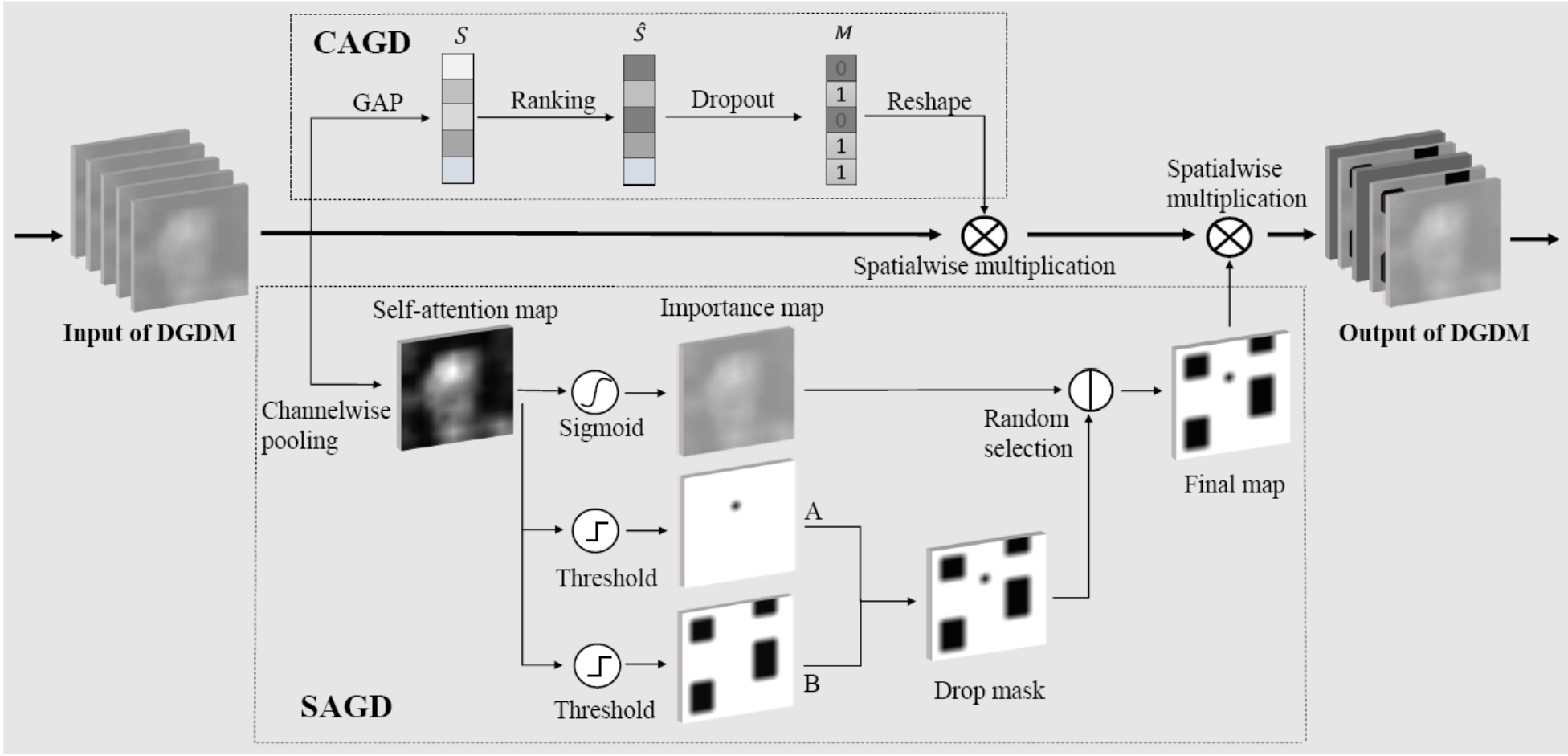


Overall structure of the Dual-attention Guided Dropblock Module (DGDM)

CAGD

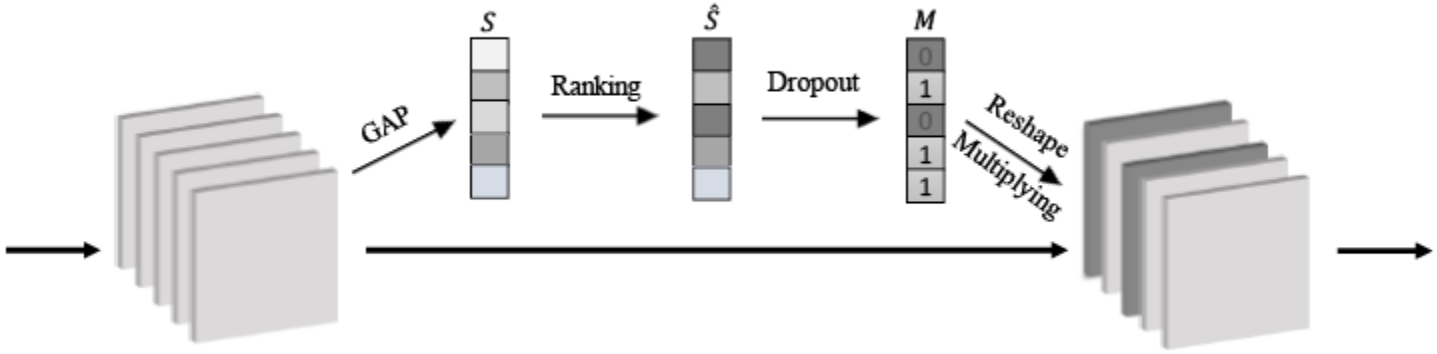
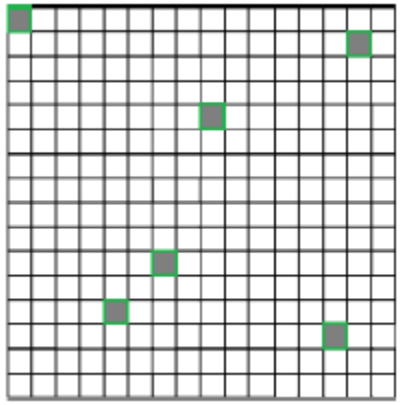
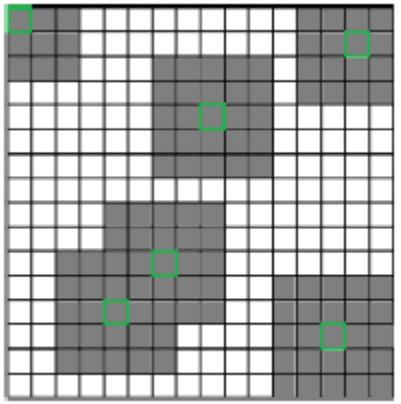


Diagram of CAGD

SAGD



(a) Original drop mask



(b) Our drop mask

SAGD

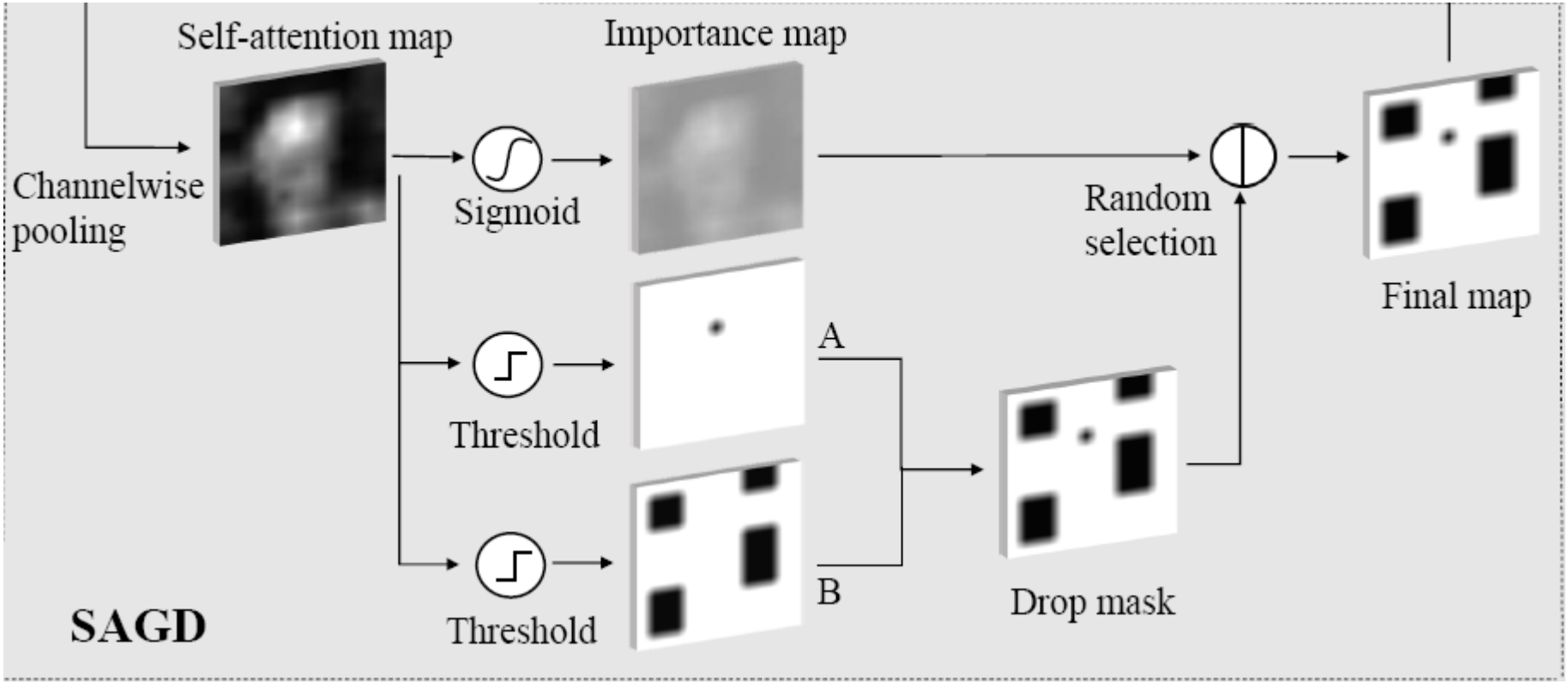
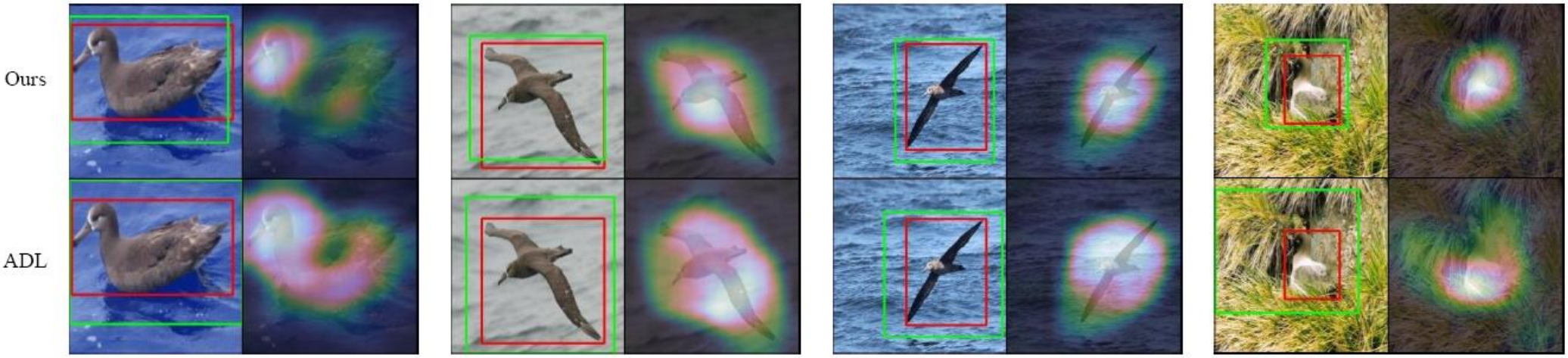


Diagram of SAGD

Experimental results

Method	Backbone	FLOPs (Gb)	# of Params (Mb)	Overheads		CUB-200-2011	
				Computation(%)	Parameter(%)	Top-1 Loc (%)	Top-1 Clas (%)
CAM	VGG-GAP	18.20	29.08	0	0	34.41	67.55
ACoL	VGG-GAP	31.98	37.63	71.51	75.71	45.92	71.90
ADL	VGG-GAP	18.20	29.08	0	0	52.36	65.27
DANet	VGG-GAP	24.12	48.56	32.53	66.99	52.52	75.40
Ours	VGG-GAP	18.20	29.08	0	0	**54.34**	69.85
ADL	ResNet50	62.32	23.92	0	0	46.29	79.72
DANet	ResNet50	74.33	32.63	19.27	36.41	51.10	81.60
Ours	ResNet50	62.32	23.92	0	0	**59.40**	76.20
CAM	InceptionV3	4.84	25.69	0	0	43.67	-
SPG	InceptionV3	31.98	37.63	560.74	46.48	46.64	-
ADL	InceptionV3	4.84	25.69	0	0	**53.04**	74.55
DANet	InceptionV3	7.23	30.62	49.38	18.47	49.45	71.20
Ours	InceptionV3	4.84	25.69	0	0	52.62	72.23

Visualization results



Visualization results of ResNet50 on CUB-200-2011.

Thanks for your attention!