深度学习
显著性检测

论文列表：

[1] G. Li and Y. Yu, "**Visual saliency based on multiscale deep features**," in Proc. IEEE Conf. Comput. Vis. Pattern Recognit., Jun. 2015, pp. 5455–5463.
[2] L. Wang, H. Lu, X. Ruan, and M.-H. Yang, "**Deep networks for saliency detection via local estimation and global search**," in Proc. IEEE Conf. Comput. Vis. Pattern Recognit., Jun. 2015, pp. 3183–3192.
[3] R. Zhao, W. Ouyang, H. Li, and X. Wang, "**Saliency detection by multi-context deep learning**," in Proc. IEEE Conf. Comput. Vis. Pattern Recognit., Jun. 2015, pp. 1265–1274.
[4] G. Lee, Y.-W. Tai, and J. Kim, "**Deep saliency with encoded low level distance map and high level features**," in Proc. IEEE Conf. Comput. Vis. Pattern Recognit., Jun. 2016, pp. 660–668.
[5] L. Wang, L. Wang, H. Lu, P. Zhang, and X. Ruan, "**Saliency detection with recurrent fully convolutional networks**," in Proc. Eur. Conf. Comput. Vis., 2016, pp. 825–841.
[6] G. Li and Y. Yu, "**Deep contrast learning for salient object detection**," in Proc. IEEE Conf. Comput. Vis. Pattern Recognit., Jun. 2016, pp. 478–487.
[7] N. Liu and J. Han, "**DHSNet: Deep hierarchical saliency network for salient object detection**," in Proc. IEEE Conf. Comput. Vis. Pattern Recognit., Jun. 2016, pp. 678–686

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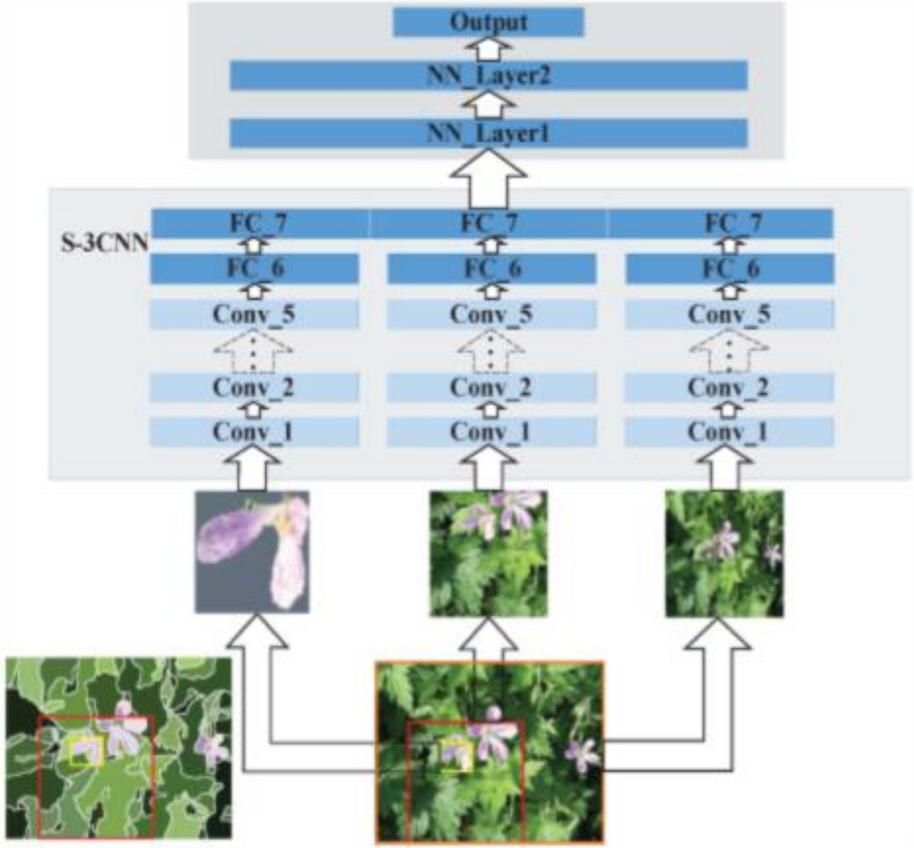
深度学习
显著性检测

论文内容

MDF

三个不同尺度

空间一致性



[1] G. Li and Y. Yu, "**Visual saliency based on multiscale deep features**," in Proc. IEEE Conf. Comput. Vis. Pattern Recognit., Jun. 2015, pp. 5455–5463.

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显著性检测

论文内容

LEGS

局部估计

全局搜索

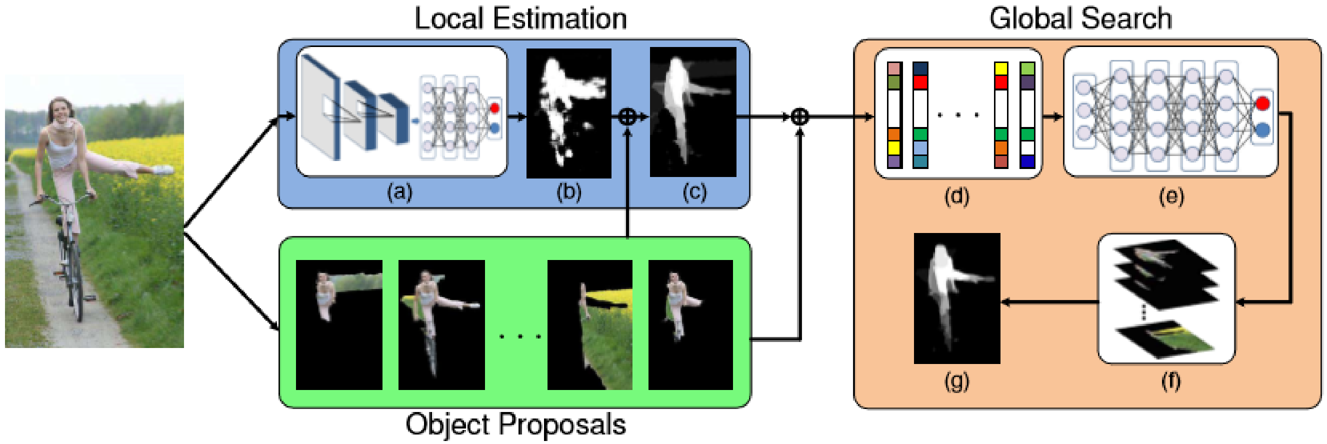

Figure 2. Pipeline of our algorithm. (a) Proposed deep network **DNN-L** (Section 3.1). (b) Local saliency map (Section 3.1). (c) Local saliency map after refinement (Section 3.2). (d) Feature extraction (Section 4.1). (e) Proposed deep network **DNN-G** (Section 4.2). (f) Sorted object candidate regions (Section 4.2). (g) Final saliency map (Section 4.2).

[2] L. Wang, H. Lu, X. Ruan, and M.-H. Yang, "**Deep networks for saliency detection via local estimation and global search**," in Proc. IEEE Conf. Comput. Vis. Pattern Recognit., Jun. 2015, pp. 3183–3192.

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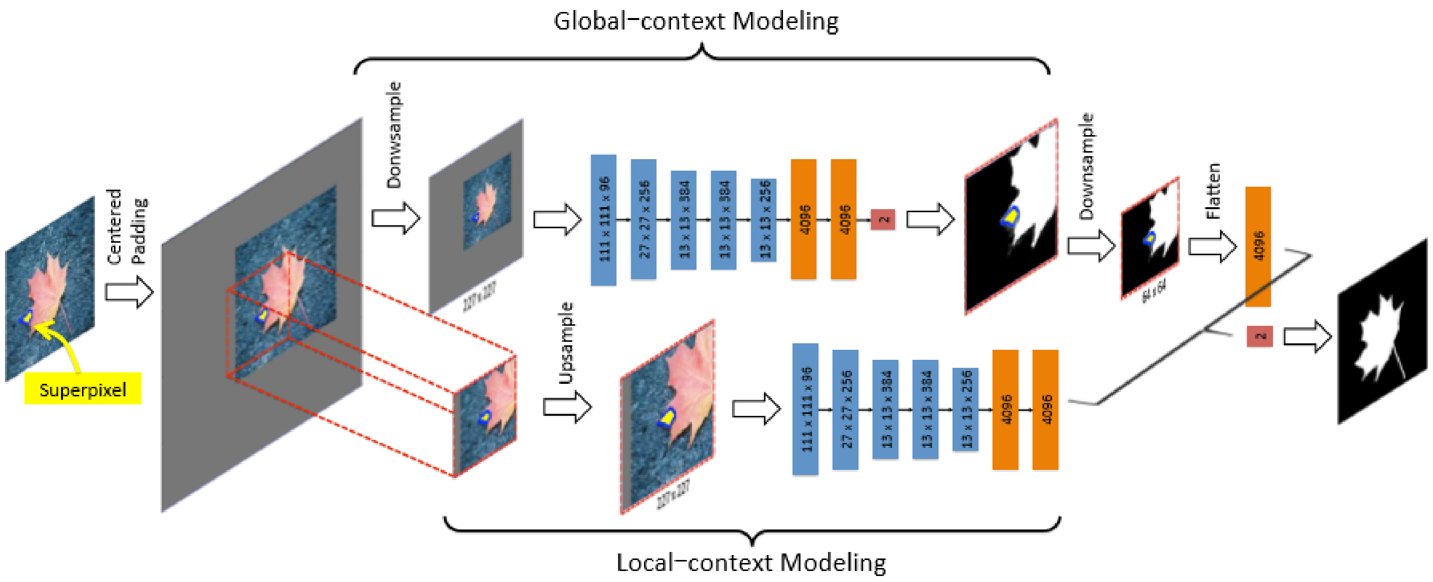
论文内容

MDF

超像素预测

两个不同维度



[3] R. Zhao, W. Ouyang, H. Li, and X. Wang, "**Saliency detection by multi-context deep learning**," in Proc. IEEE Conf. Comput. Vis. Pattern Recognit., Jun. 2015, pp. 1265–1274.

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论文内容

ELD

超像素分割

高低层特征结合

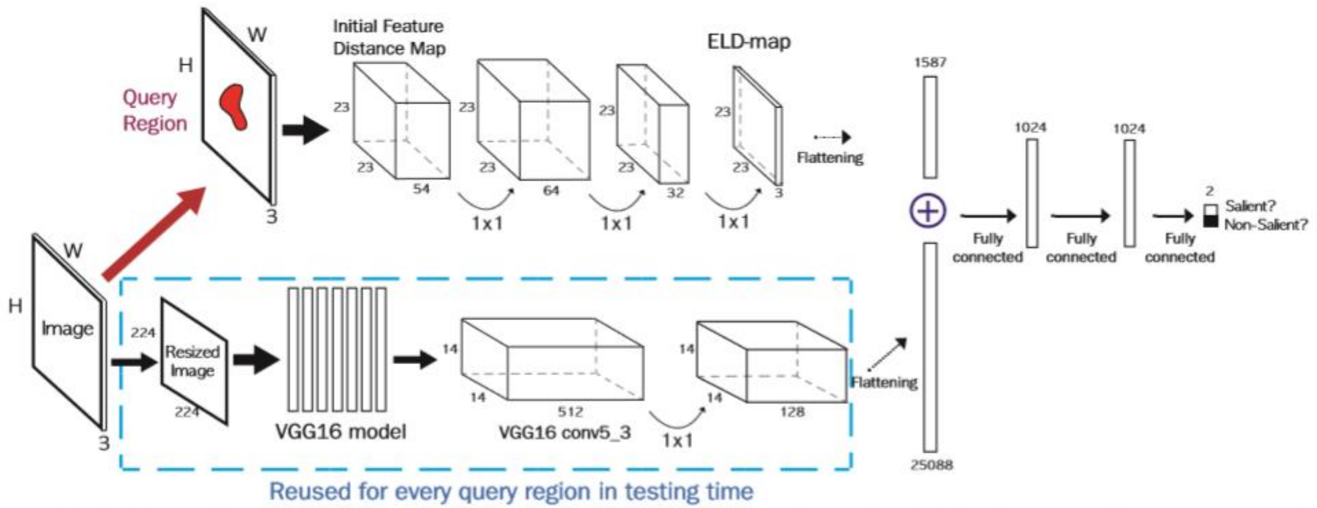

Figure 2: Overall pipeline of our method. We compute the ELD-map from the initial feature distance map for each query region and concatenate the high level feature from the output of the conv5_3 layer of the VGG16 model.

[4] G. Lee, Y.-W. Tai, and J. Kim, “**Deep saliency with encoded low level distance map and high level features**,” in Proc. IEEE Conf. Comput. Vis. Pattern Recognit., Jun. 2016, pp. 660–668.

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深度学习
显著性检测

论文内容

RFCN

像素级卷积网络

循环完善结果

[5] L. Wang, L. Wang, H. Lu, P. Zhang, and X. Ruan, "**Saliency detection with recurrent fully convolutional networks**," in Proc. Eur. Conf. Comput. Vis., 2016, pp. 825–841.

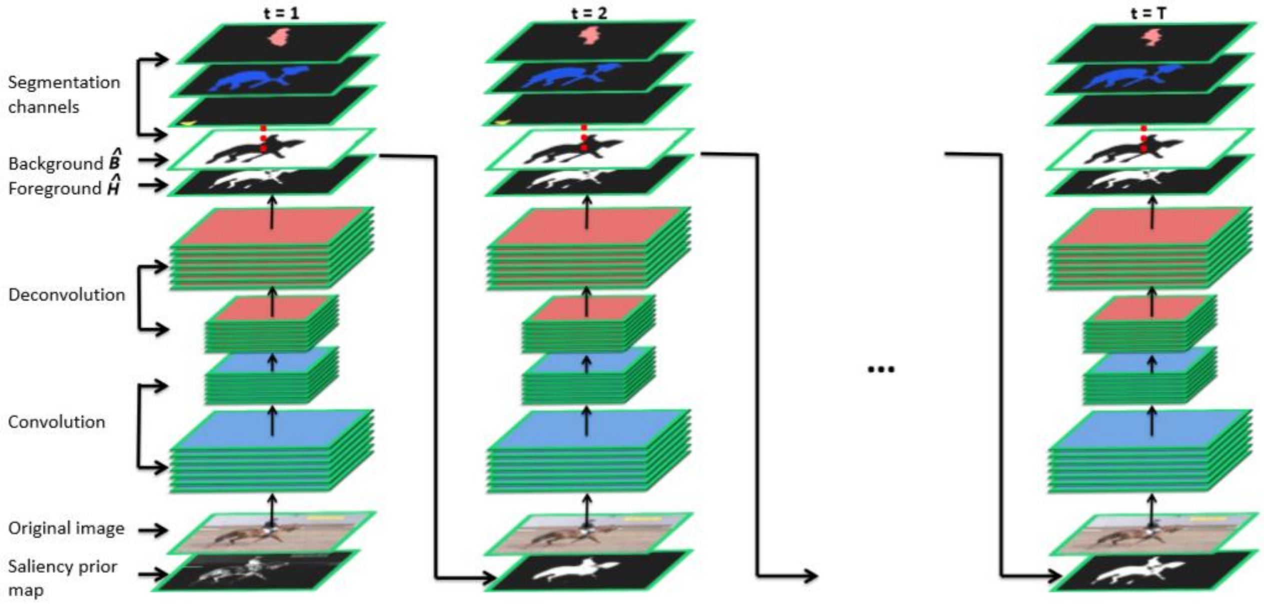

Fig. 2. Architecture overview of our RFCN model.

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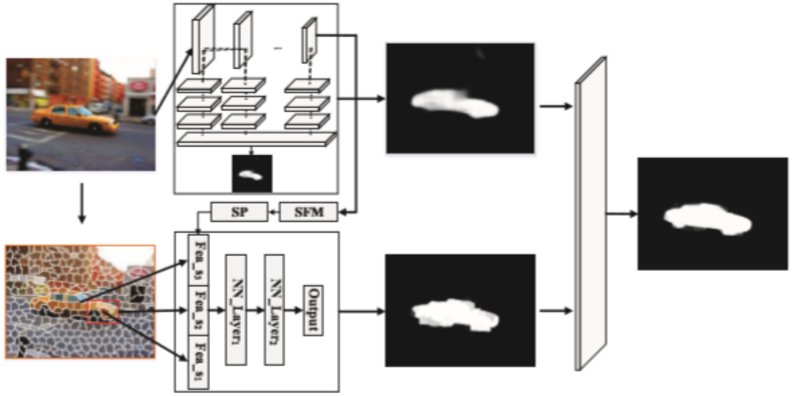
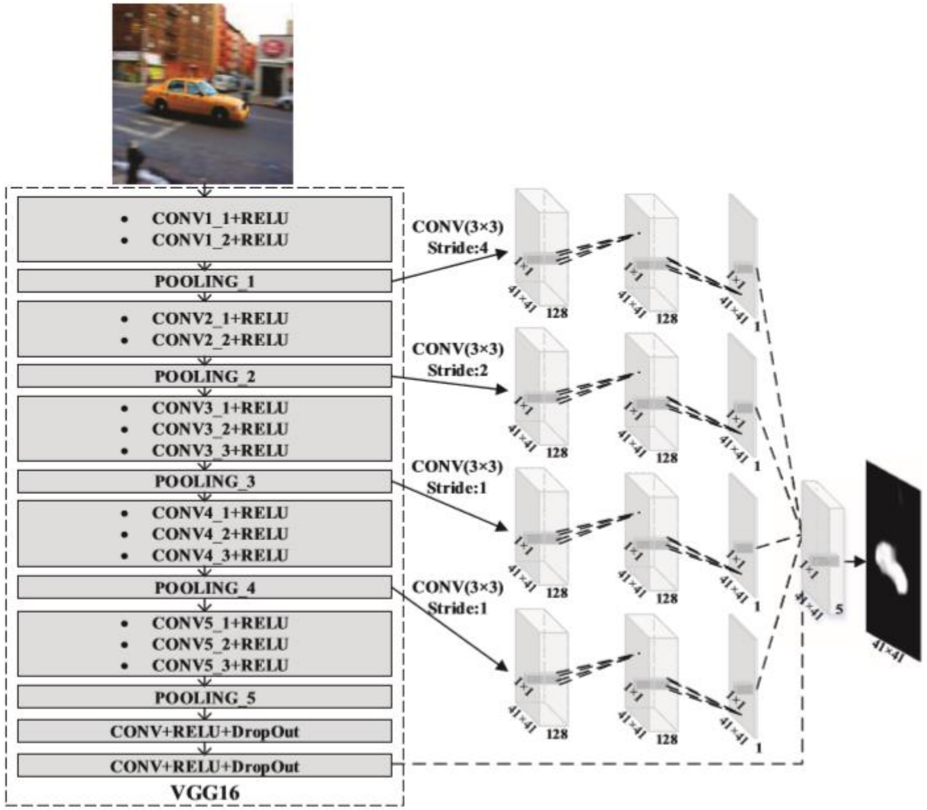
论文内容

DCL

网络对比

边界强调





[6] G. Li and Y. Yu, "**Deep contrast learning for salient object detection**," in Proc. IEEE Conf. Comput. Vis. Pattern Recognit., Jun. 2016, pp. 478–487.

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论文内容

DHSNet

粗略检测

微调

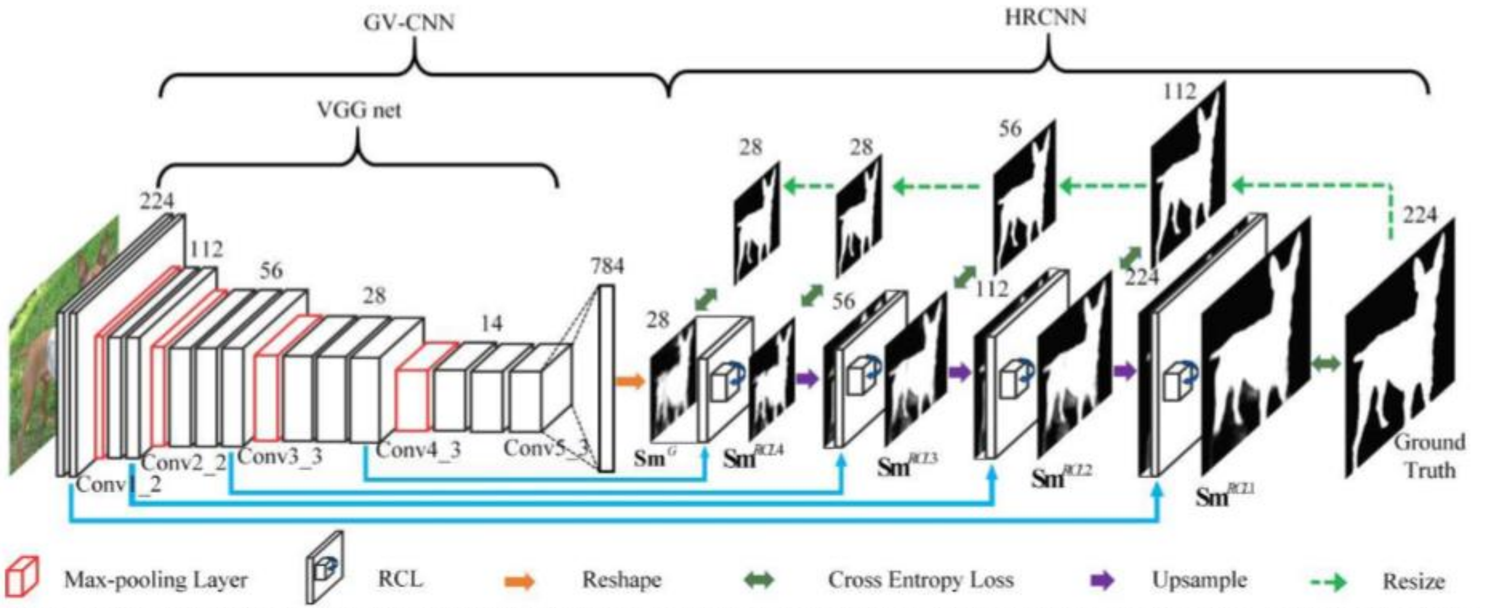

Figure 2: The architecture of the proposed DHSNet method. The spatial size of each image or feature map is given. In the VGG net, the names of the layers whose features are utilized in the HRCNN are shown. The name of each step-wise saliency map is also shown.

[7] N. Liu and J. Han, "**DHSNet: Deep hierarchical saliency network for salient object detection**," in Proc. IEEE Conf. Comput. Vis. Pattern Recognit., Jun. 2016, pp. 678–686.

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深度学习
显著性检测

训练数据集 MSRA10K

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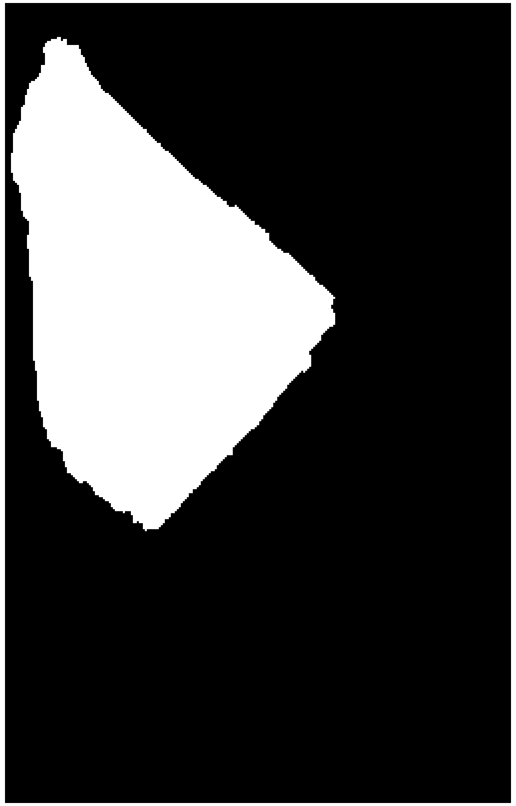
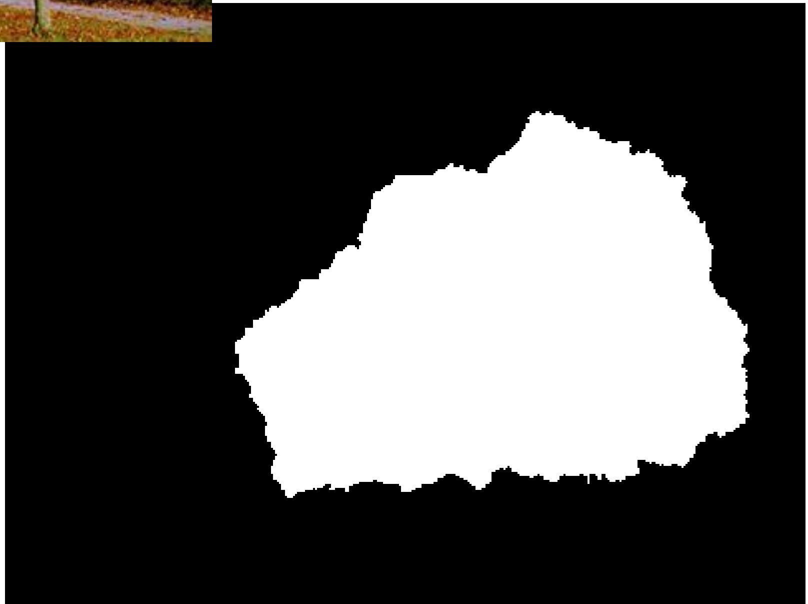
深度学习
显著性检测

训练数据集

MSRA10K



深度学习
显著性检测

性能衡量

P-R曲线

表 2.1 分类结果混淆矩阵

真实情况	预测结果	
	正例	反例
正例	TP (真正例)	FN (假反例)
反例	FP (假正例)	TN (真反例)

$$\text{查准率：} P = \frac{TP}{TP + FP}$$

$$\text{查重率：} R = \frac{TP}{TP + FN}$$

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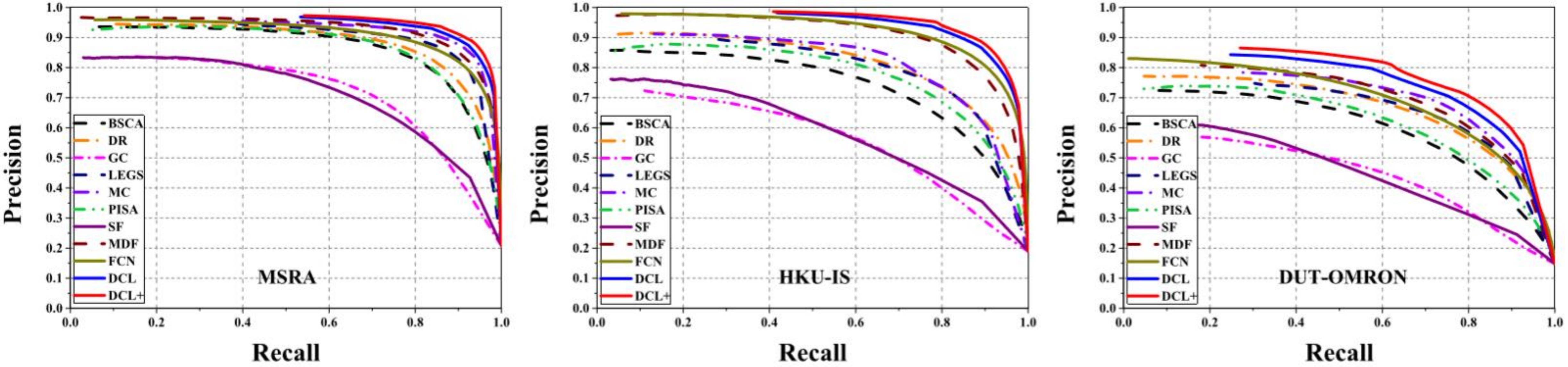
深度学习
显著性检测

性能衡量　P-R曲线　DCL



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性能衡量

F-measure

来源：$\frac{1}{f_\beta} = \frac{1}{1+\beta^2}(\frac{1}{P} + \frac{\beta^2}{R})$

$$f_\beta = \frac{(1+\beta^2) \times P \times R}{(\beta^2 \times P) + R}$$

β^2>1：查全率会影响较多
β^2<1：查准率会影响较多

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显著性检测

性能衡量

F-measure

	Models	VOS-E MAP	VOS-E MAR	VOS-E F_β	VOS-E MAE	VOS-N MAP	VOS-N MAR	VOS-N F_β	VOS-N MAE	VOS MAP	VOS MAR	VOS F_β	VOS MAE
[I+D]	**LEGS** [39]	0.820	0.685	0.784	0.193	0.556	0.593	0.564	0.215	0.684	0.638	0.673	0.204
	MCDL [6]	0.831	0.787	0.821	0.081	0.570	0.645	0.586	0.085	0.697	0.714	0.701	0.083
	MDF [25]	0.740	0.848	0.762	0.100	0.527	0.742	0.565	0.098	0.630	0.793	0.661	0.099
	ELD [44]	0.790	0.884	0.810	0.060	0.569	0.838	0.615	0.081	0.676	0.861	0.712	0.071
	DCL [40]	0.864	0.735	0.830	0.084	0.583	0.809	0.624	0.079	0.719	0.773	0.731	0.081
	RFCN [48]	0.834	0.820	0.831	0.075	0.614	0.783	0.646	0.080	0.721	0.801	0.738	0.078
	DHSNet [46]	0.863	0.905	0.872	0.049	0.649	0.851	0.686	0.055	0.753	0.877	0.778	0.052

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END

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