

Dataset: ILSVRC2012 dataset(IMAGENET)

Images in one class: 50

Semantic Segmentation Models: FCN, DeepLabv3

表 1 类别层级的 ISSC 和 ISDC 得分

Class	$ISSC_{\chi^k}^d, d = 5$			$ISDC_{\chi^k}^d, d = 5$		
	FCN	DeepLabv3	LR-ASPP	FCN	DeepLabv3	LR-ASPP
Sorrel	<b>0.732</b>	<b>0.732</b>	0.643	0.911	<b>0.929</b>	0.857
Tabby	0.536	<b>0.750</b>	0.589	0.643	<b>0.929</b>	0.857
Bulbul	<b>0.798</b>	0.750	0.655	0.958	0.857	<b>0.964</b>
Siamese cat	0.690	<b>0.798</b>	0.625	0.869	<b>0.964</b>	0.804
Bison	0.429	0.494	<b>0.839</b>	0.589	0.786	<b>0.911</b>
Zebra	0.946	<b>1.000</b>	0.875	0.929	<b>0.982</b>	0.929
Average	0.689	<b>0.754</b>	0.704	0.817	<b>0.908</b>	0.887

Note that row1 and row3 will be used.

表 2 SSC 得分（越高越好）

	SSC(add top-d most important concept)				
	$d = 1$	$d = 2$	$d = 3$	$d = 4$	$d = 5$
FCN	0.4762	<b>0.7333</b>	0.7333	0.7333	0.6952
LR-ASPP	0.4762	0.7048	<b>0.7524</b>	<b>0.7619</b>	<b>0.7524</b>
DeepLabv3	<b>0.5905</b>	0.7238	0.7429	0.7524	<b>0.7524</b>

表 3 SDC 得分（越低越好）

	SDC(add top-d most important concept)				
	$d = 1$	$d = 2$	$d = 3$	$d = 4$	$d = 5$
FCN	0.6476	0.3810	0.3142	0.2381	0.2571
LR-ASPP	0.6476	0.4667	0.3524	0.2190	0.1238
DeepLabv3	<b>0.6095</b>	<b>0.3619</b>	<b>0.1810</b>	<b>0.1048</b>	<b>0.0571</b>

TABLE 1  
SCORES OF **ISSC** AND ISDC ON CLASS LEVEL

Class	$ISSC_{x^k}^d, d = 5$			$ISDC_{x^k}^d, d = 5$		
	ACE	CONE-SHAP	HCE (Ours)	ACE	CONE-SHAP	HCE (Ours)
Tabby	0.550	0.455	<b>0.630</b>	0.550	0.730	<b>0.785</b>
Blenheim Spaniel	0.600	0.425	<b>0.660</b>	0.555	0.710	<b>0.980</b>
Sorrel	0.565	0.340	<b>0.695</b>	0.565	0.690	<b>0.925</b>
Junco	0.528	0.475	<b>0.755</b>	0.583	0.655	<b>0.910</b>
Bighorn	0.588	0.445	<b>0.840</b>	0.523	0.665	<b>1.000</b>
Warplane	0.495	0.550	<b>0.895</b>	0.497	0.570	<b>0.895</b>
Pop Bottle	0.548	0.445	<b>0.830</b>	0.502	0.665	<b>0.990</b>
Motor Scooter	0.515	0.485	<b>0.760</b>	0.550	0.620	<b>0.980</b>
Ballplayer	0.505	0.397	<b>0.825</b>	0.465	0.670	<b>0.985</b>
Siamese Cat	<b>0.630</b>	0.445	0.628	0.530	0.625	<b>0.702</b>
Siberian Husky	0.585	0.455	<b>0.625</b>	0.585	0.650	<b>0.880</b>
Timber Wolf	0.540	0.455	<b>0.645</b>	0.510	0.675	<b>0.960</b>
Schooner	0.525	0.410	<b>0.735</b>	0.490	0.615	<b>0.820</b>
Canoe	0.568	0.440	<b>0.730</b>	0.523	0.650	<b>0.995</b>
Bulbul	0.508	0.505	<b>0.800</b>	0.572	0.645	<b>0.940</b>
Black Swan	0.505	0.505	<b>0.930</b>	0.585	0.595	<b>0.790</b>
Mountain Bike	0.525	0.500	<b>0.730</b>	0.525	0.750	<b>0.890</b>
Bison	<b>0.565</b>	0.435	<b>0.565</b>	0.580	0.710	<b>0.865</b>
Police Van	0.485	0.395	<b>0.733</b>	0.495	0.615	<b>0.938</b>
Half Track	0.475	0.355	<b>0.535</b>	0.510	0.640	<b>0.885</b>
Jeep	0.550	0.420	<b>0.795</b>	0.465	0.655	<b>0.960</b>
Park Bench	0.620	0.445	<b>0.768</b>	0.527	0.725	<b>0.985</b>
Fire Engine	0.465	0.400	<b>0.560</b>	0.480	0.715	<b>0.795</b>
Zebra	0.533	0.675	<b>0.943</b>	0.553	0.625	<b>0.960</b>
Average	0.540	0.450	<b>0.730</b>	0.530	0.660	<b>0.910</b>