Iterative Instance Segmentation

Supplementary Material

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1. Per-Category Performance Comparison

We report the per-category performance of the proposed method compared to the state-of-the-art below.

Method and Setting	aero	bike	bird	boat	bottle	bus	car	cat	chair	cow	
Raw pixel-wise prediction:											
Hypercolumn [16]	74.8	57.4	61.6	38.3	32.3	79.1	57.9	82.3	20.8	55.2	
Proposed Method	**77.3**	**65.3**	**65.5**	**42.5**	**35.4**	**80.3**	**62.2**	**83.9**	**27.2**	**61.6**	
With superpixel projection:											
Hypercolumn [16]	**76.4**	63.4	63.8	**42.9**	32.3	80.0	59.5	**82.4**	27.5	59.9	
Proposed Method	76.3	**64.9**	**65.1**	42.6	**35.1**	**80.6**	**61.2**	80.9	**28.3**	**61.7**	
With superpixel projection and rescoring:											
Hypercolumn [16]	78.2	67.0	68.2	46.9	42.0	**82.9**	66.7	**85.0**	**31.2**	**66.7**	
Proposed Method	**79.2**	**67.9**	**70.0**	**47.9**	**45.3**	81.6	**68.8**	84.1	30.4	65.5	
Method and Setting	table	dog	horse	mbike	person	plant	sheep	sofa	train	tv	mAP^r
Raw pixel-wise prediction:											
Hypercolumn [16]	27.5	80.0	65.3	69.6	52.4	27.5	58.1	44.7	77.5	59.9	56.1
Proposed Method	**32.4**	**82.3**	**70.9**	**71.4**	**63.1**	**31.3**	**63.6**	**44.9**	**78.3**	**62.4**	**60.1**
With superpixel projection:											
Hypercolumn [16]	30.1	81.0	69.3	70.6	60.8	27.3	60.7	45.6	77.3	**61.8**	58.6
Proposed Method	**33.6**	**82.2**	**71.2**	**71.9**	**63.7**	**31.1**	**65.1**	**49.6**	**78.9**	61.5	**60.3**
With superpixel projection and rescoring:											
Hypercolumn [16]	30.1	82.0	73.1	73.3	64.6	37.3	68.9	41.4	75.3	67.9	62.4
Proposed Method	**31.8**	**83.6**	**75.5**	**74.5**	**66.6**	**37.7**	**70.6**	**44.7**	**77.7**	**68.7**	**63.6**

Table 1: Per-category AP^r at 50% overlap achieved by the proposed method compared to the state-of-the-art on the PASCAL VOC 2012 validation set.

Setting	aero	bike	bird	boat	bottle	bus	car	cat	chair	cow	
Raw pixel-wise prediction:											
Hypercolumn [16]	52.4	18.6	23.2	15.1	17.3	68.0	36.5	53.5	2.1	26.9	
Proposed Method	**61.8**	**31.5**	**42.0**	**22.0**	**22.7**	**72.4**	**44.8**	**65.4**	**7.2**	**37.6**	
With superpixel projection:											
Hypercolumn [16]	53.3	26.4	35.4	**24.0**	22.6	71.0	41.8	61.4	8.4	36.0	
Proposed Method	**57.4**	**33.2**	**42.9**	23.1	**23.4**	71.0	**44.9**	**64.4**	**10.8**	**40.6**	
With superpixel projection and rescoring:											
Hypercolumn [16]	55.6	28.7	41.2	**26.8**	25.5	73.5	45.2	64.7	10.6	42.3	
Proposed Method	**61.9**	**35.1**	**44.4**	26.4	**29.6**	**74.0**	**48.7**	**66.8**	**10.9**	**48.4**	
Setting	table	dog	horse	mbike	person	plant	sheep	sofa	train	tv	mAP^r
Raw pixel-wise prediction:											
Hypercolumn [16]	8.1	47.4	20.7	35.4	15.6	7.2	28.4	14.9	53.2	44.3	29.4
Proposed Method	**10.4**	**60.4**	**39.6**	**41.9**	**32.5**	**12.0**	**40.9**	**19.9**	**58.8**	**50.8**	**38.7**
With superpixel projection:											
Hypercolumn [16]	10.9	58.1	32.8	41.2	27.6	10.2	37.6	25.6	56.4	48.3	36.4
Proposed Method	**14.3**	**62.7**	**42.1**	**44.1**	**36.2**	**11.6**	**44.4**	**27.6**	**60.1**	**49.7**	**40.2**
With superpixel projection and rescoring:											
Hypercolumn [16]	12.3	60.8	41.7	42.1	27.3	15.5	45.2	**23.9**	56.6	47.8	39.4
Proposed Method	**13.6**	**64.0**	**53.0**	**46.8**	**33.0**	**19.0**	**51.0**	23.7	**62.2**	**53.9**	**43.3**

Table 2: Per-category AP^r at 70% overlap achieved by the proposed method compared to the state-of-the-art on the PASCAL VOC 2012 validation set.

2. Additional Visualizations

The following are predictions of the proposed method and the vanilla hypercolumn net on additional images from various categories.

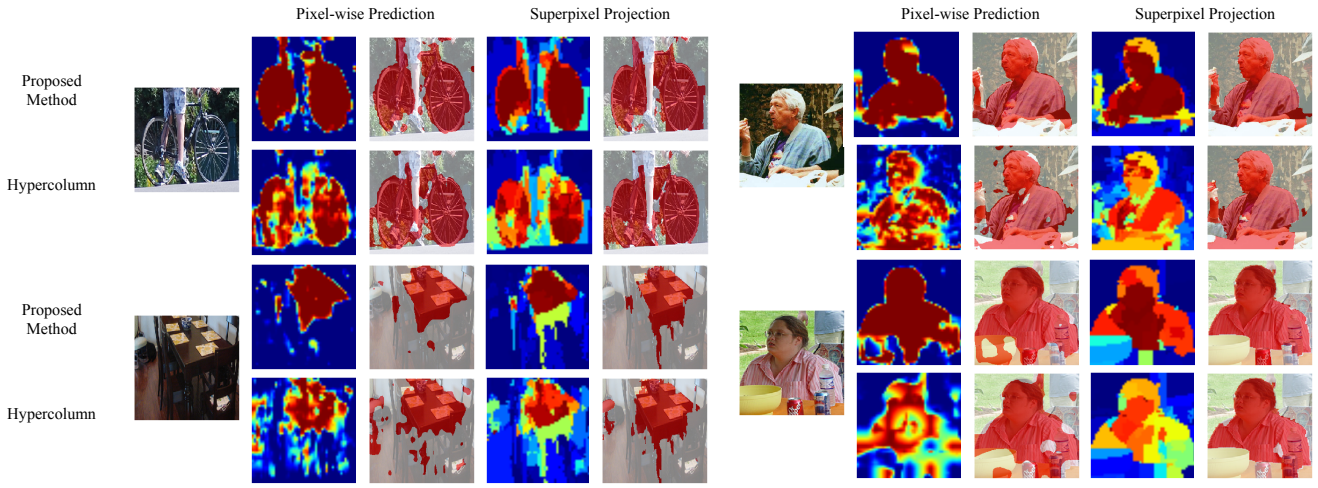

Figure 1: Comparison of heatmap and region predictions produced by the proposed method and the vanilla hypercolumn net on images from the PASCAL VOC 2012 validation set. Best viewed in colour.

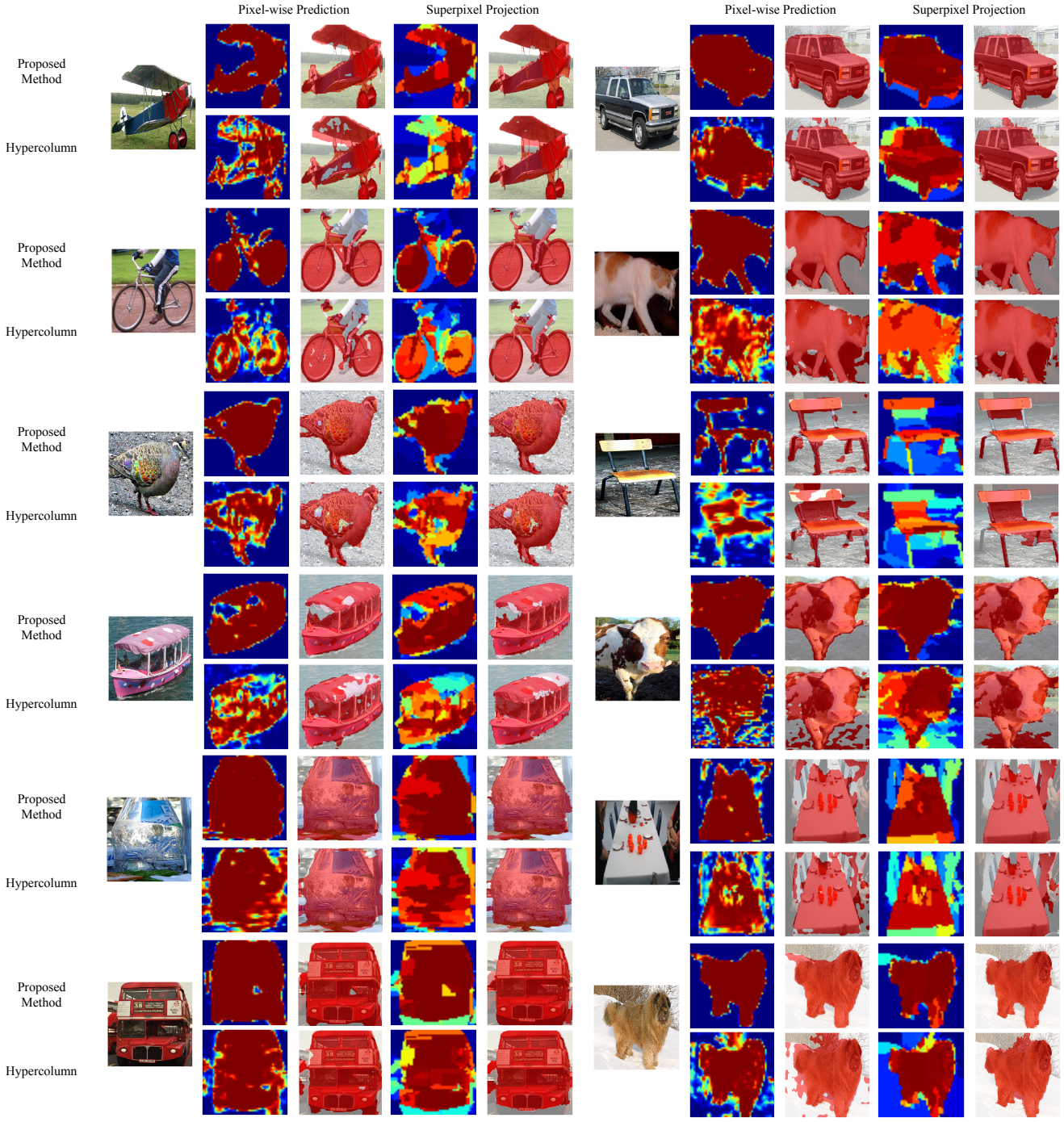

Figure 2: Comparison of heatmap and region predictions produced by the proposed method and the vanilla hypercolumn net on images from the PASCAL VOC 2012 validation set. Best viewed in colour.

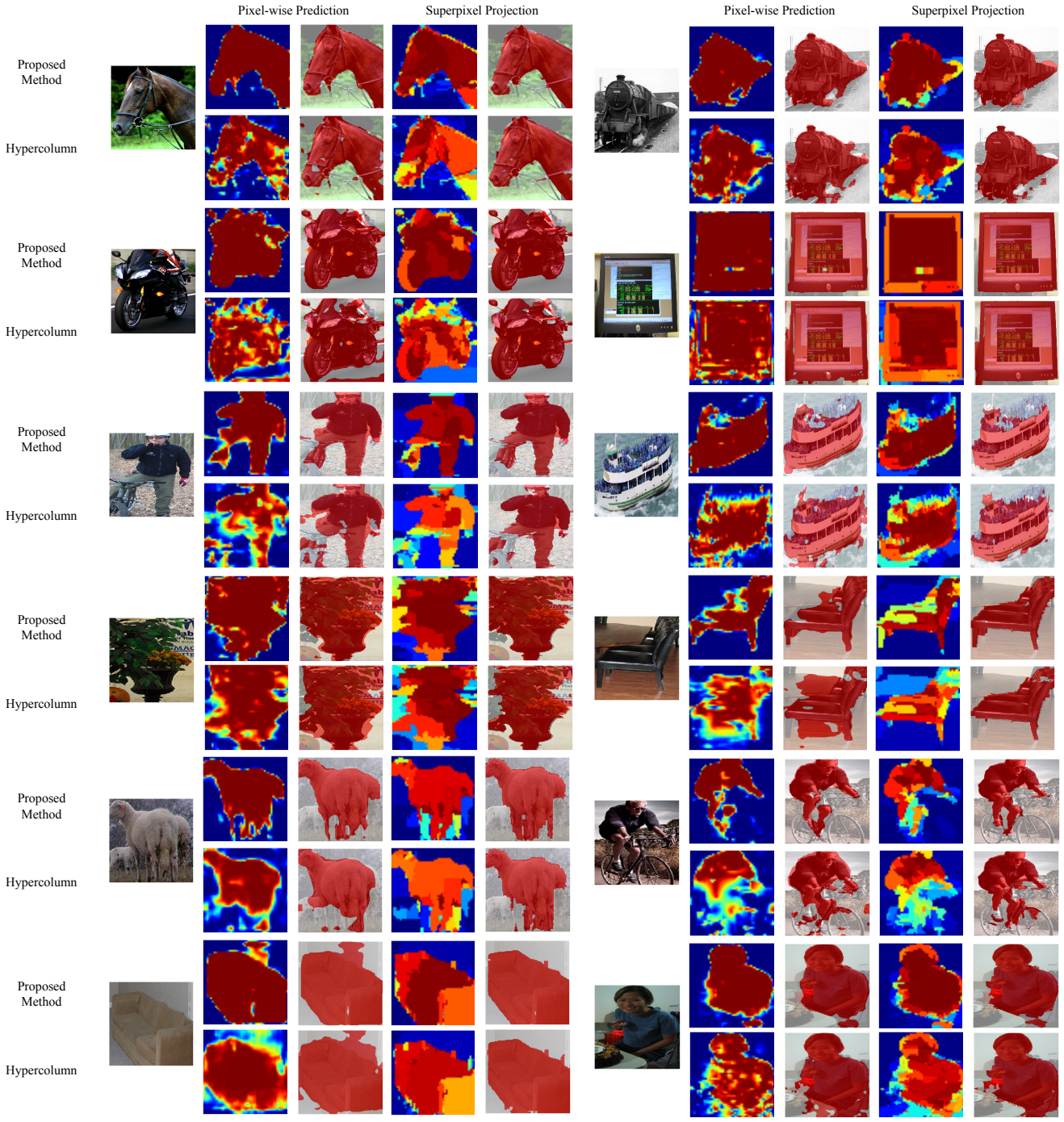

Figure 3: Comparison of heatmap and region predictions produced by the proposed method and the vanilla hypercolumn net on images from the PASCAL VOC 2012 validation set. Best viewed in colour.