Material recognition in the wild with the Materials in Context Database (Supplemental Material)

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1. Overview

In the supplemental material, we present details omitted from the main paper. We present details on:

the interface for our AMT tasks	in Section 2,
counts of our train/val/test sets	in Section 3,
single patch classifications results	in Section 4,
our near-duplicate method	in Section 5,
detailed FMD results	in Section 6, and
the full list of results	in Section 7.

Our dataset, **Materials in Context Database** (MINC), is fully public and hosted online at http://minc.cs.cornell.edu/, which includes all data, dataset splits, and trained models, so that other researchers can reproduce our experiments.

2. Crowdsourcing tasks

In this section, we provide some more detail on our crowdsourcing tasks (Section 3.2 in the main paper). Figures 1, 2, and 3 show screenshots of our three-stage Amazon Mechanical Turk pipeline. We build all of our crowdsourcing infrastructure on top of the publicly available OpenSurfaces platform [1].

Stage 1: filter by photo. In Stage 1 (Figure 1), we determine which materials each photo contains. We enumerate all combinations of photos and materials, so that each photo is considered for all materials. Since this results in a large number of combinations to test, and we do not need high quality responses, we only ask a single worker per photo. We found it was important to include this stage, since workers in the next stage would get frustrated if they were asked to localize too many materials that aren't present in the photo.

Stage 2: localize materials. In Stage 2 (Figure 2), workers are shown photos that were selected by a worker in stage 1, and they are asked to click on three points in that image
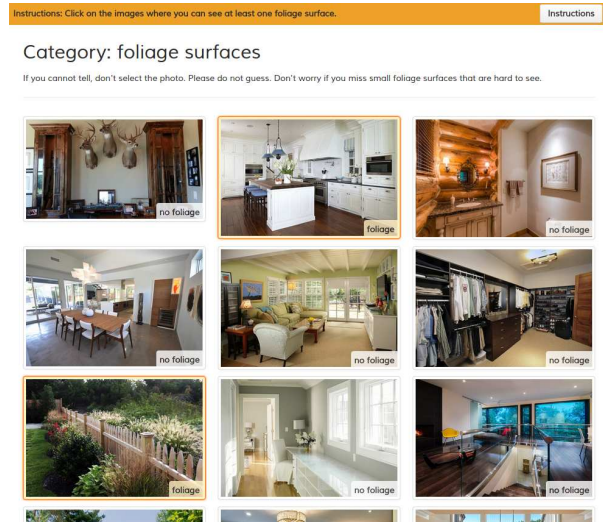
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Figure 1: *Stage 1: filter by photo.* Workers select which images (out of 40) contain a given substance.

that have a given material. Since there are many false positives from stage 1, they can advance to the next photo after clicking on any number of points, including zero points. Only one worker labels each photo-material combination.

Initially, we found that the submissions were surprisingly high quality, and thus we approved all submissions immediately and did not include sentinels. After collecting most of the data, we discovered that some workers had taken advantage of our lack of quality controls in this stage. However, we were able to detect these workers and exclude their submissions by measuring the fraction of responses that agree with Stage 3 (described next).

Stage 3: verify. In Stage 3 (Figure 3), we verify the responses from Stage 2 by asking new workers to re-label all points without revealing the original prompts from Stage 2. Thus, if a worker in Stage 3 can select the correct material from a long list and agree with the worker from Stage 2, then we consider the material label to be sufficiently accu-
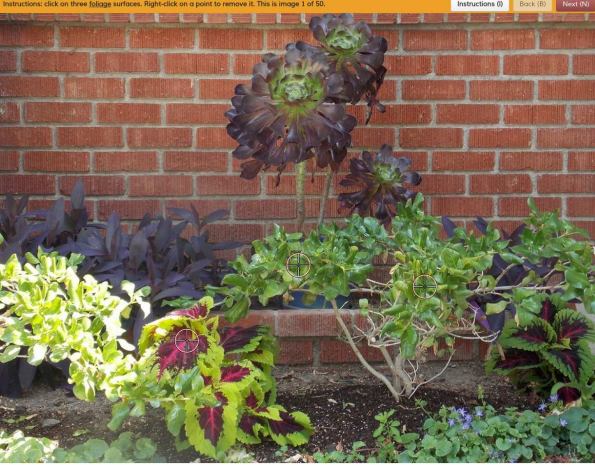
Figure 2: *Stage 2: localize materials.* Workers localize materials by clicking on 3 points in the image that contain a given material. In this example, workers have selected 3 points highlighted with red cross-hairs (zoom in to better see the selected points).
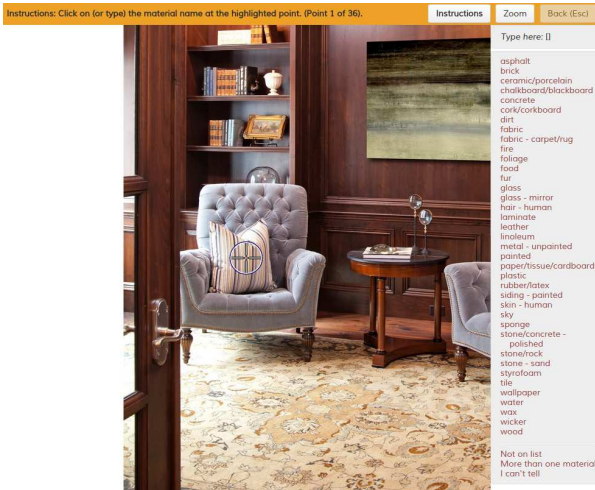

Figure 3: *Stage 3: verify.* Workers localize materials by clicking on 3 points in the image that contain a given material.

rate. If the stages disagree, then we discard the point.

Since we found that workers would avoid responding with "Not on list" or "I can't tell", we collected a larger list of possible material names than the other two stages. If workers select any of these extra material names, it is as if they had selected "Not on list".

Material categories. When initially collecting responses, we collected a wider range of material categories than what was used for material recognition. We attempted to split some categories into more fine-grained categories such as "Plastic - clear" and "Plastic - opaque". However, we found that such splits introduced disagreements between workers, which led to many points being rejected (points are only kept if workers can agree on the category). Further, some categories are genuinely confusing (such as laminate countertops designed to look like another stone). Thus, we grouped categories together and re-computed worker agreement with the coarser set of categories.

3. Sample distribution

From labeled clicks and segments we get a large set of patch centers. Each patch center is a sample for the learning system. Our goal is to randomly split our samples into train/val/test in ratios of 84/6/10. However, it is also necessary to ensure there are enough individual segments in the test set so that segment accuracy can be evaluated for full-scene material classification. In addition we wanted to balance the distribution across category, photo source (Houzz versus Flickr) and sample source (click versus segment).

Splits were created by gathering samples into clusters based on near-duplicate detection. The statistics of each cluster were computed and placed into a matrix where rows are clusters and columns are the cluster statistics. The matrix rows were randomly shuffled and two indices were found which split the set into ratios of 84/6/10. Then rows were greedily exchanged to satisfy constraints: (i) at least 75 segments per category in test, (ii) every measured statistic is strictly positive. A split is scored by the magnitude of the relative error of train and validate against test. This process was repeated several times and the split with lowest relative error was taken. Detailed counts of the split used in all experiments are shown in Table 1.

4. Patch classification

In Figure 4 we present a confusion matrix of single patch classifications with GoogLeNet (test set). The matrix has been normalized so that rows sum to 100%. Notable confusions are: 8.2% of *brick* predicted as *stone*, 8.2% of *mirror* predicted as *painted*, 5.7% of *mirror* predicted as *glass*, 5.9% of *paper* predicted as *plastic*, 5.9% of *plastic* predicted as *ceramic*, and 5.6% of *leather* predicted as *fabric*.

In Figure 5 we present a visualization of the preceding confusion matrix. Each cell of the matrix has been visualized by 16 patches whose true labels and predicted labels correspond to that entry of the matrix. (patches selected randomly). Since correct classifications only appear in the diagonal, the visualization, by design, shows many more incorrect classifications than correct ones.

In Figure 7 we present a larger version of Figure 7 from the main paper with each category identified. See Section 5.1 of the main paper for a description.

5. Near-duplicate detection

To detect near-duplicates (Section 4.1 of the main paper), we compute AlexNet fc6 features for all images. We normalize the features, project them down to 1024 dimensions using PCA, and then re-normalize them. Two normalized features f_1 and f_2 are considered to be duplicates if:

$$f_1 \cdot f_2 \geq 0.9$$

To ensure we don't miss any duplicates, we perform all $O(n^2)$ comparisons brute-force. See Figure 6 for example clusters of near-duplicate images.

6. FMD experiments

We found that combining a pretrained AlexNet with the approach of [2] exceeds both a finetuned AlexNet and the best reported result of [2]. Specifically, we take the reference BVLC AlexNet model, classify each image (warped to be square) with 15x oversampling (scales: $\{0.5, \sqrt{0.5}, 1\}$, crops: center and corners). The mean fc7 vector is extracted (4096 dim). Using the publicly available code of [2], Fisher vectors were concatenated with mean fc7 vectors and a classifier was trained with stochastic dual coordinate ascent linear SVM ($\lambda = 0.0002$) on 10 random splits (500 training samples, 500 testing). As shown in Table 2, the combination of AlexNet and Fisher vectors was superior to either feature alone. It was also better than finetuning AlexNet (5 folds, 700/100/200 train/validate/test samples, trained as described in Section 4.1 of the main paper, tested with oversampling).

For all $\pm$ uncertanties (both in Table 2 and in the main paper), we report the uncertainty of the mean (i.e., $\sqrt{\text{stdev}}/N$ where N is the sample count) rather than standard deviations.

Classifier	Features	Mean Accuracy	Trials
Linear SVM	fv	$59.3 \pm 0.5\%$	14 splits
Linear SVM	fc7	$62.5 \pm 0.4\%$	14 splits
AlexNet		$66.5 \pm 1.5\%$	5 folds
Linear SVM	fv+fc7	$69.6 \pm 0.3\%$	10 splits

Table 2: FMD mean class accuracy of a finetuned AlexNet and a linear SVM with combinations of pretrained AlexNet (fc7) and Fisher vector (fv) features. For comparison, the previous best is 67.1 ("Combined" features of [2]).

Sky

95.2%

93.8%
92.3%

89.3%

Hair

Foliage

Skin

Water

Food

Leather

Carpet

80.8%
80.4%

Other

Ceramic

77.0%

Brick

Pol. stone

75.2%

Painted

Wallpaper

Stone

73.9%

Wood

70.4%
69.5%

Paper

66.5%
65.6%
65.0%

Tile

Metal

61.7%
61.4%

Glass

58.1%

Mirror

Fabric

53.6%

Plastic

47.1%
45.7%

37.6%

98.3%

93.1%

89.8%
89.3%
88.6%

85.8%
85.6%
85.1%
83.7%
82.6%
81.7%
81.2%

79.8%

78.7%

76.6%

73.7%

68.9%
68.8%

66.2%

65.7%

63.3%
62.9%

56.9%

Mean class accuracy

5.8% 11.6%   23.3%   32.0%   46.5%   66.2%

Patch scale (% of smaller image dimension)

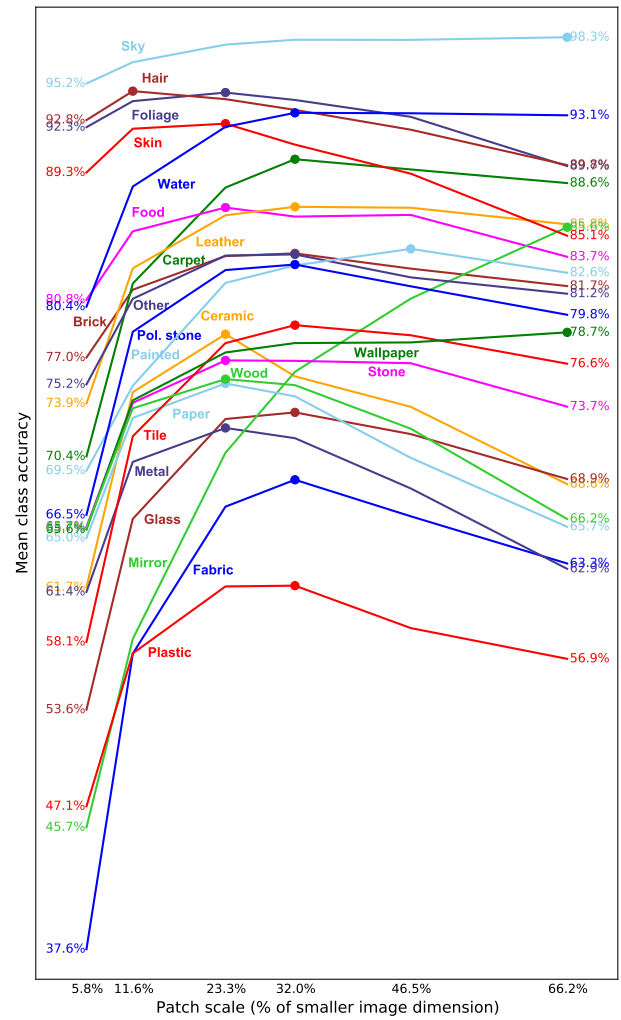Figure 7: Patch accuracy with varying patch scale. Dots: peak accuracy for each category. CNN: AlexNet.

Figure 6: Example clusters of near-duplicate images.

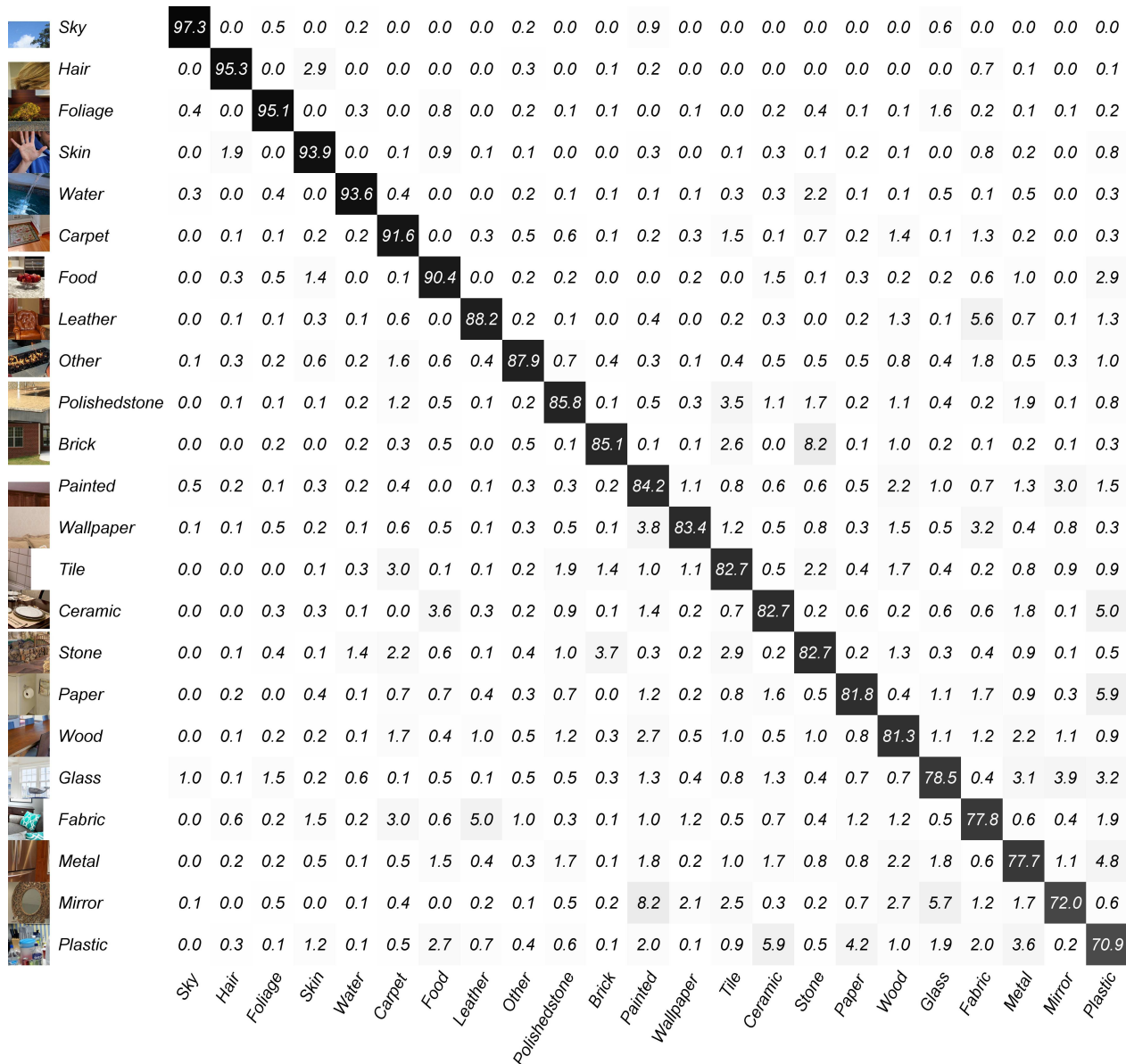|	Sky	Hair	Foliage	Skin	Water	Carpet	Food	Leather	Other	Polishedstone	Brick	Painted	Wallpaper	Tile	Ceramic	Stone	Paper	Wood	Glass	Fabric	Metal	Mirror	Plastic
Sky	97.3	0.0	0.5	0.0	0.2	0.0	0.0	0.0	0.2	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0
Hair	0.0	95.3	0.0	2.9	0.0	0.0	0.0	0.0	0.3	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.1	0.0	0.0	0.1
Foliage	0.4	0.0	95.1	0.0	0.3	0.0	0.8	0.0	0.2	0.1	0.1	0.0	0.1	0.0	0.2	0.4	0.1	0.1	1.6	0.2	0.1	0.1	0.2
Skin	0.0	1.9	0.0	93.9	0.0	0.1	0.9	0.1	0.1	0.0	0.0	0.3	0.0	0.1	0.3	0.1	0.2	0.1	0.0	0.8	0.2	0.0	0.8
Water	0.3	0.0	0.4	0.0	93.6	0.4	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.3	0.3	2.2	0.1	0.1	0.5	0.1	0.5	0.0	0.3
Carpet	0.0	0.1	0.1	0.2	0.2	91.6	0.0	0.3	0.5	0.6	0.1	0.2	0.3	1.5	0.1	0.7	0.2	1.4	0.1	1.3	0.2	0.0	0.3
Food	0.0	0.3	0.5	1.4	0.0	0.1	90.4	0.0	0.2	0.2	0.0	0.0	0.2	0.0	1.5	0.1	0.3	0.2	0.2	0.6	1.0	0.0	2.9
Leather	0.0	0.1	0.1	0.3	0.1	0.6	0.0	88.2	0.2	0.1	0.0	0.4	0.0	0.2	0.3	0.0	0.2	1.3	0.1	5.6	0.7	0.1	1.3
Other	0.1	0.3	0.2	0.6	0.2	1.6	0.6	0.4	87.9	0.7	0.4	0.3	0.1	0.4	0.5	0.5	0.5	0.8	0.4	1.8	0.5	0.3	1.0
Polishedstone	0.0	0.1	0.1	0.1	0.2	1.2	0.5	0.1	0.2	85.8	0.1	0.5	0.3	3.5	1.1	1.7	0.2	1.1	0.4	0.2	1.9	0.1	0.8
Brick	0.0	0.0	0.2	0.0	0.2	0.3	0.5	0.0	0.5	0.1	85.1	0.1	0.1	2.6	0.0	8.2	0.1	1.0	0.2	0.1	0.2	0.1	0.3
Painted	0.5	0.2	0.1	0.3	0.2	0.4	0.0	0.1	0.3	0.3	0.2	84.2	1.1	0.8	0.6	0.6	0.5	2.2	1.0	0.7	1.3	3.0	1.5
Wallpaper	0.1	0.1	0.5	0.2	0.1	0.6	0.5	0.1	0.3	0.5	0.1	3.8	83.4	1.2	0.5	0.8	0.3	1.5	0.5	3.2	0.4	0.8	0.3
Tile	0.0	0.0	0.0	0.1	0.3	3.0	0.1	0.1	0.2	1.9	1.4	1.0	1.1	82.7	0.5	2.2	0.4	1.7	0.4	0.2	0.8	0.9	0.9
Ceramic	0.0	0.0	0.3	0.3	0.1	0.0	3.6	0.3	0.2	0.9	0.1	1.4	0.2	0.7	82.7	0.2	0.6	0.2	0.6	0.6	1.8	0.1	5.0
Stone	0.0	0.1	0.4	0.1	1.4	2.2	0.6	0.1	0.4	1.0	3.7	0.3	0.2	2.9	0.2	82.7	0.2	1.3	0.3	0.4	0.9	0.1	0.5
Paper	0.0	0.2	0.0	0.4	0.1	0.7	0.7	0.4	0.3	0.7	0.0	1.2	0.2	0.8	1.6	0.5	81.8	0.4	1.1	1.7	0.9	0.3	5.9
Wood	0.0	0.1	0.2	0.2	0.1	1.7	0.4	1.0	0.5	1.2	0.3	2.7	0.5	1.0	0.5	1.0	0.8	81.3	1.1	1.2	2.2	1.1	0.9
Glass	1.0	0.1	1.5	0.2	0.6	0.1	0.5	0.1	0.5	0.5	0.3	1.3	0.4	0.8	1.3	0.4	0.7	0.7	78.5	0.4	3.1	3.9	3.2
Fabric	0.0	0.6	0.2	1.5	0.2	3.0	0.6	5.0	1.0	0.3	0.1	1.0	1.2	0.5	0.7	0.4	1.2	1.2	0.5	77.8	0.6	0.4	1.9
Metal	0.0	0.2	0.2	0.5	0.1	0.5	1.5	0.4	0.3	1.7	0.1	1.8	0.2	1.0	1.7	0.8	0.8	2.2	1.8	0.6	77.7	1.1	4.8
Mirror	0.1	0.0	0.5	0.0	0.1	0.4	0.0	0.2	0.1	0.5	0.2	8.2	2.1	2.5	0.3	0.2	0.7	2.7	5.7	1.2	1.7	72.0	0.6
Plastic	0.0	0.3	0.1	1.2	0.1	0.5	2.7	0.7	0.4	0.6	0.1	2.0	0.1	0.9	5.9	0.5	4.2	1.0	1.9	2.0	3.6	0.2	70.9

Figure 4: Confusion matrix for patch-based classification with GoogLeNet, trained with patch scale 23.3%. Rows are ground truth; columns are predictions. The mean class accuracy is 85.22% on test. The patch visualized to the left of each row is the patch in that category which is classified correctly with the highest confidence.

Figure 5: Visualization of the patch classification confusion matrix. Each cell of the confusion matrix has been visualized by 16 random patches. Rows are ground truth, columns are predicted labels. Test set patches were classified with GoogLeNet.

	Category	# Samples by Source		# Samples by Type		Totals	
		Houzz	Flickr	Click	Segment	# Segments	# Samples
Train	Brick	48701	5146	49599	4248	365	53847
	Carpet	50080	33598	54684	28994	2041	83678
	Ceramic	12248	11234	16692	6790	1128	23482
	Fabric	215882	117965	248480	85367	9972	333847
	Foliage	97873	3930	101331	472	84	101803
	Food	8709	12572	12446	8835	1242	21281
	Glass	141230	40885	156409	25706	5395	182115
	Hair	4	21730	19593	2141	301	21734
	Leather	63930	6453	65750	4633	572	70383
	Metal	101010	57688	121239	37459	5417	158698
	Mirror	60470	2682	60492	2660	317	63152
	Other	29404	4011	29431	3984	609	33415
	Painted	227367	164972	249464	142875	10326	392339
	Paper	11009	8951	15056	4904	1327	19960
	Plastic	1545	31303	25596	7252	1662	32848
	Polished stone	81449	14778	83752	12475	1205	96227
	Skin	1	29265	27459	1807	245	29266
	Sky	118704	63	117643	1124	54	118767
	Stone	17664	6919	18634	5949	523	24583
	Tile	76675	47177	83276	40576	3381	123852
	Wallpaper	7849	3820	7849	3820	253	11669
	Water	44546	617	43887	1276	69	45163
	Wood	345703	129393	368482	106614	13363	475096
Validate	Brick	3532	360	3600	292	26	3892
	Carpet	3434	2062	3714	1782	137	5496
	Ceramic	809	859	1180	488	90	1668
	Fabric	14923	8810	17311	6422	722	23733
	Foliage	7038	351	7177	212	26	7389
	Food	606	952	853	705	84	1558
	Glass	9839	3153	11013	1979	413	12992
	Hair	2	1561	1408	155	26	1563
	Leather	4627	466	4751	342	40	5093
	Metal	7145	4307	8649	2803	435	11452
	Mirror	4207	224	4210	221	26	4431
	Other	2125	206	2129	202	40	2331
	Painted	16123	11526	17749	9900	691	27649
	Paper	711	663	1033	341	92	1374
	Plastic	109	2153	1710	552	129	2262
	Polished stone	5771	1046	5947	870	98	6817
	Skin	3	2097	1912	188	27	2100
	Sky	8532	30	8087	475	26	8562
	Stone	1254	591	1331	514	50	1845
	Tile	5473	3635	6023	3085	245	9108
	Wallpaper	575	321	576	320	28	896
	Water	3497	55	3031	521	26	3552
	Wood	24371	9661	26019	8013	937	34032
Test	Brick	5601	1114	5699	1016	80	6715
	Carpet	5506	4211	6085	3632	287	9717
	Ceramic	1352	1606	1874	1084	179	2958
	Fabric	24240	16162	28446	11956	1342	40402
	Foliage	11166	599	11404	361	78	11765
	Food	989	1670	1463	1196	166	2659
	Glass	16046	5215	18063	3198	681	21261
	Hair	3	2803	2231	575	86	2806
	Leather	7183	985	7437	731	83	8168
	Metal	11417	6924	13898	4443	644	18341
	Mirror	6819	682	6823	678	78	7501
	Other	3392	474	3400	466	78	3866
	Painted	25439	19649	28249	16839	1265	45088
	Paper	1276	1169	1746	699	176	2445
	Plastic	186	3679	2832	1033	235	3865
	Polished stone	9075	1966	9382	1659	143	11041
	Skin	3	3877	3306	574	79	3880
	Sky	14522	299	13355	1466	78	14821
	Stone	2056	1132	2194	994	78	3188
	Tile	8741	5645	9546	4840	421	14386
	Wallpaper	907	1482	907	1482	78	2389
	Water	6560	89	5021	1628	78	6649
	Wood	38467	17296	41455	14308	1709	55763

Table 1: Distribution of samples by photo source (columns 2 & 3) and type of annotation (columns 4 & 5), total count of segments (column 6) and total count of samples (column 7). Each sample is a patch center. Each segment produced 9 samples on average.

CRF ID	w_p	θ_p	θ_L	θ_{ab}	CRF ID	w_p	θ_p	θ_L	θ_{ab}
1	5.000	0.100	20.000	5.000	51	10.000	0.189	15.365	4.726
2	7.500	0.050	20.000	5.000	52	4.000	0.189	15.365	4.726
3	5.000	0.200	20.000	5.000	53	5.000	0.100	20.000	5.000
4	10.000	0.050	20.000	5.000	54	10.000	0.167	20.000	5.000
5	6.000	0.189	15.365	4.726	55	4.000	0.189	15.365	4.726
6	7.000	0.189	15.365	4.726	56	5.000	0.200	20.000	10.000
7	0	N/A	N/A	N/A	57	5.000	0.400	20.000	5.000
8	8.000	0.189	15.365	4.726	58	12.000	0.200	20.000	5.000
9	5.000	0.400	20.000	5.000	59	4.000	0.189	15.365	4.726
10	8.000	0.200	20.000	3.333	60	10.000	0.200	20.000	5.000
11	6.000	0.189	15.365	4.726	61	8.000	0.200	20.000	10.000
12	8.000	0.200	20.000	2.500	62	3.000	0.189	15.365	4.726
13	6.000	0.189	15.365	4.726	63	3.000	0.200	20.000	5.000
14	7.000	0.189	15.365	4.726	64	3.000	0.189	15.365	4.726
15	6.000	0.189	15.365	4.726	65	9.000	0.189	15.365	4.726
16	7.000	0.189	15.365	4.726	66	3.000	0.189	15.365	4.726
17	7.000	0.189	15.365	4.726	67	5.000	1.000	20.000	5.000
18	5.000	0.200	20.000	3.333	68	2.500	0.200	20.000	5.000
19	5.000	0.189	15.365	4.726	69	8.000	0.200	20.000	20.000
20	5.000	0.189	15.365	4.726	70	2.000	0.200	10.000	5.000
21	5.000	0.200	20.000	2.500	71	2.000	0.200	20.000	2.500
22	7.800	0.189	15.365	4.726	72	2.000	0.200	20.000	3.333
23	7.900	0.189	15.365	4.726	73	2.000	0.189	15.365	4.726
24	7.800	0.189	15.365	4.726	74	2.000	0.189	15.365	4.726
25	7.900	0.189	15.365	4.726	75	10.000	0.333	20.000	5.000
26	6.000	0.200	20.000	5.000	76	2.000	0.200	20.000	5.000
27	7.800	0.189	15.365	4.726	77	2.000	0.189	15.365	4.726
28	5.000	0.189	15.365	4.726	78	2.000	0.189	15.365	4.726
29	8.100	0.189	15.365	4.726	79	2.000	0.200	40.000	5.000
30	8.200	0.189	15.365	4.726	80	2.000	0.100	20.000	5.000
31	7.900	0.189	15.365	4.726	81	2.000	0.200	20.000	10.000
32	8.100	0.189	15.365	4.726	82	2.000	0.400	20.000	5.000
33	10.000	0.100	20.000	5.000	83	1.500	0.200	20.000	5.000
34	8.200	0.189	15.365	4.726	84	1.000	0.189	15.365	4.726
35	8.100	0.189	15.365	4.726	85	2.000	0.189	15.365	4.726
36	8.200	0.189	15.365	4.726	86	3.000	0.189	15.365	4.726
37	10.000	0.125	20.000	5.000	87	4.000	0.189	15.365	4.726
38	5.000	0.200	20.000	5.000	88	5.000	0.189	15.365	4.726
39	5.000	0.200	20.000	5.000	89	6.000	0.189	15.365	4.726
40	5.000	0.167	20.000	5.000	90	7.000	0.189	15.365	4.726
41	5.000	0.200	20.000	5.000	91	7.800	0.189	15.365	4.726
42	5.000	0.189	15.365	4.726	92	7.900	0.189	15.365	4.726
43	5.000	0.125	20.000	5.000	93	8.100	0.189	15.365	4.726
44	7.800	0.200	20.000	5.000	94	8.200	0.189	15.365	4.726
45	7.900	0.200	20.000	5.000	95	1.000	0.189	15.365	4.726
46	8.000	0.200	20.000	5.000	96	1.000	0.200	20.000	5.000
47	8.100	0.200	20.000	5.000	97	1.000	0.189	15.365	4.726
48	8.200	0.200	20.000	5.000	98	1.000	0.189	15.365	4.726
49	13.606	0.189	15.365	4.726	99	10.000	0.400	20.000	5.000
50	5.000	0.333	20.000	5.000	100	10.000	1.000	20.000	5.000

Table 3: Parameter settings for our dense CRF; see Section 4.2 of the main paper for explanations of these parameters. The CRF IDs are renumbered so that better performing parameter values have a lower ID number. Table headers: CRF ID: unique identifier for this configuration (used in later table); w_p: pairwise weight (note that setting $w_p = 0$ is equivalent to not using a CRF); θ_p: position feature scale (dimensionless); θ_L: color intensity feature scale (has units of L^* from the $L^*a^*b^*$ colorspace); θ_{ab}: color chromaticity feature scale (has units of a^* or b^* from the $L^*a^*b^*$ colorspace); While we explored a more extensive set of parameter values on the validation set, this is the smaller smaller set of parameters for our final evaluation. This was necessary to keep runtimes manageable.

7. Material segmentation and recognition experiments

As mentioned in Section 5.2 of the main paper, we tried a variety of CNN configurations (listed in Table 4), as well as a variety of CRF parameter settings (Table 3). The final end-to-end segmentation and recognition system involves several decisions: which CNNs to combine, how to average them, and which CRF parameters to use. We enumerated a large number of combinations, listed in the table below. For each row, we measure accuracy across the entire validation set; these are not test accuracies. We report test accuracies in Table 4 of the main paper.

Note that the different measures of accuracy lead to very different rankings (entries within 1% of the max are highlighted in bold). This is illustrated visually in Figure 9 of the main paper.

Table 5: *(Below, multi-page)* Exhaustive list of CNN and CRF configurations, measured on the validation set, sorted by mean class accuracy across segments (first column). *Table headers:* S. Cls: mean class accuracy measured on segments (i.e. the pixels in each segment); S. Tot: total accuracy measured on segments (also known as "per-pixel accuracy"); C. Cls: mean class accuracy on click locations; C. Tot: total accuracy measured on click locations; CNNs: list of CNNs (each ID can be found in Table 4); Op: whether the different CNN predictions are averaged using a sum or a product (geometric average), CRF: the CRF parameter ID (each ID can be found in Table 3).

CNN ID	Architecture	Min dim. d	# shifts
A1	AlexNet	2200	2
A2	AlexNet	1100	2
A2b	AlexNet	1100	1
A3	AlexNet	800	2
A4	AlexNet	550	2
A5	AlexNet	386	2
G1	GoogLeNet (no avg pooling)	1100	2
G3	GoogLeNet (3x3 avg pooling)	1100	2
G5	GoogLeNet (5x5 avg pooling)	1100	2
G7	GoogLeNet (7x7 avg pooling)	1100	2

Table 4: *(Above)* Configurations of CNNs used for material segmentation and recognition. In all configurations, when there are multiple predictions from different scales or shifts or mirrors, the resulting outputs are averaged together (with arithmetic average). Table headers: CNN ID: unique identifier for this configuration (used in later table); Min dim: smaller dimension of the input photo (this scales the effective patch size, since each prediction has a fixed receptive field of 227×227 pixels); # shifts: number of partial strides (# shifts = 1 corresponds to 32px strides, # shifts = 2 corresponds to 16px strides).

S. Cls	S. Tot	C. Cls	C. Tot	CNNs	Op.	CRF
74.2%	**80.3%**	77.4%	78.8%	A4, G1	+	1
74.2%	79.8%	75.9%	76.8%	A5, G1	+	1
74.2%	79.6%	78.1%	79.2%	A4, G1	+	2
74.2%	**81.2%**	77.6%	79.5%	A4, G1	×	3
74.2%	79.3%	76.8%	77.7%	A5, G1	+	2
74.1%	79.7%	77.6%	78.8%	A4, G1	+	4
74.1%	79.4%	76.4%	77.2%	A5, G1	+	4
74.1%	**81.2%**	76.3%	78.5%	A4, G1	×	5
74.0%	**80.7%**	76.5%	78.4%	A4, G1	+	3
74.0%	79.8%	78.6%	79.5%	A2, A5, G1	+	2
74.0%	79.9%	78.3%	79.0%	A2, A5, G1	+	4
74.0%	**80.6%**	78.1%	79.7%	A4, G1	×	1
73.9%	**80.5%**	78.2%	79.1%	A2, A5, G1	+	1
73.9%	**80.8%**	79.0%	80.3%	A2, A5, G1	×	1
73.9%	79.5%	77.4%	78.5%	A5, G1	×	2
73.8%	79.3%	76.3%	77.5%	A4, G3	+	2
73.8%	79.6%	76.9%	78.0%	A5, G1	×	4
73.8%	**81.2%**	77.2%	78.9%	A2, A5, G1	×	5
73.8%	80.2%	77.0%	78.1%	A5, G1	×	1
73.8%	79.3%	75.9%	77.1%	A4, G3	+	4
73.8%	79.9%	75.4%	76.9%	A4, G3	+	1
73.8%	80.2%	79.1%	80.2%	A2, A5, G1	×	2
73.8%	**80.7%**	74.9%	77.0%	A4, G1	+	5
73.7%	80.2%	78.5%	79.6%	A2, A5, G1	×	4

S. Cls	S. Tot	C. Cls	C. Tot	CNNs	Op.	CRF
73.7%	**81.1%**	78.7%	80.3%	A2, A5, G1	×	3
73.7%	**81.0%**	74.7%	77.0%	A4, G1	×	6
73.7%	79.8%	78.2%	79.6%	A4, G1	×	2
73.7%	79.1%	73.9%	75.0%	A5, G3	+	1
73.6%	79.8%	74.9%	76.3%	A5, G1	+	3
73.6%	**80.6%**	79.6%	81.0%	A2, A4, G1	×	1
73.6%	79.9%	77.7%	79.2%	A4, G1	×	4
73.6%	**81.1%**	79.2%	81.0%	A2, A4, G1	×	3
73.6%	**80.2%**	74.4%	76.4%	A4, G3	+	3
73.6%	**80.4%**	75.0%	76.6%	A5, G1	×	5
73.6%	**80.3%**	78.9%	80.2%	A2, A4, G1	+	1
73.6%	**80.4%**	76.4%	78.0%	A5, G1	×	3
73.6%	79.6%	78.9%	79.9%	A2, A4, G1	+	2
73.5%	**80.4%**	75.4%	77.1%	A2, A5, G1	+	5
73.5%	79.8%	73.0%	74.6%	A5, G1	+	5
73.5%	79.7%	78.4%	79.4%	A2, A4, G1	+	4
73.5%	**80.4%**	77.3%	78.7%	A2, A5, G1	+	3
73.5%	**80.3%**	72.8%	75.1%	A4, G3	+	5
73.5%	**81.0%**	77.7%	79.7%	A2, A4, G1	×	5
73.4%	78.6%	75.0%	75.9%	A5, G3	+	2
73.4%	**80.9%**	75.6%	77.4%	A2, A5, G1	×	6
73.4%	78.7%	74.6%	75.5%	A5, G3	+	4
73.4%	79.9%	79.2%	80.6%	A2, A4, G1	×	2
73.4%	79.8%	76.3%	77.6%	A4, G3	×	1

S. Cls	S. Tot	C. Cls	C. Tot	CNNs	Op.	CRF
73.4%	80.0%	78.6%	80.0%	A2, A4, G1	×	4
73.4%	**80.7%**	78.0%	79.8%	A2, A4, G1	+	3
73.3%	**80.5%**	73.0%	75.3%	A4, G1	+	6
73.3%	79.4%	76.1%	77.5%	A4, G3	×	4
73.3%	**80.5%**	74.3%	76.4%	A4, G3	×	5
73.3%	79.3%	76.5%	77.9%	A4, G3	×	2
73.3%	76.3%	**86.2%**	**83.9%**	A2, A5, G1	×	7
73.3%	75.6%	**86.1%**	**83.6%**	A2, A5, G1	+	7
73.3%	80.2%	73.1%	75.1%	A5, G1	×	6
73.2%	79.4%	78.6%	80.2%	A3, G1	+	2
73.2%	80.4%	75.5%	77.4%	A4, G3	×	3
73.2%	80.8%	73.0%	75.5%	A4, G1	×	8
73.2%	**80.9%**	78.7%	81.1%	A3, G1	×	3
73.2%	**80.7%**	76.4%	78.3%	A2, A4, G1	+	5
73.2%	78.7%	75.4%	76.3%	A5, G3	×	2
73.2%	**80.9%**	77.3%	79.7%	A4, G1	×	9
73.2%	**80.8%**	78.0%	80.4%	A3, G1	+	3
73.2%	**80.9%**	77.5%	80.0%	A3, G1	×	5
73.2%	78.8%	75.0%	76.0%	A5, G3	×	4
73.2%	79.4%	78.1%	79.7%	A3, G1	+	4
73.1%	79.0%	77.3%	78.8%	A3, G3	+	2
73.1%	79.5%	71.2%	72.8%	A5, G1	+	6
73.1%	79.4%	72.7%	74.3%	A5, G3	+	3
73.1%	78.8%	72.3%	73.8%	A4, G5	+	1
73.1%	78.3%	73.8%	75.0%	A4, G5	+	2
73.1%	79.2%	74.3%	75.6%	A5, G3	×	1
73.1%	78.4%	73.6%	74.7%	A4, G5	+	4
73.1%	79.1%	76.8%	78.2%	A3, G3	+	4
73.0%	79.7%	78.4%	80.1%	A3, G1	×	4
73.0%	79.6%	78.9%	80.6%	A3, G1	×	2
73.0%	**80.7%**	76.3%	78.3%	A2, A4, G1	×	6
73.0%	80.1%	71.2%	73.7%	A4, G3	+	6
73.0%	**80.3%**	79.2%	81.1%	A3, G1	×	1
73.0%	**80.8%**	76.6%	79.0%	A3, G1	+	5
73.0%	80.1%	73.4%	75.2%	A2, A5, G1	+	6
73.0%	79.3%	71.0%	72.8%	A5, G3	+	5
72.9%	78.5%	75.1%	75.7%	A2, A5, G7	+	2
72.9%	78.7%	76.5%	77.2%	A2, A3, A5, G7	+	2
72.9%	**80.4%**	75.9%	78.0%	A5, G1	×	9
72.9%	**80.7%**	74.0%	76.0%	A2, A5, G1	×	8
72.9%	79.9%	79.4%	81.3%	A2, G1	+	1
72.9%	**80.4%**	76.0%	78.5%	A4, G1	+	9
72.9%	**80.7%**	76.0%	78.6%	A3, G1	×	6
72.9%	79.3%	77.1%	78.7%	A3, G3	×	4
72.9%	75.5%	84.3%	81.2%	A2, A4, A5, G7	+	7
72.9%	80.1%	78.6%	80.4%	A3, G1	+	1
72.9%	78.5%	74.6%	75.4%	A2, A5, G7	+	4
72.9%	80.0%	71.4%	73.7%	A5, G1	×	8
72.9%	**80.4%**	76.1%	78.5%	A3, G3	+	3
72.9%	78.4%	76.1%	76.4%	A2, A4, A5, G7	+	2
72.9%	75.3%	84.3%	81.8%	A5, G1	×	7
72.9%	79.2%	77.6%	79.2%	A3, G3	×	2
72.8%	80.2%	79.8%	82.0%	A2, G1	×	1
72.8%	78.7%	76.1%	76.8%	A2, A3, A5, G7	+	4
72.8%	80.2%	71.2%	73.6%	A4, G1	+	8
72.8%	**80.5%**	79.0%	81.4%	A2, G1	+	3
72.8%	75.6%	83.9%	81.0%	A2, A5, G7	+	7
72.8%	79.1%	75.4%	76.0%	A2, A3, A5, G7	+	1
72.8%	78.4%	75.7%	76.0%	A2, A4, A5, G7	+	4

S. Cls	S. Tot	C. Cls	C. Tot	CNNs	Op.	CRF
72.8%	**80.3%**	72.5%	74.8%	A4, G3	×	6
72.8%	79.0%	77.5%	78.2%	A1, A2, A5, G7	+	2
72.7%	75.3%	**85.8%**	**83.7%**	A2, A4, G1	+	7
72.7%	**80.4%**	77.1%	79.4%	A3, G3	×	3
72.7%	74.8%	84.5%	82.5%	A4, G1	+	7
72.7%	**80.7%**	79.7%	82.2%	A2, G1	×	3
72.7%	75.9%	**85.9%**	**83.2%**	A1, A2, A3, A4, A5, G7	+	7
72.7%	78.8%	74.6%	75.2%	A2, A4, A5, G7	+	1
72.7%	76.5%	**85.7%**	**83.4%**	A1, A2, A3, A4, A5, G7	×	7
72.7%	**80.6%**	78.3%	80.8%	A2, G1	×	5
72.7%	75.4%	84.8%	82.7%	A4, G1	×	7
72.7%	79.3%	69.5%	71.4%	A5, G1	+	8
72.7%	**80.4%**	74.5%	76.6%	A2, A4, G1	+	6
72.7%	78.7%	75.9%	76.7%	A2, A4, G7	+	2
72.7%	79.5%	74.2%	76.1%	A5, G1	+	9
72.7%	**80.4%**	77.3%	79.9%	A2, G1	+	5
72.7%	75.8%	**86.0%**	**84.0%**	A2, A4, G1	×	7
72.7%	**80.4%**	75.6%	78.1%	A3, G3	×	5
72.7%	79.7%	76.7%	78.6%	A3, G3	+	1
72.7%	**80.6%**	77.4%	80.3%	A3, G1	+	9
72.7%	**80.6%**	78.8%	81.0%	A2, A4, G1	×	9
72.7%	78.7%	75.5%	76.3%	A2, A4, G7	+	4
72.7%	78.8%	76.4%	77.0%	A2, A4, A5, G7	×	2
72.7%	75.9%	83.6%	81.0%	A2, A4, A5, G7	×	7
72.7%	74.4%	83.8%	81.3%	A5, G1	+	7
72.6%	79.6%	72.3%	74.2%	A5, G3	×	5
72.6%	79.0%	76.9%	77.6%	A1, A2, A5, G7	+	4
72.6%	78.8%	77.7%	78.2%	A1, A2, A3, A4, A5, G7	+	2
72.6%	79.5%	74.0%	75.6%	A5, G3	×	3
72.6%	80.1%	79.7%	81.5%	A2, A3, G1	×	1
72.6%	79.9%	69.7%	72.2%	A4, G3	+	8
72.6%	79.3%	79.4%	80.9%	A2, A3, G1	×	2
72.6%	78.7%	77.0%	77.7%	A2, A3, A4, G7	+	2
72.6%	**80.6%**	74.8%	77.4%	A3, G1	+	6
72.6%	78.8%	76.0%	76.6%	A2, A4, A5, G7	×	4
72.6%	**80.3%**	74.6%	77.1%	A3, G3	+	5
72.6%	80.2%	75.2%	77.5%	A4, G3	×	9
72.6%	**80.5%**	78.4%	80.4%	A2, A5, G1	×	9
72.6%	78.9%	79.1%	80.3%	A2, A3, G1	+	2
72.6%	76.2%	**86.1%**	**83.5%**	A1, A2, A5, G7	+	7
72.6%	79.4%	78.8%	80.3%	A2, A3, G1	×	4
72.6%	80.0%	74.0%	76.4%	A4, G3	+	9
72.6%	**80.7%**	78.5%	81.2%	A3, G1	×	9
72.6%	79.1%	74.4%	75.4%	A2, A4, G7	+	1
72.6%	75.6%	84.7%	81.8%	A2, A3, A5, G7	+	7
72.6%	**80.5%**	74.8%	76.9%	A2, A4, G1	×	8
72.6%	**80.5%**	79.6%	81.7%	A2, A3, G1	×	3
72.6%	78.8%	77.2%	77.7%	A1, A2, A3, A4, A5, G7	+	4
72.6%	79.6%	77.4%	79.5%	A2, G3	+	1
72.6%	80.2%	78.8%	80.8%	A2, A3, G1	+	3
72.6%	78.9%	79.8%	81.2%	A2, A3, G1	+	4
72.6%	78.9%	76.7%	77.6%	A2, A3, A5, G7	×	2
72.5%	78.7%	76.6%	77.3%	A2, A3, A4, G7	+	4
72.5%	79.7%	79.2%	80.7%	A2, A3, G1	+	1
72.5%	79.7%	77.3%	79.2%	A3, G3	×	1
72.5%	**80.5%**	74.4%	77.2%	A3, G1	×	8
72.5%	79.4%	78.7%	80.7%	A2, G1	×	4
72.5%	79.0%	69.2%	71.2%	A5, G3	+	6
72.5%	79.8%	71.6%	73.5%	A2, A5, G1	+	8

S. Cls	S. Tot	C. Cls	C. Tot	CNNs	Op.	CRF	S. Cls	S. Tot	C. Cls	C. Tot	CNNs	Op.	CRF
72.5%	77.9%	70.5%	71.7%	A5, G5	+	1	72.2%	78.8%	73.5%	75.6%	A3, G5	+	1
72.5%	76.7%	**86.0%**	**83.9%**	A1, A2, A5, G7	×	7	72.2%	78.9%	75.8%	76.7%	A2, A3, A4, G7	+	1
72.5%	79.3%	76.9%	77.5%	A1, A2, A3, A4, A5, G7	+	1	72.2%	**80.3%**	72.8%	75.8%	A3, G1	+	8
72.5%	79.3%	79.2%	81.2%	A2, G1	×	2	72.2%	78.7%	77.5%	78.3%	A1, A2, A3, A4, G7	+	4
72.5%	80.0%	76.9%	79.5%	A2, G3	+	3	72.2%	75.3%	84.4%	82.0%	A2, A3, A4, G7	+	7
72.5%	78.9%	76.4%	77.3%	A2, A3, A5, G7	×	4	72.2%	**80.3%**	76.9%	79.5%	A3, G3	×	9
72.5%	79.1%	70.9%	73.0%	A4, G5	+	3	72.2%	79.1%	73.9%	77.3%	G1	+	13
72.5%	76.0%	84.4%	81.7%	A2, A3, A5, G7	×	7	72.2%	79.1%	71.7%	73.8%	A5, G3	+	9
72.5%	78.9%	73.3%	74.4%	A2, A5, G7	+	1	72.2%	78.7%	75.5%	76.6%	A2, A5, G7	×	2
72.4%	79.1%	75.5%	76.3%	A2, A4, A5, G7	×	1	72.1%	79.4%	78.3%	79.2%	A1, A2, A5, G7	×	2
72.4%	80.1%	75.6%	78.4%	A2, G1	+	6	72.1%	75.6%	84.1%	81.9%	A2, A3, A4, G7	×	7
72.4%	79.7%	78.1%	80.2%	A2, G3	×	1	72.1%	74.7%	82.2%	79.7%	A5, G3	×	7
72.4%	79.3%	76.4%	77.3%	A1, A2, A5, G7	+	1	72.1%	78.7%	75.2%	76.2%	A2, A5, G7	×	4
72.4%	78.3%	73.9%	75.2%	A4, G5	×	4	72.1%	75.8%	83.4%	81.4%	A2, A4, G7	×	7
72.4%	75.5%	84.1%	81.6%	A2, A4, G7	+	7	72.1%	74.0%	81.8%	79.3%	A5, G3	+	7
72.4%	78.9%	77.0%	78.0%	A2, A3, A4, G7	×	2	72.1%	75.6%	**86.0%**	**83.5%**	A1, A2, A3, A4, G7	+	7
72.4%	79.2%	78.2%	79.0%	A1, A2, A3, A4, A5, G7	×	2	72.1%	78.7%	71.6%	72.8%	A2, A4, A5, G7	+	5
72.4%	**80.4%**	76.7%	79.5%	A2, G1	×	6	72.1%	79.3%	72.4%	76.1%	G1	+	6
72.4%	**80.3%**	74.3%	76.8%	A3, G3	×	6	72.1%	79.3%	72.4%	76.1%	G1	+	14
72.4%	75.9%	83.2%	80.9%	A2, A5, G7	×	7	72.1%	80.1%	75.6%	78.4%	A3, G3	+	9
72.4%	74.7%	82.9%	80.7%	A4, G3	+	7	72.1%	78.6%	73.0%	74.5%	A4, G5	×	1
72.4%	78.2%	74.2%	75.5%	A4, G5	×	2	72.1%	79.0%	74.5%	77.8%	G1	+	15
72.4%	78.9%	79.0%	80.9%	A2, G1	+	2	72.1%	**80.2%**	79.2%	82.2%	A2, G1	×	9
72.4%	77.3%	72.1%	73.0%	A5, G5	+	4	72.1%	79.2%	73.3%	76.8%	G1	+	16
72.4%	79.7%	78.2%	78.9%	A1, A2, A3, A4, A5, G7	×	1	72.1%	79.2%	74.3%	75.8%	A2, A3, A4, G7	+	3
72.4%	80.1%	71.0%	73.5%	A4, G3	×	8	72.1%	79.3%	77.7%	78.7%	A1, A2, A5, G7	×	4
72.4%	77.2%	72.4%	73.2%	A5, G5	+	2	72.1%	80.1%	79.3%	81.8%	A2, A3, G1	×	9
72.4%	79.2%	76.6%	77.7%	A2, A3, A4, G7	×	1	72.1%	79.3%	72.5%	76.1%	G1	+	17
72.4%	79.3%	76.2%	77.0%	A2, A3, A5, G7	×	1	72.1%	79.1%	74.5%	75.5%	A2, A4, A5, G7	×	3
72.4%	79.0%	76.5%	77.6%	A2, A3, A4, G7	×	4	72.1%	78.0%	71.1%	72.4%	A5, G5	×	1
72.3%	79.2%	77.7%	78.5%	A1, A2, A3, A4, A5, G7	×	4	72.0%	80.2%	75.1%	78.1%	A2, G1	×	8
72.3%	79.0%	78.5%	80.2%	A2, G1	+	4	72.0%	78.8%	67.9%	70.0%	A5, G3	+	8
72.3%	79.4%	70.5%	72.6%	A5, G3	×	6	72.0%	79.9%	74.0%	76.8%	A2, G1	+	8
72.3%	79.9%	76.6%	78.5%	A2, A5, G1	+	9	72.0%	78.8%	75.4%	78.5%	G1	+	18
72.3%	80.2%	78.1%	80.5%	A2, G3	×	3	72.0%	79.3%	75.6%	76.9%	A2, A4, G7	×	1
72.3%	79.1%	69.4%	71.8%	A4, G5	+	5	72.0%	79.1%	74.7%	75.8%	A2, A5, G7	×	1
72.3%	75.1%	83.1%	81.0%	A4, G3	×	7	72.0%	80.1%	72.7%	75.5%	A3, G3	×	8
72.3%	80.2%	78.1%	80.3%	A2, A3, G1	×	5	72.0%	79.7%	78.4%	80.7%	A2, A3, G1	+	9
72.3%	78.8%	78.0%	78.8%	A1, A2, A3, A4, G7	+	2	72.0%	79.1%	72.8%	74.4%	A2, A4, G7	+	3
72.3%	78.7%	77.7%	79.5%	A2, G3	+	2	72.0%	78.5%	79.1%	79.4%	A1, A2, A5	+	1
72.3%	78.8%	76.2%	77.4%	A2, A4, G7	×	2	72.0%	77.5%	72.4%	73.3%	A5, G5	×	4
72.3%	78.9%	75.8%	77.1%	A2, A4, G7	×	4	72.0%	77.8%	77.0%	76.8%	A2, A5	+	1
72.3%	**80.2%**	76.6%	79.3%	A2, G3	×	5	72.0%	78.7%	75.1%	78.3%	G1	+	19
72.3%	80.0%	77.3%	79.4%	A2, A3, G1	+	5	72.0%	78.7%	75.1%	78.3%	G1	+	20
72.2%	79.9%	75.5%	78.1%	A2, G3	+	5	72.0%	78.7%	75.7%	78.7%	G1	+	21
72.2%	80.1%	72.8%	75.0%	A2, A4, G1	+	8	72.0%	79.2%	72.2%	75.9%	G1	+	22
72.2%	78.6%	72.9%	73.9%	A2, A4, A5, G7	+	3	72.0%	80.1%	75.3%	77.9%	A2, G3	×	6
72.2%	79.3%	71.1%	74.9%	G1	+	10	72.0%	76.0%	**86.0%**	**83.8%**	A1, A2, A3, A4, G7	×	7
72.2%	80.0%	77.5%	79.7%	A2, A4, G1	+	9	72.0%	79.8%	78.1%	79.1%	A1, A2, A5, G7	×	1
72.2%	79.2%	73.8%	77.2%	G1	+	5	72.0%	77.4%	72.7%	73.6%	A5, G5	×	2
72.2%	79.2%	73.8%	77.2%	G1	+	11	72.0%	79.2%	72.0%	75.8%	G1	+	23
72.2%	79.0%	73.7%	75.0%	A2, A3, A5, G7	+	3	72.0%	78.3%	77.5%	77.7%	A2, A5	×	1
72.2%	78.7%	77.2%	78.9%	A2, G3	+	4	72.0%	79.3%	71.2%	75.0%	G1	+	24
72.2%	78.2%	74.5%	76.1%	A3, G5	+	4	71.9%	78.2%	67.5%	69.5%	A5, G5	+	5
72.2%	80.0%	73.0%	75.7%	A3, G3	+	6	71.9%	79.3%	71.0%	74.9%	G1	+	25
72.2%	78.1%	74.9%	76.5%	A3, G5	+	2	71.9%	79.0%	73.3%	76.8%	G1	+	26
72.2%	79.4%	72.0%	75.5%	G1	+	12	71.9%	79.2%	71.3%	75.1%	G1	+	27
72.2%	78.9%	78.4%	80.1%	A2, G3	×	2	71.9%	78.7%	75.1%	78.3%	G1	+	28
72.2%	79.0%	77.9%	79.5%	A2, G3	×	4	71.9%	78.4%	75.1%	76.7%	A3, G5	×	4

S. Cls	S. Tot	C. Cls	C. Tot	CNNs	Op.	CRF
71.9%	79.2%	71.7%	75.5%	G1	+	29
71.9%	79.9%	76.7%	78.9%	A2, A3, G1	×	6
71.9%	79.2%	70.9%	74.8%	G1	+	8
71.9%	79.2%	71.6%	75.4%	G1	+	30
71.9%	79.2%	71.1%	75.0%	G1	+	31
71.9%	79.1%	77.3%	78.3%	A1, A2, A3, A4, G7	+	1
71.9%	79.2%	69.4%	71.6%	A5, G3	×	8
71.9%	79.2%	70.8%	74.7%	G1	+	32
71.9%	74.8%	85.2%	**83.6%**	A3, G1	×	7
71.9%	79.5%	74.6%	76.2%	A2, A4, G7	×	3
71.9%	78.2%	77.6%	77.6%	A2, A3, A5	+	1
71.9%	78.8%	71.5%	74.5%	G1	+	33
71.9%	79.9%	78.3%	81.3%	A2, G1	+	9
71.9%	79.2%	70.7%	74.6%	G1	+	34
71.9%	78.0%	68.9%	70.6%	A5, G5	+	3
71.9%	79.2%	70.9%	74.7%	G1	+	35
71.9%	77.5%	69.0%	70.7%	A4, G7	+	1
71.9%	79.0%	72.2%	73.7%	A2, A3, A5, G7	+	5
71.8%	79.2%	70.7%	74.6%	G1	+	36
71.8%	79.7%	73.8%	76.5%	A2, G3	+	6
71.8%	80.0%	77.7%	80.6%	A2, G3	×	9
71.8%	79.5%	75.8%	77.2%	A2, A3, A4, G7	×	3
71.8%	79.0%	70.2%	73.6%	G1	+	37
71.8%	79.5%	73.3%	75.3%	A5, G3	×	9
71.8%	78.2%	75.5%	77.1%	A3, G5	×	2
71.8%	77.5%	76.7%	76.3%	A2, A4, A5	+	1
71.8%	79.0%	73.5%	75.1%	A2, A5, G7	×	3
71.8%	78.6%	71.8%	73.2%	A2, A5, G7	+	3
71.8%	74.3%	85.1%	**83.3%**	A3, G1	+	7
71.8%	78.5%	78.3%	78.5%	A1, A2, A3, A4, A5	+	1
71.8%	79.7%	75.5%	77.7%	A2, A3, G1	+	6
71.8%	77.0%	71.1%	72.4%	A4, G7	+	4
71.8%	78.6%	74.9%	78.2%	G1	+	3
71.8%	78.6%	74.9%	78.2%	G1	+	38
71.8%	78.6%	74.9%	78.2%	G1	+	39
71.8%	79.1%	75.5%	76.6%	A1, A2, A3, A4, A5, G7	+	3
71.8%	77.0%	71.3%	72.7%	A4, G7	+	2
71.8%	78.5%	75.0%	78.1%	G1	+	40
71.8%	79.1%	72.8%	74.6%	A2, A3, A4, G7	+	5
71.8%	79.0%	73.0%	74.3%	A2, A4, A5, G7	×	5
71.8%	78.6%	74.8%	77.9%	G1	+	41
71.8%	78.7%	74.4%	76.5%	A2, G5	+	1
71.8%	77.2%	77.5%	77.2%	A2, A5	+	2
71.8%	78.2%	77.9%	78.2%	A2, A4	+	1
71.8%	79.1%	78.4%	79.4%	A1, A2, A3, A4, G7	×	2
71.8%	78.9%	67.9%	70.4%	A4, G5	+	6
71.8%	79.1%	71.4%	73.2%	A2, A4, G7	+	5
71.7%	78.5%	75.6%	78.7%	G1	+	42
71.7%	74.4%	83.8%	81.8%	A3, G3	+	7
71.7%	74.8%	83.8%	82.0%	A3, G3	×	7
71.7%	74.4%	85.5%	**83.6%**	A2, A3, G1	+	7
71.7%	79.6%	77.5%	78.5%	A1, A2, A3, A4, A5, G7	×	3
71.7%	79.5%	73.1%	75.0%	A2, A4, G7	×	5
71.7%	78.2%	75.0%	77.8%	G1	+	43
71.7%	79.0%	79.3%	79.7%	A1, A2, A3, A4, A5	×	1
71.7%	79.0%	70.6%	74.4%	G1	+	44
71.7%	77.2%	77.0%	76.6%	A2, A5	+	4
71.7%	78.5%	77.3%	78.0%	A2, A4	+	3
71.7%	78.4%	69.6%	71.1%	A2, A4, A5, G7	+	6
71.7%	79.7%	71.2%	74.2%	A3, G3	+	8
71.7%	78.8%	74.7%	76.6%	A3, G5	×	1
71.7%	79.9%	73.8%	76.5%	A2, G3	×	8
71.7%	79.0%	70.4%	74.2%	G1	+	45
71.7%	74.7%	85.7%	**83.9%**	A2, A3, G1	×	7
71.7%	79.1%	72.1%	73.8%	A2, A5, G7	×	5
71.6%	79.1%	77.8%	78.8%	A1, A2, A3, A4, G7	×	4
71.6%	79.0%	70.2%	74.1%	G1	+	46
71.6%	79.3%	74.3%	75.9%	A2, A3, A4, G7	×	5
71.6%	79.7%	76.6%	79.4%	A2, G3	+	9
71.6%	79.0%	70.1%	73.9%	G1	+	47
71.6%	78.6%	70.2%	72.0%	A2, A5, G7	+	5
71.6%	74.1%	80.7%	78.2%	A4, G5	+	7
71.6%	79.6%	78.5%	79.7%	A1, A2, A3, A4, G7	×	1
71.6%	78.5%	77.9%	78.2%	A2, A3, A5	×	1
71.6%	78.9%	70.1%	72.6%	A4, G5	+	9
71.6%	79.0%	69.9%	73.8%	G1	+	48
71.6%	78.7%	77.7%	78.6%	A2, A4	×	3
71.6%	77.8%	78.4%	78.4%	A1, A2, A3, A4, A5	+	2
71.6%	78.4%	75.6%	76.6%	A2, A4	+	5
71.6%	79.7%	66.8%	70.0%	A4, G1	×	49
71.6%	74.9%	84.3%	82.1%	A2, A3, G7	+	7
71.5%	74.5%	80.9%	78.6%	A4, G5	×	7
71.5%	78.4%	79.2%	79.8%	A1, A2, A3, A4	+	1
71.5%	78.7%	71.8%	73.9%	A4, G5	×	3
71.5%	77.6%	77.9%	77.7%	A2, A5	×	2
71.5%	78.5%	77.3%	78.1%	A2, A3, A4	+	3
71.5%	79.3%	75.8%	77.4%	A1, A2, A3, A4, G7	+	3
71.5%	79.4%	75.8%	77.2%	A1, A2, A3, A4, A5, G7	×	5
71.5%	79.7%	75.2%	77.6%	A2, A3, G1	×	8
71.5%	79.2%	73.9%	76.3%	A3, G5	×	3
71.5%	78.2%	76.1%	77.4%	A2, A3, G7	+	2
71.5%	79.0%	72.6%	75.1%	A3, G5	+	3
71.5%	79.3%	72.8%	75.3%	A3, G5	×	5
71.5%	78.4%	75.8%	77.6%	A2, G5	×	4
71.5%	78.1%	77.7%	78.2%	A2, A3, A4	+	1
71.5%	78.7%	76.2%	77.4%	A2, A4	×	5
71.5%	79.1%	71.3%	73.9%	A3, G5	+	5
71.5%	79.5%	80.9%	82.9%	A1, A2, G1	×	1
71.5%	77.9%	66.1%	68.3%	A5, G5	+	6
71.5%	79.4%	74.2%	76.7%	A2, G5	×	5
71.5%	78.5%	76.7%	77.3%	A2, A5	×	3
71.5%	78.8%	70.6%	72.7%	A4, G5	×	5
71.5%	79.3%	75.5%	78.0%	A2, G5	×	3
71.5%	77.7%	77.8%	77.8%	A1, A2, A3, A4, A5	+	4
71.5%	77.6%	77.3%	77.2%	A2, A5	×	4
71.5%	78.3%	76.4%	78.1%	A2, G5	×	2
71.4%	73.8%	85.0%	81.3%	A2, A5	+	7
71.4%	78.6%	74.7%	78.1%	G1	+	50
71.4%	78.3%	68.4%	70.5%	A5, G5	×	5
71.4%	78.2%	75.7%	76.9%	A2, A3, G7	+	4
71.4%	77.3%	77.8%	77.6%	A2, A3, A5	+	2
71.4%	79.0%	68.6%	72.6%	G1	+	51
71.4%	77.9%	77.0%	76.9%	A2, A4, A5	×	1
71.4%	78.5%	76.5%	77.9%	A2, A3, G7	×	2
71.4%	78.9%	73.6%	76.3%	A2, G5	+	3
71.4%	77.9%	76.0%	76.3%	A2, A5	+	3
71.4%	79.4%	72.3%	75.2%	A2, G3	+	8
71.4%	75.2%	83.7%	81.9%	A2, A3, G7	×	7

S. Cls	S. Tot	C. Cls	C. Tot	CNNs	Op.	CRF
71.4%	78.6%	76.1%	77.5%	A2, A3, G7	×	4
71.4%	78.3%	78.2%	78.7%	A2, A4	×	1
71.4%	79.2%	80.2%	82.0%	A1, A2, G1	+	1
71.4%	79.8%	80.4%	82.8%	A1, A2, G1	×	3
71.4%	79.7%	78.0%	79.4%	A1, A2, A3, A4, G7	×	3
71.4%	73.7%	84.4%	80.8%	A2, A4, A5	+	7
71.4%	74.3%	**85.9%**	82.8%	A1, A2, A3, A4, A5	+	7
71.4%	79.2%	75.2%	76.5%	A2, A3, A5, G7	×	3
71.4%	77.4%	77.2%	77.1%	A2, A3, A5	+	4
71.4%	78.9%	73.6%	75.0%	A1, A2, A3, A4, A5, G7	+	5
71.4%	77.9%	75.4%	77.2%	A2, G5	+	2
71.4%	78.9%	72.2%	75.0%	A2, G5	+	5
71.3%	78.4%	78.0%	79.2%	A1, A2, A3, G7	+	2
71.3%	74.2%	82.0%	80.0%	A3, G5	+	7
71.3%	79.4%	73.7%	76.2%	A2, A3, G1	+	8
71.3%	79.1%	80.0%	80.8%	A1, A2, A5	×	1
71.3%	78.6%	66.6%	69.3%	A4, G5	+	8
71.3%	77.3%	71.6%	72.9%	A4, G7	×	4
71.3%	78.9%	75.9%	77.9%	A2, G5	×	1
71.3%	78.6%	70.3%	72.0%	A2, A3, A5, G7	+	6
71.3%	77.9%	78.9%	79.0%	A1, A2, A5	+	2
71.3%	78.0%	74.9%	76.7%	A2, G5	+	4
71.3%	78.1%	69.6%	71.6%	A5, G5	×	3
71.3%	74.6%	82.1%	80.3%	A3, G5	×	7
71.3%	74.9%	**85.7%**	**83.0%**	A1, A2, A3, A4, A5	×	7
71.3%	76.8%	77.2%	76.6%	A2, A4, A5	+	2
71.3%	78.3%	76.7%	77.2%	A2, A3, A5	+	3
71.3%	77.8%	76.2%	79.1%	G1	+	52
71.3%	79.0%	74.6%	76.1%	A1, A2, A5, G7	+	3
71.3%	77.7%	75.0%	77.8%	G1	+	1
71.3%	77.7%	75.0%	77.8%	G1	+	53
71.3%	78.2%	79.1%	79.3%	A1, A2, A3, A4, A5	×	2
71.3%	77.2%	71.8%	73.1%	A4, G7	×	2
71.3%	77.8%	74.4%	74.8%	A2, A5	+	5
71.3%	78.6%	77.5%	78.5%	A2, A3, A4	×	3
71.3%	78.7%	71.2%	72.7%	A2, A4, A5, G7	×	6
71.3%	78.5%	77.3%	78.5%	A1, A2, A3, G7	+	4
71.3%	78.3%	79.7%	81.5%	A1, A2, G1	+	2
71.3%	78.9%	76.0%	77.6%	A2, A3, G7	×	1
71.3%	78.6%	75.0%	76.5%	A2, A3, G7	+	1
71.3%	79.4%	79.5%	81.8%	A1, A2, G1	+	3
71.2%	79.7%	79.2%	81.6%	A1, A2, G1	×	5
71.2%	78.4%	75.4%	76.0%	A2, A5	×	5
71.2%	74.2%	84.8%	81.3%	A2, A5	×	7
71.2%	78.9%	68.5%	72.4%	G1	+	54
71.2%	77.8%	76.2%	79.1%	G1	+	55
71.2%	76.8%	76.7%	76.1%	A2, A4, A5	+	4
71.2%	78.4%	75.7%	76.8%	A2, A3, A4	+	5
71.2%	78.7%	77.3%	77.9%	A2, A3, A5	×	3
71.2%	78.1%	68.1%	69.7%	A2, A4, A5, G7	+	8
71.2%	78.3%	79.0%	80.7%	A1, A2, G1	+	4
71.2%	79.7%	77.4%	78.7%	A1, A2, A5, G7	×	3
71.2%	78.4%	64.1%	66.7%	A5, G1	+	49
71.2%	77.2%	77.4%	77.1%	A2, A4, A5	×	2
71.2%	79.0%	65.8%	68.8%	A5, G1	×	49
71.2%	79.2%	71.6%	73.5%	A2, A4, G7	×	6
71.2%	78.7%	69.4%	71.5%	A2, A4, G7	+	6
71.2%	78.2%	78.4%	78.6%	A1, A2, A3, A4, A5	×	4
71.2%	77.8%	78.3%	78.3%	A1, A2, A5	+	4
71.2%	78.1%	74.2%	77.5%	G1	+	56
71.2%	74.1%	84.1%	80.7%	A2, A4, A5	×	7
71.2%	78.8%	70.8%	72.9%	A2, A3, A4, G7	+	6
71.2%	79.1%	65.2%	68.4%	A4, G1	+	49
71.2%	77.2%	77.9%	78.1%	A2, A3, A4	+	2
71.2%	78.2%	75.1%	75.7%	A2, A3, A5	+	5
71.2%	79.2%	72.5%	75.1%	A2, G5	×	6
71.2%	78.9%	70.4%	72.3%	A2, A5, G7	×	6
71.2%	78.7%	77.2%	78.5%	A1, A2, A3, G7	+	1
71.2%	79.2%	80.3%	82.8%	A1, G1	×	1
71.2%	77.1%	78.1%	78.1%	A2, A4	+	2
71.2%	78.5%	77.4%	78.0%	A1, A2, A3, A4, A5	+	3
71.2%	77.2%	76.9%	76.7%	A2, A4, A5	×	4
71.2%	79.0%	72.6%	74.4%	A1, A2, A5, G7	+	5
71.1%	77.6%	70.2%	71.9%	A4, G7	×	1
71.1%	79.1%	71.1%	73.7%	A3, G5	×	6
71.1%	75.0%	85.5%	**83.6%**	A1, A2, A3, G7	+	7
71.1%	79.5%	76.3%	78.0%	A1, A2, A3, A4, G7	×	5
71.1%	79.0%	72.6%	74.5%	A2, A3, A4, G7	×	6
71.1%	77.2%	77.4%	77.6%	A2, A3, A4	+	4
71.1%	78.5%	78.2%	79.4%	A1, A2, A3, A4	+	3
71.1%	77.5%	79.0%	79.3%	A1, A2, A3, A4	+	2
71.1%	78.3%	74.5%	78.1%	G1	+	9
71.1%	78.3%	74.6%	78.1%	G1	+	57
71.1%	78.8%	79.8%	82.0%	A1, G1	+	1
71.1%	79.5%	67.3%	70.4%	A2, A5, G1	×	49
71.1%	79.1%	74.0%	75.8%	A1, A2, A3, A4, G7	+	5
71.1%	77.6%	75.6%	75.7%	A2, A4, A5	+	3
71.1%	78.2%	78.0%	78.5%	A2, A3, A4	×	1
71.1%	78.2%	78.5%	79.8%	A2, A3	×	3
71.1%	79.6%	75.5%	77.2%	A1, A2, A5, G7	×	5
71.1%	78.1%	78.3%	79.6%	A2, A3	+	3
71.1%	77.0%	74.3%	76.9%	G1	+	4
71.1%	77.5%	78.0%	78.1%	A2, A3, A5	×	2
71.1%	76.4%	67.1%	68.5%	A5, G7	+	1
71.1%	79.2%	75.3%	77.3%	A2, A3, G7	×	3
71.1%	78.3%	68.4%	70.4%	A2, A5, G7	+	6
71.1%	77.1%	77.4%	77.4%	A2, A4	+	4
71.1%	77.5%	78.3%	78.6%	A1, A2, A3, A4	+	4
71.1%	79.3%	77.9%	80.3%	A1, A2, G1	+	5
71.1%	79.4%	66.5%	69.5%	A4, G1	×	58
71.1%	78.5%	80.1%	82.1%	A1, A2, G1	×	2
71.0%	77.6%	65.0%	67.2%	A5, G5	+	8
71.0%	79.1%	78.3%	79.2%	A1, A2, A3, A4, A5	×	3
71.0%	78.2%	77.1%	78.6%	A2, A3	×	5
71.0%	79.2%	78.8%	81.6%	A1, G1	+	3
71.0%	78.1%	73.8%	75.1%	A2, A4	+	6
71.0%	78.6%	69.0%	71.4%	A4, G5	×	6
71.0%	78.1%	67.0%	69.2%	A5, G5	×	6
71.0%	73.1%	78.6%	75.9%	A5, G5	+	7
71.0%	77.5%	77.4%	77.5%	A2, A3, A5	×	4
71.0%	78.3%	79.6%	80.0%	A1, A2, A5	×	2
71.0%	77.9%	70.4%	72.5%	A3, G7	+	1
71.0%	78.8%	69.6%	72.5%	A3, G5	+	6
71.0%	78.4%	76.1%	77.3%	A2, A3, A4	×	5
71.0%	77.5%	76.3%	79.4%	G1	+	59
71.0%	79.1%	73.7%	75.3%	A2, A3, A5, G7	×	5
71.0%	78.6%	76.0%	76.7%	A2, A3, A5	×	5
71.0%	77.2%	78.3%	78.5%	A2, A4	×	2

S. Cls	S. Tot	C. Cls	C. Tot	CNNs	Op.	CRF
71.0%	78.6%	79.5%	81.4%	A1, A2, G1	×	4
71.0%	79.2%	78.6%	80.0%	A1, A2, A3, G7	×	1
71.0%	73.7%	79.2%	76.5%	A5, G5	×	7
71.0%	78.4%	74.5%	75.8%	A2, A4	×	6
71.0%	75.3%	85.4%	**83.6%**	A1, A2, A3, G7	×	7
71.0%	73.7%	84.9%	81.6%	A2, A3, A5	+	7
71.0%	79.0%	73.9%	75.5%	A1, A2, A3, A4, A5, G7	×	6
71.0%	78.0%	76.9%	78.3%	A2, A3	+	5
71.0%	78.4%	77.9%	78.8%	A1, A2, A5	+	3
71.0%	78.6%	78.6%	79.9%	A1, A2, A3, G7	×	2
71.0%	78.6%	67.5%	71.6%	G1	+	60
71.0%	79.3%	73.9%	76.0%	A2, A3, G7	×	5
71.0%	78.5%	79.6%	80.6%	A1, A2, A3, A4	×	1
71.0%	77.5%	67.1%	69.3%	A4, G7	+	3
70.9%	73.7%	83.9%	82.2%	A2, G3	+	7
70.9%	78.8%	65.1%	68.1%	A2, A5, G1	+	49
70.9%	74.1%	84.7%	81.5%	A2, A3, A5	×	7
70.9%	78.3%	76.6%	78.0%	A1, A2, A3, A4	+	5
70.9%	78.8%	64.3%	67.4%	A4, G3	+	49
70.9%	78.2%	76.2%	76.6%	A2, A4, A5	×	3
70.9%	78.3%	78.9%	79.3%	A1, A2, A5	×	4
70.9%	77.8%	72.8%	74.6%	A3, G7	×	4
70.9%	78.6%	73.8%	75.3%	A2, A4, A5, G7	×	9
70.9%	77.2%	77.7%	77.8%	A2, A4	×	4
70.9%	78.7%	77.7%	80.1%	A1, G3	+	1
70.9%	74.2%	84.1%	82.6%	A2, G3	×	7
70.9%	78.7%	77.9%	79.2%	A1, A2, A3, G7	×	4
70.9%	77.3%	72.0%	73.7%	A3, G7	+	4
70.9%	77.7%	73.1%	74.9%	A3, G7	×	2
70.9%	77.1%	78.0%	78.4%	A2, A3, A4	×	2
70.9%	78.9%	77.0%	78.0%	A1, A2, A3, A4, A5	×	5
70.9%	74.9%	**86.7%**	**83.8%**	A1, A2, A5	×	7
70.9%	78.1%	78.8%	80.9%	A1, G1	+	2
70.9%	79.1%	77.2%	80.3%	A1, G1	+	5
70.9%	79.2%	79.1%	80.2%	A1, A2, A5	×	3
70.9%	79.4%	77.6%	80.2%	A1, A2, G1	×	6
70.9%	75.6%	69.4%	70.2%	A5, G7	+	4
70.9%	75.5%	69.5%	70.3%	A5, G7	+	2
70.9%	78.4%	69.6%	71.3%	A2, A4, A5, G7	×	8
70.9%	73.9%	85.1%	**83.6%**	A2, G1	×	7
70.9%	77.3%	72.3%	74.0%	A3, G7	+	2
70.9%	76.6%	74.7%	77.3%	G1	+	2
70.9%	79.0%	71.0%	73.8%	A2, G5	×	8
70.9%	78.3%	68.7%	70.6%	A2, A3, A5, G7	+	8
70.9%	78.7%	73.6%	75.5%	A2, A3, G7	+	3
70.9%	78.7%	71.3%	73.8%	A4, G5	×	9
70.8%	77.2%	77.4%	77.8%	A2, A3, A4	×	4
70.8%	79.5%	79.8%	82.7%	A1, G1	×	3
70.8%	76.5%	67.9%	69.3%	A5, G7	×	1
70.8%	78.3%	75.6%	76.5%	A1, A2, A3, A4, A5	+	5
70.8%	78.1%	78.1%	80.2%	A1, G1	+	4
70.8%	78.8%	76.9%	79.7%	A1, G3	+	3
70.8%	78.0%	77.5%	79.5%	A1, G3	+	2
70.8%	78.1%	76.8%	78.9%	A1, G3	+	4
70.8%	79.0%	79.3%	81.6%	A1, G3	×	1
70.8%	73.4%	84.9%	**83.2%**	A2, G1	+	7
70.8%	78.6%	70.6%	73.5%	A2, G5	+	6
70.8%	77.9%	71.8%	73.3%	A2, A4, A5, G7	+	9
70.8%	73.7%	78.7%	76.4%	A4, G7	+	7

S. Cls	S. Tot	C. Cls	C. Tot	CNNs	Op.	CRF
70.8%	79.5%	78.3%	81.6%	A1, G1	×	5
70.8%	77.6%	78.5%	79.3%	A2, A3	+	1
70.8%	76.2%	69.8%	70.8%	A5, G7	×	4
70.8%	74.1%	78.7%	76.7%	A4, G7	×	7
70.8%	74.0%	**86.5%**	**83.3%**	A1, A2, A5	+	7
70.8%	77.7%	79.3%	79.9%	A1, A2, A3, A4	×	2
70.8%	78.9%	69.8%	72.0%	A2, A4, G7	×	8
70.8%	79.0%	65.5%	68.7%	A4, G3	×	49
70.8%	78.5%	68.0%	70.2%	A2, A4, G7	+	8
70.8%	78.7%	78.9%	80.3%	A1, A2, A3, A4	×	3
70.8%	78.8%	69.7%	72.6%	A3, G5	×	8
70.8%	78.8%	75.4%	78.4%	A1, G3	+	5
70.7%	78.1%	72.0%	74.0%	A3, G7	×	1
70.7%	78.0%	73.8%	75.2%	A2, A3, A4	+	6
70.7%	78.6%	68.9%	71.0%	A2, A5, G7	×	8
70.7%	79.3%	67.7%	71.2%	A3, G1	×	49
70.7%	76.0%	69.9%	71.0%	A5, G7	×	2
70.7%	78.4%	71.6%	73.3%	A1, A2, A3, A4, A5, G7	+	6
70.7%	78.0%	73.8%	74.6%	A2, A5	×	6
70.7%	77.4%	72.6%	73.1%	A2, A5	+	6
70.7%	78.7%	72.1%	74.3%	A2, A3, G7	+	5
70.7%	78.9%	77.7%	78.9%	A1, A2, A5	×	5
70.7%	78.5%	69.1%	71.3%	A2, A3, A4, G7	+	8
70.7%	74.4%	80.4%	78.7%	A3, G7	×	7
70.7%	77.7%	78.6%	79.2%	A1, A2, A3, A4	×	4
70.7%	74.0%	80.7%	78.8%	A3, G7	+	7
70.7%	78.1%	76.0%	77.1%	A1, A2, A5	+	5
70.7%	73.4%	84.8%	81.8%	A2, A4	+	7
70.7%	79.0%	78.0%	79.9%	A1, A2, A3, G7	×	3
70.7%	74.3%	82.7%	81.2%	A2, G5	×	7
70.7%	78.8%	64.7%	67.6%	A4, G1	+	58
70.7%	78.7%	70.9%	73.1%	A2, A3, A4, G7	×	8
70.7%	78.4%	67.7%	70.3%	A4, G5	×	8
70.7%	77.8%	74.0%	75.8%	A2, G7	×	4
70.7%	78.7%	73.9%	75.9%	A2, A4, G7	×	9
70.7%	77.9%	65.8%	68.2%	A5, G5	×	8
70.7%	79.4%	67.8%	70.9%	A2, A4, G1	×	49
70.6%	78.0%	74.8%	75.4%	A2, A4, A5	×	5
70.6%	78.0%	66.8%	69.1%	A2, A5, G7	+	8
70.6%	77.8%	74.4%	76.2%	A2, G7	×	2
70.6%	73.8%	82.8%	80.9%	A2, G5	+	7
70.6%	78.9%	75.9%	78.6%	A1, A2, G1	+	6
70.6%	77.6%	78.5%	79.5%	A2, A3	×	1
70.6%	77.8%	76.7%	78.2%	A1, A2, G7	+	2
70.6%	78.4%	77.4%	79.1%	A1, A2, A3, A4	×	5
70.6%	77.4%	74.0%	74.3%	A2, A4, A5	+	5
70.6%	78.6%	70.4%	72.6%	A1, A2, A5, G7	+	6
70.6%	78.3%	79.6%	81.8%	A1, G1	×	2
70.6%	77.8%	75.5%	77.0%	A2, A3	×	6
70.6%	77.7%	67.8%	70.0%	A5, G5	+	9
70.6%	78.3%	78.8%	80.9%	A1, G1	×	4
70.6%	78.9%	75.5%	78.6%	A1, G1	+	6
70.6%	77.8%	76.2%	77.7%	A1, A2, G7	+	4
70.5%	77.9%	73.3%	74.2%	A2, A3, A5	+	6
70.5%	79.1%	67.0%	69.8%	A2, A5, G1	×	58
70.5%	78.7%	71.9%	74.1%	A1, A2, A3, A4, G7	+	6
70.5%	79.1%	74.2%	76.3%	A1, A2, A3, A4, G7	×	6
70.5%	78.6%	68.0%	71.2%	A3, G5	+	8
70.5%	73.6%	84.5%	81.7%	A2, A4	×	7

S. Cls	S. Tot	C. Cls	C. Tot	CNNs	Op.	CRF
70.5%	77.9%	63.3%	65.7%	A5, G3	+	49
70.5%	79.2%	75.7%	78.6%	A1, A2, G1	×	8
70.5%	79.0%	72.1%	74.5%	A2, A3, G7	×	6
70.5%	78.7%	72.2%	74.0%	A1, A2, A3, A4, A5, G7	×	8
70.5%	78.5%	63.5%	66.5%	A4, G3	+	58
70.5%	78.0%	74.5%	76.2%	A1, A2, A3, A4	+	6
70.5%	78.4%	65.4%	69.5%	G1	+	49
70.5%	79.3%	76.9%	80.2%	A1, G1	×	6
70.5%	77.5%	69.4%	73.0%	G3	+	5
70.5%	77.7%	67.4%	71.3%	G3	+	12
70.5%	77.5%	69.4%	73.0%	G3	+	11
70.5%	77.7%	75.3%	76.8%	A2, A3	+	6
70.5%	77.2%	70.9%	74.4%	G3	+	21
70.5%	78.6%	74.6%	76.3%	A2, A3, A5, G7	×	9
70.5%	78.0%	74.3%	75.8%	A2, A3, A4	×	6
70.5%	77.8%	72.3%	73.7%	A2, A4	+	8
70.5%	78.2%	72.6%	74.4%	A2, A3, A5, G7	+	9
70.5%	79.2%	73.6%	75.4%	A1, A2, A5, G7	×	6
70.5%	78.7%	75.8%	77.7%	A1, A2, A3, G7	+	3
70.5%	78.3%	75.9%	77.6%	A1, A2, G7	+	1
70.5%	77.2%	70.7%	74.1%	G3	+	18
70.5%	77.7%	77.0%	78.0%	A3	+	3
70.5%	77.7%	63.2%	65.8%	A5, G1	+	58
70.5%	77.5%	69.5%	73.1%	G3	+	13
70.5%	78.1%	73.0%	74.5%	A2, A4	×	8
70.5%	73.6%	**85.7%**	**83.1%**	A1, A2, A3, A4	+	7
70.5%	78.3%	73.4%	75.5%	A2, G7	×	1
70.4%	77.5%	66.1%	68.5%	A4, G7	+	5
70.4%	77.2%	70.6%	74.1%	G3	+	19
70.4%	77.2%	70.6%	74.1%	G3	+	20
70.4%	73.3%	84.4%	81.5%	A2, A3, A4	+	7
70.4%	78.6%	75.1%	77.1%	A2, A3, A4, G7	×	9
70.4%	78.9%	73.5%	76.3%	A3, G5	×	9
70.4%	77.7%	71.4%	73.6%	A2, G7	+	1
70.4%	77.3%	69.6%	73.2%	G3	+	15
70.4%	77.2%	70.7%	74.1%	G3	+	28
70.4%	77.1%	77.5%	78.0%	A3	+	1
70.4%	78.3%	74.4%	75.2%	A2, A3, A5	×	6
70.4%	79.0%	74.9%	77.9%	A2, G5	×	9
70.4%	73.4%	84.2%	81.5%	A2, A3, A4	×	7
70.4%	78.9%	76.4%	78.3%	A1, A2, A3, G7	×	5
70.4%	77.7%	75.8%	77.0%	A3	+	5
70.4%	78.7%	72.0%	73.7%	A2, A3, A5, G7	×	6
70.4%	78.5%	73.7%	76.8%	A1, G3	+	6
70.4%	79.2%	78.4%	81.3%	A1, G3	×	3
70.4%	77.4%	79.5%	81.1%	A2	+	42
70.4%	77.1%	70.4%	73.8%	G3	+	3
70.4%	77.6%	66.8%	70.9%	G3	+	10
70.4%	77.1%	70.4%	73.9%	G3	+	38
70.4%	77.1%	70.4%	73.9%	G3	+	39
70.4%	77.1%	73.2%	74.9%	A2, G7	+	2
70.4%	78.7%	78.0%	79.5%	A1, A2, G7	×	1
70.4%	79.1%	67.5%	70.9%	A3, G1	×	58
70.3%	77.1%	70.3%	73.7%	G3	+	41
70.3%	78.6%	72.0%	74.9%	A3, G5	+	9
70.3%	77.8%	76.9%	78.1%	A2, A4	+	9
70.3%	78.3%	69.0%	72.1%	A2, G5	+	8
70.3%	77.2%	72.8%	74.5%	A2, G7	+	4
70.3%	78.1%	77.4%	78.7%	A2, A4	×	9

S. Cls	S. Tot	C. Cls	C. Tot	CNNs	Op.	CRF
70.3%	78.6%	75.1%	76.4%	A1, A2, A3, A4, A5	×	6
70.3%	79.1%	79.5%	82.4%	A1, A2, G1	×	9
70.3%	78.2%	78.7%	80.7%	A1, G3	×	2
70.3%	76.2%	77.2%	77.6%	A3	+	2
70.3%	77.4%	69.0%	72.7%	G3	+	26
70.3%	78.3%	64.5%	67.3%	A5, G3	×	49
70.3%	74.3%	81.5%	80.1%	A2, G7	×	7
70.3%	78.3%	78.0%	80.0%	A1, G3	×	4
70.3%	77.4%	68.2%	72.2%	G3	+	16
70.3%	77.4%	78.9%	80.4%	A2	+	19
70.3%	77.4%	78.9%	80.4%	A2	+	20
70.3%	79.0%	67.6%	70.5%	A2, A4, G1	×	58
70.3%	78.5%	65.2%	68.2%	A5, G1	×	58
70.3%	77.5%	68.0%	71.9%	G3	+	6
70.3%	77.5%	68.0%	71.9%	G3	+	14
70.3%	79.0%	66.1%	69.8%	A3, G1	+	49
70.3%	77.0%	67.3%	70.7%	G3	+	33
70.3%	74.0%	**85.8%**	**83.3%**	A1, A2, A3, A4	×	7
70.3%	78.7%	65.0%	68.0%	A4, G3	×	58
70.3%	78.2%	68.3%	72.1%	G1	+	61
70.3%	77.6%	68.0%	71.9%	G3	+	17
70.3%	77.0%	70.8%	74.3%	G3	+	42
70.3%	77.2%	66.4%	70.0%	G3	+	37
70.3%	78.2%	77.9%	79.4%	A1, A2, G7	×	2
70.3%	78.9%	66.6%	70.0%	A3, G3	×	49
70.3%	78.1%	71.7%	73.8%	A2, A4, G7	+	9
70.3%	77.1%	70.9%	71.6%	A2, A5	+	8
70.3%	76.3%	76.6%	76.9%	A3	+	4
70.3%	77.3%	78.8%	80.4%	A2	+	18
70.2%	76.0%	74.9%	74.5%	A4	+	1
70.2%	76.2%	64.7%	66.6%	A5, G7	+	3
70.2%	77.7%	67.5%	69.8%	A4, G7	×	5
70.2%	78.1%	65.3%	69.4%	G1	+	58
70.2%	76.3%	76.8%	79.4%	G1	+	62
70.2%	77.4%	78.9%	80.4%	A2	+	28
70.2%	76.4%	78.0%	78.7%	A2, A3	+	2
70.2%	77.4%	78.8%	80.3%	A2	+	40
70.2%	77.2%	78.9%	80.5%	A2	+	21
70.2%	76.5%	78.2%	78.8%	A2, A3	×	2
70.2%	77.7%	72.3%	73.8%	A2, A3, A4	+	8
70.2%	76.9%	70.2%	73.8%	G3	+	40
70.2%	78.1%	69.8%	71.8%	A1, A2, A3, A4, A5, G7	+	8
70.2%	78.2%	77.1%	78.7%	A1, A2, G7	×	4
70.2%	77.3%	78.3%	80.0%	A2	+	15
70.2%	76.4%	63.8%	66.0%	A5, G7	+	5
70.2%	78.8%	66.1%	69.2%	A2, A4, G1	+	49
70.2%	78.5%	74.0%	76.1%	A1, A2, A3, G7	+	5
70.2%	73.7%	82.3%	80.2%	A2, G7	+	7
70.2%	77.7%	72.1%	73.2%	A2, A5	×	8
70.2%	77.9%	68.9%	71.1%	A5, G5	×	9
70.2%	77.4%	68.7%	70.7%	A4, G7	×	3
70.2%	78.7%	66.7%	70.4%	A2, G1	+	49
70.2%	76.6%	77.5%	78.2%	A2, A3	×	4
70.2%	79.1%	77.1%	80.1%	A1, G3	×	5
70.2%	78.4%	70.2%	72.6%	A2, A3, G7	+	6
70.2%	77.8%	77.0%	78.2%	A2, A3, A4	+	9
70.2%	77.8%	70.6%	72.4%	A2, A5, G7	+	9
70.2%	78.3%	73.2%	75.3%	A2, A3, A4, G7	+	9
70.2%	78.3%	72.8%	74.7%	A2, A5, G7	×	9

S. Cls	S. Tot	C. Cls	C. Tot	CNNs	Op.	CRF
70.2%	74.3%	84.6%	82.8%	A1, A2, G7	+	7
70.2%	76.2%	76.6%	79.3%	G1	+	63
70.2%	76.5%	77.5%	78.1%	A2, A3	+	4
70.2%	77.7%	73.8%	75.1%	A1, A2, A5	+	6
70.2%	78.6%	73.9%	76.9%	A1, A2, G1	+	8
70.2%	76.2%	76.8%	79.4%	G1	+	64
70.2%	77.1%	78.8%	80.1%	A2	+	43
70.2%	78.6%	73.6%	76.9%	A1, G1	+	8
70.1%	79.1%	75.3%	78.6%	A1, G1	×	8
70.1%	77.0%	80.0%	81.4%	A2	+	52
70.1%	75.1%	75.2%	74.8%	A4	+	2
70.1%	77.4%	67.4%	71.4%	G3	+	22
70.1%	79.0%	68.3%	71.8%	A2, G1	×	49
70.1%	78.5%	75.9%	77.4%	A1, A2, A5	×	6
70.1%	77.4%	78.8%	80.2%	A2	+	38
70.1%	77.4%	78.8%	80.2%	A2	+	39
70.1%	77.4%	78.8%	80.2%	A2	+	3
70.1%	77.0%	80.5%	81.9%	A2	+	59
70.1%	78.4%	68.6%	71.0%	A1, A2, A5, G7	+	8
70.1%	77.4%	67.3%	71.3%	G3	+	23
70.1%	77.8%	73.6%	74.7%	A1, A2, A3, A4, A5	+	6
70.1%	77.5%	73.8%	75.6%	A2, A3	×	8
70.1%	77.9%	76.9%	77.6%	A2, A5	×	9
70.1%	78.1%	75.8%	77.5%	A1, A2, A3, A4	×	6
70.1%	77.3%	77.6%	79.1%	A2	+	11
70.1%	77.3%	77.6%	79.1%	A2	+	5
70.1%	77.7%	73.2%	73.9%	A2, A4, A5	×	6
70.1%	75.1%	74.8%	74.5%	A4	+	4
70.1%	77.5%	70.8%	72.4%	A2, A4	+	65
70.1%	77.5%	67.0%	71.0%	G3	+	24
70.1%	77.5%	67.0%	71.0%	G3	+	27
70.1%	77.5%	79.4%	80.5%	A1, A2, A3	+	1
70.1%	78.8%	72.5%	74.7%	A1, A2, A3, A4, G7	×	8
70.1%	77.0%	80.0%	81.4%	A2	+	55
70.1%	78.0%	77.3%	78.7%	A2, A3, A4	×	9
70.1%	77.4%	67.1%	71.1%	G3	+	29
70.1%	77.5%	66.9%	70.9%	G3	+	25
70.1%	77.5%	67.0%	70.9%	G3	+	31
70.1%	76.5%	70.4%	73.7%	G3	+	43
70.1%	78.4%	70.0%	72.5%	A1, A2, A3, A4, G7	+	8
70.1%	77.4%	67.0%	71.0%	G3	+	30
70.1%	77.5%	66.7%	70.7%	G3	+	8
70.0%	77.7%	72.6%	74.7%	A1, A2, A3, A4	+	8
70.0%	78.8%	70.4%	73.0%	A2, A3, G7	×	8
70.0%	77.8%	71.5%	73.3%	A2, A4	×	65
70.0%	77.5%	66.6%	70.6%	G3	+	32
70.0%	78.0%	70.7%	73.2%	A3, G7	×	3
70.0%	77.5%	66.7%	70.7%	G3	+	35
70.0%	74.7%	84.4%	**83.1%**	A1, A2, G7	×	7
70.0%	77.3%	73.6%	75.4%	A2, A3	+	8
70.0%	78.4%	78.6%	81.3%	A1, A2, G1	+	9
70.0%	77.2%	77.6%	79.1%	A2	+	13
70.0%	77.5%	66.5%	70.5%	G3	+	34
70.0%	77.5%	66.7%	70.6%	G3	+	36
70.0%	77.6%	71.5%	72.7%	A2, A3, A5	+	8
70.0%	72.3%	75.5%	72.9%	A5, G7	+	7
70.0%	77.5%	73.9%	75.4%	A3	+	6
70.0%	77.0%	72.4%	72.8%	A2, A4, A5	+	6
70.0%	77.9%	74.3%	75.9%	A1, A2, A3, A4, A5, G7	+	9

S. Cls	S. Tot	C. Cls	C. Tot	CNNs	Op.	CRF
70.0%	78.1%	69.6%	72.1%	A3, G7	×	5
70.0%	77.6%	74.6%	77.0%	A1, G5	+	1
70.0%	76.9%	78.8%	80.0%	A2	+	53
70.0%	76.9%	78.8%	79.9%	A2	+	1
70.0%	76.5%	79.2%	79.9%	A1, A2, A3	+	2
70.0%	78.5%	76.9%	78.3%	A1, A2, A3, A4, A5, G7	×	9
70.0%	78.8%	71.5%	73.8%	A1, A2, A5, G7	×	8
70.0%	78.8%	65.7%	69.2%	A3, G1	+	58
70.0%	77.7%	72.8%	74.5%	A2, A3, A4	×	8
69.9%	77.6%	61.9%	65.0%	A4, G5	+	49
69.9%	78.2%	72.4%	75.0%	A2, G7	×	3
69.9%	78.0%	72.7%	73.9%	A2, A3, A5	×	8
69.9%	72.9%	76.3%	73.8%	A5, G7	×	7
69.9%	78.6%	74.3%	76.6%	A1, A2, A3, G7	×	6
69.9%	78.7%	67.2%	70.7%	A2, G3	×	49
69.9%	75.9%	76.7%	79.5%	G1	+	66
69.9%	78.3%	71.9%	75.2%	A1, G3	+	8
69.9%	77.7%	76.0%	76.7%	A2, A4, A5	×	9
69.9%	77.2%	64.7%	67.3%	A4, G7	+	6
69.9%	78.4%	70.4%	72.3%	A2, A3, A5, G7	×	8
69.9%	76.5%	71.6%	75.0%	G3	+	52
69.9%	77.0%	74.9%	77.1%	A1, G5	+	2
69.9%	78.3%	73.5%	74.9%	A1, A2, A3, A4, A5	×	8
69.9%	77.1%	74.4%	76.5%	A1, G5	+	4
69.9%	78.5%	65.4%	68.8%	A3, G3	+	49
69.9%	77.1%	77.3%	78.9%	A2	+	16
69.9%	76.7%	74.3%	74.2%	A4	+	3
69.9%	78.5%	73.0%	76.0%	A2, G5	+	9
69.9%	76.4%	71.7%	75.0%	G3	+	55
69.9%	77.4%	73.9%	77.5%	G1	+	67
69.9%	78.9%	75.5%	78.6%	A1, G3	×	6
69.9%	76.5%	78.5%	79.2%	A1, A2, A3	+	4
69.9%	77.2%	77.3%	78.7%	A2	+	26
69.9%	77.5%	70.9%	72.6%	A2, A3, A4	+	65
69.8%	77.3%	75.9%	76.4%	A2, A5	+	9
69.8%	78.5%	74.5%	77.0%	A2, A3, G7	×	9
69.8%	77.4%	65.9%	68.4%	A4, G7	×	6
69.8%	77.0%	70.2%	73.9%	G3	+	50
69.8%	78.7%	65.8%	69.4%	A3, G3	×	58
69.8%	77.3%	78.8%	80.2%	A2b	+	3
69.8%	78.1%	76.1%	79.3%	A1, G3	+	9
69.8%	78.3%	71.1%	73.8%	A2, G7	×	5
69.8%	77.5%	76.4%	77.2%	A2, A3, A5	+	9
69.8%	77.9%	77.1%	78.1%	A2, A3, A5	×	9
69.8%	78.4%	77.1%	79.3%	A1, G5	×	1
69.8%	77.4%	71.8%	73.5%	A1, A2, A5	+	8
69.8%	76.9%	69.2%	70.2%	A2, A5	+	65
69.8%	78.0%	64.3%	67.2%	A2, A5, G1	+	58
69.8%	77.3%	66.3%	70.3%	G3	+	44
69.8%	78.5%	65.6%	68.4%	A2, A4, G1	+	58
69.8%	77.5%	70.8%	72.0%	A2, A5	×	65
69.8%	77.3%	62.3%	64.8%	A5, G3	+	58
69.8%	73.1%	85.3%	**83.7%**	A1, A2, G1	+	7
69.8%	78.4%	66.6%	70.1%	A2, G1	+	58
69.8%	78.8%	68.1%	71.7%	A2, G1	×	58
69.8%	77.3%	66.1%	70.2%	G3	+	45
69.8%	78.2%	74.9%	76.9%	A1, A2, A3, A4, G7	+	9
69.8%	78.1%	77.9%	81.0%	A1, G1	+	9
69.8%	76.7%	78.9%	80.0%	A2b	+	1

S. Cls	S. Tot	C. Cls	C. Tot	CNNs	Op.	CRF
69.8%	77.7%	78.8%	80.4%	A1, A2, A3	+	3
69.8%	77.3%	66.0%	70.1%	G3	+	46
69.7%	77.2%	77.6%	79.1%	A2b	+	5
69.7%	78.6%	77.1%	79.0%	A1, A2, A3, A4, G7	×	9
69.7%	71.8%	81.6%	77.8%	A4	+	7
69.7%	77.2%	72.3%	74.3%	A2, A3	×	65
69.7%	76.5%	69.2%	72.7%	G3	+	56
69.7%	76.0%	70.4%	73.6%	G3	+	1
69.7%	77.0%	62.8%	65.4%	A2, A4, A5, G7	+	49
69.7%	76.0%	70.4%	73.6%	G3	+	53
69.7%	77.3%	65.9%	69.9%	G3	+	47
69.7%	77.7%	77.1%	79.0%	A1, G5	×	2
69.7%	77.8%	76.6%	78.4%	A1, G5	×	4
69.7%	77.8%	63.9%	66.5%	A5, G3	×	58
69.7%	77.3%	65.7%	69.8%	G3	+	48
69.7%	77.0%	76.3%	77.9%	A2	+	14
69.7%	78.2%	71.7%	74.3%	A1, A2, A3, G7	+	6
69.7%	78.5%	79.0%	82.2%	A1, G1	×	9
69.7%	77.0%	76.3%	77.9%	A2	+	6
69.7%	77.6%	67.6%	70.4%	A3, G7	+	5
69.7%	76.1%	62.7%	65.0%	A5, G7	+	6
69.7%	76.2%	71.8%	75.1%	G3	+	59
69.7%	76.7%	72.7%	73.1%	A4	+	5
69.7%	78.1%	74.2%	75.8%	A1, A2, A5	×	8
69.7%	77.5%	79.9%	81.1%	A1, A2, A3	×	1
69.7%	78.5%	68.0%	71.4%	A2, A3, G1	×	49
69.7%	78.1%	68.3%	71.0%	A2, A3, G7	+	8
69.7%	77.0%	75.2%	75.7%	A2, A4, A5	+	9
69.7%	77.2%	78.0%	79.5%	A2, A3	+	9
69.7%	77.6%	73.6%	76.5%	A1, G5	+	3
69.7%	77.5%	71.0%	73.3%	A1, A2, A3, A4	+	65
69.7%	77.5%	71.7%	72.6%	A2, A4, A5	×	8
69.7%	76.2%	80.9%	82.1%	A2	+	62
69.6%	77.3%	78.2%	79.7%	A2, A3	×	9
69.6%	77.8%	74.1%	76.1%	A1, A2, A3, A4	×	8
69.6%	77.2%	64.5%	68.7%	G3	+	54
69.6%	77.5%	76.9%	78.3%	A3	+	9
69.6%	77.1%	72.1%	74.1%	A2, A3	+	65
69.6%	77.4%	70.0%	71.4%	A2, A3, A5	+	65
69.6%	77.3%	64.7%	68.8%	G3	+	51
69.6%	77.5%	68.8%	71.4%	A3, G7	+	3
69.6%	76.8%	61.1%	63.5%	A5, G5	+	49
69.6%	76.1%	80.9%	82.1%	A2	+	64
69.6%	77.1%	78.6%	80.1%	A2	+	41
69.6%	76.9%	76.4%	77.9%	A2	+	17
69.6%	77.2%	72.4%	74.1%	A3	+	8
69.6%	76.4%	65.0%	67.1%	A5, G7	×	5
69.6%	78.4%	77.8%	81.0%	A1, G3	×	9
69.6%	76.0%	81.1%	82.3%	A2	+	66
69.6%	77.5%	71.7%	73.2%	A1, A2, A3, A4, A5	+	8
69.6%	76.8%	70.7%	71.4%	A2, A4, A5	+	8
69.6%	76.3%	65.9%	67.9%	A5, G7	×	3
69.6%	73.4%	85.4%	**83.9%**	A1, A2, G1	×	7
69.6%	76.1%	80.8%	82.0%	A2	+	63
69.5%	76.9%	74.5%	75.8%	A2	+	33
69.5%	76.8%	76.2%	77.9%	A2	+	22
69.5%	78.1%	72.4%	74.9%	A2, A3, G7	+	9
69.5%	76.8%	66.1%	68.7%	A4, G7	+	9
69.5%	77.0%	63.4%	66.2%	A4, G7	+	8

S. Cls	S. Tot	C. Cls	C. Tot	CNNs	Op.	CRF
69.5%	77.5%	71.3%	73.2%	A2, A3, A4	×	65
69.5%	78.3%	72.6%	75.1%	A1, A2, A3, G7	×	8
69.5%	77.7%	71.2%	72.6%	A2, A3, A5	×	65
69.5%	78.1%	71.8%	73.6%	A1, A2, A3, A4, A5	×	65
69.5%	77.4%	60.9%	64.2%	A4, G5	+	58
69.5%	76.8%	76.1%	77.8%	A2	+	23
69.5%	77.6%	79.4%	81.0%	A1, A2, A3	×	3
69.5%	77.5%	77.7%	79.2%	A1, A2, A3, A4	+	9
69.5%	78.6%	73.9%	77.2%	A1, G3	×	8
69.5%	78.2%	64.7%	68.1%	A3, G3	+	58
69.5%	77.2%	64.6%	67.3%	A4, G7	×	8
69.5%	76.8%	70.1%	73.8%	G3	+	57
69.5%	76.8%	70.1%	73.8%	G3	+	9
69.5%	72.2%	83.4%	80.7%	A3	+	7
69.5%	77.6%	71.7%	75.0%	A1, G5	+	5
69.5%	78.4%	77.0%	79.3%	A1, A2, G7	×	3
69.5%	78.2%	66.1%	69.5%	A2, G3	+	49
69.5%	78.5%	67.1%	70.5%	A2, G3	×	58
69.5%	77.7%	73.4%	75.3%	A1, A2, A5, G7	+	9
69.5%	77.5%	77.3%	79.1%	A1, A2, A3	+	5
69.5%	77.2%	70.1%	71.9%	A1, A2, A5	×	65
69.5%	75.2%	76.7%	79.2%	G1	+	68
69.5%	75.3%	70.5%	73.3%	G3	+	4
69.5%	77.8%	68.0%	70.8%	A3, G7	×	6
69.4%	77.6%	76.7%	78.0%	A1, A2, A3, A4, A5	+	9
69.4%	77.7%	68.3%	71.3%	A2, G7	+	5
69.4%	76.5%	79.4%	80.4%	A1, A2, A3	×	2
69.4%	76.8%	75.7%	77.6%	A2	+	29
69.4%	77.6%	69.8%	72.5%	A2, G7	+	3
69.4%	78.4%	76.1%	78.9%	A1, G5	×	3
69.4%	78.5%	67.8%	71.0%	A2, A3, G1	×	58
69.4%	76.6%	61.4%	64.1%	A2, A4, A5, G7	+	58
69.4%	78.0%	69.4%	72.2%	A2, G7	×	6
69.4%	76.7%	75.6%	77.4%	A2	+	30
69.4%	77.5%	78.0%	79.8%	A1, A2, A3	×	5
69.4%	75.4%	78.3%	79.0%	A2	+	2
69.4%	76.6%	75.0%	77.0%	A2	+	12
69.4%	77.1%	61.8%	64.8%	A2, A5, G7	+	49
69.4%	77.6%	63.3%	66.4%	A2, A5, G7	×	49
69.4%	77.2%	67.6%	70.1%	A4, G7	×	9
69.4%	78.0%	78.0%	79.3%	A1, A2, A3, A4, A5	×	9
69.4%	77.3%	63.0%	66.0%	A2, A3, A5, G7	+	49
69.4%	78.1%	66.4%	70.0%	A2, A3, G1	+	49
69.4%	76.9%	76.3%	77.9%	A2b	+	6
69.3%	77.3%	63.9%	66.6%	A2, A4, A5, G7	×	49
69.3%	78.4%	75.4%	77.8%	A1, A2, G7	×	5
69.3%	78.0%	77.3%	79.5%	A1, A2, A3, G7	×	9
69.3%	76.7%	73.5%	74.9%	A2	+	37
69.3%	77.5%	62.6%	65.6%	A2, A4, G7	+	49
69.3%	76.9%	78.5%	80.1%	A2	+	50
69.3%	76.7%	74.9%	76.7%	A2	+	24
69.3%	77.9%	72.4%	74.4%	A1, A2, A5	×	65
69.3%	75.5%	77.7%	78.4%	A2	+	4
69.3%	76.5%	78.8%	79.7%	A1, A2, A3	×	4
69.3%	75.4%	78.3%	78.9%	A2b	+	2
69.3%	75.8%	61.6%	64.0%	A5, G7	+	8
69.3%	72.1%	84.3%	81.7%	A2, A3	+	7
69.3%	77.3%	70.2%	71.4%	A2, A4, A5	×	65
69.3%	76.7%	74.8%	76.6%	A2	+	25

S. Cls	S. Tot	C. Cls	C. Tot	CNNs	Op.	CRF
69.3%	77.6%	74.5%	76.8%	A1, A2, G7	+	3
69.3%	75.4%	77.6%	78.3%	A2b	+	4
69.3%	77.0%	61.7%	64.5%	A5, G5	×	49
69.3%	72.1%	84.3%	81.8%	A2, A3	×	7
69.3%	77.5%	72.5%	74.7%	A1, A2, A3, A4	×	65
69.2%	77.5%	62.8%	65.9%	A4, G5	×	49
69.2%	76.7%	74.6%	76.5%	A2	+	8
69.2%	75.0%	70.9%	73.6%	G3	+	2
69.2%	77.9%	69.7%	72.6%	A1, A2, A3, G7	+	8
69.2%	76.6%	74.6%	76.6%	A2	+	10
69.2%	76.9%	71.1%	72.9%	A3	+	65
69.2%	76.1%	63.8%	66.0%	A5, G7	×	6
69.2%	76.7%	75.0%	76.8%	A2	+	27
69.2%	78.5%	74.7%	77.7%	A1, G5	×	5
69.2%	76.6%	74.5%	76.4%	A2	+	32
69.2%	78.0%	66.2%	69.4%	A2, A3, G1	+	58
69.2%	76.5%	71.2%	71.7%	A4	+	6
69.2%	76.6%	69.2%	70.1%	A2, A4, A5	+	65
69.2%	75.4%	81.0%	82.1%	A2	+	68
69.2%	77.3%	66.0%	69.0%	A3, G7	+	6
69.2%	77.9%	64.8%	68.5%	A2, G5	×	49
69.2%	77.8%	64.0%	67.7%	A3, G5	×	49
69.2%	76.7%	74.8%	76.7%	A2	+	31
69.2%	78.0%	65.4%	68.9%	A2, G3	+	58
69.2%	77.8%	64.1%	67.1%	A2, A4, G7	×	49
69.2%	76.6%	74.4%	76.3%	A2	+	34
69.1%	77.4%	63.2%	66.4%	A2, A3, A4, G7	+	49
69.1%	78.3%	76.5%	78.3%	A1, A2, A5, G7	×	9
69.1%	76.9%	78.3%	79.5%	A2	+	56
69.1%	77.2%	70.0%	71.8%	A1, A2, A3, A4, A5	+	65
69.1%	77.0%	63.6%	67.9%	G3	+	60
69.1%	76.9%	66.0%	69.7%	G1	+	69
69.1%	76.6%	74.5%	76.4%	A2	+	35
69.1%	77.3%	69.8%	73.2%	A1, G5	+	6
69.1%	75.2%	72.5%	75.6%	G3	+	62
69.1%	76.4%	73.9%	74.3%	A4	+	9
69.1%	77.6%	78.4%	80.2%	A1, A2, A3, A4	×	9
69.0%	76.6%	74.4%	76.3%	A2	+	36
69.0%	75.2%	72.4%	75.6%	G3	+	63
69.0%	75.2%	72.6%	75.6%	G3	+	64
69.0%	77.1%	75.6%	77.5%	A1, A2, A3	+	6
69.0%	77.6%	66.6%	69.6%	A3, G7	×	8
69.0%	77.8%	74.8%	77.1%	A1, A2, A3, G7	+	9
69.0%	76.3%	79.6%	80.8%	A1, A2	+	1
69.0%	77.7%	67.9%	71.0%	A2, G7	×	8
69.0%	76.7%	74.8%	76.5%	A2b	+	8
69.0%	77.6%	62.8%	66.5%	A3, G5	+	49
69.0%	77.7%	72.6%	75.2%	A1, A2, G7	+	5
69.0%	77.5%	66.6%	69.8%	A2, G7	+	6
69.0%	76.5%	78.3%	80.0%	A2	+	57
68.9%	76.5%	78.2%	80.0%	A2	+	9
68.9%	77.2%	76.4%	78.3%	A1, A2, A3	×	6
68.9%	76.2%	59.7%	62.4%	A5, G5	+	58
68.9%	77.5%	63.2%	66.3%	A2, A4, G7	×	58
68.9%	76.9%	62.4%	66.6%	G3	+	49
68.9%	77.7%	65.6%	68.6%	A1, A2, A3, A4, A5, G7	×	49
68.9%	72.1%	85.3%	82.7%	A1, A2, A3	+	7
68.9%	77.6%	64.6%	67.8%	A2, A3, A4, G7	×	49
68.9%	76.8%	65.5%	68.0%	A2, A4	+	49

S. Cls	S. Tot	C. Cls	C. Tot	CNNs	Op.	CRF
68.9%	78.1%	73.4%	76.1%	A1, A2, G7	×	6
68.9%	76.4%	63.8%	67.9%	G3	+	61
68.9%	76.8%	63.1%	65.8%	A2, A4, A5, G7	×	58
68.9%	74.9%	72.7%	75.7%	G3	+	66
68.9%	73.0%	70.8%	69.0%	A5	+	1
68.8%	76.5%	74.1%	76.0%	A2	+	44
68.8%	76.9%	61.2%	64.4%	A2, A4, G7	+	58
68.8%	76.5%	78.3%	80.0%	A2b	+	9
68.8%	75.9%	62.6%	65.1%	A5, G7	×	8
68.8%	74.6%	81.0%	82.1%	A2	+	70
68.8%	77.1%	74.6%	76.5%	A1, G7	×	4
68.8%	77.0%	75.2%	77.0%	A1, G7	×	2
68.8%	74.5%	81.1%	82.1%	A2	+	71
68.8%	77.6%	71.7%	74.7%	A2, G7	×	9
68.8%	78.0%	78.6%	80.0%	A1, A2, A5	×	9
68.8%	76.6%	61.9%	64.8%	A2, A3, A5, G7	+	58
68.8%	74.6%	81.0%	82.1%	A2	+	72
68.8%	77.0%	62.0%	65.3%	A2, A3, A4, G7	+	58
68.8%	76.5%	74.0%	75.8%	A2	+	45
68.8%	76.4%	73.0%	75.2%	A2	+	65
68.8%	74.6%	81.0%	82.0%	A2	+	73
68.8%	74.6%	81.0%	82.0%	A2	+	74
68.8%	76.3%	69.9%	70.6%	A4	+	8
68.8%	76.9%	62.4%	65.5%	A2, A5, G7	×	58
68.8%	77.1%	64.4%	68.7%	G1	+	75
68.8%	77.1%	61.9%	65.2%	A4, G5	×	58
68.8%	78.2%	72.8%	76.0%	A1, G5	×	6
68.8%	77.0%	66.3%	68.8%	A2, A4	×	49
68.8%	76.4%	73.8%	75.7%	A2	+	46
68.7%	74.6%	80.9%	82.0%	A2	+	76
68.7%	74.5%	81.0%	82.1%	A2	+	77
68.7%	77.8%	75.5%	78.5%	A1, G5	×	9
68.7%	76.6%	77.5%	79.3%	A1, A2	+	5
68.7%	77.4%	63.3%	66.9%	A3, G5	×	58
68.7%	77.2%	63.3%	67.1%	A2, G5	+	49
68.7%	72.2%	83.7%	82.0%	A1, G3	+	7
68.7%	76.4%	73.7%	75.5%	A2	+	47
68.7%	77.0%	64.6%	67.8%	A3, G7	+	8
68.7%	74.1%	76.6%	79.0%	G1	+	70
68.7%	76.1%	64.6%	66.5%	A2, A5	+	49
68.7%	77.3%	77.1%	78.4%	A1, A2, A5	+	9
68.7%	78.0%	68.4%	71.9%	A1, A2, G1	×	49
68.7%	77.4%	64.4%	67.9%	A2, G5	×	58
68.7%	74.1%	76.6%	79.0%	G1	+	73
68.7%	74.1%	76.6%	79.0%	G1	+	74
68.7%	76.4%	73.5%	75.4%	A2	+	48
68.7%	77.1%	63.5%	66.6%	A1, A2, A3, A4, A5, G7	+	49
68.7%	74.4%	81.1%	82.3%	A2	+	78
68.6%	76.8%	65.7%	67.9%	A2, A5	×	49
68.6%	77.4%	62.8%	66.2%	A1, A2, A5, G7	+	49
68.6%	76.7%	65.5%	68.2%	A2, A3, A4	+	49
68.6%	76.5%	78.8%	80.5%	A1, A2	+	3
68.6%	73.3%	83.1%	81.7%	A1, G5	×	7
68.6%	74.0%	76.6%	79.0%	G1	+	76
68.6%	77.4%	75.1%	77.1%	A1, G7	×	1
68.6%	76.5%	71.1%	73.5%	A1, G7	+	1
68.6%	76.8%	73.6%	75.8%	A1, A2, A3	+	8
68.6%	75.8%	72.3%	74.5%	A1, G7	+	2
68.6%	72.5%	82.5%	80.8%	A1, G5	+	7

S. Cls	S. Tot	C. Cls	C. Tot	CNNs	Op.	CRF
68.6%	77.4%	70.1%	72.9%	A3, G7	×	9
68.6%	74.4%	80.9%	82.0%	A2	+	79
68.6%	74.0%	76.6%	79.0%	G1	+	77
68.6%	76.5%	60.7%	63.6%	A2, A5, G7	+	58
68.6%	77.2%	64.9%	68.5%	A2, G7	+	8
68.6%	76.3%	59.4%	62.8%	A4, G7	+	49
68.6%	77.0%	68.1%	71.7%	A1, G5	+	8
68.6%	72.3%	85.2%	82.9%	A1, A2, A3	×	7
68.5%	75.9%	71.8%	74.0%	A1, G7	+	4
68.5%	73.3%	69.8%	68.5%	A5	+	3
68.5%	75.4%	63.3%	65.6%	A5, G7	+	9
68.5%	77.2%	63.9%	67.1%	A2, A3, A4, G7	×	58
68.5%	76.9%	74.6%	76.8%	A1, A2, A3	×	8
68.5%	74.4%	72.7%	75.7%	G3	+	68
68.5%	73.5%	68.7%	67.6%	A5	+	5
68.5%	76.3%	71.8%	73.7%	A2	+	54
68.5%	76.4%	66.7%	69.6%	A2, A3	×	49
68.5%	74.0%	80.9%	81.8%	A2	+	80
68.5%	76.1%	68.6%	69.4%	A4	+	65
68.5%	76.5%	60.6%	63.6%	A5, G5	×	58
68.5%	77.0%	72.8%	75.9%	A1, G5	+	9
68.5%	72.8%	84.0%	82.6%	A1, G3	×	7
68.5%	73.9%	76.4%	78.8%	G1	+	79
68.5%	74.3%	80.8%	81.8%	A2	+	81
68.5%	76.6%	61.7%	66.1%	G3	+	58
68.5%	76.6%	78.1%	79.9%	A1, A2	×	5
68.5%	76.6%	65.1%	67.4%	A2, A3, A5	+	49
68.5%	76.3%	66.5%	69.4%	A2, A3	+	49
68.4%	75.1%	79.1%	80.0%	A1, A2	+	2
68.4%	77.8%	71.6%	74.5%	A1, A2, G7	×	8
68.4%	74.4%	80.8%	82.0%	A2	+	82
68.4%	77.3%	70.3%	73.4%	A1, A2, G7	+	6
68.4%	77.8%	68.4%	71.7%	A1, A2, G1	×	58
68.4%	77.4%	63.6%	67.1%	A1, A2, A3, A4, G7	+	49
68.4%	77.3%	76.2%	78.8%	A1, A2, G7	×	9
68.4%	76.2%	71.4%	73.8%	A2	+	51
68.4%	73.5%	76.4%	78.7%	G1	+	80
68.4%	76.5%	78.3%	80.1%	A1, A2, A3	+	9
68.4%	77.4%	64.3%	67.3%	A2, A3, A5, G7	×	49
68.4%	76.3%	75.8%	77.8%	A1, A2	+	6
68.4%	77.8%	65.2%	68.4%	A1, A2, A5, G7	×	49
68.4%	76.2%	79.8%	81.2%	A1, A2	×	1
68.4%	76.8%	78.9%	80.7%	A1, A2, A3	×	9
68.4%	77.6%	64.1%	67.7%	A2, A3, G7	×	49
68.4%	75.2%	58.3%	61.0%	A5, G7	+	49
68.4%	76.6%	65.6%	68.6%	A1, A2, A3, A4	+	49
68.3%	76.5%	79.2%	81.0%	A1, A2	×	3
68.3%	75.1%	78.3%	79.3%	A1, A2	+	4
68.3%	76.2%	66.4%	69.0%	A2, A3	+	58
68.3%	76.8%	67.6%	70.8%	A3, G7	+	9
68.3%	77.7%	65.7%	68.9%	A1, A2, A3, A4, G7	×	49
68.3%	73.7%	76.6%	79.0%	G1	+	78
68.3%	76.8%	66.1%	68.5%	A2, A4	×	58
68.3%	75.9%	69.9%	73.7%	G3	+	67
68.3%	76.4%	64.9%	67.4%	A2, A4	+	58
68.3%	76.6%	60.2%	63.7%	A4, G7	×	49
68.3%	73.5%	82.2%	80.9%	A1, G7	×	7
68.3%	76.4%	66.7%	69.3%	A2, A3	×	58
68.3%	77.9%	71.1%	74.4%	A1, G5	×	8
68.3%	77.0%	61.9%	65.6%	A3, G5	+	58
68.3%	72.2%	71.8%	69.8%	A5	+	2
68.3%	72.3%	71.6%	69.6%	A5	+	4
68.3%	73.9%	76.5%	79.0%	G1	+	82
68.3%	77.3%	66.6%	69.2%	A1, A2, A3, A4, A5	×	49
68.3%	76.7%	66.1%	68.8%	A2, A3, A4	×	49
68.3%	76.5%	64.7%	67.5%	A1, A2, A5	+	49
68.2%	77.4%	66.6%	70.3%	A1, A2, G1	+	49
68.2%	75.9%	64.9%	67.0%	A5, G7	×	9
68.2%	76.7%	65.9%	68.4%	A2, A3, A4	×	58
68.2%	73.3%	67.2%	66.5%	A5	+	6
68.2%	77.2%	65.0%	67.8%	A1, A2, A3, A4, A5, G7	×	58
68.2%	75.9%	63.9%	65.6%	A2, A5	+	58
68.2%	76.9%	66.0%	68.3%	A2, A3, A5	×	49
68.2%	77.1%	66.8%	69.5%	A1, A2, A5	×	49
68.2%	76.6%	71.7%	74.4%	A1, A2, A3	+	65
68.2%	77.1%	62.6%	66.3%	A2, A3, G7	+	49
68.2%	76.8%	62.5%	66.2%	A2, G5	+	58
68.2%	77.9%	68.1%	71.9%	A1, G1	×	49
68.2%	73.6%	81.0%	81.9%	A2	+	83
68.2%	77.2%	65.4%	69.1%	A1, G3	+	49
68.2%	75.9%	58.2%	61.5%	A4, G7	+	58
68.1%	71.4%	83.8%	82.3%	A1, G1	+	7
68.1%	76.3%	76.3%	78.4%	A1, A2	×	6
68.1%	76.6%	65.2%	67.4%	A2, A4, A5	×	49
68.1%	75.2%	79.2%	80.2%	A1, A2	×	2
68.1%	75.9%	64.6%	66.4%	A2, A4, A5	+	49
68.1%	76.5%	65.2%	67.7%	A2, A3, A4	+	58
68.1%	77.4%	66.4%	70.2%	A1, G1	+	49
68.1%	76.4%	62.5%	65.5%	A1, A2, A3, A4, A5, G7	+	58
68.1%	76.6%	72.6%	75.4%	A1, A2, A3	×	65
68.1%	76.9%	73.1%	75.8%	A1, A2, G7	+	9
68.1%	77.6%	68.2%	71.7%	A1, G1	×	58
68.1%	75.2%	78.4%	79.5%	A1, A2	×	4
68.0%	76.0%	73.9%	76.3%	A1, A2	+	8
68.0%	76.5%	64.8%	67.5%	A1, A2, A3, A4, A5	+	49
68.0%	76.5%	65.4%	67.4%	A2, A5	×	58
68.0%	77.1%	73.7%	76.4%	A1, G7	×	3
68.0%	76.9%	63.5%	66.5%	A2, A3, A5, G7	×	58
68.0%	74.3%	62.1%	65.5%	G5	+	33
68.0%	75.9%	66.0%	70.2%	G1	+	84
68.0%	76.7%	61.7%	65.0%	A1, A2, A5, G7	+	58
68.0%	75.9%	65.9%	70.1%	G1	+	85
68.0%	71.9%	84.0%	82.7%	A1, G1	×	7
67.9%	76.8%	68.7%	71.9%	A2, G7	+	9
67.9%	73.5%	73.1%	75.8%	G3	+	70
67.9%	77.1%	63.6%	67.2%	A2, A3, G7	×	58
67.9%	76.4%	65.0%	67.9%	A1, A2, A3, A4	+	58
67.9%	77.1%	72.1%	74.9%	A1, G7	×	5
67.9%	75.9%	65.6%	69.8%	G1	+	86
67.9%	76.1%	66.0%	68.7%	A3	+	49
67.9%	73.4%	73.0%	75.7%	G3	+	73
67.9%	73.4%	73.0%	75.7%	G3	+	74
67.9%	76.3%	64.5%	66.5%	A2, A3, A5	+	58
67.9%	76.9%	62.8%	66.1%	A1, A2, A3, A4, G7	+	58
67.9%	77.0%	68.2%	71.6%	A1, A2, G7	+	8
67.9%	76.0%	65.3%	69.6%	G1	+	87
67.9%	73.4%	72.9%	75.7%	G3	+	76
67.9%	73.1%	66.0%	65.5%	A5	+	8

S. Cls	S. Tot	C. Cls	C. Tot	CNNs	Op.	CRF
67.9%	74.5%	64.3%	67.8%	G5	+	21
67.9%	77.2%	66.3%	69.8%	A1, G1	+	58
67.9%	73.4%	73.1%	75.7%	G3	+	77
67.9%	77.2%	65.5%	69.0%	A1, A2, A3, G7	×	49
67.9%	76.1%	59.4%	62.7%	A4, G7	×	58
67.9%	75.8%	70.3%	72.6%	A2	+	60
67.8%	76.0%	65.1%	69.4%	G1	+	88
67.8%	76.1%	65.9%	68.3%	A3	+	58
67.8%	77.1%	66.3%	69.8%	A1, A2, G1	+	58
67.8%	72.2%	81.6%	79.8%	A1, G7	+	7
67.8%	76.1%	69.4%	72.5%	A1, G7	+	3
67.8%	76.7%	65.7%	67.9%	A2, A3, A5	×	58
67.8%	76.8%	65.1%	68.7%	A1, G3	+	58
67.8%	72.9%	69.5%	68.8%	A5	+	9
67.8%	76.2%	67.6%	71.0%	A1, G7	+	5
67.8%	76.0%	64.7%	69.2%	G1	+	89
67.8%	73.3%	72.7%	75.5%	G3	+	79
67.8%	77.4%	64.6%	67.6%	A1, A2, A5, G7	×	58
67.8%	74.3%	63.4%	66.9%	G5	+	3
67.8%	74.3%	63.4%	66.9%	G5	+	38
67.8%	74.3%	63.4%	66.9%	G5	+	39
67.8%	74.3%	63.4%	66.9%	G5	+	41
67.7%	77.5%	67.1%	71.0%	A1, G3	×	49
67.7%	76.6%	66.7%	69.7%	A1, A2, A3, A4	×	49
67.7%	75.6%	63.9%	65.6%	A2, A4, A5	+	58
67.7%	74.7%	57.0%	59.7%	A5, G7	+	58
67.7%	76.3%	65.0%	66.7%	A2, A4, A5	×	58
67.7%	72.8%	76.4%	78.7%	G1	+	83
67.7%	73.2%	73.1%	75.8%	G3	+	78
67.7%	73.4%	72.9%	75.8%	G3	+	82
67.7%	76.0%	74.6%	77.1%	A1, A2	×	8
67.7%	75.8%	72.3%	74.9%	A1, A2	+	65
67.7%	77.2%	65.3%	68.5%	A1, A2, A3, A4, G7	×	58
67.7%	76.0%	64.2%	68.8%	G1	+	90
67.7%	75.3%	59.1%	62.0%	A5, G7	×	49
67.7%	70.3%	83.7%	81.0%	A2b	+	7
67.7%	74.5%	60.9%	64.6%	G5	+	37
67.7%	70.4%	83.8%	81.2%	A2	+	7
67.7%	73.9%	64.2%	67.3%	G5	+	43
67.6%	75.0%	61.1%	65.1%	G3	+	69
67.6%	76.6%	61.5%	65.3%	A3, G7	×	49
67.6%	74.4%	63.9%	67.5%	G5	+	18
67.6%	76.5%	61.5%	65.2%	A2, A3, G7	+	58
67.6%	68.9%	77.5%	72.4%	A5	+	7
67.6%	76.2%	64.1%	66.7%	A1, A2, A3, A4, A5	+	58
67.6%	73.0%	65.0%	64.6%	A5	+	65
67.6%	75.9%	63.8%	68.4%	G1	+	91
67.6%	76.7%	63.4%	67.1%	A1, A2, A3, G7	+	49
67.6%	75.2%	78.0%	79.7%	A2	+	67
67.6%	74.4%	63.9%	67.4%	G5	+	19
67.6%	75.9%	63.7%	68.4%	G1	+	92
67.6%	74.4%	63.9%	67.4%	G5	+	20
67.6%	75.9%	64.0%	66.7%	A1, A2, A5	+	58
67.6%	75.9%	63.6%	68.3%	G1	+	93
67.6%	72.7%	72.6%	75.2%	G3	+	80
67.5%	74.3%	64.0%	67.5%	G5	+	42
67.5%	75.9%	63.6%	68.2%	G1	+	94
67.5%	74.4%	64.0%	67.6%	G5	+	28
67.5%	74.6%	61.1%	65.2%	G5	+	12
67.5%	77.0%	65.9%	68.4%	A1, A2, A3, A4, A5	×	58
67.5%	73.5%	64.3%	67.5%	G5	+	1
67.5%	73.5%	64.3%	67.5%	G5	+	53
67.5%	74.4%	61.9%	65.7%	G5	+	26
67.5%	76.7%	66.2%	68.8%	A1, A2, A5	×	58
67.5%	72.6%	80.8%	81.6%	A2	+	95
67.5%	77.2%	66.9%	70.5%	A1, G3	×	58
67.5%	76.2%	59.9%	63.9%	A3, G7	+	49
67.5%	72.6%	80.8%	81.6%	A2	+	96
67.4%	74.1%	63.5%	67.0%	G5	+	40
67.4%	76.8%	70.2%	73.3%	A1, G7	×	6
67.4%	73.9%	65.0%	68.5%	G5	+	52
67.4%	76.4%	66.6%	69.4%	A1, A2, A3, A4	×	58
67.4%	74.6%	62.6%	66.3%	G5	+	5
67.4%	74.6%	62.6%	66.3%	G5	+	11
67.4%	76.6%	62.2%	66.2%	A2, G7	×	49
67.4%	74.6%	62.7%	66.4%	G5	+	13
67.4%	74.4%	62.8%	66.5%	G5	+	15
67.4%	73.9%	65.2%	68.6%	G5	+	55
67.4%	72.5%	80.8%	81.6%	A2	+	97
67.4%	75.5%	67.2%	70.2%	A2	+	49
67.4%	73.8%	65.2%	68.6%	G5	+	59
67.4%	75.3%	64.2%	68.4%	G3	+	84
67.3%	75.8%	78.1%	80.1%	A1, A2	+	9
67.3%	75.3%	64.1%	68.3%	G3	+	85
67.3%	75.3%	64.0%	66.0%	A4	+	49
67.3%	75.8%	73.0%	75.6%	A1, A2	×	65
67.3%	75.8%	65.7%	69.3%	A1, G7	+	6
67.3%	75.3%	63.9%	68.2%	G3	+	86
67.3%	72.3%	80.8%	81.7%	A2	+	98
67.3%	75.6%	67.2%	70.1%	A2b	+	49
67.3%	76.2%	60.2%	64.4%	A2, G7	+	49
67.2%	75.4%	63.6%	67.9%	G3	+	87
67.2%	75.8%	78.6%	80.7%	A1, A2	×	9
67.2%	75.4%	63.3%	67.7%	G3	+	88
67.2%	74.6%	61.4%	65.3%	G5	+	6
67.2%	74.6%	61.4%	65.3%	G5	+	14
67.2%	74.6%	61.5%	65.4%	G5	+	17
67.2%	74.4%	59.4%	63.6%	G5	+	44
67.2%	72.4%	73.0%	75.5%	G3	+	83
67.2%	74.4%	59.3%	63.5%	G5	+	45
67.2%	74.4%	59.2%	63.4%	G5	+	46
67.2%	74.5%	61.6%	65.5%	G5	+	16
67.1%	74.4%	59.2%	63.3%	G5	+	47
67.1%	75.4%	67.3%	70.0%	A2	+	58
67.1%	75.4%	62.9%	67.4%	G3	+	89
67.1%	74.4%	59.0%	63.2%	G5	+	48
67.1%	76.6%	65.2%	68.5%	A1, A2, A3, G7	×	58
67.1%	72.7%	65.4%	68.1%	G5	+	4
67.1%	74.5%	60.6%	64.7%	G5	+	10
67.1%	75.4%	62.6%	67.1%	G3	+	90
67.0%	75.3%	67.6%	70.1%	A2b	+	58
67.0%	76.1%	60.4%	64.3%	A3, G7	×	58
67.0%	74.5%	60.5%	64.6%	G5	+	24
67.0%	74.5%	60.6%	64.6%	G5	+	27
67.0%	74.5%	60.5%	64.5%	G5	+	25
67.0%	76.5%	68.4%	71.6%	A1, G7	×	8
67.0%	75.1%	63.5%	65.3%	A4	+	58
67.0%	74.8%	57.8%	60.7%	A5, G7	×	58

S. Cls	S. Tot	C. Cls	C. Tot	CNNs	Op.	CRF
67.0%	75.4%	62.2%	66.8%	G3	+	91
67.0%	74.4%	60.7%	64.7%	G5	+	22
66.9%	74.5%	60.5%	64.6%	G5	+	31
66.9%	75.4%	62.1%	66.8%	G3	+	92
66.9%	75.7%	66.1%	69.3%	A1, A2, A3	+	49
66.9%	74.5%	60.4%	64.4%	G5	+	8
66.9%	74.4%	60.6%	64.6%	G5	+	23
66.9%	72.5%	61.9%	62.0%	A5	+	49
66.9%	76.1%	62.6%	66.2%	A1, A2, A3, G7	+	58
66.9%	73.5%	62.0%	65.6%	G5	+	56
66.9%	75.4%	62.0%	66.7%	G3	+	93
66.9%	74.4%	60.3%	64.3%	G5	+	32
66.9%	75.3%	62.0%	66.6%	G3	+	94
66.9%	74.5%	60.4%	64.4%	G5	+	35
66.9%	73.0%	66.1%	69.3%	G5	+	62
66.9%	74.4%	60.2%	64.3%	G5	+	34
66.9%	74.4%	60.5%	64.5%	G5	+	29
66.9%	74.5%	60.3%	64.3%	G5	+	36
66.9%	74.4%	60.4%	64.4%	G5	+	30
66.9%	73.0%	66.2%	69.4%	G5	+	64
66.9%	74.1%	62.8%	66.8%	G5	+	50
66.9%	72.4%	65.6%	68.3%	G5	+	2
66.9%	75.6%	71.8%	73.6%	A2	+	61
66.9%	75.8%	66.9%	70.2%	A1, A2, A3	×	49
66.8%	76.0%	62.5%	66.5%	A1, G5	+	49
66.8%	75.5%	64.2%	68.1%	A1, G7	+	8
66.8%	72.9%	66.1%	69.2%	G5	+	63
66.8%	75.6%	58.9%	62.7%	A3, G7	+	58
66.8%	76.0%	61.4%	65.3%	A2, G7	×	58
66.8%	72.8%	66.2%	69.3%	G5	+	66
66.8%	71.5%	76.2%	78.3%	G1	+	95
66.8%	71.5%	76.1%	78.3%	G1	+	96
66.7%	76.6%	64.8%	68.6%	A1, A2, G7	×	49
66.7%	75.5%	65.9%	68.9%	A1, A2, A3	+	58
66.7%	76.3%	72.5%	75.4%	A1, G7	×	9
66.7%	74.2%	58.8%	63.0%	G5	+	54
66.6%	71.4%	76.1%	78.3%	G1	+	97
66.6%	75.7%	63.0%	67.5%	G1	+	99
66.6%	74.1%	57.5%	61.8%	G5	+	60
66.6%	76.8%	64.8%	68.6%	A1, G5	×	49
66.6%	68.7%	79.1%	77.6%	G1	+	7
66.5%	75.2%	68.3%	71.7%	A1, G7	+	9
66.5%	75.5%	66.8%	70.0%	A1, A2, A3	×	58
66.5%	69.0%	76.0%	75.0%	G3	+	7
66.5%	74.3%	58.7%	63.0%	G5	+	51
66.5%	69.8%	84.1%	81.6%	A1, A2	+	7
66.4%	75.5%	58.9%	63.1%	A2, G7	+	58
66.4%	71.1%	76.1%	78.2%	G1	+	98
66.4%	72.3%	66.5%	69.5%	G5	+	68
66.4%	75.3%	60.4%	65.1%	G3	+	75
66.4%	76.0%	62.2%	66.3%	A1, A2, G7	+	49
66.4%	71.3%	73.0%	75.4%	G3	+	95
66.4%	73.7%	67.8%	70.3%	A2	+	84
66.4%	71.3%	73.0%	75.4%	G3	+	96
66.3%	73.7%	67.5%	70.1%	A2	+	85
66.3%	75.0%	66.4%	69.5%	A1, A2	+	49
66.3%	71.2%	73.0%	75.4%	G3	+	97
66.3%	73.7%	67.2%	69.9%	A2	+	86
66.2%	73.7%	66.9%	69.7%	A2	+	87

S. Cls	S. Tot	C. Cls	C. Tot	CNNs	Op.	CRF
66.2%	75.4%	61.6%	65.7%	A1, G5	+	58
66.2%	71.0%	73.0%	75.4%	G3	+	98
66.2%	73.7%	66.6%	69.4%	A2	+	88
66.1%	73.2%	56.8%	60.8%	G5	+	61
66.1%	73.6%	66.3%	69.1%	A2	+	89
66.1%	74.5%	59.1%	63.9%	G3	+	99
66.1%	69.8%	84.0%	81.6%	A1, A2	×	7
66.0%	76.2%	64.5%	68.1%	A1, G5	×	58
66.0%	73.9%	62.7%	66.7%	G5	+	57
66.0%	73.9%	62.7%	66.7%	G5	+	9
66.0%	71.9%	61.0%	61.1%	A5	+	58
66.0%	75.0%	67.0%	70.3%	A1, A2	×	49
66.0%	73.6%	65.8%	68.8%	A2	+	90
66.0%	71.6%	66.9%	69.8%	G5	+	70
65.9%	71.5%	66.9%	69.7%	G5	+	73
65.9%	71.5%	66.9%	69.7%	G5	+	74
65.9%	71.5%	66.9%	69.7%	G5	+	76
65.9%	71.5%	67.1%	69.8%	G5	+	77
65.9%	74.0%	56.9%	61.4%	G5	+	49
65.9%	74.6%	66.2%	69.2%	A1, A2	+	58
65.8%	73.5%	65.3%	68.4%	A2	+	91
65.8%	73.5%	65.3%	68.4%	A2	+	92
65.8%	74.3%	69.6%	71.3%	A2	+	69
65.8%	71.3%	66.8%	69.8%	G5	+	78
65.8%	76.0%	64.2%	68.0%	A1, A2, G7	×	58
65.8%	73.5%	65.1%	68.2%	A2	+	93
65.8%	71.6%	66.7%	69.9%	G5	+	82
65.8%	71.3%	66.6%	69.5%	G5	+	79
65.8%	73.5%	65.0%	68.2%	A2	+	94
65.7%	75.3%	61.3%	65.3%	A1, A2, G7	+	58
65.7%	74.7%	67.2%	70.2%	A1, A2	×	58
65.7%	73.6%	60.8%	65.1%	G5	+	84
65.7%	73.8%	56.2%	60.6%	G5	+	58
65.6%	73.7%	60.7%	65.0%	G5	+	85
65.6%	73.7%	60.4%	64.8%	G5	+	86
65.6%	73.7%	60.3%	64.6%	G5	+	87
65.5%	74.7%	59.5%	63.9%	A1, G7	+	49
65.5%	73.7%	60.0%	64.4%	G5	+	88
65.5%	70.7%	66.8%	69.4%	G5	+	80
65.4%	73.7%	59.7%	64.2%	G5	+	89
65.4%	72.8%	76.3%	78.3%	A1	+	5
65.4%	75.5%	62.5%	66.3%	A1, G7	×	49
65.4%	73.7%	59.4%	63.9%	G5	+	90
65.3%	70.6%	67.1%	69.8%	G5	+	83
65.3%	72.9%	77.2%	79.1%	A1	+	3
65.3%	73.7%	59.0%	63.6%	G5	+	91
65.3%	73.7%	58.9%	63.5%	G5	+	92
65.2%	73.6%	58.8%	63.4%	G5	+	93
65.2%	73.9%	66.1%	69.2%	A2	+	75
65.2%	73.6%	58.8%	63.4%	G5	+	94
65.2%	72.6%	75.1%	76.9%	A1	+	6
65.2%	68.0%	70.7%	70.0%	G5	+	7
64.9%	72.1%	78.5%	79.6%	A1	+	1
64.9%	72.4%	73.6%	75.5%	A1	+	8
64.9%	74.0%	58.4%	62.7%	A1, G7	+	58
64.9%	73.1%	62.4%	66.6%	G5	+	67
64.9%	70.7%	56.3%	59.5%	G7	+	33
64.8%	74.9%	61.6%	65.5%	A1, G7	×	58
64.7%	69.8%	67.2%	69.8%	G5	+	95

S. Cls	S. Tot	C. Cls	C. Tot	CNNs	Op.	CRF
64.7%	69.8%	67.1%	69.8%	G5	+	96
64.7%	69.8%	67.3%	69.8%	G5	+	97
64.6%	70.9%	56.6%	60.3%	G7	+	21
64.6%	72.1%	72.2%	74.1%	A1	+	65
64.6%	69.6%	67.3%	69.8%	G5	+	98
64.4%	70.4%	56.9%	60.3%	G7	+	43
64.4%	70.6%	57.4%	61.1%	G7	+	55
64.4%	70.5%	57.4%	61.0%	G7	+	52
64.4%	70.7%	54.8%	58.5%	G7	+	37
64.3%	71.3%	77.6%	78.4%	A1	+	2
64.3%	71.3%	76.8%	77.6%	A1	+	4
64.3%	70.1%	57.7%	60.9%	G7	+	1
64.3%	70.1%	57.7%	60.9%	G7	+	53
64.3%	70.7%	56.3%	60.0%	G7	+	18
64.3%	70.4%	57.4%	61.0%	G7	+	59
64.2%	70.4%	55.9%	59.6%	G7	+	40
64.2%	71.7%	75.9%	78.1%	A1	+	9
64.2%	70.7%	56.0%	59.9%	G7	+	28
64.2%	70.6%	56.0%	59.8%	G7	+	19
64.2%	70.6%	56.0%	59.8%	G7	+	20
64.1%	70.8%	54.3%	58.5%	G7	+	12
64.1%	70.5%	56.1%	59.9%	G7	+	42
64.1%	72.3%	53.7%	58.6%	G5	+	75
64.0%	71.4%	53.7%	57.9%	G5	+	69
64.0%	70.7%	54.8%	58.9%	G7	+	13
64.0%	70.7%	54.8%	58.8%	G7	+	5
64.0%	70.7%	54.8%	58.8%	G7	+	11
64.0%	72.5%	64.4%	67.7%	A2	+	99
64.0%	70.6%	54.9%	58.9%	G7	+	15
64.0%	69.6%	58.9%	62.2%	G7	+	4
63.9%	70.0%	58.5%	62.0%	G7	+	62
63.9%	70.0%	58.6%	62.1%	G7	+	64
63.9%	70.3%	55.4%	59.2%	G7	+	3
63.9%	70.3%	55.4%	59.2%	G7	+	38
63.9%	70.3%	55.4%	59.2%	G7	+	39
63.9%	70.3%	55.4%	59.2%	G7	+	41
63.9%	70.6%	54.0%	58.2%	G7	+	16
63.9%	70.6%	53.6%	57.8%	G7	+	10
63.9%	69.4%	59.0%	62.3%	G7	+	2
63.9%	70.6%	53.9%	58.1%	G7	+	14
63.9%	70.6%	53.9%	58.1%	G7	+	6
63.8%	70.7%	54.0%	58.2%	G7	+	17
63.8%	69.9%	58.6%	62.0%	G7	+	66
63.8%	69.9%	58.3%	61.8%	G7	+	63
63.7%	70.5%	53.5%	57.7%	G7	+	22
63.7%	70.6%	53.3%	57.6%	G7	+	24
63.7%	70.7%	53.4%	57.7%	G7	+	27
63.7%	70.5%	53.4%	57.6%	G7	+	23
63.7%	70.6%	53.3%	57.5%	G7	+	25
63.7%	70.7%	53.4%	57.6%	G7	+	31
63.7%	70.6%	53.3%	57.5%	G7	+	8
63.7%	70.6%	53.2%	57.5%	G7	+	32
63.7%	70.5%	53.3%	57.5%	G7	+	29
63.7%	70.7%	53.3%	57.5%	G7	+	35
63.7%	70.6%	53.2%	57.5%	G7	+	34
63.7%	70.5%	53.3%	57.5%	G7	+	30
63.7%	70.7%	53.3%	57.5%	G7	+	36
63.6%	71.9%	58.7%	63.6%	G1	+	100
63.6%	70.3%	54.1%	58.2%	G7	+	26

S. Cls	S. Tot	C. Cls	C. Tot	CNNs	Op.	CRF
63.5%	71.3%	56.7%	60.8%	G7	+	84
63.5%	69.5%	59.0%	62.4%	G7	+	68
63.5%	71.3%	56.6%	60.8%	G7	+	85
63.5%	71.3%	56.5%	60.6%	G7	+	86
63.5%	70.5%	52.3%	56.6%	G7	+	51
63.5%	71.3%	56.2%	60.4%	G7	+	87
63.4%	71.4%	56.0%	60.3%	G7	+	88
63.4%	71.3%	65.9%	68.5%	A1	+	49
63.4%	70.3%	52.4%	56.7%	G7	+	54
63.4%	71.4%	55.8%	60.0%	G7	+	89
63.3%	71.4%	55.5%	59.8%	G7	+	90
63.2%	71.4%	55.2%	59.6%	G7	+	91
63.2%	71.4%	55.1%	59.6%	G7	+	92
63.2%	71.4%	66.1%	68.3%	A1	+	58
63.2%	69.0%	59.9%	63.1%	G7	+	70
63.2%	71.4%	55.1%	59.5%	G7	+	93
63.2%	71.4%	55.0%	59.5%	G7	+	94
63.2%	69.0%	59.6%	62.9%	G7	+	73
63.2%	69.0%	59.6%	62.9%	G7	+	74
63.2%	69.0%	59.8%	63.0%	G7	+	77
63.1%	70.1%	52.5%	56.7%	G7	+	44
63.1%	70.1%	52.5%	56.7%	G7	+	45
63.1%	68.9%	59.5%	62.8%	G7	+	76
63.1%	70.1%	52.4%	56.7%	G7	+	46
63.1%	68.8%	59.6%	62.8%	G7	+	78
63.1%	70.0%	52.3%	56.6%	G7	+	47
63.1%	70.0%	52.3%	56.5%	G7	+	48
63.0%	70.1%	54.4%	58.6%	G7	+	50
63.0%	70.3%	51.0%	55.6%	G7	+	49
63.0%	68.7%	59.3%	62.6%	G7	+	79
62.9%	69.1%	59.6%	63.0%	G7	+	82
62.8%	68.3%	59.7%	62.8%	G7	+	80
62.8%	66.3%	63.5%	63.6%	G7	+	7
62.8%	69.3%	53.4%	57.5%	G7	+	56
62.7%	71.2%	52.5%	57.5%	G5	+	99
62.7%	69.9%	51.1%	55.5%	G7	+	60
62.7%	68.3%	60.0%	63.1%	G7	+	83
62.4%	69.7%	50.1%	54.6%	G7	+	58
62.3%	69.8%	54.2%	58.5%	G7	+	57
62.3%	69.8%	54.2%	58.6%	G7	+	9
62.2%	67.6%	60.3%	63.3%	G7	+	95
62.2%	67.6%	60.3%	63.3%	G7	+	96
62.2%	67.6%	60.4%	63.4%	G7	+	97
62.2%	67.5%	60.3%	63.3%	G7	+	98
61.6%	70.7%	55.1%	60.5%	G3	+	100
61.5%	68.7%	49.3%	53.6%	G7	+	61
60.7%	68.8%	53.1%	57.7%	G7	+	67
60.4%	63.5%	80.2%	77.4%	A1	+	7
60.1%	68.3%	46.4%	51.5%	G7	+	75
59.3%	66.8%	46.0%	50.4%	G7	+	69
58.9%	68.5%	59.3%	63.5%	A2	+	100
58.8%	67.2%	44.7%	50.2%	G7	+	99
58.5%	67.8%	47.7%	53.4%	G5	+	100
54.0%	63.5%	39.8%	46.2%	G7	+	100

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