Supplementary results for the ECCV'14 paper "Predicting Actions from Static Scenes"

Tuan-Hung Vu[1], Catherine Olsson[2], Ivan Laptev[1],
Aude Oliva[2] and Josef Sivic[1]

[1]WILLOW, ENS/INRIA/CNRS UMR 8548, Paris, France,
[2]CSAIL, MIT, Cambridge, Massachusetts, USA

Paper link: http://www.di.ens.fr/willow/pdfscurrent/Vu14eccv.pdf

IGMA: Image-based Geo-Mapping of Actions

In this document, we illustrate additional results for Image-based Geo-Mapping of Actions (IGMA) as described in Section 6 of the ECCV'14 paper. For this experiment, we use geo-localized Panoramio images obtained for France. We show images with the highest scores of an action predictor and their corresponding locations on the map. We first demonstrate successful results of action localization for actions "ski", "hike" and "swim". For these actions we qualitatively compare our results with the actual skiing and hiking stations in France obtained from http://www.skiinfo.fr/france/carte.html and http://ete.france-montagnes.com/activite/randonnee respectively. This comparison indicates high accuracy of our automatic geo-localization of actions.

We next show examples of successful action prediction for the classes "pray", "harvest", "drive" and "open door". We note that geo-localization of these actions obtained with our method is less meaningful. This can be explained by the low density of images on Panoramio preventing precise geo-localized prediction of such actions. We believe that such classes of actions could be geo-localized in the future provided denser sampling of geo-localized images.
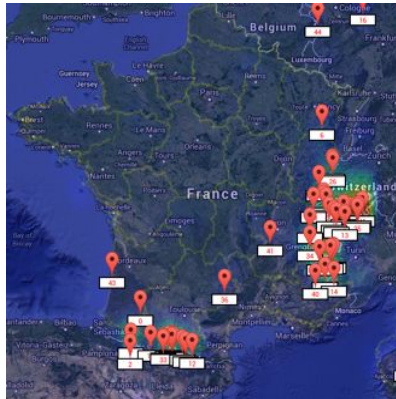
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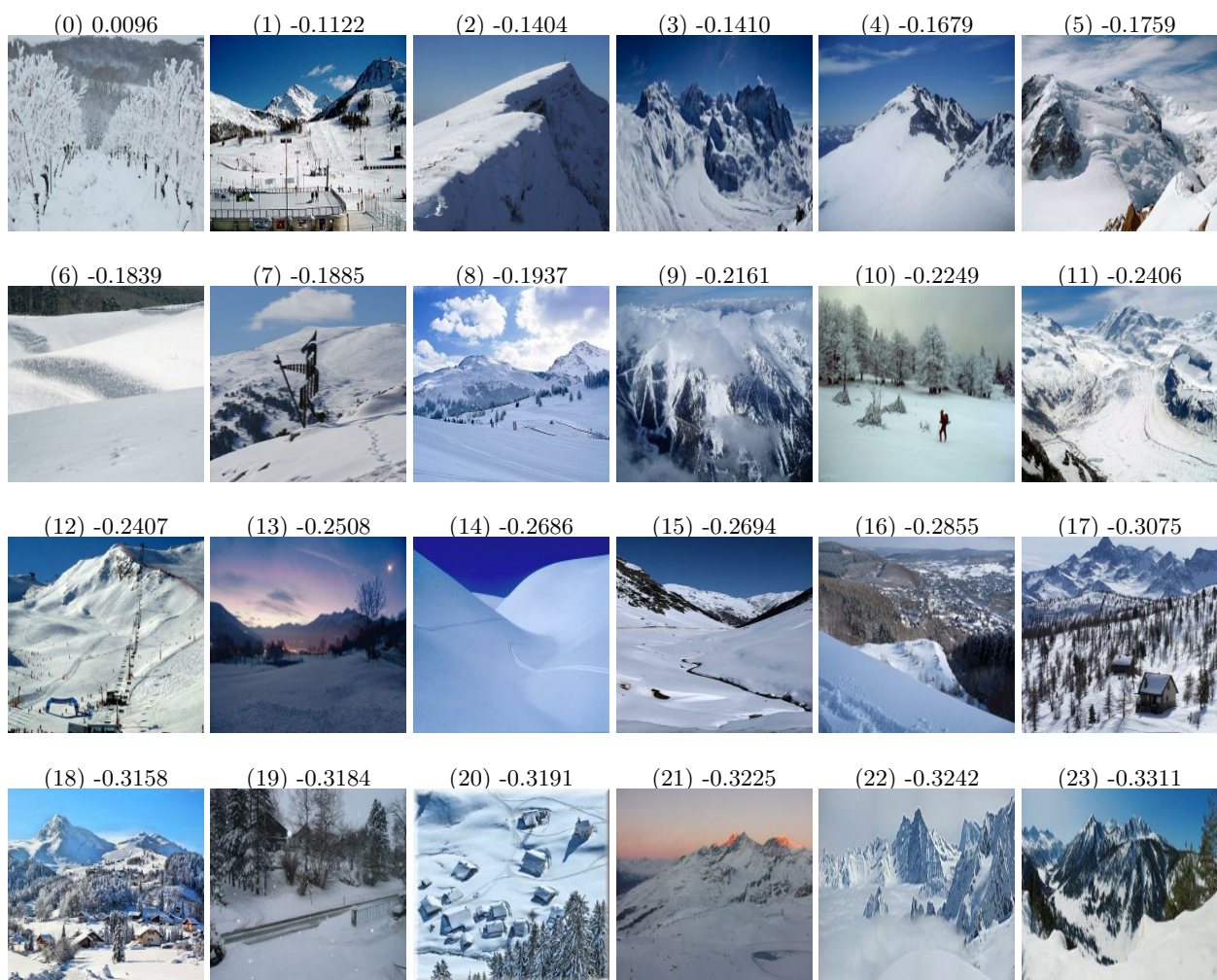
1.1 ski

Skiing stations in France (source: http://www.skiinfo.fr/france/carte.html)
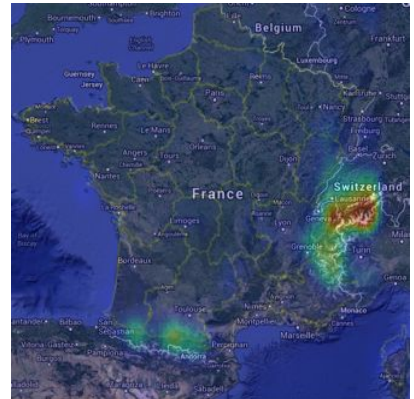

Locations for action "ski" predicted by our method

Likelihood map for action "ski" predicted by our method

(0) 0.0096

(1) -0.1122

(2) -0.1404

(3) -0.1410

(4) -0.1679

(5) -0.1759

(6) -0.1839

(7) -0.1885

(8) -0.1937

(9) -0.2161

(10) -0.2249

(11) -0.2406

(12) -0.2407

(13) -0.2508

(14) -0.2686

(15) -0.2694

(16) -0.2855

(17) -0.3075

(18) -0.3158

(19) -0.3184

(20) -0.3191

(21) -0.3225

(22) -0.3242

(23) -0.3311

(24) -0.3371 (25) -0.3383 (26) -0.3454 (27) -0.3502 (28) -0.3510 (29) -0.3514

(30) -0.3524 (31) -0.3566 (32) -0.3621 (33) -0.3646 (34) -0.3662 (35) -0.3689

(36) -0.3746 (37) -0.3849 (38) -0.3870 (39) -0.3886 (40) -0.3899 (41) -0.3947

(42) -0.3957 (43) -0.3969 (44) -0.3991 (45) -0.3998 (46) -0.4004 (47) -0.4011

(48) -0.4018 (49) -0.4053 (50) -0.4103 (51) -0.4108 (52) -0.4120 (53) -0.4130

(54) -0.4133 (55) -0.4152 (56) -0.4157 (57) -0.4187 (58) -0.4192 (59) -0.4212

(60) -0.4226 (61) -0.4240 (62) -0.4300 (63) -0.4345 (64) -0.4346 (65) -0.4380

1.2 hike

Hiking stations in France (source: http://ete.france-montagnes.com/activite/randonnee)
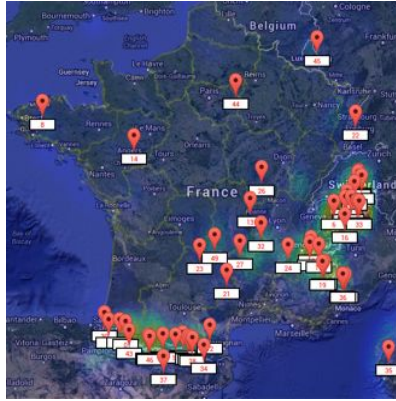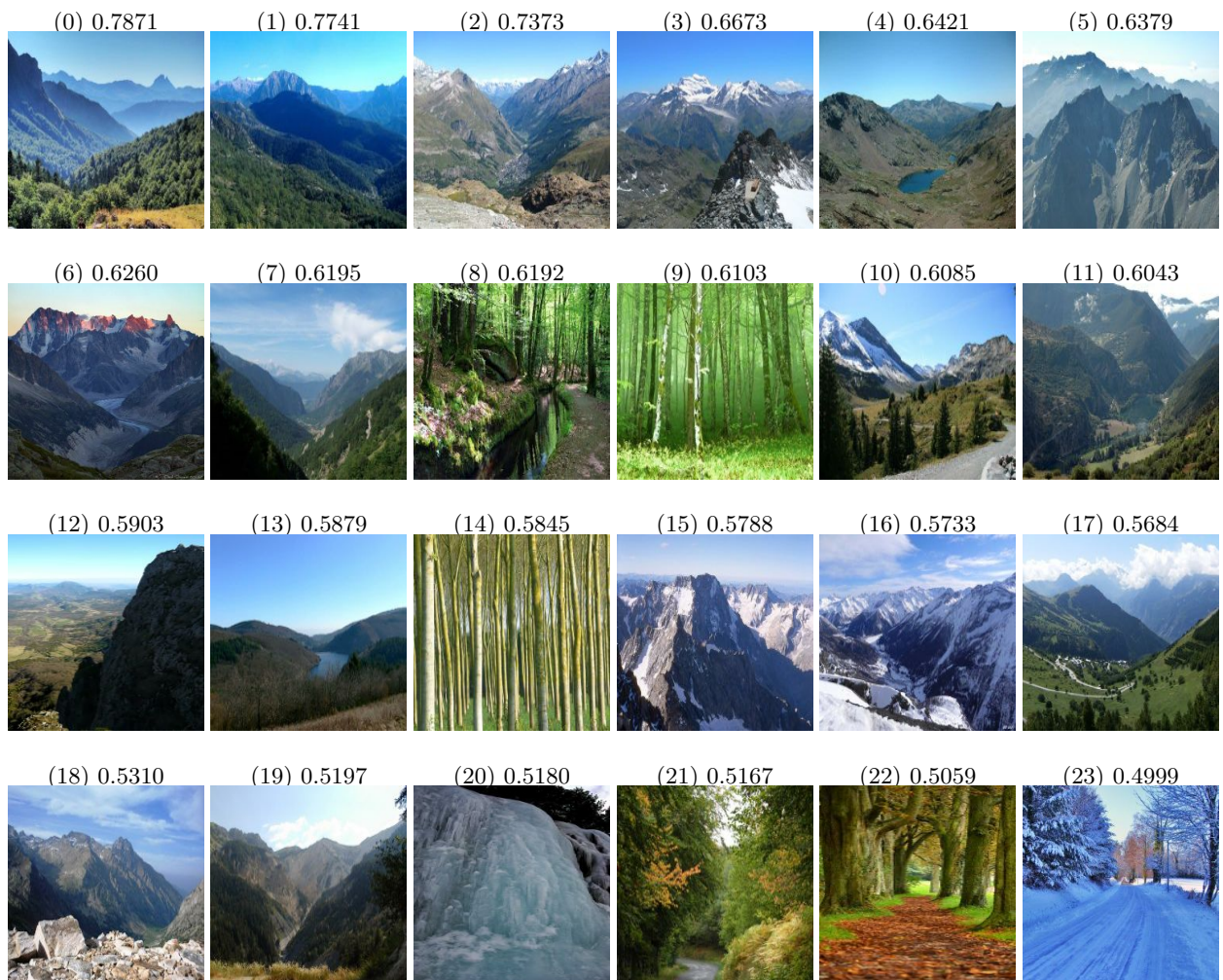
Locations for action "hike" predicted by our method

Likelihood map for action "hike" predicted by our method

(0) 0.7871   (1) 0.7741   (2) 0.7373   (3) 0.6673   (4) 0.6421   (5) 0.6379

(6) 0.6260   (7) 0.6195   (8) 0.6192   (9) 0.6103   (10) 0.6085   (11) 0.6043

(12) 0.5903   (13) 0.5879   (14) 0.5845   (15) 0.5788   (16) 0.5733   (17) 0.5684

(18) 0.5310   (19) 0.5197   (20) 0.5180   (21) 0.5167   (22) 0.5059   (23) 0.4999

3

(24) 0.4955 (25) 0.4915 (26) 0.4900 (27) 0.4897 (28) 0.4871 (29) 0.4837

(30) 0.4743 (31) 0.4727 (32) 0.4682 (33) 0.4671 (34) 0.4638 (35) 0.4592

(36) 0.4580 (37) 0.4541 (38) 0.4527 (39) 0.4513 (40) 0.4497 (41) 0.4477

(42) 0.4425 (43) 0.4397 (44) 0.4387 (45) 0.4357 (46) 0.4354 (47) 0.4337

(48) 0.4326 (49) 0.4322 (50) 0.4321 (51) 0.4315 (52) 0.4283 (53) 0.4274

(54) 0.4270 (55) 0.4245 (56) 0.4224 (57) 0.4209 (58) 0.4200 (59) 0.4192

(60) 0.4184 (61) 0.4171 (62) 0.4160 (63) 0.4145 (64) 0.4143 (65) 0.4103

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1.3 swim

Locations for action "swim" predicted by our method

Likelihood map for action "swim" predicted by our method
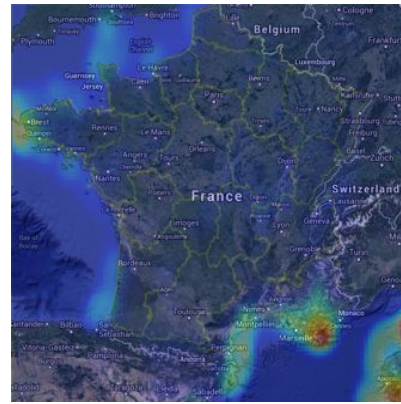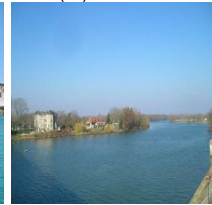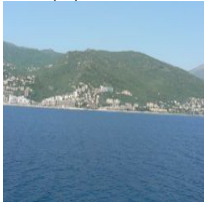
(0) 1.1753
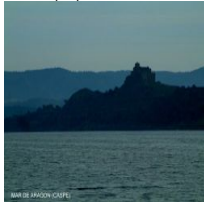
(1) 1.0260

(2) 0.9200
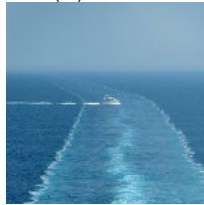
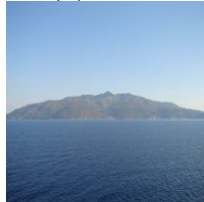(3) 0.8219
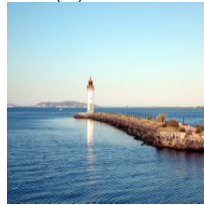
(4) 0.7774

(5) 0.7541

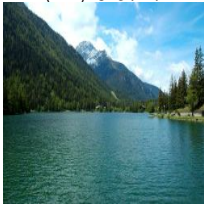(6) 0.7495

(7) 0.7437

(8) 0.7157
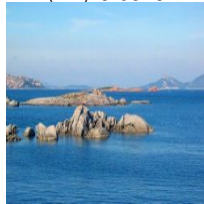
(9) 0.7084

(10) 0.6891

(11) 0.6808
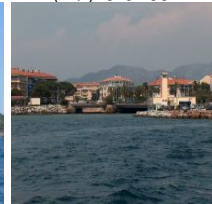
(12) 0.6717

(13) 0.6641

(14) 0.6519

(15) 0.6493

(16) 0.6485

(17) 0.6409

(18) 0.6336
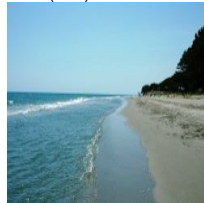
(19) 0.6302

(20) 0.6188

(21) 0.6158

(22) 0.6093

(23) 0.5974

(24) 0.5909   (25) 0.5877   (26) 0.5798   (27) 0.5758   (28) 0.5731   (29) 0.5706

(30) 0.5594   (31) 0.5591   (32) 0.5489   (33) 0.5477   (34) 0.5475   (35) 0.5466

(36) 0.5410   (37) 0.5244   (38) 0.5223   (39) 0.5139   (40) 0.5125   (41) 0.5114

(42) 0.5112   (43) 0.4916   (44) 0.4904   (45) 0.4833   (46) 0.4781   (47) 0.4737

(48) 0.4719   (49) 0.4694   (50) 0.4668   (51) 0.4614   (52) 0.4503   (53) 0.4490

(54) 0.4462   (55) 0.4359   (56) 0.4345   (57) 0.4327   (58) 0.4287   (59) 0.4261

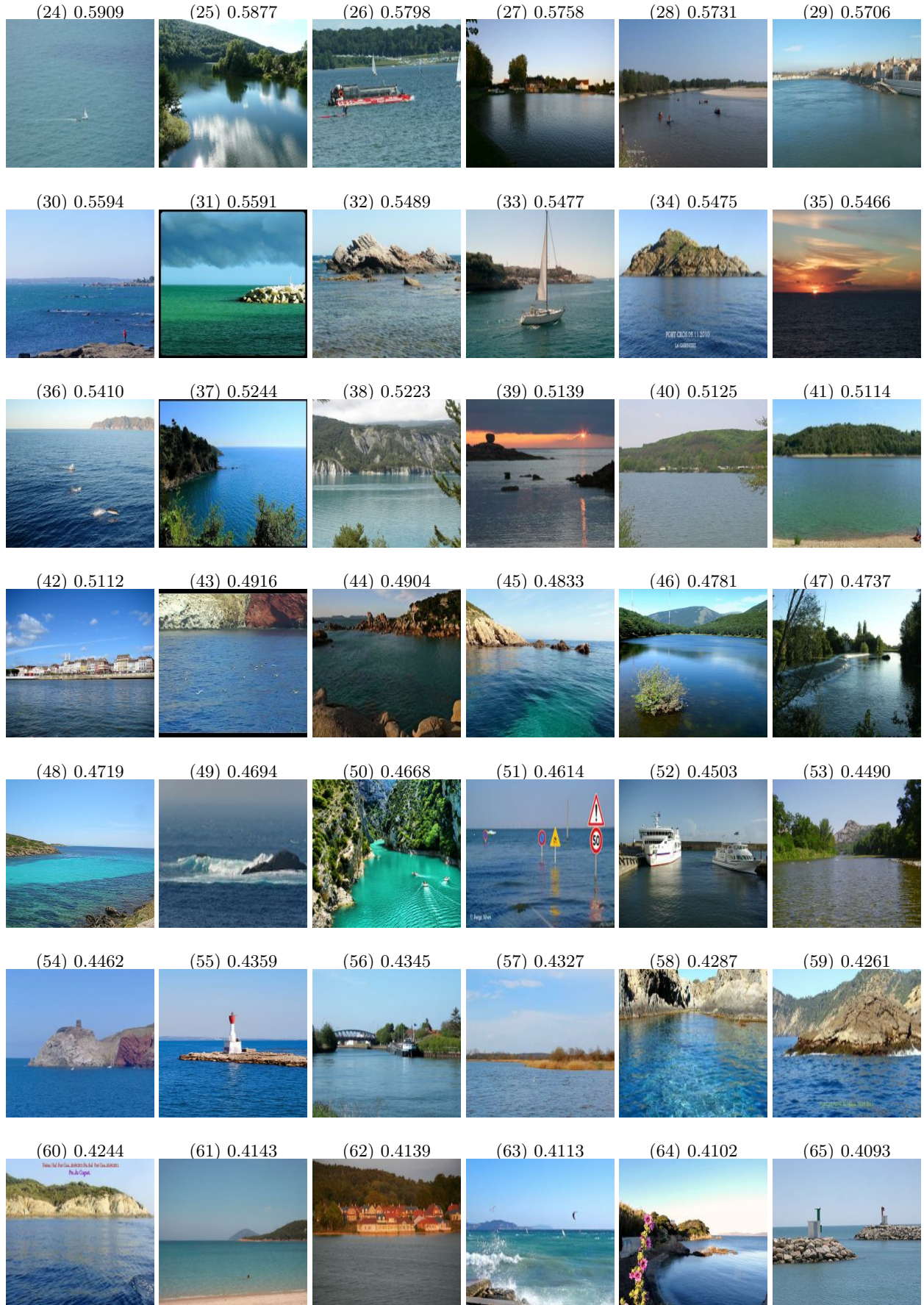(60) 0.4244   (61) 0.4143   (62) 0.4139   (63) 0.4113   (64) 0.4102   (65) 0.4093
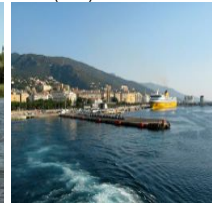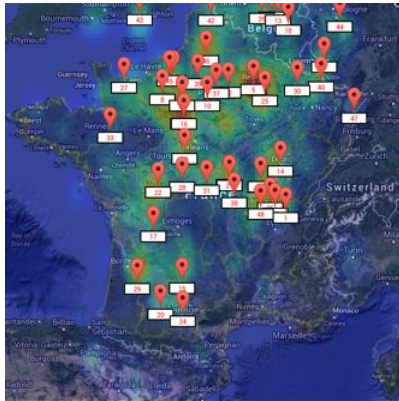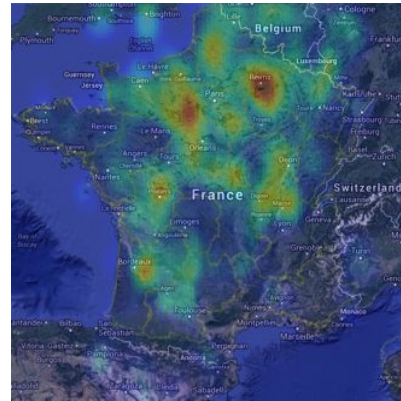
2 Examples of successful action prediction

2.1 pray

Locations for action "pray" predicted by our method

Likelihood map for action "pray" predicted by our method

(0) -0.0298   (1) -0.0650   (2) -0.0736   (3) -0.0838   (4) -0.1005   (5) -0.1168

(6) -0.1218   (7) -0.1230   (8) -0.1242   (9) -0.1459   (10) -0.1542   (11) -0.1561

(12) -0.1565   (13) -0.1650   (14) -0.1686   (15) -0.1699   (16) -0.1723   (17) -0.1743

(18) -0.1744   (19) -0.1762   (20) -0.1821   (21) -0.1828   (22) -0.1844   (23) -0.1863
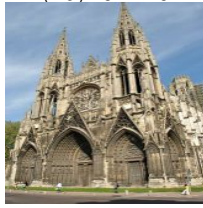
(24) -0.2048   (25) -0.2123   (26) -0.2140   (27) -0.2147   (28) -0.2195   (29) -0.2218

(30) -0.2234   (31) -0.2272   (32) -0.2278   (33) -0.2286   (34) -0.2295   (35) -0.2317

(36) -0.2361   (37) -0.2365   (38) -0.2380   (39) -0.2389   (40) -0.2400   (41) -0.2416
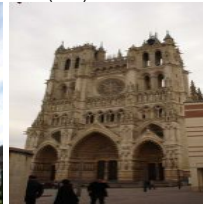
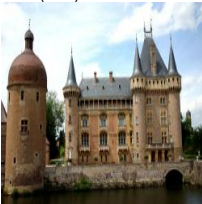(42) -0.2428   (43) -0.2431   (44) -0.2438   (45) -0.2445   (46) -0.2468   (47) -0.2500

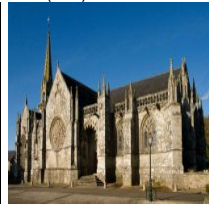(48) -0.2513   (49) -0.2523   (50) -0.2525   (51) -0.2539   (52) -0.2539   (53) -0.2539

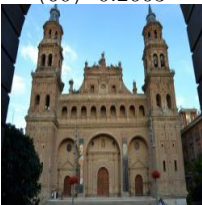(54) -0.2556   (55) -0.2576   (56) -0.2581   (57) -0.2588   (58) -0.2639   (59) -0.2656
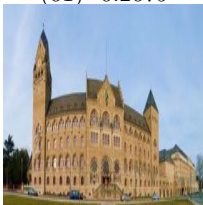
(60) -0.2663   (61) -0.2679   (62) -0.2717   (63) -0.2723   (64) -0.2737   (65) -0.2765

8
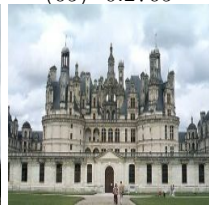
2.2 harvest

Locations for action "harvest" predicted by our method

Likelihood map for action "harvest" predicted by our method

(0) 0.5059

(1) 0.4255

(2) 0.3955

(3) 0.3399

(4) 0.2806

(5) 0.2579

(6) 0.2397

(7) 0.2381

(8) 0.2337

(9) 0.2322

(10) 0.2318

(11) 0.2250

(12) 0.2213

(13) 0.2120

(14) 0.2101

(15) 0.2092

(16) 0.1889

(17) 0.1803

(18) 0.1798

(19) 0.1791

(20) 0.1748

(21) 0.1681

(22) 0.1671

(23) 0.1577

(24) 0.1514 (25) 0.1398 (26) 0.1383 (27) 0.1342 (28) 0.1255 (29) 0.1253

(30) 0.1199 (31) 0.1123 (32) 0.0938 (33) 0.0894 (34) 0.0893 (35) 0.0882

(36) 0.0879 (37) 0.0829 (38) 0.0816 (39) 0.0795 (40) 0.0788 (41) 0.0655

(42) 0.0625 (43) 0.0571 (44) 0.0543 (45) 0.0414 (46) 0.0376 (47) 0.0375

(48) 0.0291 (49) 0.0283 (50) 0.0229 (51) 0.0205 (52) 0.0199 (53) 0.0198

(54) 0.0191 (55) 0.0171 (56) 0.0157 (57) 0.0121 (58) 0.0105 (59) 0.0084

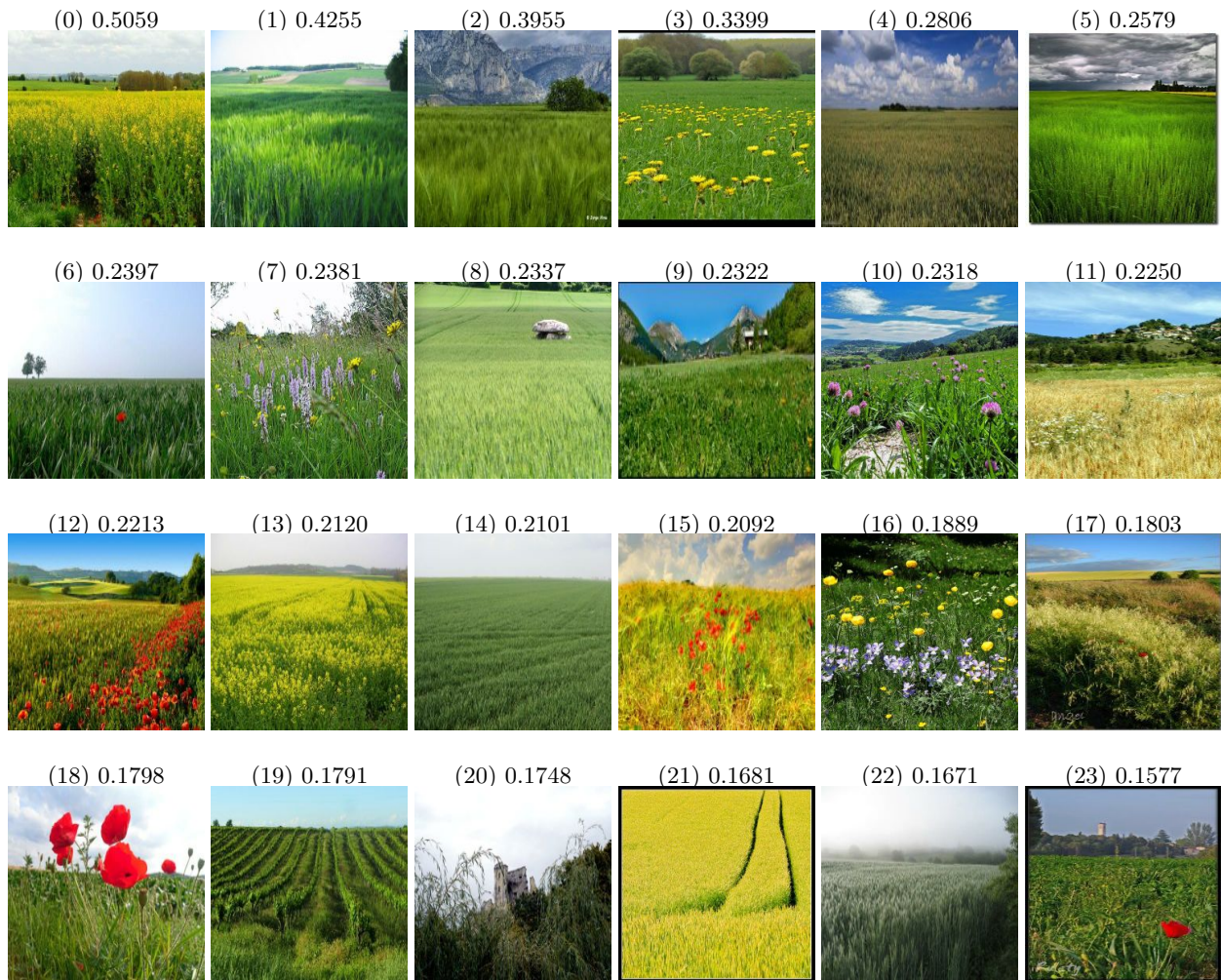(60) 0.0081 (61) 0.0017 (62) 0.0000 (63) -0.0107 (64) -0.0125 (65) -0.0133

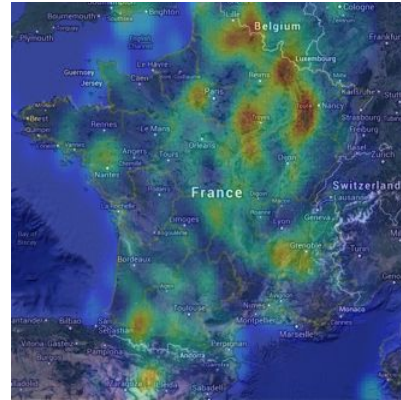## 2.3 drive

Locations for action "drive" predicted by our method
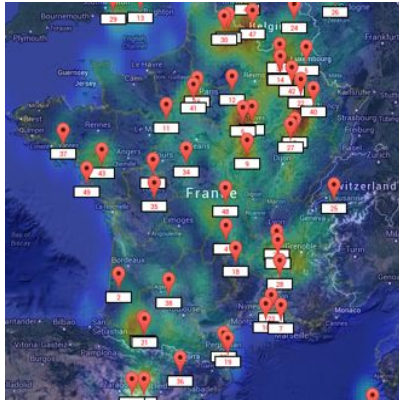
Likelihood map for action "drive" predicted by our method

(0) 0.0471

(1) -0.0020

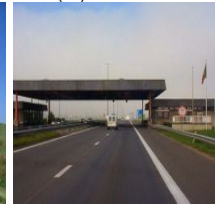(2) -0.1030

(3) -0.1351

(4) -0.1497

(5) -0.1564

(6) -0.1682

(7) -0.1780

(8) -0.1831

(9) -0.1898

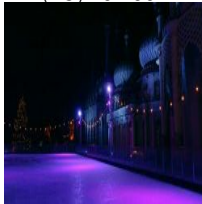(10) -0.1901

(11) -0.1939

(12) -0.1962

(13) -0.1992

(14) -0.2039

(15) -0.2094

(16) -0.2247

(17) -0.2309
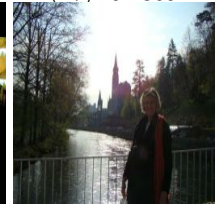
(18) -0.2310

(19) -0.2334
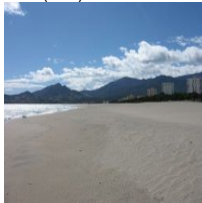
(20) -0.2369
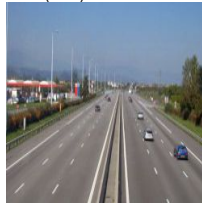
(21) -0.2407

(22) -0.2417

(23) -0.2440

(24) -0.2465   (25) -0.2481   (26) -0.2493   (27) -0.2523   (28) -0.2599   (29) -0.2653

(30) -0.2686   (31) -0.2700   (32) -0.2716   (33) -0.2736   (34) -0.2741   (35) -0.2786

(36) -0.2811   (37) -0.2852   (38) -0.2859   (39) -0.2896   (40) -0.2897   (41) -0.2906

(42) -0.2910   (43) -0.2936   (44) -0.2938   (45) -0.2947   (46) -0.2948   (47) -0.2951

(48) -0.2955   (49) -0.2956   (50) -0.2957   (51) -0.2964   (52) -0.3043   (53) -0.3047

(54) -0.3067   (55) -0.3104   (56) -0.3104   (57) -0.3104   (58) -0.3130   (59) -0.3140

(60) -0.3154   (61) -0.3160   (62) -0.3163   (63) -0.3171   (64) -0.3175   (65) -0.3236
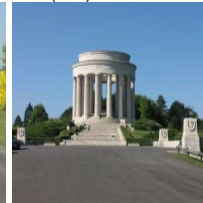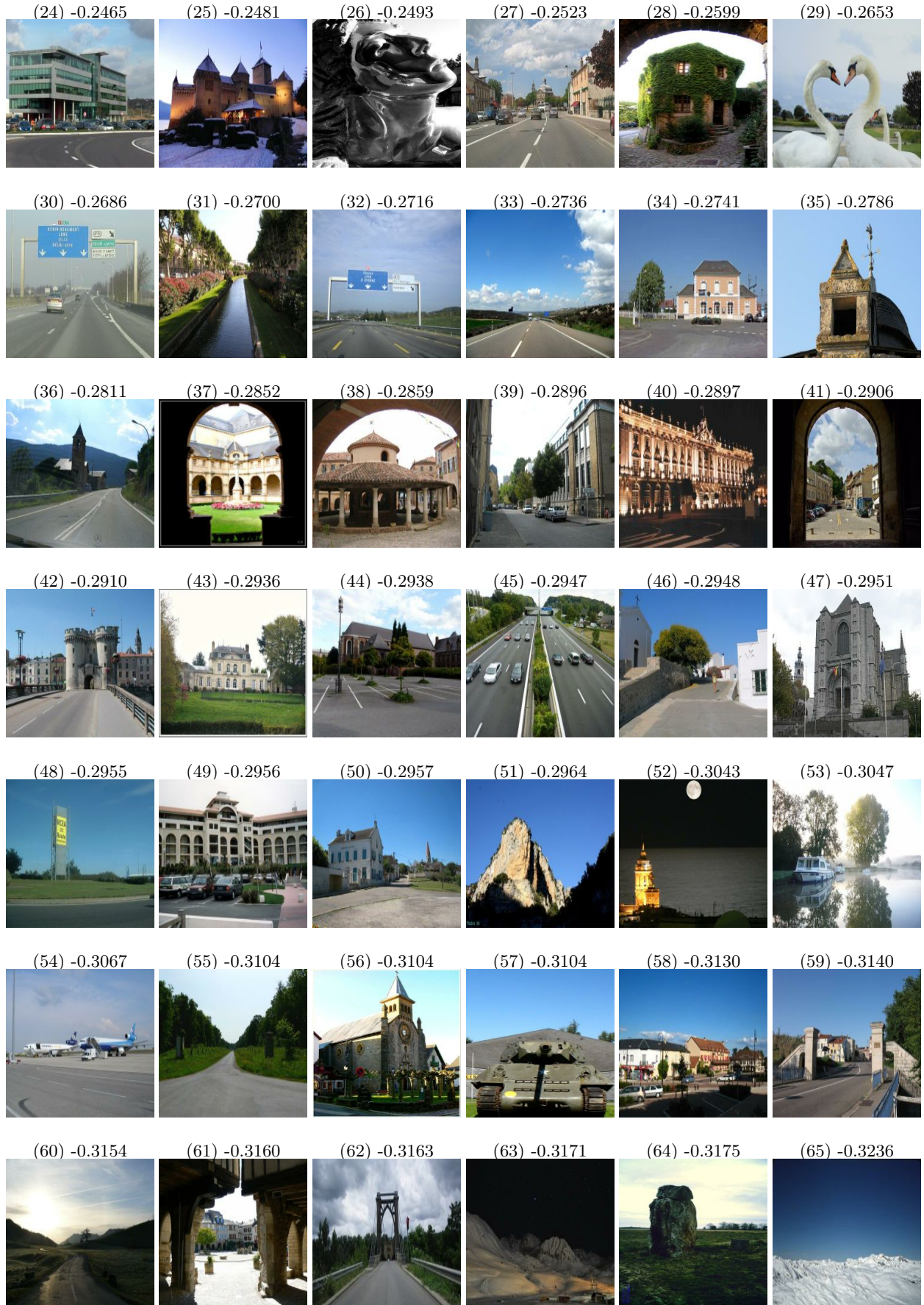
2.4 open door

Locations for action "open door" predicted by our method
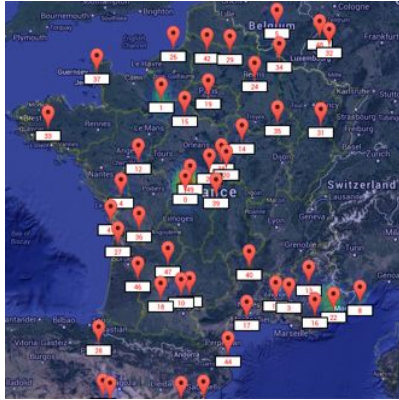
Likelihood map for action "open door" predicted by our method. Because detected locations are sparsely distributed and the density model's variance is small, visualization of likelihood map is biased by the highest scored location.

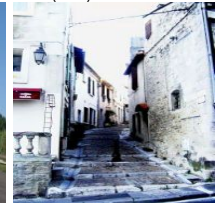| (0) -0.2761	(1) -0.3211	(2) -0.3378	(3) -0.3476	(4) -0.3600	(5) -0.3628
(6) -0.3675	(7) -0.3725	(8) -0.3756	(9) -0.3792	(10) -0.3860	(11) -0.3935
(12) -0.3966	(13) -0.3975	(14) -0.4055	(15) -0.4065	(16) -0.4100	(17) -0.4137
(18) -0.4193	(19) -0.4200	(20) -0.4231	(21) -0.4238	(22) -0.4238	(23) -0.4267

(24) -0.4268   (25) -0.4308   (26) -0.4330   (27) -0.4383   (28) -0.4390   (29) -0.4395

(30) -0.4477   (31) -0.4492   (32) -0.4514   (33) -0.4515   (34) -0.4535   (35) -0.4539

(36) -0.4551   (37) -0.4569   (38) -0.4601   (39) -0.4611   (40) -0.4628   (41) -0.4700

(42) -0.4727   (43) -0.4762   (44) -0.4765   (45) -0.4773   (46) -0.4786   (47) -0.4789

(48) -0.4794   (49) -0.4800   (50) -0.4868   (51) -0.4869   (52) -0.4870   (53) -0.4887

(54) -0.4934   (55) -0.4961   (56) -0.4966   (57) -0.4971   (58) -0.4985   (59) -0.4991

(60) -0.5005   (61) -0.5014   (62) -0.5019   (63) -0.5026   (64) -0.5042   (65) -0.5072