

The PSNRs for 2-Category Images Epitome Reconstruction

In this experiment, just few images are learned to generate the epitome model. And the PSNRs between the original images and the reconstructed ones are calculated.

Category 1 : city			Category 2 : N03		
Image #	Size (W * H)	PSNR*	Image #	Size (W * H)	PSNR*
try_1	180*240	23.8031	N03_01	970*368	24.4116
try_2	240*161	19.1362	N03_02	939*376	28.4591
try_3	240*161	19.7775	N03_03	529*474	22.8942
try_4	240*161	19.4244	N03_04	520*452	23.2449

* : Here the PSNR is got based on the parameter case of Epitome Size (100 * 100), Patch Size (8 * 8), and 10-time EM iterations.

Conclusion:

10-time EM iteration gets the same result as 20-time EM iteration. So I will choose 10-time EM iteration for the following experiments.

The patches with small size, (like 8*8), will get better reconstructions compared to large size patches (like, 16 * 16).

Since few images are learned, the epitome size seems does not matter. A large database is being learned on the server, with different cases of epitome size.

Detailed Results:

Parameters(epitomeSize/ patchLength/ EM Iteration Times)	PSNR (Peak Signal to Noise Ratio)							
	Category 1 : city				Category 2 : N03			
	try_1	try_2	try_3	try_4	N03_01	N03_02	N03_03	N03_04
50_16_10	19.5063	16.1147	16.1147	16.5824	21.2414	23.4331	18.8632	19.0707
50_16_20	19.8231	15.8439	16.8851	16.5205	21.1153	23.337	18.7455	19.1944
50_8_10	22.4563	18.2713	19.1397	18.7825	23.5226	26.6758	21.8262	22.3762
50_8_20	22.5094	18.1113	18.9463	18.5869	23.5569	27.143	21.8023	22.211
60_16_10	19.7229	16.386	17.2488	17.1605	21.412	23.594	19.0855	19.7132
60_16_20	19.9901	16.1752	17.2803	16.7574	21.4418	23.9344	18.9659	19.869
60_8_10	23.1388	18.4664	19.2711	18.8439	23.6497	27.1291	22.2219	22.5336
60_8_20	22.9243	18.2292	19.1724	18.7778	23.8574	27.7708	22.1997	22.5711
70_16_10	20.2143	16.4571	17.4713	17.1319	21.4348	23.7711	19.141	19.7429
70_16_20	20.3734	16.4116	17.3612	17.1372	21.5539	24.1694	19.3388	20.0405
70_8_10	23.2312	18.7644	19.3462	19.1268	23.5651	27.0604	22.1617	22.3305
70_8_20	23.3381	18.6021	19.2771	19.104	23.9231	27.7492	22.2848	22.769
80_16_10	20.6058	16.5912	17.3028	17.1362	21.8047	24.3039	19.6118	20.1421
80_16_20	20.236	16.484	17.4305	17.1328	21.7919	24.8861	19.563	20.138
80_8_10	23.4296	18.911	19.5652	19.1779	24.0736	27.565	22.7018	23.0317
80_8_20	23.3613	18.8788	19.571	19.2687	24.1331	28.1847	22.569	22.8978
90_16_10	20.5026	16.6376	17.6125	17.3205	21.7564	24.1349	19.613	20.1955

90_16_20	20.5628	16.3769	17.4497	17.0903	22.0513	24.8897	19.7654	20.2919
90_8_10	23.5945	19.0793	19.6168	19.3672	24.234	28.0443	22.8227	23.1339
90_8_20	23.5078	19.0917	19.5994	19.2308	24.2511	28.2959	22.6501	23.0474
100_16_10	20.844	16.4358	17.3788	17.2845	21.8112	24.3491	19.7258	20.3732
100_16_20	20.2678	16.3811	17.446	16.9883	22.0083	25.0475	19.6546	20.3948
100_8_10	23.8031	19.1362	19.7775	19.4244	24.2505	27.8683	22.8118	23.1712
100_8_20	23.6034	18.9308	19.6979	19.2925	24.4116	28.4591	22.8942	23.2449