

ROBUST FACE HALLUCINATION USING QUANTIZATION-ADAPTIVE DICTIONARIES

Supplemental Results

This document contains supplemental results which could not be included in the ICIP 2016 paper submission because of the lack of space. This web-site include quality and recognition analysis of JPEG coded images and some subjective results.

Robust Face Hallucination using JPEG

The JPEG codec was simulated using MATLAB's implementation and the distortion is controlled using the 'quality' parameter. In this work we considered 'quality' parameters equal to 50, 60 and 75. As in the paper, the recognition analysis was conducted using the LBP face recognition method.

Table 1: PSNR analysis using JPEG as codec.

Method	dx	MATLAB 'quality' Parameter		
		50	60	75
Baseline	10	26.78	27.02	27.48
Sun et. Al [7]	10	26.38	26.57	26.96
PP	10	27.36	27.71	28.50
SPP	10	26.82	27.16	27.83
M-LINE	10	26.67	27.02	27.74
RPP	10	28.34	28.58	29.18
RSPP	10	28.13	28.40	28.96
RM-LINE	10	27.99	28.23	28.83
Baseline	20	30.05	30.30	30.75
Sun et. Al [7]	20	28.89	28.97	29.25
PP	20	31.07	31.39	32.23
SPP	20	30.54	30.86	31.59
M-LINE	20	30.52	30.84	31.65
RPP	20	31.83	32.09	32.75
RSPP	20	31.62	31.88	32.47
RM-LINE	20	31.51	31.81	32.47

Table 2: Recognition analysis using JPEG as codec.

Method	dx	MATLAB 'quality' Parameter		
		50	60	75
Baseline	10	0.362	0.380	0.450
Sun et. Al [7]	10	0.322	0.356	0.434
PP	10	0.424	0.433	0.517
SPP	10	0.415	0.436	0.525
M-LINE	10	0.444	0.481	0.532
RPP	10	0.382	0.400	0.479
RSPP	10	0.428	0.461	0.526
RM-LINE	10	0.417	0.455	0.523
Baseline	20	0.663	0.685	0.699
Sun et. Al [7]	20	0.619	0.643	0.686
PP	20	0.673	0.689	0.719
SPP	20	0.675	0.707	0.731
M-LINE	20	0.683	0.719	0.726
RPP	20	0.668	0.672	0.711
RSPP	20	0.687	0.705	0.727
RM-LINE	20	0.679	0.698	0.726

Robust Face Hallucination using JPEG2000

The JPEG2000 codec was simulated using MATLAB's implementation and the distortion is controlled using the 'CompressionRatio' parameter. In this work we considered 'CompressionRatio' parameters equal to 1.5, 2 and 2.5. As in the paper, the recognition analysis was conducted using the LBP face recognition method.

Table 3: PSNR analysis using JPEG2000 as codec.

Method	dx	MATLAB 'CompressionRatio'		
		1.5	2	2.5
Baseline	10	27.68	26.90	24.47
PP	10	30.15	28.35	24.81
SPP	10	29.83	27.98	24.56
M-LINE	10	29.64	27.78	24.41
RPP	10	30.18	28.92	26.34
RSPP	10	30.05	28.75	25.95
RM-LINE	10	29.79	28.36	25.58
Baseline	20	29.71	29.69	29.65
PP	20	34.64	34.51	34.30
SPP	20	34.62	34.50	34.18
M-LINE	20	34.64	34.47	34.15
RPP	20	34.64	34.53	34.27
RSPP	20	34.67	34.51	34.23
RM-LINE	20	34.64	34.45	34.11

Table 4: Recognition analysis using JPEG2000 as codec.

Method	dx	MATLAB 'CompressionRatio' Parameter		
		1.5	2	2.5
Baseline	10	0.548	0.370	0.139
PP	10	0.604	0.471	0.204
SPP	10	0.633	0.497	0.205
M-LINE	10	0.636	0.511	0.211
RPP	10	0.568	0.366	0.105
RSPP	10	0.609	0.416	0.112
RM-LINE	10	0.612	0.417	0.122
Baseline	20	0.759	0.737	0.723
PP	20	0.780	0.769	0.762
SPP	20	0.800	0.785	0.775
M-LINE	20	0.812	0.803	0.777
RPP	20	0.776	0.767	0.759
RSPP	20	0.789	0.788	0.775
RM-LINE	20	0.811	0.793	0.782