
```
% Joseph R. Palicke
% Lab 10 Pt 3

close all;
clear all;
clc;

disp('12 level quantization')

t = 0:0.1:2*pi;
sig = sin(t);

codebook = -1.2:0.2:1;
[partition2 codebook2] = lloyds(sig,codebook);

[index quant2 distor2] = quantiz(sig,partition2,codebook2);

Prob_imp = hist(quant2,12);

[m n] = size(quant2);

No_of_symbols = n;

Prob_each_symbol = Prob_imp./No_of_symbols;

dict = huffmandict(codebook2,Prob_each_symbol);
hcode = huffmanenco(quant2,dict);
dhsig = huffmandeco(hcode,dict);

[quant2(:) dhsig(:)]

disp('24 level quantization')

t = 0:0.1:2*pi;
sig = sin(t);

codebook = -1.2:0.1:1.1;
[partition2 codebook2] = lloyds(sig,codebook);

[index quant2 distor2] = quantiz(sig,partition2,codebook2);

Prob_imp = hist(quant2,24);

[m n] = size(quant2);

No_of_symbols = n;

Prob_each_symbol = Prob_imp./No_of_symbols;

dict = huffmandict(codebook2,Prob_each_symbol);
hcode = huffmanenco(quant2,dict);
dhsig = huffmandeco(hcode,dict);
```

```
[quant2(:) dhsig(:)]  
  
12 level quantitzation
```

```
ans =
```

```
-0.0000    -0.0000  
-0.0000    -0.0000  
 0.2186     0.2186  
 0.2186     0.2186  
 0.4078     0.4078  
 0.4078     0.4078  
 0.5997     0.5997  
 0.5997     0.5997  
 0.7933     0.7933  
 0.7933     0.7933  
 0.7933     0.7933  
 0.9590     0.9590  
 0.9590     0.9590  
 0.9590     0.9590  
 0.9590     0.9590  
 0.9590     0.9590  
 0.9590     0.9590  
 0.9590     0.9590  
 0.9590     0.9590  
 0.9590     0.9590  
 0.7933     0.7933  
 0.7933     0.7933  
 0.7933     0.7933  
 0.5997     0.5997  
 0.5997     0.5997  
 0.5997     0.5997  
 0.4078     0.4078  
 0.4078     0.4078  
 0.2186     0.2186  
 0.2186     0.2186  
-0.0000    -0.0000  
-0.0000    -0.0000  
-0.2187    -0.2187  
-0.2187    -0.2187  
-0.4079    -0.4079  
-0.4079    -0.4079  
-0.6023    -0.6023  
-0.6023    -0.6023  
-0.6023    -0.6023  
-0.7771    -0.7771  
-0.7771    -0.7771  
-0.8993    -0.8993  
-0.8993    -0.8993  
-0.9800    -0.9800  
-0.9800    -0.9800  
-0.9800    -0.9800
```

-0.9800	-0.9800
-0.9800	-0.9800
-0.9800	-0.9800
-0.9800	-0.9800
-0.8993	-0.8993
-0.8993	-0.8993
-0.7771	-0.7771
-0.7771	-0.7771
-0.7771	-0.7771
-0.6023	-0.6023
-0.6023	-0.6023
-0.4079	-0.4079
-0.4079	-0.4079
-0.2187	-0.2187
-0.2187	-0.2187
-0.0000	-0.0000

24 level quantitzation

ans =

0.0208	0.0208
0.1205	0.1205
0.2190	0.2190
0.3153	0.3153
0.4084	0.4084
0.4975	0.4975
0.6024	0.6024
0.6024	0.6024
0.7128	0.7128
0.8111	0.8111
0.8111	0.8111
0.8879	0.8879
0.9473	0.9473
0.9473	0.9473
0.9896	0.9896
0.9896	0.9896
0.9896	0.9896
0.9896	0.9896
0.9896	0.9896
0.9473	0.9473
0.8879	0.8879
0.8879	0.8879
0.8111	0.8111
0.7128	0.7128
0.7128	0.7128
0.6024	0.6024
0.4975	0.4975
0.4084	0.4084
0.3153	0.3153
0.2190	0.2190
0.1205	0.1205
0.0208	0.0208
-0.0707	-0.0707

-0.1700	-0.1700
-0.2675	-0.2675
-0.3891	-0.3891
-0.3891	-0.3891
-0.4972	-0.4972
-0.5979	-0.5979
-0.6967	-0.6967
-0.7950	-0.7950
-0.7950	-0.7950
-0.8993	-0.8993
-0.8993	-0.8993
-0.9553	-0.9553
-0.9800	-0.9800
-0.9966	-0.9966
-0.9966	-0.9966
-0.9966	-0.9966
-0.9800	-0.9800
-0.9553	-0.9553
-0.8993	-0.8993
-0.8993	-0.8993
-0.7950	-0.7950
-0.7950	-0.7950
-0.6967	-0.6967
-0.5979	-0.5979
-0.5979	-0.5979
-0.4972	-0.4972
-0.3891	-0.3891
-0.2675	-0.2675
-0.1700	-0.1700
-0.0707	-0.0707

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