

Homework Project #04: Vector Quantization

Due Date: 12/14/2014

Vector Quantization of Image

- Download the Vector Quantization source code, `vq.zip`, from the class website
- Use `trvqsp_img` to train a codebook for VQ
- Use `vqimg_enc` and `vqimg_dec` to encode/decode images using the codebook you generated in the previous step
- Use different parameters/images to test the performance of the VQ algorithm

Usage Example of VQ

- There are three images in vq.zip: bookshelf, sinan, and sensin
- In general, you should train your codebook using one image and encode a different image for performance evaluation

- As a starting point, try:

```
C:\> trvqsp_img sinan.raw codebook.dat -b 1024 -t 8 -w 8
```

- The codebook.dat can be used to encode sensin as follows:

```
C:\> vqimg_enc -i sensin.raw -o data.bit -c codebook.dat
```

- Finally, reconstruct the sensin image by

```
C:\> vqimg_dec -i data.bit -o sensin.raw
```

Hand-in for the Homework

- Please write a report including:
 - Description of the program flow of: `trvqsp_img`, `vqimg_enc`, and `vqimg_dec`
 - Try different parameters for VQ (e.g., codebook size, vector size)
 - Try different training images and compare the performance of VQ on different target images
- Grading is based on
 - Your report