Quick Questions and Answers

1. What is it about?
   AC2DC = Recovering DC coefficients from AC coefficients.

2. What inspired your work?

3. How does Uehara et al.’s work?
   It is not bad, but cannot always produce good results.

4. What have you done?
   We proposed a new algorithm significantly better than USO.

5. Does your algorithm have a name?
   Yes! We call it FRM = “Under/Over-Flow Rate Minimization”.

6. How did you make FRM better?
   By reducing error propagation and introducing optimization.

7. Can FRM be further improved?
   Yes! There are plenty of possibilities to further improve FRM.

8. Do you have a companion webpage?
   Yes: http://www.hooklee.com/default.asp?t=AC2DC

3. Our FRM Method

3.1 Error propagation in the USO method

- Original image: ![Original Image]
- Pixel value range: [25, 245]
- Four scans: ![Difference Image]
- Final result: ![Result Image]
- Pixel value range: [−88, 303]

IQA metrics: PSNR=14.3, SSIM=0.732, MS-SSIM=0.711

3.2 Our solution

Step 1: Do USO Step 1, but adjust (if necessary) the estimate DC of each block so that no under/over-flow pixel value exists.

Step 2: Repeat Step 1 for different values of DC(0) to minimize the blockwise under/over-flow rate.

Step 3: The same as the USO method.

- Four scans: ![Four Scans]
- Final result: ![Final Result]
- Pixel value range: [9, 249]

IQA metrics: PSNR=23.2, SSIM=0.9, MS-SSIM=0.924

3.3 More experimental results

Results on 200 test images: Δ = FRM – USO.