

More results on simulation experiments

To help understanding of the proposed method, we provide more detailed and comprehensive results of the simulation experiments described in Section 5.2 in this material. The reconstructed spectral images of 8 examples are shown in the following.

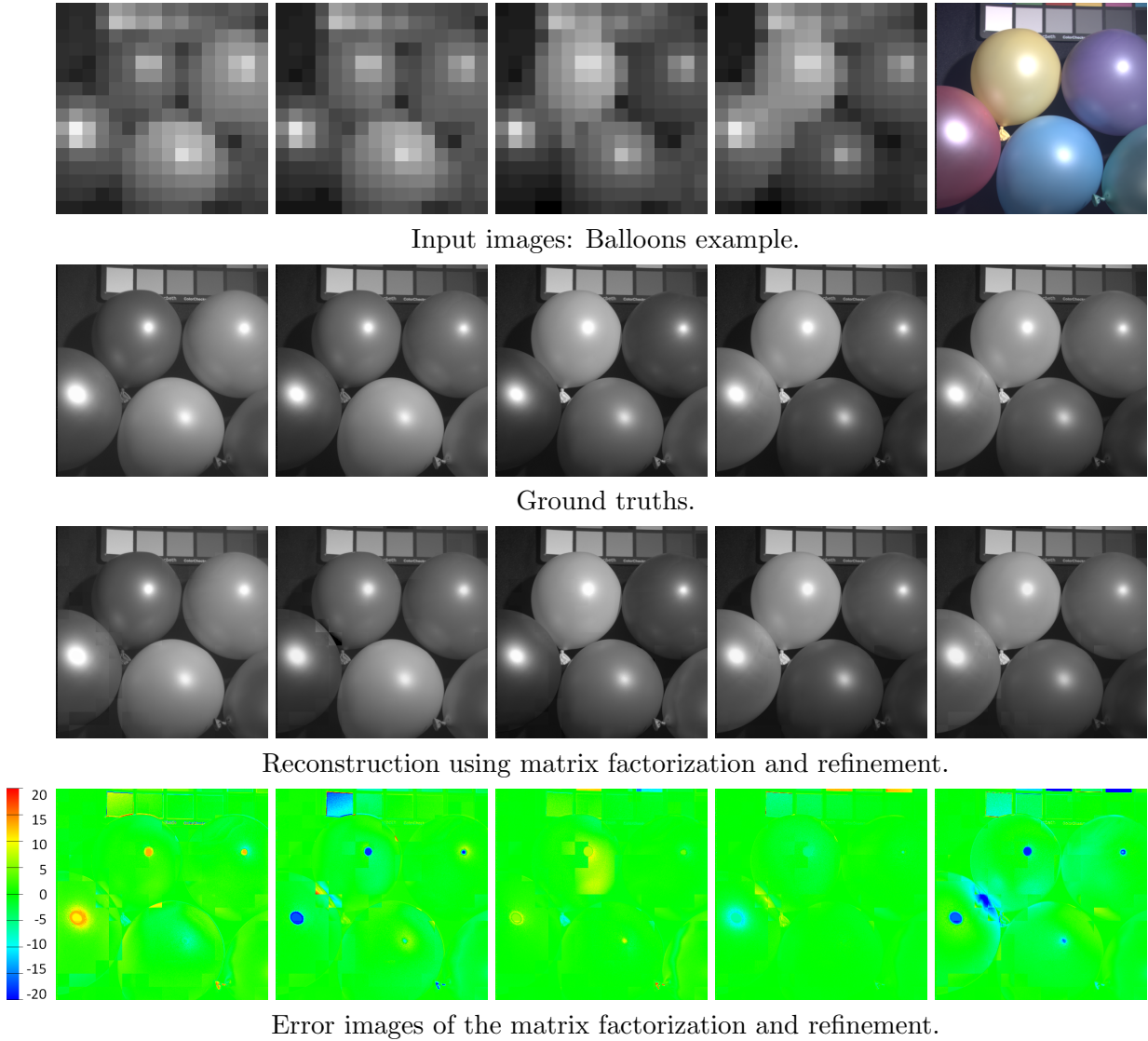


Figure 1: Spectral images. The top row: Input images of balloons example, sampled at 430, 490, 550, 610 nm, and the RGB image, from left to right. The second row: Ground truths, sampled at 430, 490, 550, 610 and 670 nm. The order is the same in the following rows. The third row: Results of the proposed method. The bottom row: Error images of the proposed method.

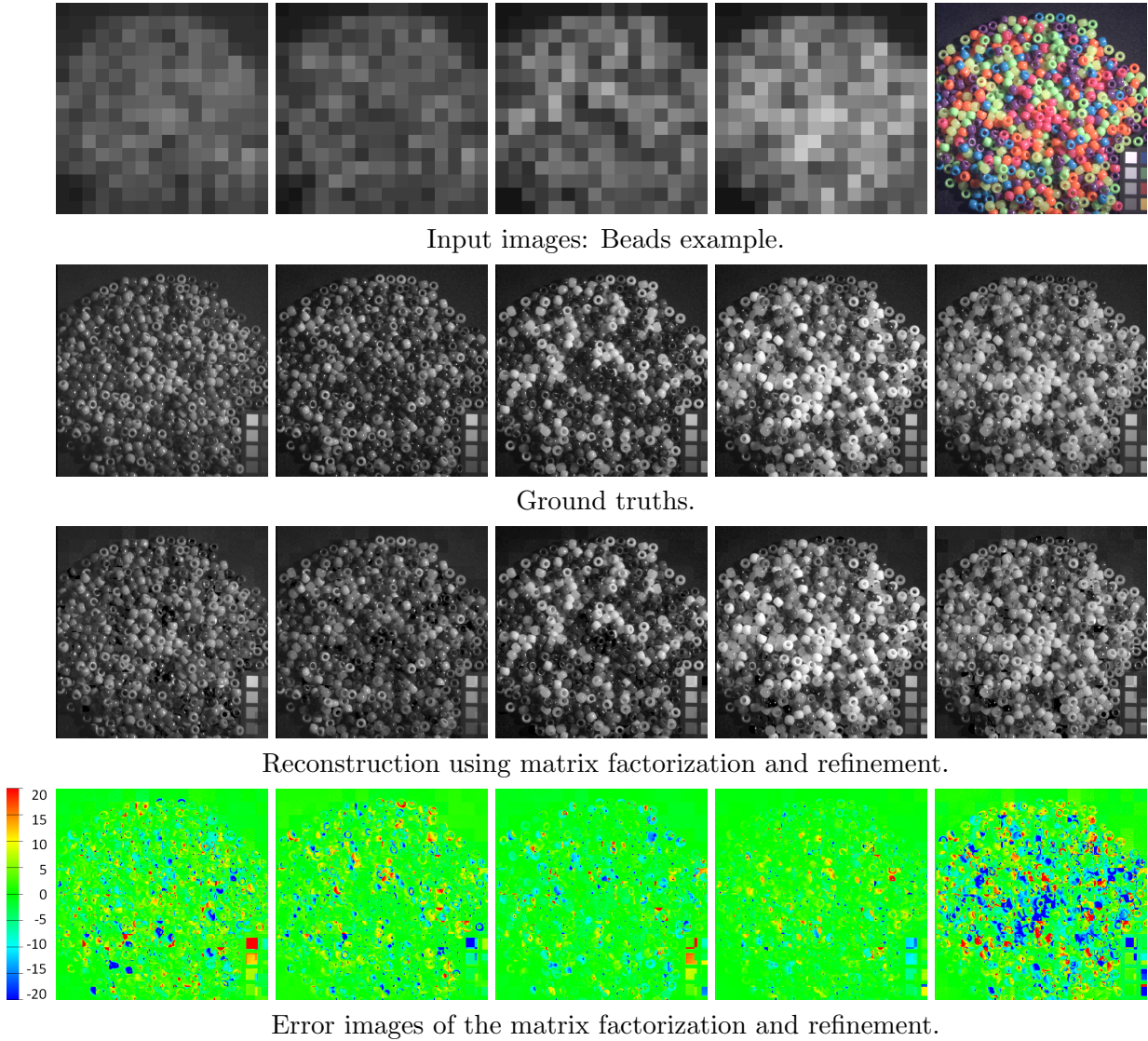
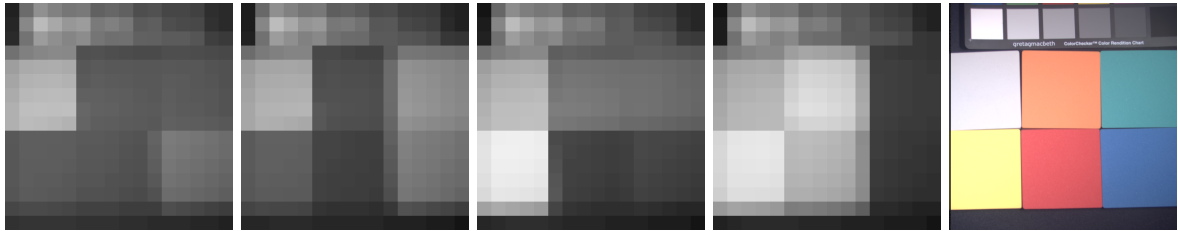
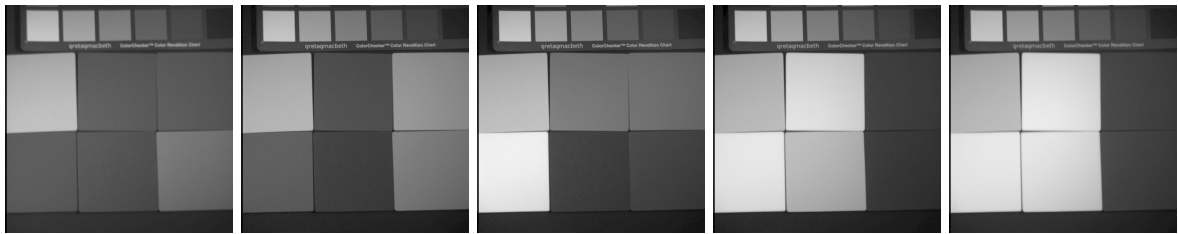


Figure 2: Spectral images. The top row: Input images of beads example, sampled at 430, 490, 550, 610 nm, and the RGB image, from left to right. The second row: Ground truths, sampled at 430, 490, 550, 610 and 670 nm. The order is the same in the following rows. The third row: Results of the proposed method. The bottom row: Error images of the proposed method.



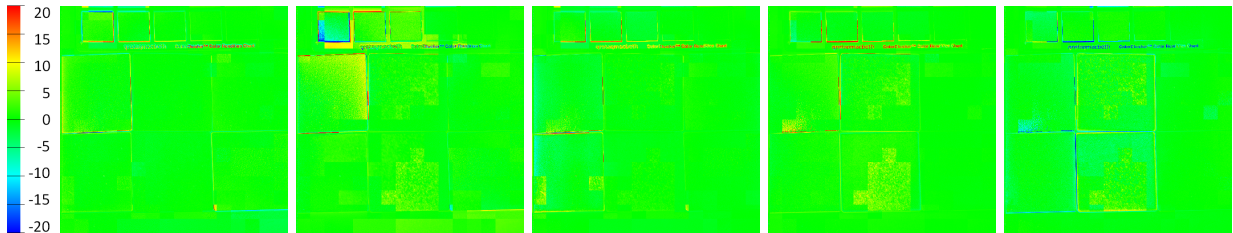
Input images: Sponges example.



Ground truths.

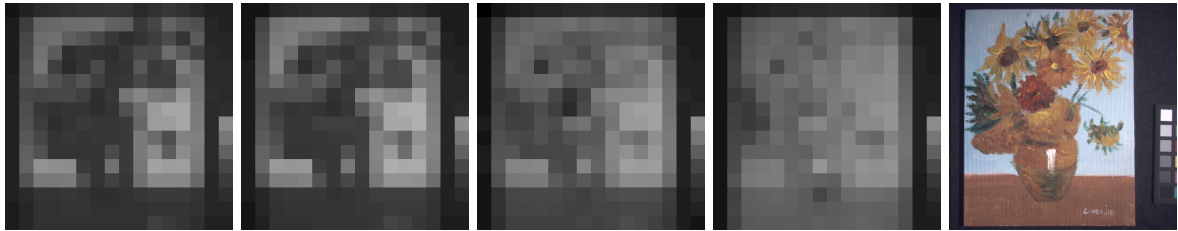


Reconstruction using matrix factorization and refinement.



Error images of the matrix factorization and refinement.

Figure 3: Spectral images. The top row: Input images of sponges example, sampled at 430, 490, 550, 610 nm, and the RGB image, from left to right. The second row: Ground truths, sampled at 430, 490, 550, 610 and 670 nm. The order is the same in the following rows. The third row: Results of the proposed method. The bottom row: Error images of the proposed method.



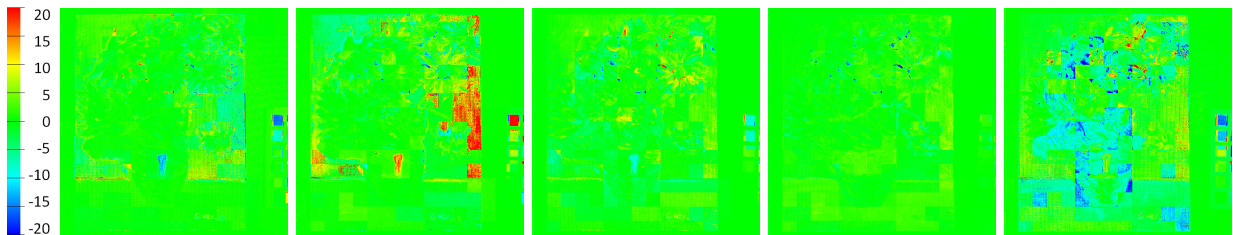
Input images: Oil painting example.



Ground truths.



Reconstruction using matrix factorization and refinement.



Error images of the matrix factorization and refinement.

Figure 4: Spectral images. The top row: Input images of oil painting example, sampled at 430, 490, 550, 610 nm, and the RGB image, from left to right. The second row: Ground truths, sampled at 430, 490, 550, 610 and 670 nm. The order is the same in the following rows. The third row: Results of the proposed method. The bottom row: Error images of the proposed method.

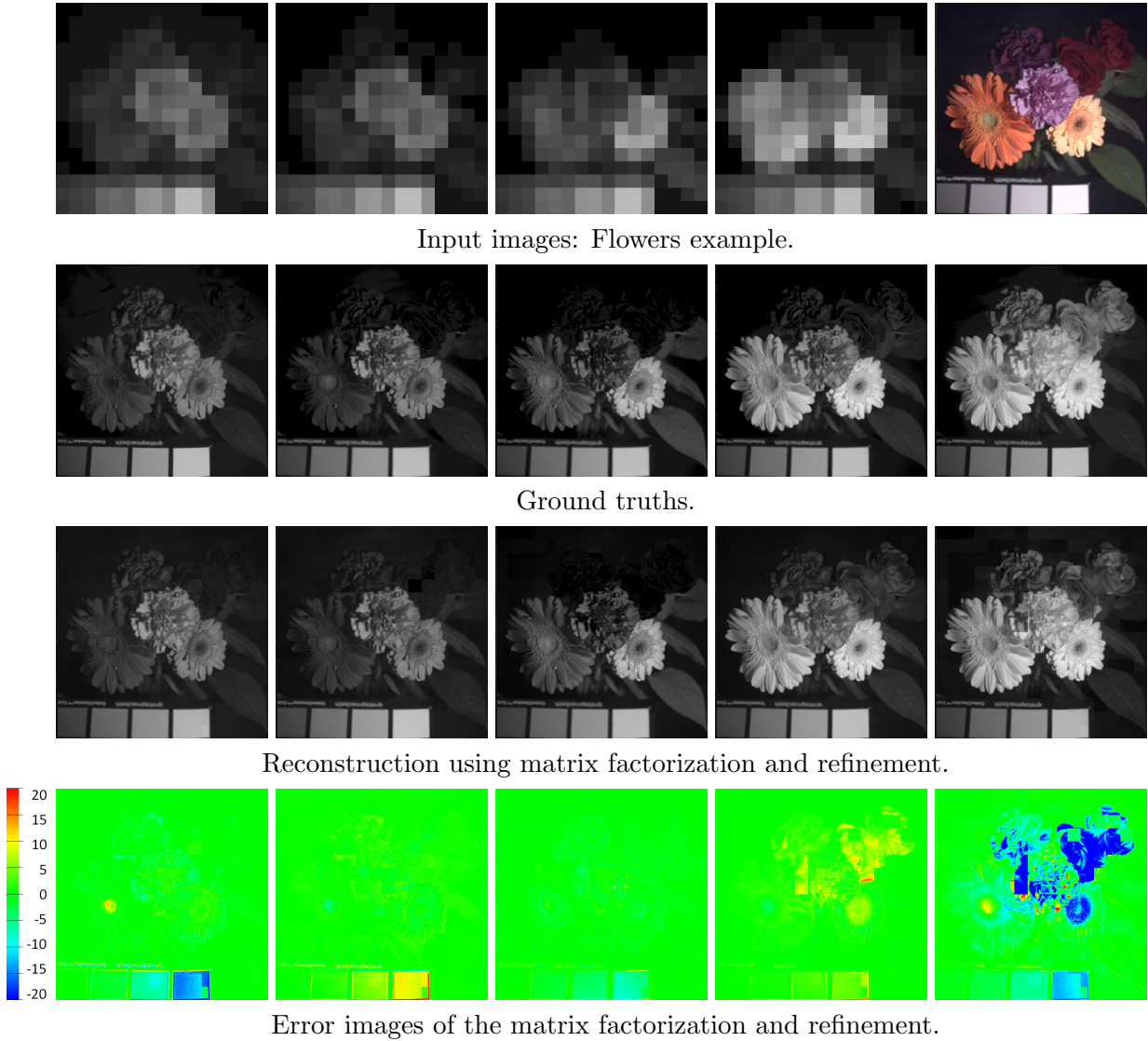
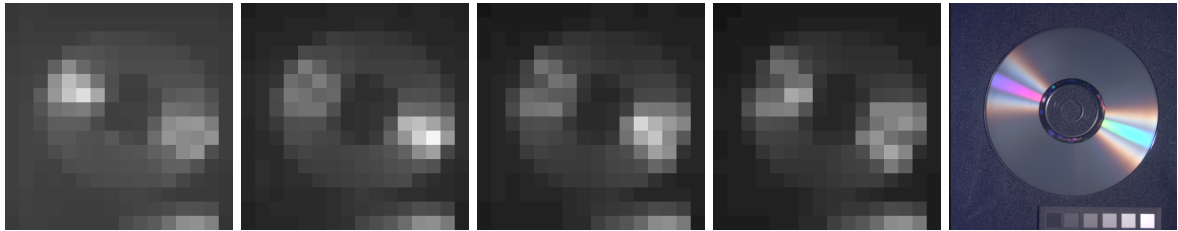


Figure 5: Spectral images. The top row: Input images of flowers example, sampled at 430, 490, 550, 610 nm, and the RGB image, from left to right. The second row: Ground truths, sampled at 430, 490, 550, 610 and 670 nm. The order is the same in the following rows. The third row: Results of the proposed method. The bottom row: Error images of the proposed method.



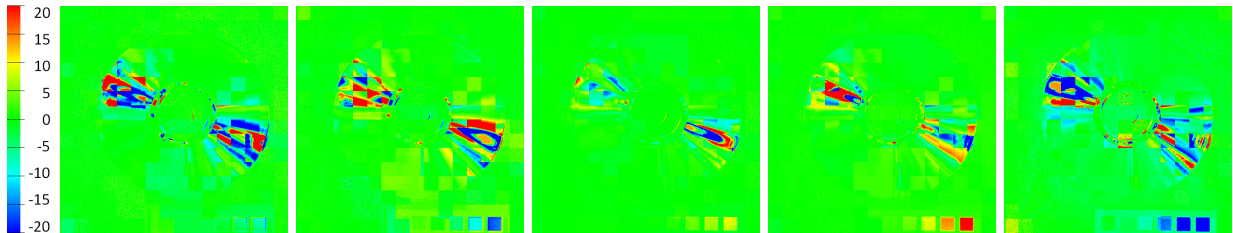
Input images: CD example.



Ground truths.

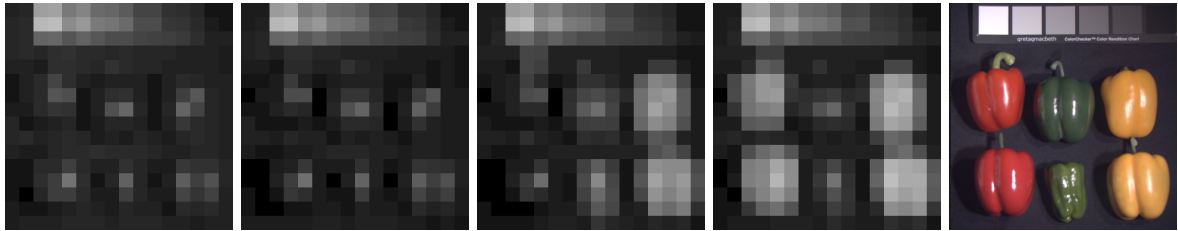


Reconstruction using matrix factorization and refinement.



Error images of the matrix factorization and refinement.

Figure 6: Spectral images. The top row: Input images of CD example, sampled at 430, 490, 550, 610 nm, and the RGB image, from left to right. The second row: Ground truths, sampled at 430, 490, 550, 610 and 670 nm. The order is the same in the following rows. The third row: Results of the proposed method. The bottom row: Error images of the proposed method.



Input images: Fake and real peppers example.



Ground truths.

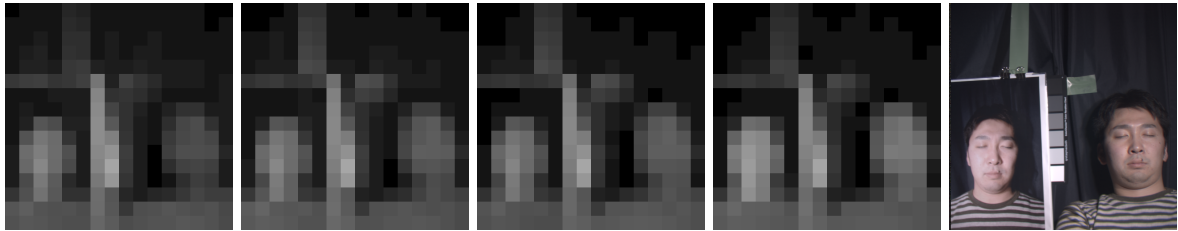


Reconstruction using matrix factorization and refinement.



Error images of the matrix factorization and refinement.

Figure 7: Spectral images. The top row: Input images of fake and real peppers example, sampled at 430, 490, 550, 610 nm, and the RGB image, from left to right. The second row: Ground truths, sampled at 430, 490, 550, 610 and 670 nm. The order is the same in the following rows. The third row: Results of the proposed method. The bottom row: Error images of the proposed method.



Input images: Photo and face example.



Ground truths.



Reconstruction using matrix factorization and refinement.



Error images of the matrix factorization and refinement.

Figure 8: Spectral images. The top row: Input images of photo and face example, sampled at 430, 490, 550, 610 nm, and the RGB image, from left to right. The second row: Ground truths, sampled at 430, 490, 550, 610 and 670 nm. The order is the same in the following rows. The third row: Results of the proposed method. The bottom row: Error images of the proposed method.