Maier [62] analyzed the characteristics of the residual image and proved that such images have properties different from natural images. This suggests that transforms that work well for natural images may not be as well-suited for residual images. For this reason, we also proposed to apply these optimization methods for encoding the reference image and the residual one. The resulting rate-distortion curves for the “white house” and “pentagon” stereo images are illustrated in Figures 11 and 12. A more exhaustive evaluation was also performed by applying the different methods to 50 stereo images. The average PSNR per-image is illustrated in Figure 13. Figure 14 displays the reconstructed target image of the “pentagon” stereo pair. It can be observed that the proposed joint optimization method leads to an improvement of 0.35 dB (resp. 0.016) in VSNR (resp. SSIM) compared with the decomposition in which the prediction filters are optimized separately. For instance, it can be noticed that the edges of the pentagon’s building as well as the roads are better reconstructed in Figure 14-(d).

![Figure 11: PSNR (in dB) versus the bitrate (bpp) after JPEG2000 progressive encoding for the “white house” stereo images.](image_url)