

| Image name               | Bicubic      | Directional  | Cubic spline | 8-tap        | 12-tap       | Contourlet   | Shearlet |
|--------------------------|--------------|--------------|--------------|--------------|--------------|--------------|----------|
| bikes                    | 26.68        | 26.20        | 27.02        | 27.23        | 27.32        | 27.63        | 28.38    |
| building2                | 23.83        | 22.89        | 24.08        | 24.28        | 24.34        | 24.58        | 24.84    |
| buildings                | 23.85        | 23.32        | 24.06        | 24.23        | 24.29        | 24.51        | 24.78    |
| caps                     | 35.60        | 35.38        | 35.78        | 36.06        | 36.13        | 36.33        | 37.03    |
| coinsinfountain          | 30.56        | 29.60        | 30.44        | 31.08        | 31.16        | 31.62        | 32.08    |
| flowersonih35            | 23.74        | 22.76        | 23.87        | 24.13        | 24.19        | 24.47        | 24.71    |
| house                    | 31.09        | 30.62        | 31.38        | 31.52        | 31.60        | 31.73        | 32.14    |
| lighthouse2              | 29.19        | 28.55        | 29.44        | 29.55        | 29.61        | 29.78        | 30.07    |
| monarch                  | 31.87        | 31.04        | 32.37        | 32.59        | 32.71        | 33.03        | 33.85    |
| ocean                    | 32.17        | 31.70        | 32.23        | 32.47        | 32.52        | 32.62        | 32.93    |
| paint edhouse            | 28.23        | 27.64        | 28.50        | 28.65        | 28.71        | 28.90        | 29.35    |
| parrots                  | 34.82        | 34.39        | 35.36        | 35.59        | 35.70        | 35.88        | 36.59    |
| plane                    | 31.47        | 30.32        | 31.59        | 31.86        | 31.92        | 32.30        | 32.78    |
| rapids                   | 29.42        | 28.73        | 29.67        | 29.91        | 29.98        | 30.18        | 30.66    |
| sailing1                 | 28.60        | 27.77        | 28.81        | 28.92        | 28.97        | 29.14        | 29.34    |
| stream                   | 24.73        | 24.03        | 24.93        | 25.08        | 25.14        | 25.29        | 25.50    |
| Average (Train)          | 29.12        | 28.43        | 29.35        | 29.57        | 29.64        | 29.87        | 30.32    |
| PSNR diff. (Train)       | -1.20        | -1.88        | -0.97        | -0.74        | -0.67        | -0.44        | -        |
| <b>PSNR diff. (Test)</b> | <b>-1.09</b> | <b>-1.86</b> | <b>-0.81</b> | <b>-0.63</b> | <b>-0.56</b> | <b>-0.47</b> | <b>-</b> |

Table 1: PSNR results in dB for 2x interpolation comparing seven methods. Three linear approaches (bicubic, cubic spline, and 8-tap FIR) and two non-linear approaches (Directional and contourlet ) are compared to the proposed technique. The PSNR difference over 16 training and 200 test images are summarized.