**Image Compression using Quad tree and Huffman encoding: Results (Updated)**

**LDWT and Haar wavelet**

**Bit rate vs. PSNR**

|  |  |  |
| --- | --- | --- |
| Lena | Bit Rate | PSNR |
| 0.03125 | 22.9172 |
| 0.0625 | 25.8127 |
| 0.125 | 29.0219\* |
| 0.25 | 31.5810 |
| 0.5 | 34.3612 |
| 1 | 35.6233\* |

|  |  |  |
| --- | --- | --- |
| Airplane | Bit Rate | PSNR |
| 0.03125 | 22.3651 |
| 0.0625 | 25.8723 |
| 0.125 | 27.0429 |
| 0.25 | 29.6441 |
| 0.5 | 32.7356 |
| 1 | 34.5641\* |

|  |  |  |
| --- | --- | --- |
| Barbara | Bit Rate | PSNR |
| 0.03125 | 21.4911 |
| 0.0625 | 23.9078 |
| 0.125 | 23.9914 |
| 0.25 | 24.0677 |
| 0.5 | 26.9160 |
| 1 | 29.3396\* |

|  |  |  |
| --- | --- | --- |
| Goldhill | Bit Rate | PSNR |
| 0.03125 | 24.5219 |
| 0.0625 | 27.2843 |
| 0.125 | 27.3016 |
| 0.25 | 28.5122 |
| 0.5 | 29.5163 |
| 1 | 31.3303\* |

|  |  |  |
| --- | --- | --- |
| Pepper | Bit Rate | PSNR |
| 0.03125 | 23.0152 |
| 0.0625 | 28.0192 |
| 0.125 | 28.7159 |
| 0.25 | 30.0073 |
| 0.5 | 31.0531 |
| 1 | 32.4509\* |

|  |  |  |
| --- | --- | --- |
| Sailboat | Bit Rate | PSNR |
| 0.03125 | 21.9820 |
| 0.0625 | 22.4100 |
| 0.125 | 26.2105 |
| 0.25 | 27.1059 |
| 0.5 | 29.9418 |
| 1 | 31.0159\* |

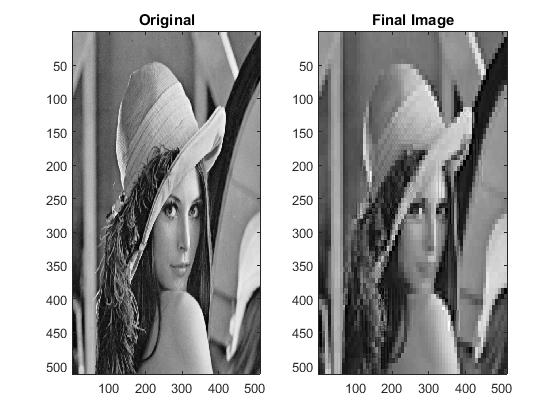
**Threshold vs PSNR vs Bit rate**

|  |  |  |  |
| --- | --- | --- | --- |
| Threshold | Bit rate | PSNR | Image fidelity |
| 2,10 | 0.8 | 35.3289 | 0.9198 |
| 5,10 | 0.5 | 34.3612 | 0.9201 |
| 5,20 | 0.25 | 31.5810 | 0.8601 |
| 10,20 | 0.10 | 29.0726 | 0.8264 |
| 10,40 | 0.10\* | 29.0294 | 0.8137 |

**A, B: A is threshold for 2nd level; B is threshold for 1st level**

**\*: Approximated bit rate up to 2nd decimal digit**

**The compression in 3 level is not perfoming good enough it’s better no to mention.**

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