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## LIST OF SYMBOLS AND ABBREVIATIONS

### Symbols

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<th>Symbol</th>
<th>Description</th>
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<tr>
<td>A(j, m, n)</td>
<td>Approximation wavelet subband coefficients at level j and coordinate (m, n)</td>
</tr>
<tr>
<td>g(i, j)</td>
<td>Approximation of f(i, j)</td>
</tr>
<tr>
<td>L</td>
<td>Average number of bits required to represent encoded symbol</td>
</tr>
<tr>
<td>C(S_k)</td>
<td>Count of k(^{th}) symbol S_k</td>
</tr>
<tr>
<td>2\downarrow</td>
<td>Decimate by a factor of 2</td>
</tr>
<tr>
<td>W_D(j, m, n)</td>
<td>Diagonal detail wavelet subband coefficients at level j and coordinate (m, n)</td>
</tr>
<tr>
<td>E</td>
<td>Energy in 8 \times 8 pixel block</td>
</tr>
<tr>
<td>freq</td>
<td>Frequent state</td>
</tr>
<tr>
<td>h_H(i, j)</td>
<td>High-pass analysis filter bank coefficients</td>
</tr>
<tr>
<td>g_H(i, j)</td>
<td>High-pass synthesis filter bank coefficients</td>
</tr>
<tr>
<td>W_H(j, m, n)</td>
<td>Horizontal detail wavelet subband coefficients at level j and coordinate (m, n)</td>
</tr>
<tr>
<td>I(j + 1, m, n)</td>
<td>Image at level (j + 1) at coordinate (m, n)</td>
</tr>
<tr>
<td>infreq</td>
<td>Infrequent state</td>
</tr>
<tr>
<td>2\uparrow</td>
<td>Interpolate by a factor of 2</td>
</tr>
<tr>
<td>Level j</td>
<td>j(^{th}) level of wavelet decomposition</td>
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<tr>
<td>S_k</td>
<td>k(^{th}) symbol in alphabet</td>
</tr>
<tr>
<td>h_L(i, j)</td>
<td>Low-pass analysis filter bank coefficients</td>
</tr>
<tr>
<td>g_L(i, j)</td>
<td>Low-pass synthesis filter bank coefficients</td>
</tr>
<tr>
<td>Maxcount</td>
<td>Maximum value allowed for Count</td>
</tr>
<tr>
<td>n(S_k)</td>
<td>Number of bits required to encode k(^{th}) symbol S_k</td>
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<tr>
<td>Count</td>
<td>Number of occurrences of each symbol</td>
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</table>
nones - Number of ones in $4 \times 4$ block in bitplane

SymbolPerMessage - Number of symbols for which a single tag value is generated

$f(i, j)$ - Original image pixel at coordinate $(i, j)$

$p(S_k)$ - Probability of occurrence of $k^{th}$ symbol $S_k$

$(x_i, y_i, p_i)$ - Repeat reduction block output:

$x_i = \log$ value

$y_i = \text{Number of continuous occurrence of } x_i$

$p_i = \text{Probability of occurrence pattern } (x_i, y_i)$

$M \times N$ - Size of the image in number of rows and columns

Threshold - Value which causes rescaling of Count

$W_{V}(j, m, n)$ - Vertical detail wavelet subband coefficients at level $j$ and coordinate $(m, n)$

$W_{i, j}$ - Wavelet coefficients at coordinate $(i, j)$

$X_{avg}$ - $4 \times 4$ block average

$X_{Havg}$ - $4 \times 4$ block higher average

$X_{Lavg}$ - $4 \times 4$ block lower average

**Abbreviations**

AVC - Audio Video Coding

AVS - Audio Video coding Standard

bit - binary digit

bpp - bits per pixel

BTC - Block Truncation Coding

C-2D-VLC - Context-based – 2-Dimensional – Variable Length Coding

CABAC - Context Adaptive Binary Arithmetic Coding

CALIC - Context-based Adaptive Lossless Image Coding

CD-ROM - Compact Disk – Read Only Memory
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<tr>
<td>CF</td>
<td>Cumulative Frequency</td>
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<tr>
<td>CR</td>
<td>Compression Ratio</td>
</tr>
<tr>
<td>dB</td>
<td>decibel</td>
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<td>DCT</td>
<td>Discrete Cosine Transform</td>
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<td>DWT</td>
<td>Discrete Wavelet Transform</td>
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<tr>
<td>EZW</td>
<td>Embedded Zerotree Wavelet</td>
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<td>FAX</td>
<td>Facsimile Transmission</td>
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<tr>
<td>FPGA</td>
<td>Field Programmable Gate Array</td>
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<tr>
<td>ITU-T</td>
<td>International Telecommunication Union – Telecommunication</td>
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<td>CCITT</td>
<td>International Telegraph and Telephone Consultative Committee</td>
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<td>JPEG</td>
<td>Joint Photographic Expert Group</td>
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<tr>
<td>Kbps</td>
<td>Kilo bits per second</td>
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<td>LNS</td>
<td>Logarithmic Number System</td>
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<td>Log-Exp</td>
<td>Logarithmic-Exponential Transform</td>
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<td>MATLAB</td>
<td>Matrix Laboratory</td>
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<td>Mbits</td>
<td>Mega bits</td>
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<td>MB</td>
<td>Megabyte</td>
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<tr>
<td>MBTC</td>
<td>Modified Block Truncation Coding</td>
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<tr>
<td>MHz</td>
<td>Mega Hertz</td>
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<tr>
<td>MSB</td>
<td>Most Significant Bit</td>
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<tr>
<td>MSE</td>
<td>Mean Square Error</td>
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<tr>
<td>PSNR</td>
<td>Peak-Signal-to-Noise Ratio</td>
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<td>RMBTC</td>
<td>Ratio-Modified Block Truncation Coding</td>
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<td>RMBTC-BPC</td>
<td>Ratio-Modified Block Truncation Coding with Bitplane Coding</td>
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<td>SPIHT</td>
<td>Set Partitioning In Hierarchical Trees</td>
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<td>TV</td>
<td>Television</td>
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<td>VQ</td>
<td>Vector Quantization</td>
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