**CLAIMS**

1. A method comprising:

via computer processing hardware:

receiving a first set of adjustment values, the first set of adjustment values specifying adjustments to be made to a predicted rendition of a signal generated at a first level of quality to reconstruct a rendition of the signal at the first level of quality;

processing the first set of adjustment values; and

deriving a second set of adjustment values based on the first set of adjustment values and on a rendition of the signal at a second level of quality, the second level of quality lower than the first level of quality.

2. The method as in claim 1, wherein deriving the second set of adjustment values includes:

processing the first set of adjustment values to produce multiple adjustment components representative of the first set of adjustment values; and

producing the second set of adjustment data based on a combination of at least one of the multiple adjustment components with at least one setting associated with the rendition of the signal at the second level of quality.

3. The method as in claim 1 further comprising:

calculating at least one of the adjustment values in the second set based on a linear combination of the first set of adjustment values with the rendition of the signal at the second level of quality.

4. The method as in claim 1 further comprising:

receiving the rendition of the signal at the first level of quality;

producing the rendition of the signal at the second level of quality based on the rendition of the signal at the first level of quality;

producing the predicted rendition of the signal at the first level of quality based at least in part on the rendition of the signal at the second level of quality;

producing the first set of adjustment values as a difference between the rendition of the

signal at the first level of quality and the predicted rendition of the signal at the first level of quality;

producing a formatted set of adjustment values from the first set of adjustment values;

transforming the formatted set of adjustment values into the second set of adjustment values;

encoding the second set of adjustment values and the rendition of the signal at the second level of quality into corresponding encoded information; and

transmitting the corresponding encoded information to decoder processing hardware.

5. The method as in claim 4 further comprising:

at the decoder processing hardware:

receiving the encoded information;

from the encoded information, obtaining reconstruction data specifying how to reconstruct the rendition of the signal at the second level of quality;

from the encoded information, obtaining the second set of adjustment values;

reproducing the predicted rendition of the signal at the first level of quality based on the obtained reconstruction data;

deriving an adjustment value based on the predicted rendition of the signal and the obtained reconstruction data;

utilizing the derived adjustment value to modify the second set of adjustment values; and

applying the modified second set of adjustment values to the reproduced predicted rendition of the signal to produce the rendition of the signal at the first level of quality.

6. The method as in claim 1 further comprising:

producing multiple sets of reconstruction data, each set of reconstruction data including settings for multiple components, each of the sets of multiple components including a first component value and a second component value, the first component value in each of the sets corresponding to a first attribute class, the second component value in each of the sets corresponding to a second attribute class;

creating a first grouping to include a first component value from each of multiple sets of

reconstruction data;

creating a second grouping to include a second component value from each of multiple sets of reconstruction data; and

encoding the first grouping independently of encoding the second grouping.

~~7. The method as in claim 1, wherein producing the second set of adjustment values includes:~~

~~applying a quantization algorithm to the first set of adjustment values to produce a quantized set of adjustment values;~~

~~applying at least one lossless and invertible operation on the quantized set of adjustment values to produce an intermediate set of adjustment values;~~

~~receiving a value derived based at least in part on the rendition of the signal at the second level of quality; and~~

~~utilizing the value to convert the intermediate set of adjustment values into the second set of adjustment values.~~

~~8. The method as in claim 7, wherein a difference between respective settings in the set of quantized set of adjustment values and corresponding settings in the first set of adjustment values is below an error threshold value.~~

~~9. The method as in claim 1, wherein the signal is a plane of elements;~~

~~wherein the second set of adjustment values pertain to reconstruction of a particular location in the plane; and~~

~~wherein the second set of adjustment values are quantized depending on the particular location.~~

~~10. The method as in claim 1, wherein the second set of adjustment values are quantized depending on attributes of the signal to which the second set of adjustment values pertains.~~

~~11. The method as in claim 1, wherein the second set of adjustment values includes~~

~~multiple reconstruction data components, the method further comprising:~~

~~encoding at least two of the multiple reconstruction data components using a single symbol.~~

~~12. The method as in claim 1, wherein the second set of adjustment values is one of multiple sets of reconstruction data used to reconstruct a plane of elements in the signal, the method further comprising:~~

~~encoding each of at least two of the multiple sets of reconstruction data using a common symbol.~~

~~13~~7. The method as in claim 1, wherein the signal is a two-dimensional image.

~~14~~8. The method as in claim 1, wherein the signal is a video signal.

~~15~~9. The method as in claim 1, wherein the signal is a volumetric image.

~~16~~10. The method as in claim 1 further comprising:

producing a formatted set of adjustment values from the first set of adjustment values;

transforming the formatted set of adjustment values into the second set of adjustment values; and

applying a quantization algorithm to the second set of adjustment values to produce a set of quantized adjustment values.

~~17~~11. The method as in claim 1, wherein the second set of adjustment values is a set including multiple adjustment data components, the method further comprising:

quantizing each of the adjustment data components to produce a quantized set of adjustment values.

~~18~~12. The method as in claim ~~17~~ 11 further comprising:

quantizing a first adjustment data component in the set based on first quantization rules; and

quantizing a second adjustment data component in the set based on second quantization rules, the second quantization rules different than the first quantization rules.

~~19~~13. The method as in claim 1, wherein the first level of quality is a first image resolution; and

wherein the second level of quality is a second image resolution, the second image resolution lower than the first image resolution.

~~20~~14. A method comprising:

via computer processing hardware:

receiving setting information associated with a rendition of a signal at a first level of quality;

receiving a set of adjustment values;

producing a preliminary rendition of the signal at a second level of quality based on the setting information, the second level of quality higher than the first level of quality; and

producing a secondary rendition of the signal at the second level of quality based on the set of adjustment values and the preliminary rendition of the signal at the second level of quality.

~~21~~15. The method as in claim ~~20~~14, wherein producing a secondary rendition of the signal includes:

modifying the set of adjustment values based at least in part on the rendition of the signal at the first level of quality; and

applying the modified set of adjustment values to the preliminary rendition of the signal at the second level of quality to produce a secondary rendition of the signal at the second level of quality.

~~22~~16. The method as in claim ~~21~~15, wherein the setting information is first setting information; and

wherein modifying the set of adjustment values includes:

receiving the first setting information, the first setting information associated with a rendition of the signal at the first level of quality;

receiving second setting information, the second setting information associated with the preliminary rendition of the signal at the second level of quality, the preliminary rendition of the signal at the second level of quality derived from the first setting information;

applying a mathematical algorithm to a combination of the first setting information and the second setting information to produce a modification value; and

applying the modification value to the set of adjustment values to produce the modified set of adjustment values.

~~23~~17. The method as in claim ~~22~~16, wherein applying the modification value to the set of adjustment values to produce the modified set of adjustment values includes:

retrieving a data component from the set of adjustment values; and

summing the modification value and the retrieved component to modify the component.

~~24~~18. The method as in claim ~~23~~ 17 further comprising:

modifying settings of each of multiple elements in the preliminary rendition of the signal at the second level of quality based on the modified component.

~~25~~19. The method as in claim ~~20~~14, wherein the preliminary rendition of the signal at the second level of quality is a predicted rendition of the signal at the second level of quality; and

wherein the secondary rendition of the signal at the second level of quality is used as a basis to produce a preliminary rendition of the signal at a third level of quality, the third level of quality higher than the second level of quality.

~~26~~20. The method as in claim ~~20~~14, wherein the first level of quality is a first image resolution; and

wherein the second level of quality is a second image resolution, the second image resolution higher than the first image resolution.

~~27~~21. The method as in claim ~~26~~20, wherein the rendition of the signal at the first level of quality includes a first set of image elements;

wherein the rendition of the signal at the second level of quality includes a second set of image elements; and

wherein the second set includes more image elements than the first set.

~~28~~22. The method as in claim ~~20~~14, wherein at least one of multiple components in the set of adjustment values includes directional tilt information capturing settings associated with multiple elements in the rendition of the signal at the second level of quality.

~~29~~23. The method as in claim ~~20~~ 14 further comprising:

receiving metadata associated with the set of adjustment values;

identifying an operation as specified by the metadata; and

applying the operation to the set of adjustment values to derive the secondary rendition of the signal from the preliminary rendition of the signal.

~~30~~24. The method as in claim ~~21~~ 15 further comprising:

producing the secondary rendition of the signal at the second level of quality via a linear application of the modified set of adjustment values to the preliminary rendition of the signal.

~~31~~25. The method as in claim ~~21~~ 15 further comprising:

producing the secondary rendition of the signal at the second level of quality via application of the modified set of adjustment values to the preliminary rendition of the signal, said application including applying to an element of the preliminary rendition of the signal each of the modified adjustment values according to given weight parameters.

~~32~~26. The method as in claim ~~20~~14, wherein the setting information is first setting information, the method further comprising:

receiving the first setting information, the first setting information specifying settings associated with the rendition of the signal at the first level of quality;

receiving second setting information, the second setting information indicating settings of the preliminary rendition at the second level of quality, the preliminary rendition of the signal at the second level of quality derived from the first setting information;

applying a mathematical algorithm to the first setting information and to the second setting information to produce a modification value;

selecting a particular adjustment value in the set of adjustment values;

applying the modification value to the particular adjustment value to produce a modified adjustment value; and

utilizing the modified adjustment value to produce the secondary rendition of the signal from the preliminary rendition of the signal.

~~33~~27. The method as in claim ~~21~~ 15 further comprising:

producing the secondary rendition of the signal at the second level of quality via application of the modified set of adjustment values to the preliminary rendition of the signal, the modified set of adjustment values including a vector of adjustment values, the vector of adjustment values applied to the preliminary rendition to produce the secondary rendition of the signal in accordance with weightings as specified by a matrix.

~~34~~28. The method as in claim ~~21~~ 15 further comprising:

applying a linear combination function to the modified set of adjustment values to generate a set of modifier values; and

applying the modifier values to the preliminary rendition of the signal to produce the secondary rendition of the signal at the second level of quality.

~~35~~29. The method as in claim ~~34~~28, wherein the linear combination function includes addition functions and subtraction functions to generate the set of modifier values.

~~36~~30. The method as in claim ~~35~~29, wherein addition functions and subtraction functions

correspond to coefficients of a matrix selected from a group comprising:

$$\underline{\underline{M}} = \begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix}; \begin{pmatrix} 1 & 2 & 1 \\ 1 & -1 & 1 \\ 1 & -1 & -2 \end{pmatrix}; \begin{pmatrix} 1 & 1 & 1 & 1 \\ -1 & -1 & 1 & -1 \\ 1 & 1 & -1 & -1 \\ 1 & -1 & -1 & 1 \end{pmatrix}; \begin{pmatrix} 1 & 3 & 2 & 1 \\ 1 & -1 & 2 & 1 \\ 1 & -1 & -2 & 1 \\ 1 & -1 & -2 & -3 \end{pmatrix}; \begin{pmatrix} 1 & 4 & 3 & 2 & 1 \\ 1 & -1 & 3 & 2 & 1 \\ 1 & -1 & -2 & 2 & 1 \\ 1 & -1 & -2 & -3 & 1 \\ 1 & -1 & -2 & -3 & -4 \end{pmatrix}$$

$$; \begin{pmatrix} 1 & 5 & 4 & 3 & 2 & 1 \\ 1 & -1 & 4 & 3 & 2 & 1 \\ 1 & -1 & -2 & 3 & 2 & 1 \\ 1 & -1 & -2 & -3 & 2 & 1 \\ 1 & -1 & -2 & -3 & -4 & 1 \\ 1 & -1 & -2 & -3 & -4 & -5 \end{pmatrix}.$$

~~37~~31. The method as in claim ~~20~~ 14 further comprising:

receiving encoded information;

decoding the encoded information into multiple symbols;

retrieving a symbol from the multiple symbols; and

producing the set of adjustment values from the retrieved symbol.

~~38~~32. The method as in claim ~~20~~ 14 further comprising:

applying a first dequantization operation to reproduce a first adjustment value in the set; and

applying a second dequantization operation to reproduce a second adjustment value, the first dequantization operation different than the second dequantization operation.

~~39. The method as in claim 20, wherein the set of adjustment values is a set of multiple adjustment components, the method further comprising:~~

~~via application of an algorithm to the set of multiple adjustment components, deriving a set of quantized adjustment values;~~

~~applying a dequantization algorithm to the set of quantized adjustment values to produce a set of dequantized adjustment values; and~~

~~applying the set of dequantized set of adjustment values to the preliminary rendition of the signal to produce the secondary rendition of the signal.~~

~~40. The method as in claim 39, wherein deriving the set of quantized adjustment values includes:~~

~~modifying a particular adjustment component in the set to produce a modified set of multiple adjustment components, the multiple adjustment components in the modified set being of different bit lengths;~~

~~applying a first algorithm to the modified set of multiple adjustment components to adjust bit lengths of the components in the modified set to a common bit length.~~

~~41. The method as in claim 40, wherein deriving the set of quantized adjustment values further includes:~~

~~adjusting bit lengths of the components in the modified set to a common bit length so that all of the components in the bit-adjusted modified set have the same least significant bit of a given component in the modified set;~~

~~derifing the set of quantized adjustment values based on a linear combination of the components in the bit-adjusted modified set.~~

~~42. The method as in claim 20, wherein for a given element of the preliminary rendition of the signal at the second level of quality, producing settings for said given element further comprises:~~

~~receiving metadata associated with the upsampling operations to be used to produce, based on the rendition of the signal at the first level of quality, the preliminary rendition of the signal at the second level of quality;~~

~~identifying an upsampling operation as specified by the metadata; and~~

~~applying the operation to a subset of elements of the rendition of the signal at the first level of quality to derive the settings for said given element of the preliminary rendition of the signal at the second level of quality.~~

~~43~~33. Computer-readable storage hardware having instructions stored thereon, the instructions, when carried out by a processing device, causing the processing device to perform operations of:

receiving a first set of adjustment values, the first set of adjustment values specifying adjustments to be made to a predicted rendition of a signal generated at a first level of quality to reconstruct a rendition of the signal at the first level of quality;

processing the first set of adjustment values; and

deriving a second set of adjustment values based on the first set of adjustment values and a rendition of the signal at a second level of quality, the second level of quality lower than the first level of quality.

~~44~~34. Computer-readable storage hardware having instructions stored thereon, the instructions, when carried out by a processing device, causing the processing device to perform operations of:

receiving setting information associated with a rendition of a signal at a first level of quality;

receiving a set of adjustment values;

producing a preliminary rendition of the signal at a second level of quality based on the setting information, the second level of quality higher than the first level of quality; and

producing a secondary rendition of the signal at the second level of quality based on the set of adjustment values and the preliminary rendition of the signal at the second level of quality.

~~45~~35. A computer system comprising:

computer processor hardware; and

a hardware storage resource coupled to the computer processor hardware, the hardware storage resource storing instructions that, when executed by the computer processor hardware, causes the computer processor hardware to perform operations of:

receiving a first set of adjustment values, the first set of adjustment values specifying adjustments to be made to a predicted rendition of a signal generated at a first level of

quality to reconstruct a rendition of the signal at the first level of quality;

processing the first set of adjustment values; and

deriving a second set of adjustment values based on the first set of adjustment values and a rendition of the signal at a second level of quality, the second level of quality lower than the first level of quality.

~~46~~36. A computer system comprising:

computer processor hardware; and

a hardware storage resource coupled to the computer processor hardware, the hardware storage resource storing instructions that, when executed by the computer processor hardware, causes the computer processor hardware to perform operations of:

receiving setting information associated with a rendition of a signal at a first level of quality;

receiving a set of adjustment values;

producing a preliminary rendition of the signal at a second level of quality based on the setting information, the second level of quality higher than the first level of quality; and

producing a secondary rendition of the signal at the second level of quality based on the set of adjustment values and the preliminary rendition of the signal at the second level of quality.