Claims

1. A renderer apparatus, comprising:

a rendering unit configured to process an audio scene representation to be rendered and to receive at least one context-specific rule or parameter, the rendering unit being configured to generate a rendered audio signal from the audio scene representation conditioned by the at least one context-specific rule or parameter, the context-specific rule or parameter compensating a hearing-impairment; and

a contextualization unit configured to receive and/or derive context-specific data, the contextualization unit being configured to provide the at least one context-specific rule or parameter to the rendering unit based on the context-specific data.

2. The renderer apparatus of claim 1, wherein the rendering unit is configured to process the audio scene representation as including audio elements, the rendering unit being configured to generate the rendered audio signal from the audio elements and the at least one context-specific rule or parameter.

3. The renderer apparatus of any of the preceding claims, wherein the rendering unit is configured to process the audio scene representation including audio elements and metadata, the rendering unit being configured to generate the rendered audio signal from the audio elements, the metadata and the at least one context-specific rule or parameter.

4. The renderer apparatus of claim 3, wherein the metadata include positional metadata which provide information on at least one of a position, orientation, directivity, source, and width of at least one object to be rendered, the at least one object to be rendered being part of the audio scene representation, wherein the rendering unit is configured to generate the rendered audio signal from the audio elements, the metadata, and the at least one context-specific rule or parameter.

5. The renderer apparatus of any of claims 3-4, wherein the rendering unit is configured to:

modify the metadata based on the at least one context-specific rule or parameter to obtain modified metadata, wherein the rendering unit is configured to apply a spatial audio processing and synthesis to the audio elements based on the modified metadata, or .

apply a spatial audio processing and synthesis to the audio elements based on the metadata and the at least one context-specific rule or parameter.

6. The renderer apparatus of any of claims 3-5, wherein the rendering unit is configured to combine the audio elements based on the metadata and the at least one context-specific rule or parameter.

7. The renderer apparatus of any of the preceding claims, wherein the contextualization unit is configured to define the at least one context-specific rule or parameter to include a context-specific positional rule or parameter which associates context-specific gain weights with distances, positions, gestures and/or orientations, to correspondently apply a context-specific gain weight to an object to be rendered based on the context-specific positional rule or parameter.

8. The renderer apparatus of claim 7, wherein the context-specific positional rule or parameter defines the gain weights to be frequency-dependent, so that the rendering unit applies, according to the positional rule or parameter, a first context-specific gain weight to a first frequency band, and a second context-specific gain weight to a second frequency band.

9. The renderer apparatus of any of the preceding claims, wherein the contextualization unit is configured to define the at least one context-specific rule or parameter to include a context-specific positional rule or parameter based on a distance threshold or position threshold or orientation threshold, wherein the rendering unit is configured to compare a distance or position or orientation of an object to be rendered with the distance threshold or position threshold or orientation threshold, respectively, so as to refrain from rendering the object in case the distance or position or orientation is over the distance threshold or position threshold or orientation threshold, and render the object in case the distance or position or orientation is below the distance threshold or position threshold or orientation threshold.

10. The renderer apparatus of any of the preceding claims, wherein the contextualization unit is configured to define the at least one context-specific rule or parameter to include a positional rule or parameter stating a distance-dependent attenuation or position-dependent attenuation or orientation-dependent attenuation, of the gain of an object to be rendered, wherein the positional rule or parameter includes a context-specific attenuation parameter to be applied to the context-specific distance-dependent attenuation or position-dependent attenuation or orientation-dependent attenuation.

11. The renderer apparatus of any of the preceding claims, wherein the contextualization unit is configured to define the at least one context-specific rule or parameter to include a context-specific reverberation level reducing rule or parameter, so that the renderer unit performs a context-specific reduction of the reverberation level based on the context-specific reverberation level reducing rule or parameter.

12. The renderer apparatus of any of the preceding claims, wherein the contextualization unit is configured to define the at least one context-specific rule or parameter to include a context-specific early reflection level reducing rule or parameter, so that the rendering unit performs a context-specific reduction of the early reflection level based on the context-specific early reflection level reducing rule or parameter.

13. The renderer apparatus of any of the preceding claims, wherein the contextualization unit is configured to define the at least one context-specific rule or parameter to include a dynamic range control rule or parameter, so that the rendering unit performs dynamic range control based on the dynamic range control rule or parameter.

14. The renderer apparatus of any of the preceding claims, wherein the contextualization unit is configured to derive the context-specific rule or parameter from background noise, so as to apply a higher gain to the rendered audio signal in the case of higher background noise, and a lower gain to the rendered audio signal in case of lower background noise.

15. The renderer apparatus of any of the preceding claims, configured to process the audio scene representation to obtain a version of the audio scene representation including audio elements or audio elements and metadata, the renderer apparatus being further configured to generate the rendered audio signal from the audio elements and metadata.

16. The renderer apparatus of claim 15, configured to process the audio scene representation to obtain a version of the audio scene representation including audio elements in a core decoder block, and to process the version of the audio scene representation to generate the rendered audio signal from the audio elements in a rendering block.

17. The rendering unit of any of the preceding claims, wherein the contextualization unit is configured to derive a degradation model from the contextualization profile and/or the

context-specific data, the degradation model being indicative a specific degradation of the capability of acquiring the rendered audio signal by a specific human user or another audio-receiving entity, wherein the contextualization unit is further configured, based on the degradation model, to define the at least one context-specific rule or parameter to compensate for the specific degradation.

18. The rendering unit of any of the preceding claims, configured to perform a simplified rendering in case of determining that the user has an impaired hearing and/or has a reduced cognitive and/or physical sensitivity.

19. The renderer apparatus of any of the preceding claims, wherein the contextualization unit is configured to access to user-specific physical and/or cognitive hearing degradation information providing information on a user-specific physical and/or cognitive hearing degradation, and to define the at least one context-specific rule or parameter as a user-specific rule or parameter based on the user-specific physical and/or cognitive hearing degradation information.

20. The renderer apparatus of any of the preceding claims, wherein the rendering unit is configured to perform a selection between:

a first, default mode, in which the rendering unit operates using at least one first selectable rule or parameter, wherein the first selectable rule or parameter is either a default rule or parameter or a first context-specific rule or parameter of the at least one context-specific rule or parameter; and

a second, contextualized mode, in which the rendering unit operates using at least one second selectable rule or parameter instead of the first selectable rule or parameter, wherein the second selectable rule or parameter is a context-specific rule or parameter of the at least one context-specific rule or parameter different from the first selectable rule or parameter.

21. The renderer apparatus of any of the preceding claims, configured to receive a feedback signal from an audio consumption device indicating user’s movements, positions and/or orientations, so that the rendering unit provides the rendered audio signal based on the feedback signal.

22. The renderer apparatus of any of the preceding claims, wherein the rendered audio signal is part of an audio scene in a virtual reality or augmented reality environment, the rendered audio signal being defined based on the position and/or orientation of the user.

23. The renderer apparatus of any to the preceding claims, wherein the audio elements include audio objects.

24. The renderer apparatus of any to the preceding claims, wherein the audio elements include audio channels.

25. The renderer apparatus of any to the preceding claims, wherein the rendering unit is configured to provide the rendered audio signal to an auralization unit.

26. The renderer apparatus of any of the preceding claims, configured to receive the audio scene representation in a compressed version, and to perform a first decompressing operation by converting the audio scene representation into a version including the audio elements.

27. The renderer apparatus of any of the preceding claims, wherein the context-specific data are, or include, user-specific personalization data of a particular human user.

28. An audio rendering method, comprising:

processing an audio scene representation generating a rendered audio signal from the audio scene representation conditioned by at least one context-specific rule or parameter, the context-specific rule or parameter compensating a hearing-impairment,

the method including generating the at least one context-specific rule or parameter based on the context-specific data.

29. A non-transitory storage unit storing instructions which, when executed by a processor, cause the processor to perform the method of claim 28.