

15. The method of claim 9, wherein the filtering includes traversing the data of one data layer in one level before traversing the data layer of the next level.

16. The method of claim 9, wherein the data structure has a plurality of dimensions and the filtering includes traversing the data of one data layer in one dimension before traversing the data layer in the next dimension.

17. The method of multi-level iterative digital filtering of a data structure, whereby the elements of the data structure form the zero layer in the zero level and the data layer in each subsequent level is given by the results of one iteration, comprising:

subdividing each level into a plurality of regions, there being data dependency between the data in one data layer in one level and the data layers in any other level of a region; filtering each level by lapped-region processing;

stopping the processing at the end of one region; and storing the data relating to data dependencies included in adjacent unprocessed regions.

18. The method of claim 17, wherein the output from the filtering is a multiresolutional data structure.

19. The method of claim 17, wherein said filtering includes calculating and outputting a first data layer in a first level from a filtering on the zero data layer in the zero level of a first region as well as substantially all the other data layers in the other levels of the first region before outputting any data layer of a second region.

20. The method of claim 17, wherein each region may contain one or more blocks.

21. The method of claim 20, additionally comprising block dependent expanding data dependencies between two data layers in two successive levels.

22. The method claim 21, wherein the outputs from processing the blocks are scheduled to occur at substantially equal time intervals.

23. The method of claim 17, wherein the filtering includes traversing the data of one data layer in one level before traversing the data layer of the next level.

24. The method of claim 17, wherein the data structure has a plurality of dimensions and the filtering includes traversing the data of one data layer in one dimension before traversing the data layer in the next dimension.

25. A method of multi-level iterative filtering of a multi-level representation of a data structure to reconstruct the data structure, the multi-level representation including data clusters, comprising:

receiving the multi-level representation; filtering the multi-level representation by lapped-cluster processing; and

scheduling the filtering process so that substantially only the data which is required for reconstructing a region of the data structure is processed before beginning with the filtering to reconstruct the next region of the data structure.

26. The method of claim 25, wherein the filtering includes traversing the data of one data layer in one level before traversing the data layer of the next level.

27. The method of claim 25, wherein the data structure has a plurality of dimensions and the filtering includes traversing the data of one data layer in one dimension before traversing the data layer in the next dimension.

28. The method of claim 25, additionally comprising: stopping the processing at the end of one reconstructed region; and

storing the data relating to data dependencies required for the processing of adjacent unprocessed regions.

29. A filtering apparatus for multi-level iterative digital filtering of a data structure, whereby the elements of the data structure form the zero level and each subsequent level is defined by the results of one iteration, comprising:

a control means for subdividing the data layer of each level into a plurality of regions, there being data dependency between the data in one data layer in one level and the data layers in any other level of a region; and

a filtering module for filtering each level by lapped-region processing, said filter module being adapted to schedule the data processing of each level to provide substantially regional synchronization of the filtering at each level.

30. The apparatus of claim 29, wherein said filtering module is adapted to traverse the data of one data layer in one level before traversing the data layer of the next level.

31. The apparatus of claim 29, wherein the data structure has a plurality of dimensions and said filtering module is adapted to traverse the data of one data layer in one dimension before traversing the data layer in the next dimension.

32. A filtering apparatus for multi-level iterative digital filtering of a data structure, whereby the elements of the data structure form the zero level and each subsequent level is defined by the results of one iteration, comprising:

a control means for subdividing the data layer of each level into a plurality of regions, there being data dependency between the data in one data layer in one level and the data layers in any other level of a region; and

a filtering module for filtering each level by lapped-region processing, said filter module being adapted to stop the processing at the end of one region and to store the data relating to data dependencies included in adjacent unprocessed regions.

33. The apparatus of claim 32, wherein said filtering module is adapted to traverse the data of one data layer in one level before traversing the data layer of the next level.

34. The apparatus of claim 32, wherein the data structure has a plurality of dimensions and said filtering module is adapted to traverse the data of one data layer in one dimension before traversing the data layer in the next dimension.

35. A filtering apparatus for multi-level iterative digital filtering of a multi-level representation of a data structure to reconstruct the data structure, the multi-level representation including data clusters, comprising:

a filtering module for filtering the multi-level representation by lapped-cluster processing,

a controller for controlling the flow of data through said filtering module, said controller being adapted to schedule the data processing in said filtering module so that substantially only the data which is required for reconstructing a region of the data structure is processed before beginning with the filtering process to reconstruct the next region of the data structure.

36. The apparatus of claim 35, said filtering module is adapted to traverse the data of one data layer in one level before traversing the data layer of the next level.

37. The apparatus of claim 35, wherein the data structure has a plurality of dimensions and said filtering module is adapted to traverse the data of one data layer in one dimension before traversing the data layer in the next dimension.

38. A filtering apparatus for multi-level iterative digital filtering of a multi-level representation of a data structure to