

**Apparatus and method for conversion into
a transformed representation or for
inverse conversion of the transformed representation**

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Abstract

For converting first and second blocks of discrete values
10 into a transformed representation, the first block is
transformed (102) according to a first transformation rule
and then rounded (104). Then, the rounded transformed
values are summed with the second block of original
discrete values (106), to then process (108) the summation
15 result according to a second transformation rule. The
output values of the transformation via the second
transformation rule are again rounded (110) and then
subtracted (112) from the original discrete values of the
first block of discrete values to obtain a block of integer
20 output values of the transformed representation. By this
multi-dimensional lifting scheme, a lossless integer
transformation is obtained, which can be reversed by
applying the same transformation rule, but with different
signs in summation and subtraction, respectively, so that
25 an inverse integer transformation can also be obtained.
Compared to a separation of a transformation in rotations,
on the one hand, a significantly reduced computing
complexity is achieved and, on the other hand, an
accumulation of approximation errors is prevented.



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