Algorithm 1 Wavelet Transform: Wavelet Pyramid Method: Row Transform

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Require: Wavelet Pair hA and hD of length w_l
Require: Temporary Vector S
Require: Matrix, $A \in \mathbb{R}^{M \times N}$
Require: Limits of Rows and Columns to traverse: M' and N'
Require: Temporary vectors xA and xD for row Average vector and row Difference Vector.
   Initialize vector xA and xD
   for $i = 0$ to M' **do**
     Initialize xA and xD
     for $k = 0$ to N' **do**
       for $l = 0$ to w_l **do**
         $n = k - l$
         if $n \in [0, N']$ **then**
           $xA_k = A_{i,n} \cdot hA_l$
           $xD_k = A_{i,n} \cdot hD_l$
         end if
       end for
     end for
     Transfer to α. $\alpha_i \leftarrow xA'|xD'$
   end for
   Return α