Algorithm 1 Wavelet Transform: Wavelet Pyramid Method: Column 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 yA and yD for column Average vector and column
    Difference Vector.
    for $j = 0$ to N' **do**
        Initialize yA and yD
        for $k = 0$ to M' **do**
            for $l = 0$ to w_l **do**
                $n = k - l$
                if $n \in [0, M']$ **then**
                    $yA_k = A_{n,j} \cdot hA_l$
                    $yD_k = A_{n,j} \cdot hD_l$
                end if
            end for
        end for
        Transfer to α. $\alpha_j \leftarrow yA'|yD'$
    end for
    Return α