

IMN-359

Décomposition/Reconstruction
en ondelettes 2D

Approximation 2D de Haar

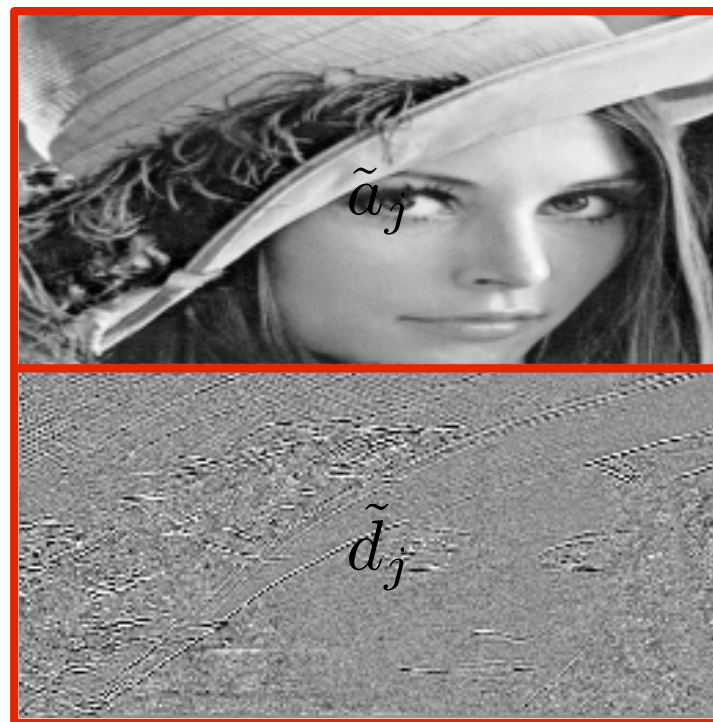


Multirésolution

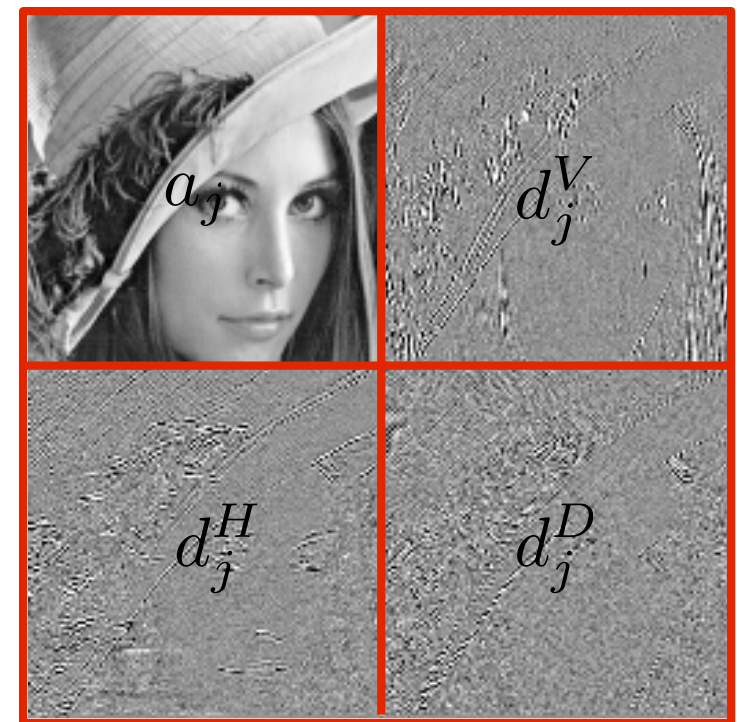
échelle 2^j entre $j = 8$ et 5



Coefficients a_j



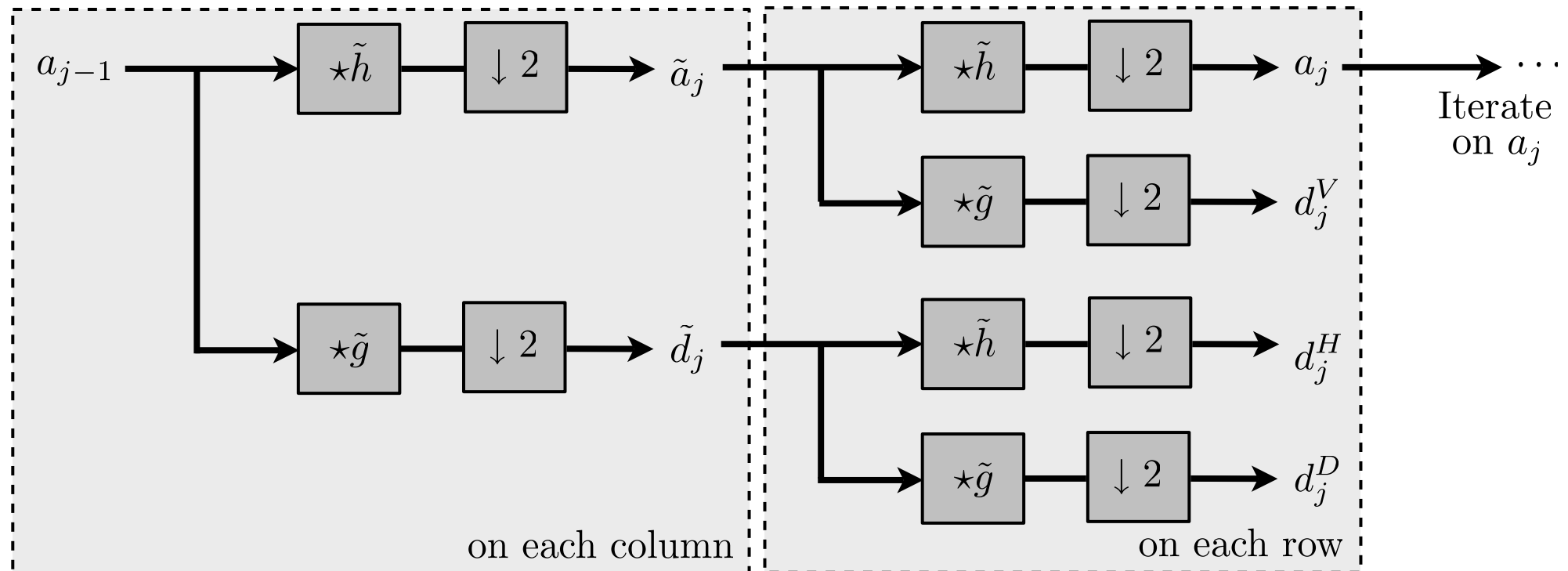
Transform on rows



Transform on columns

$$\text{sum}(a_{j-1}^2) = \text{sum}(a_j^2 + d_j^H^2 + d_j^V^2 + d_j^D^2)$$

Décomposition



Aujourd'hui

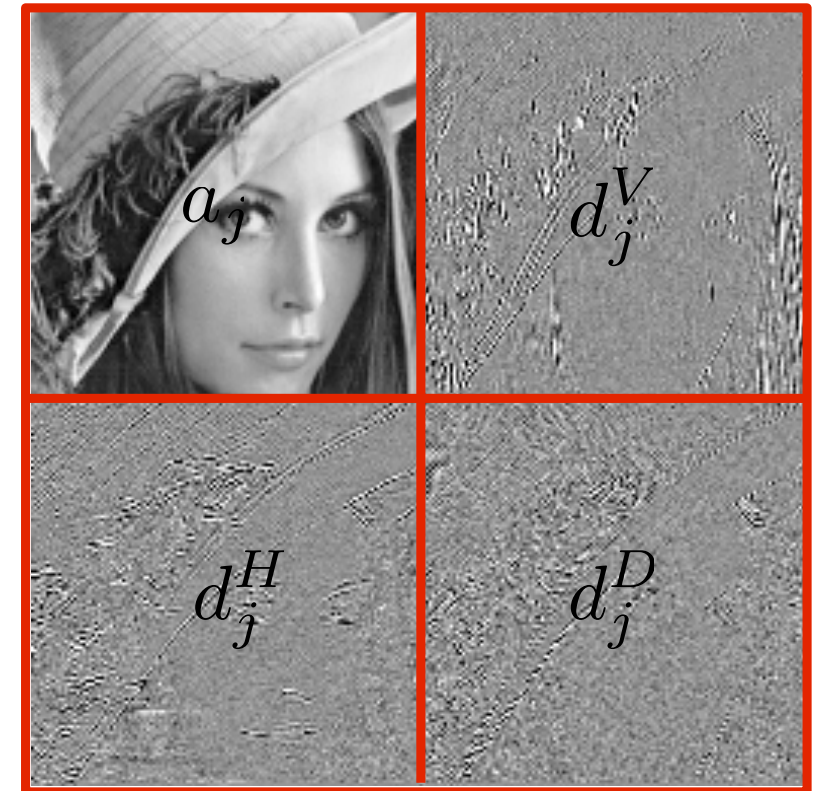
1. Décomposition - fwt2
(check conservation d'énergie)
2. Reconstruction - ifwt2
(check erreur nulle)
3. Approximation linéaire - linapprox
($M \times M$ premiers coefficients)
4. Approximation nonlinéaire - nonlinapprox
(M^2 plus gros coefficients)
5. Comprendre shape.m



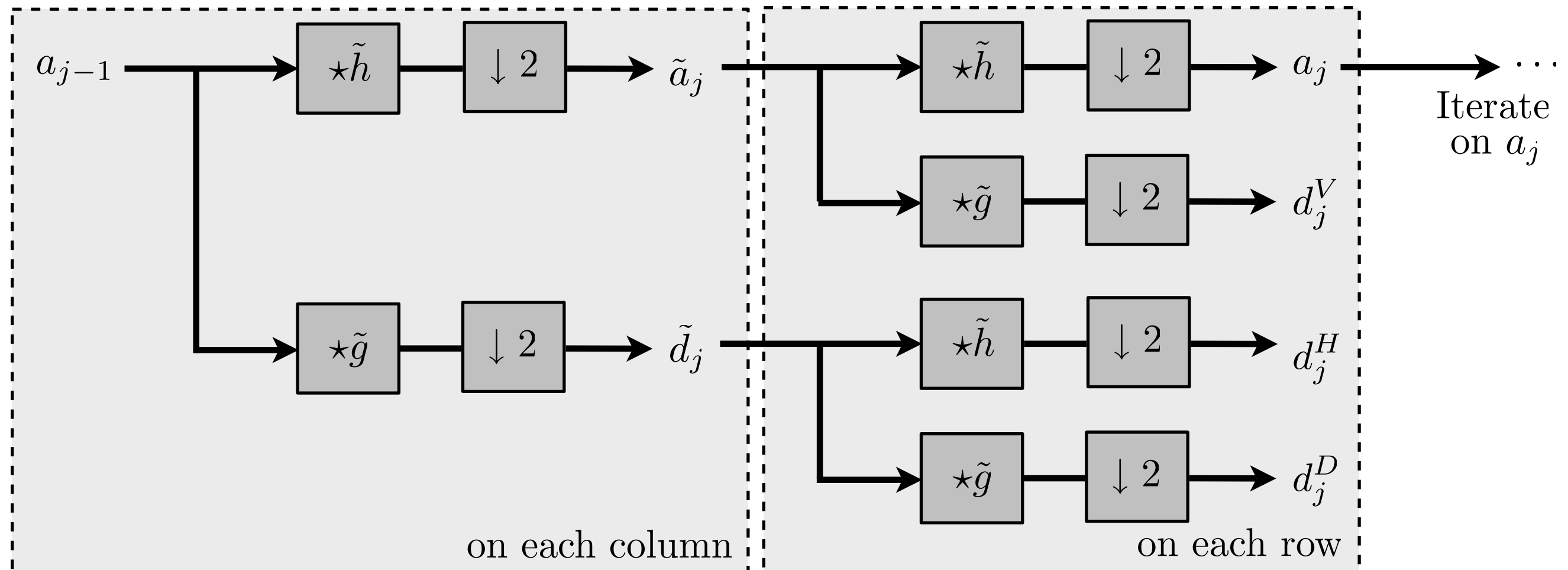
Coefficients a_j



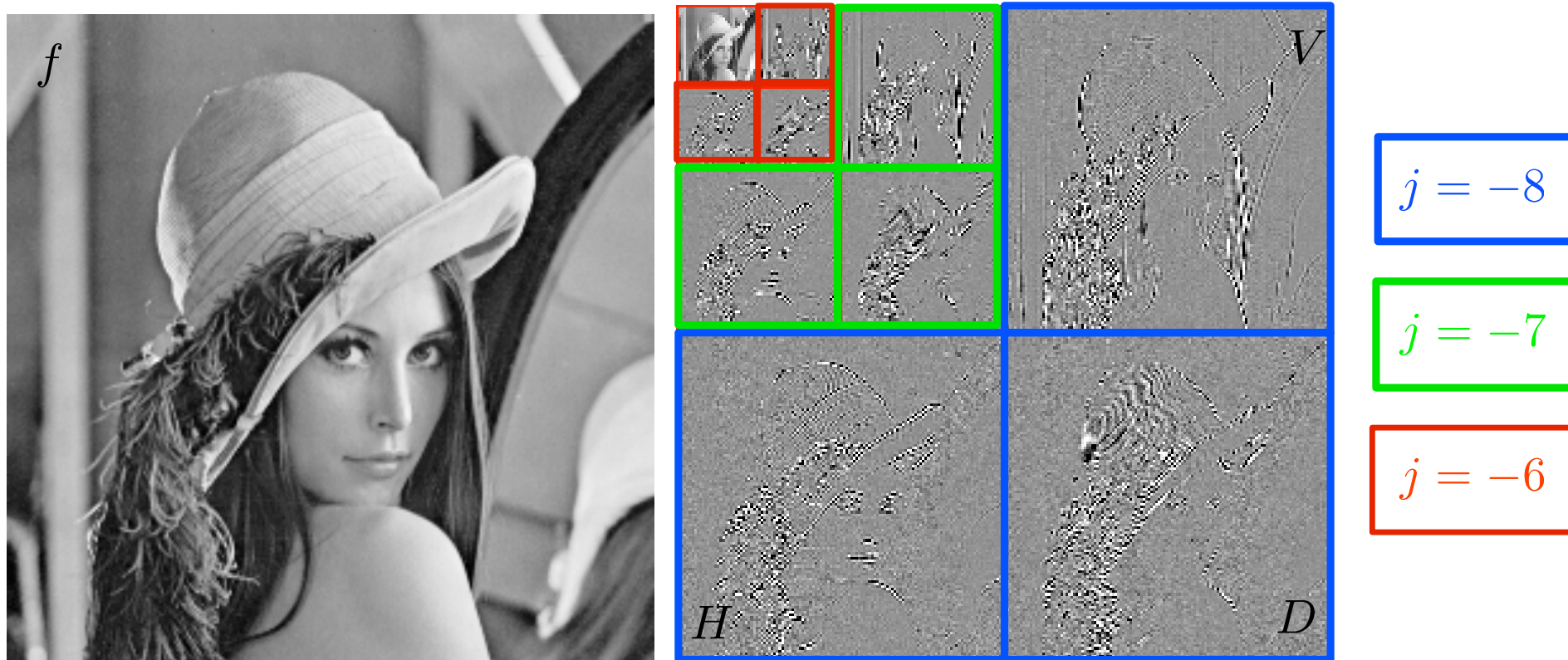
Transform on rows



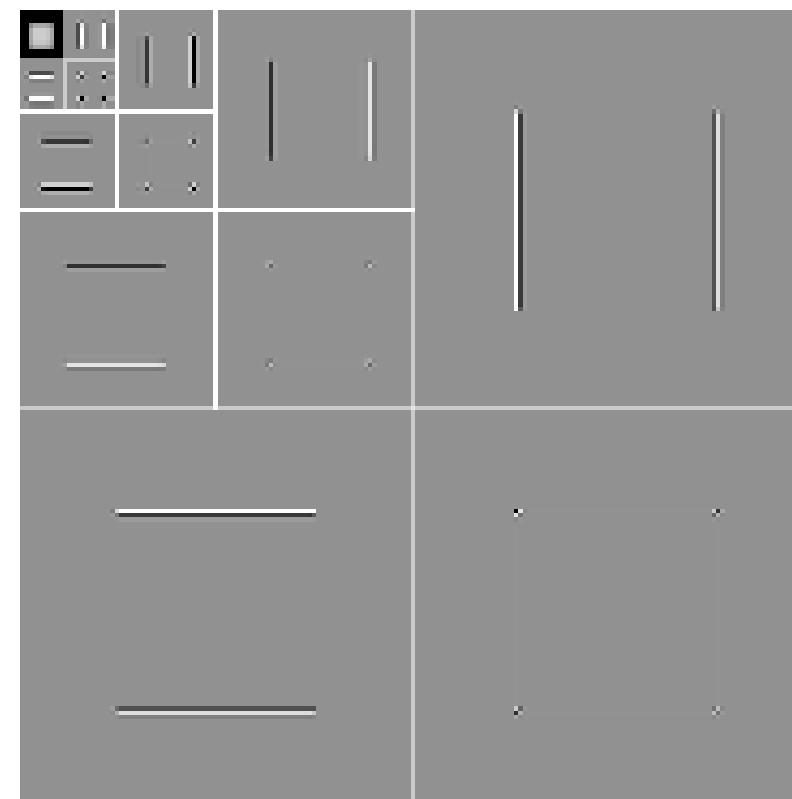
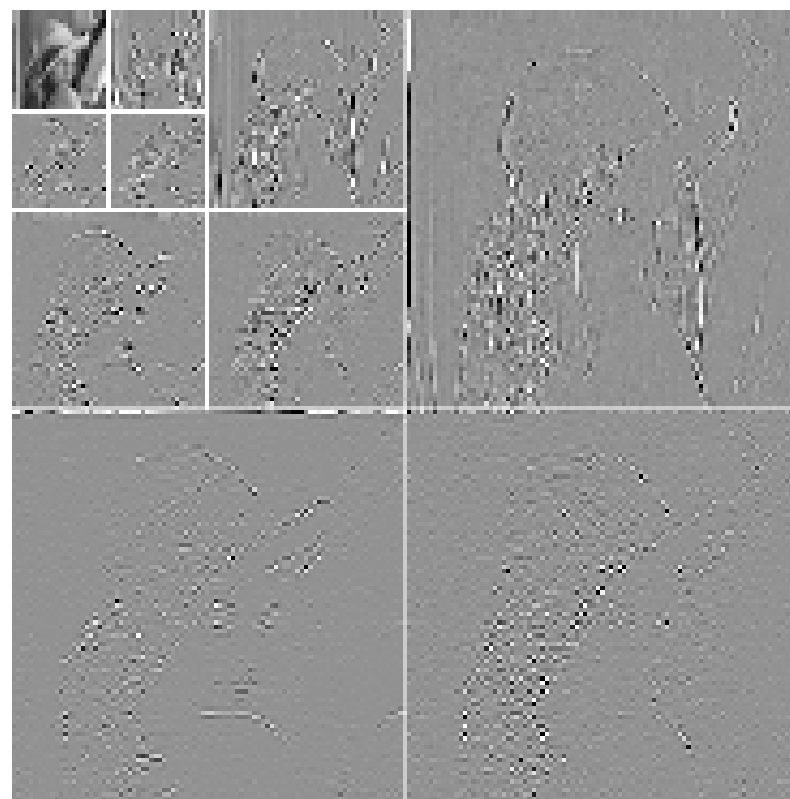
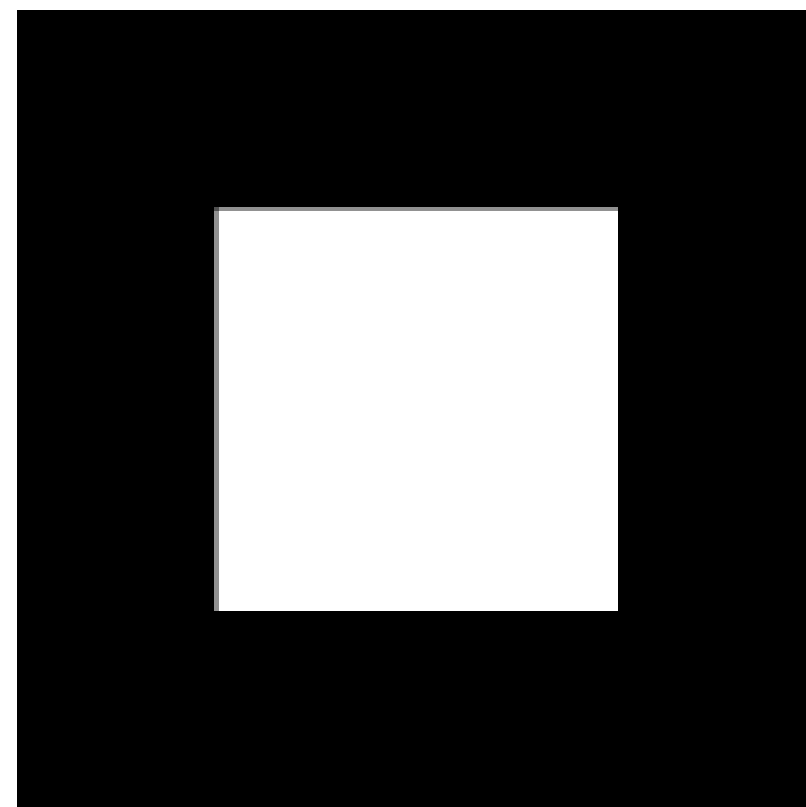
Transform on columns



Décomposition ondelettes 2D



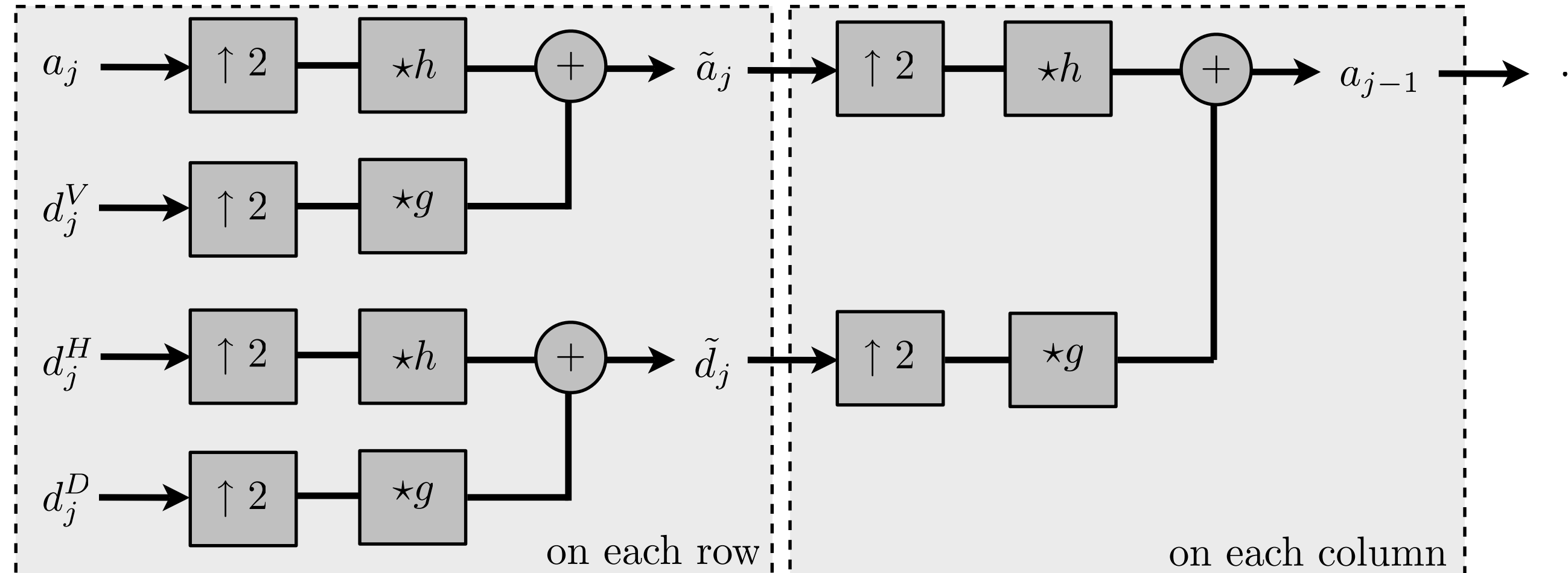
a_{L+3}	d_{L+3}^2	d_{L+2}^2	d_{L+1}^2
d_{L+3}^1	d_{L+3}^3		
d_{L+2}^1		d_{L+2}^3	
d_{L+1}^1			d_{L+1}^3



Aujourd'hui

1. Décomposition - `fwft2`
(check conservation d'énergie)
2. Reconstruction - `ifwft2`
(check erreur nulle)
3. Approximation linéaire - `linapprox`
($M \times M$ premiers coefficients)
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(M^2 plus gros coefficients)
5. Comprendre `shape.m`

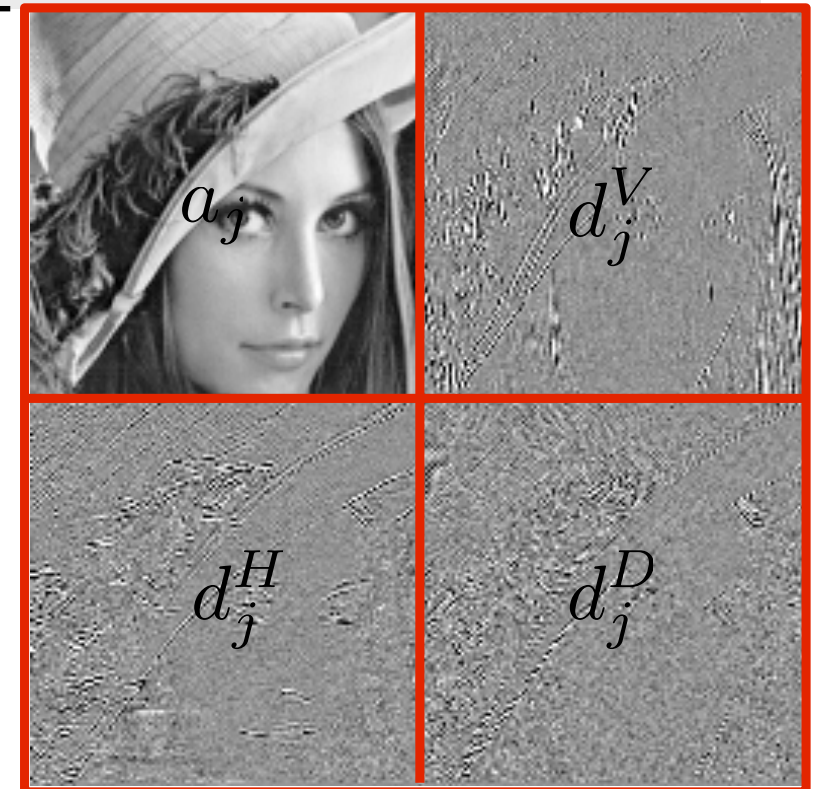
Reconstruction ondelettes 2D



Coefficients a_j



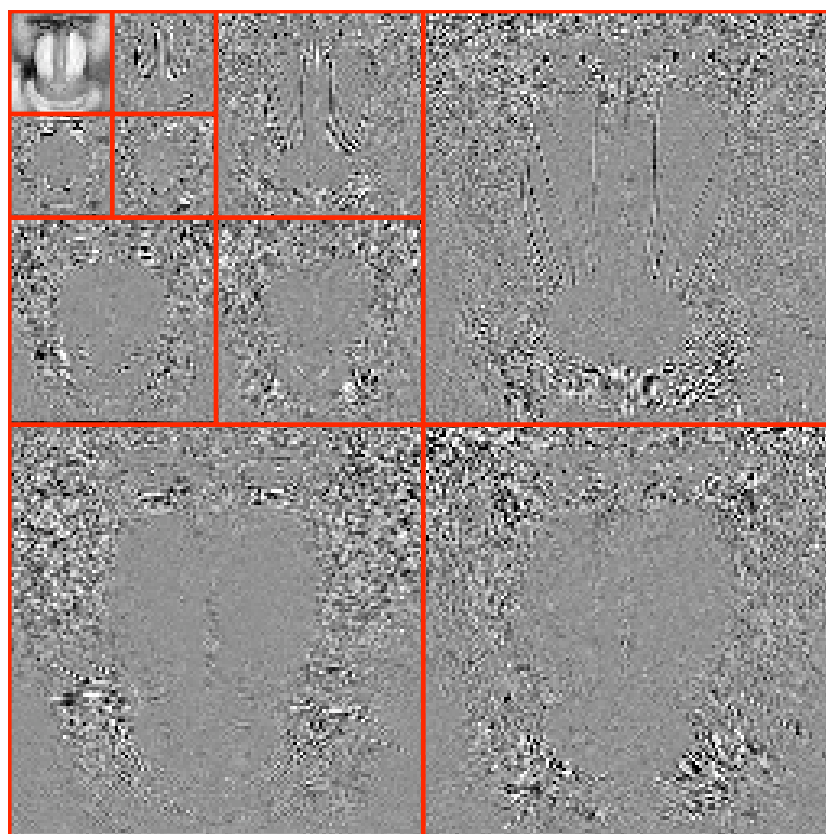
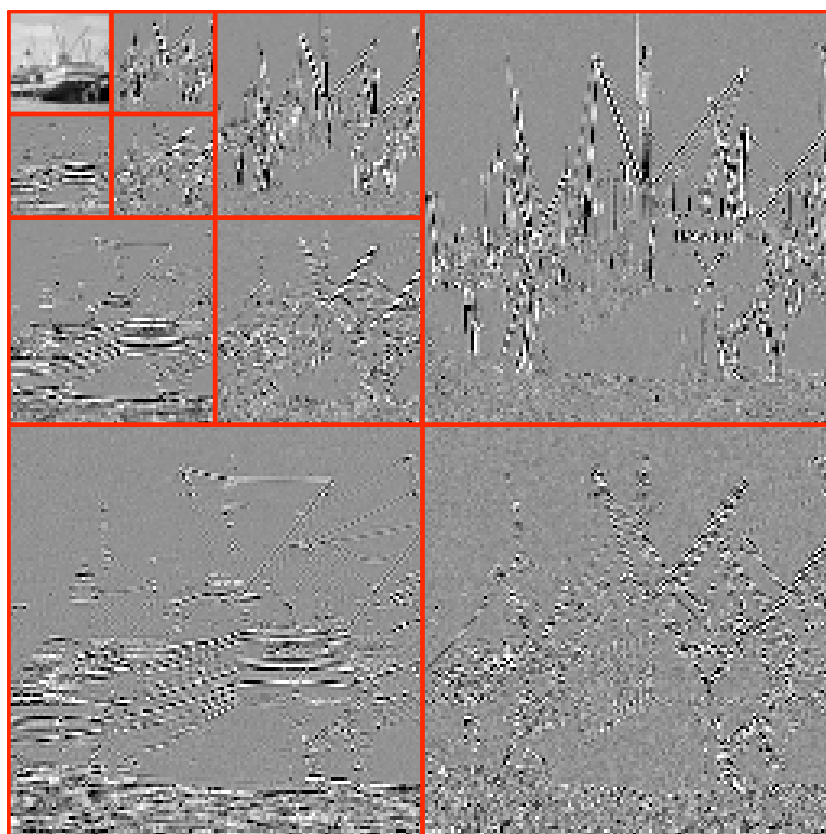
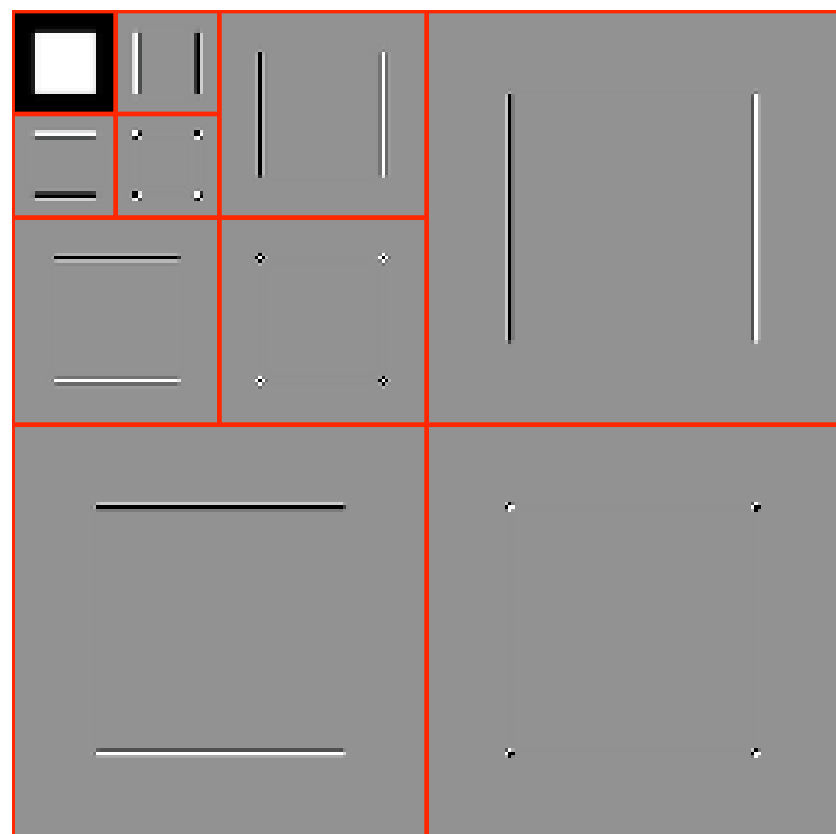
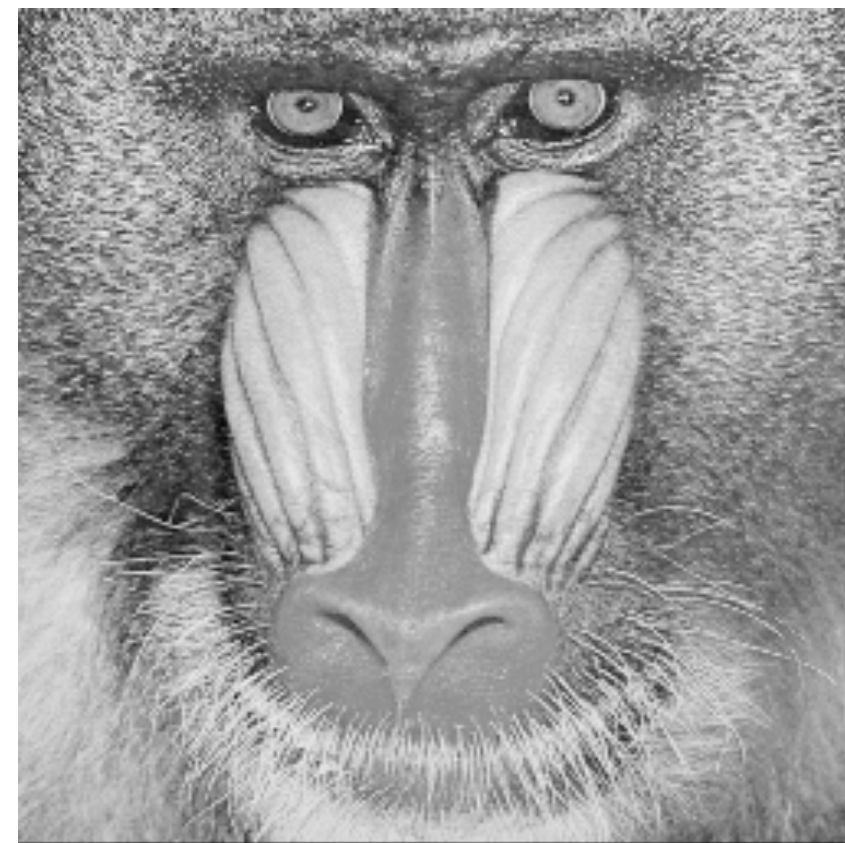
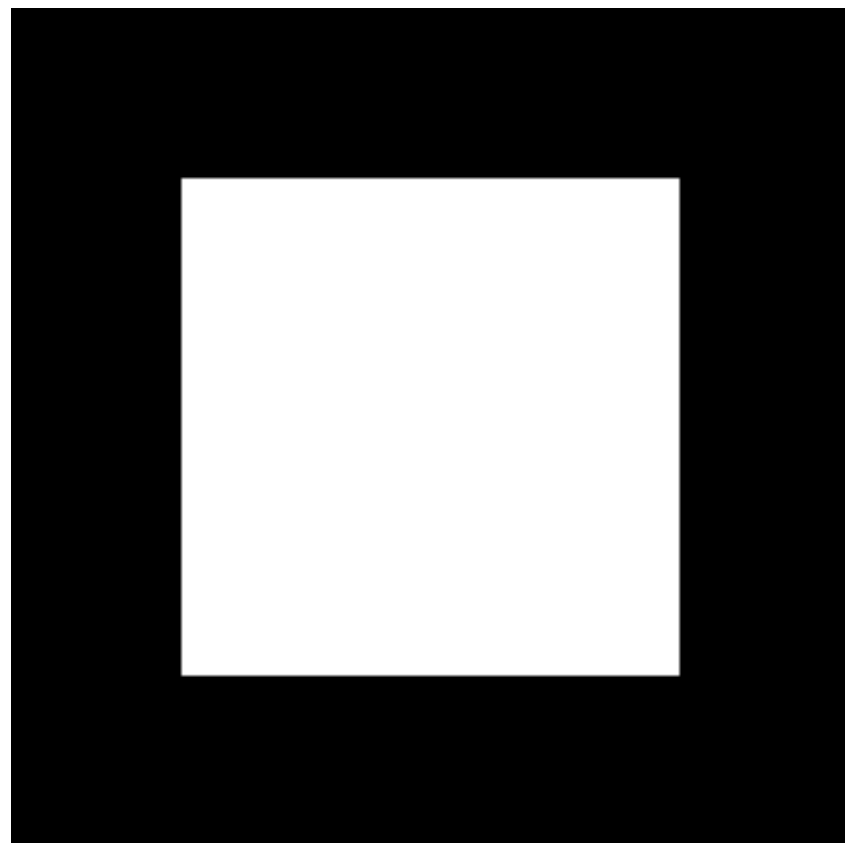
Transform on rows



Transform on columns

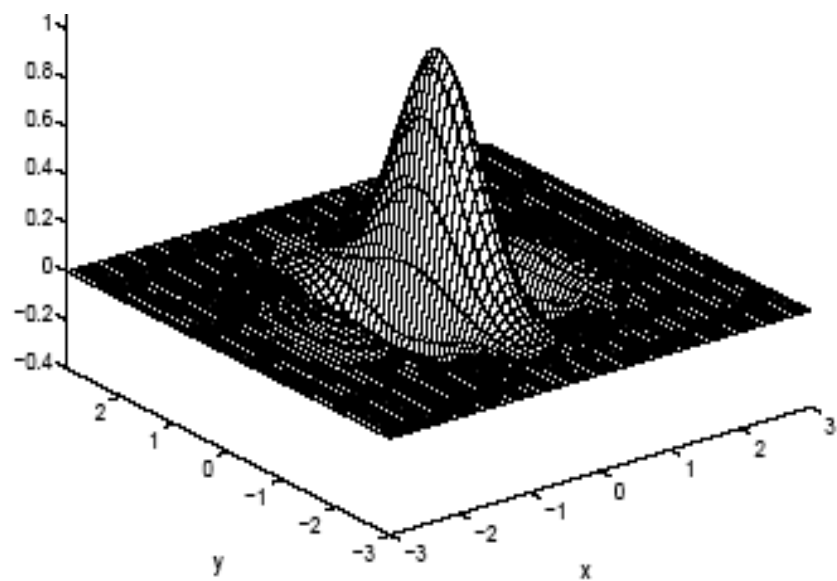
Aujourd'hui

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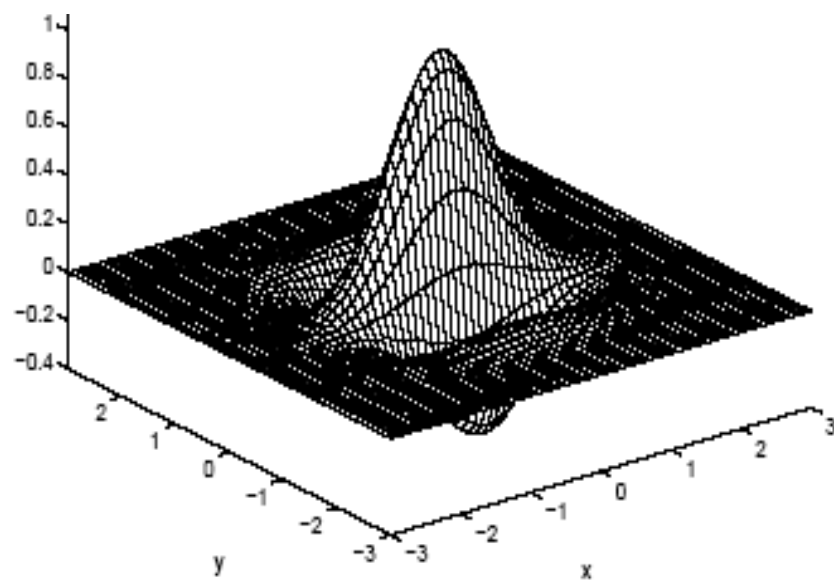


Ondelettes Daubechies 2D

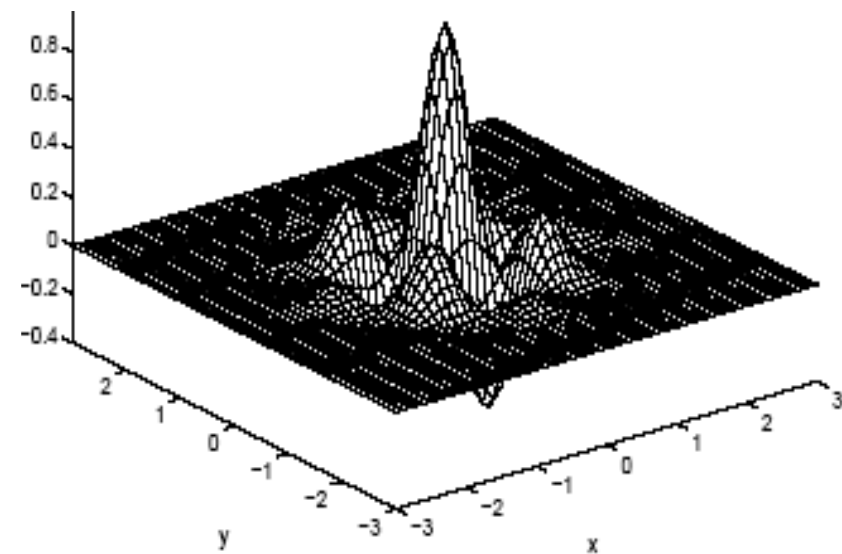
horizontal, vertical, diagonal



ψ^H



ψ^V



ψ^D