

Projet de Traitement du Signal

Segmentation d'image SAR

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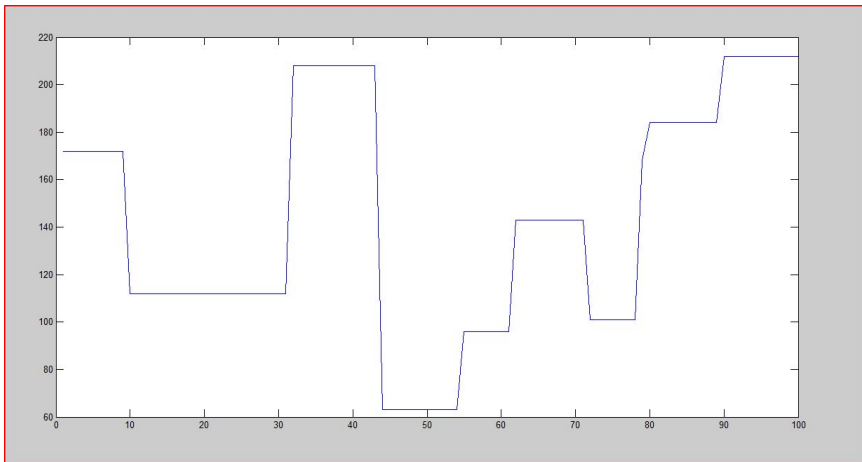
ENSEEIH, département TR

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- 1 Introduction
- 2 Génération d'une ligne d'image SAR
 - Génération d'une ligne d'image
 - Génération du bruit
 - Ligne d'image bruitée
- 3 Analyse spectrale
 - Périodogramme et périodogramme cumulé
- 4 Détection de rupture sur une image SAR

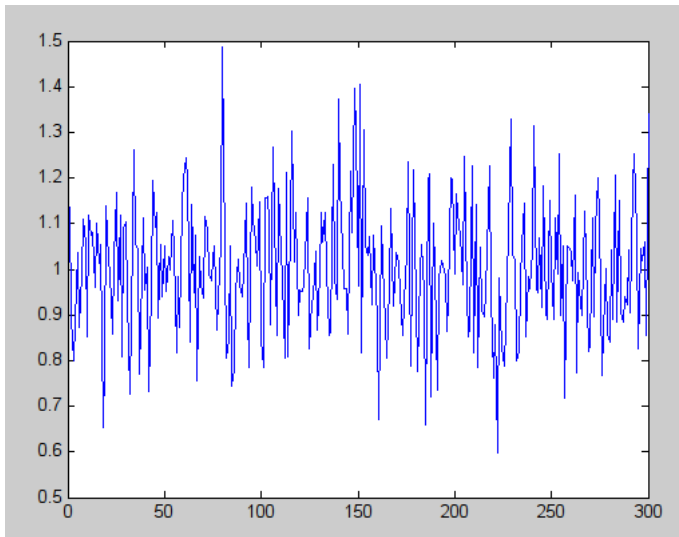
- La segmentation d'images
- Image SAR
- Bruit speckle

```
1  function [ ligne ] = genligne( lambda , largeur , profondeur )
2      % Generation d'une ligne de pixel
3      ligne = zeros(1, largeur); % Preallocation de la ligne
4      i = 1; % Position du pixel courant
5      k = 1; % k-ieme intensite
6      while(i <= largeur)
7          valeur = randi(profondeur); % Generation de l'intensite
8          poisson = ceil(exprnd(1/lambda)); % Largeur de l'inten-
site
9          j = 0;
10         while j <= poisson && i <= largeur
11             ligne(1, i) = valeur;
12             i = i + 1;
13             j = j + 1;
14         end
15         k = k + 1;
16     end
17 end
```

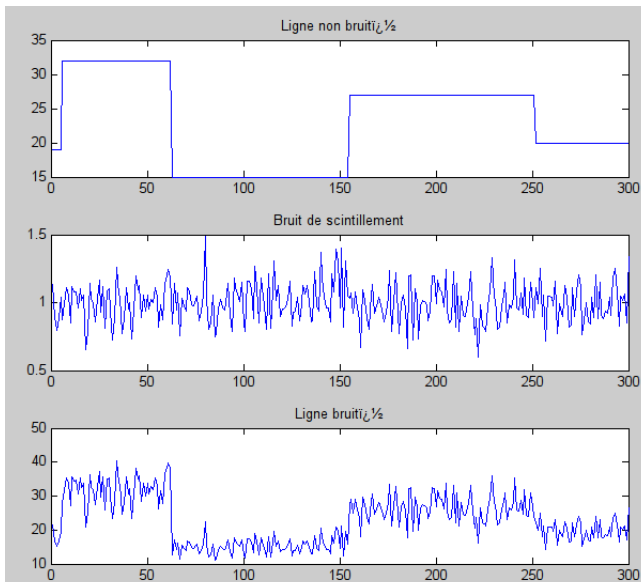


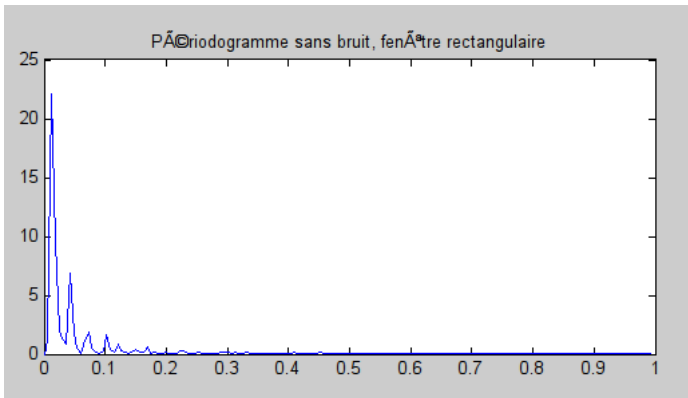
$\mu = 1/10$, *largeur* = 500, *profondeur* = 256

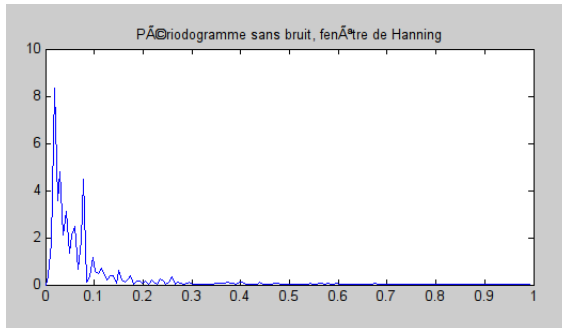
```
1 L = 1; %nombre de vues moyennées  
2 N = 500; %nombre de valeurs  
3  
4 bruit = gamrnd(L, 1/L, 1, N);  
5  
6 ligne = ligne .* bruit;
```

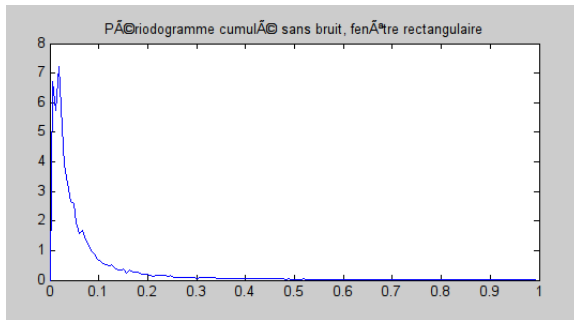


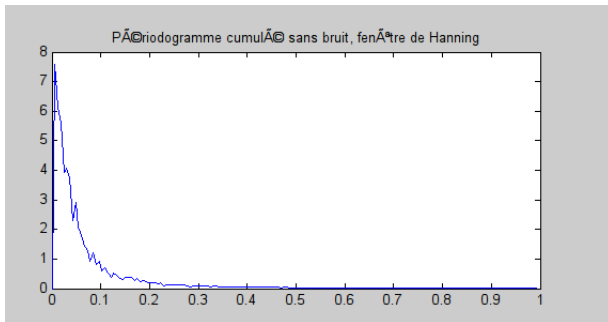
Bruit speckle



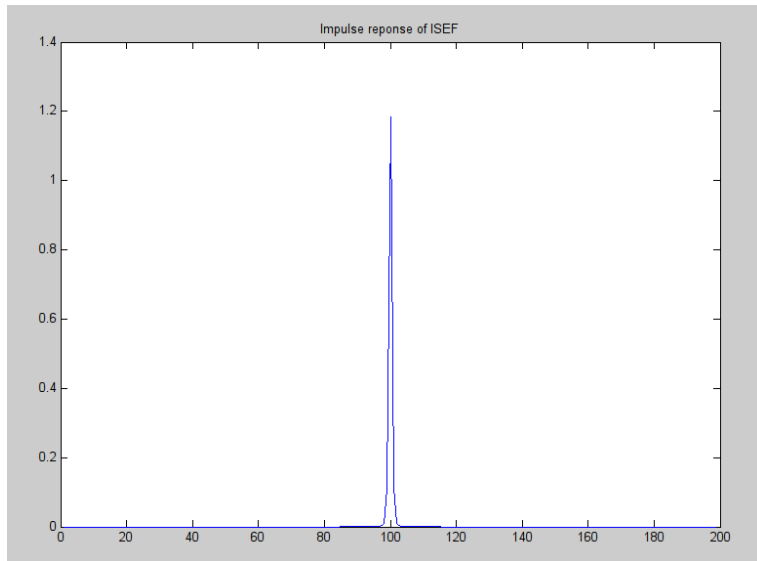


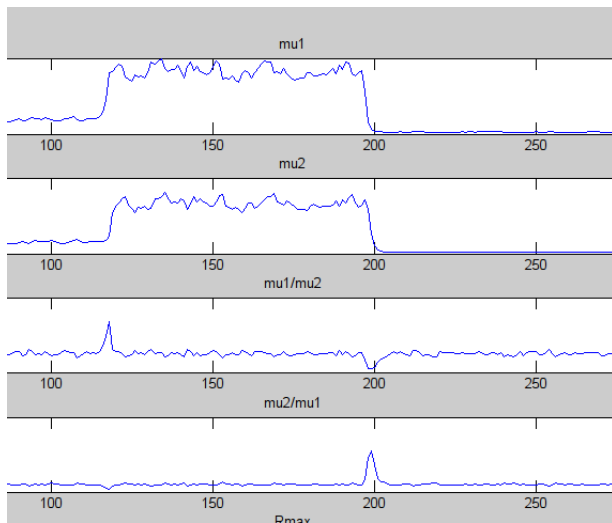


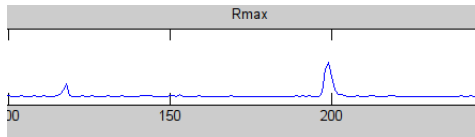


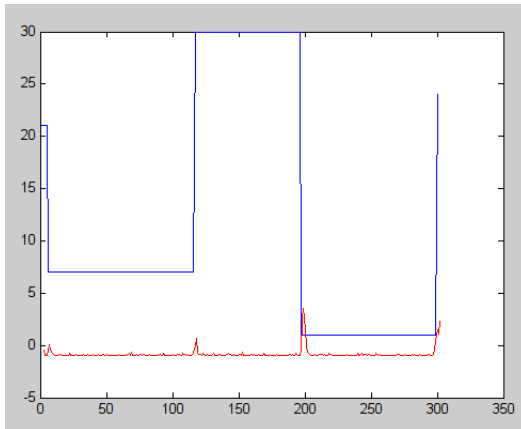


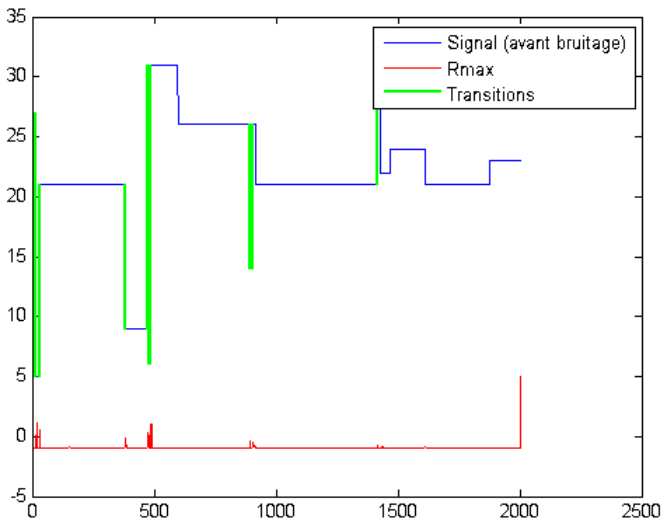
```
1 function [ ISEF ] = isef( image , lambda , order , L )
2     % Generation du filtre ISEF
3
4     % Parametres
5     muI = mean(mean(image));
6     sigmaI = sqrt(var(reshape(image , 1 , numel(image))));
7
8     muR = muI;
9     sigmaR = sqrt((L*sigmaI^2 - muI^2) / (L + 1));
10
11     alpha = sqrt(((2*L*lambda) / (1 + (muR/sigmaR)^2))
12         + lambda^2);
13     C = alpha/2;
14
15     % Generation de la réponse impulsionnelle du filtre ISEF
16     ISEF = C * exp(-alpha*abs([ -(order - 1)/2 : 1 : order/2 ]));
17
18 end
```

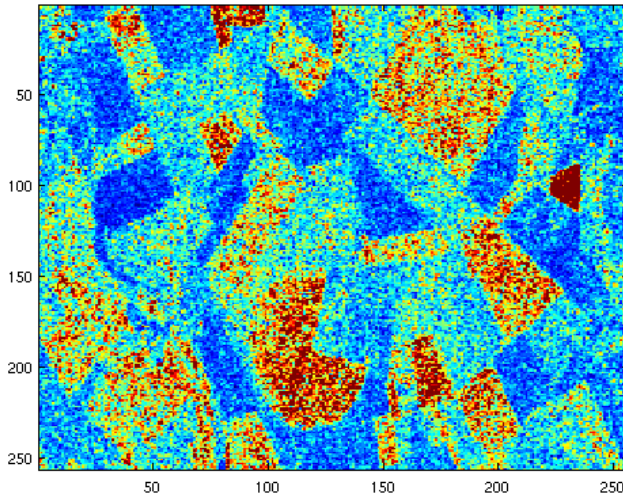




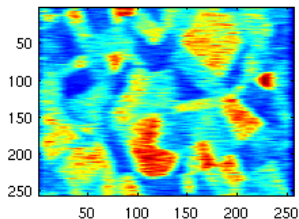




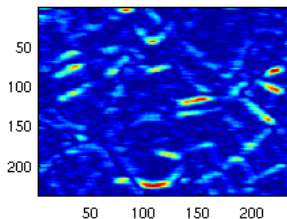




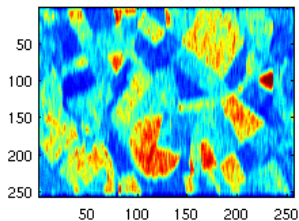
Débruitage horizontal



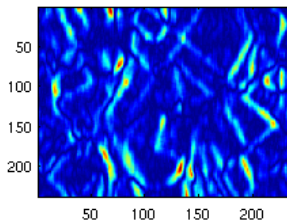
Application de l'opérateur ROEWA verticalement

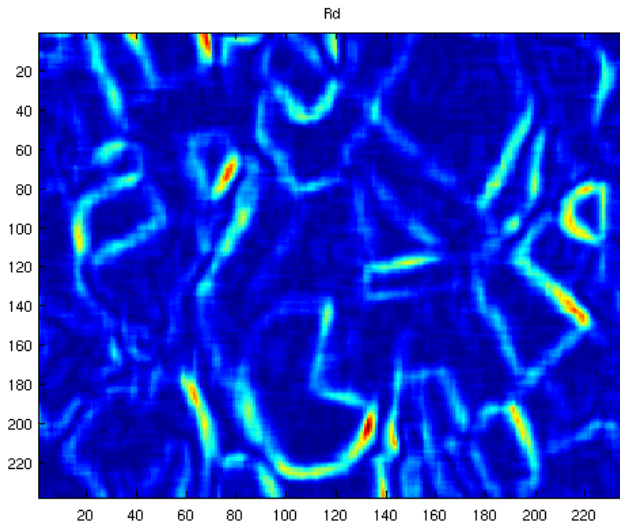


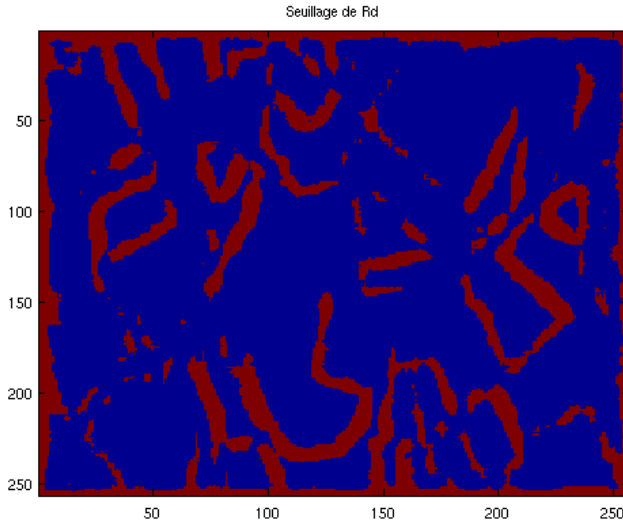
Débruitage vertical



Application de l'opérateur ROEWA horizontalement







Conclusion