

AVANTIX

Avancement Simulateur IQ

AVANTIX

WOLA

WOLA + IA

Nouvelle base :

- WOLA FFT
- Target SNR de 9dB pour chaque impulsion
- 160 train / 30 val / 30 test
- Seuil création du masque : 3dB effectif
- HP tuning en cours (depuis ven 17/01) sur : optimizer+lr, act et bias

AVANTIX

Iq2pdw CPU

Setup

CPU i7-8665U (1,90GHz) – 3 cœurs utilisés

fs = 100 MSps

NPERSEGS = [32, 128, 512, 2048]

76 train / 20 val / 20 test

Fp64 vs fp32 ?

Docker :

- Base Ubuntu 22.04
- Taille de l'image : 2,01Go
- **Durée SXXs + IA @ dt_iq = 5,24ms :**

Computing spectrograms nperseg=32 took 35.17 ms.

Computing spectrograms nperseg=128 took 53.01 ms.

Computing spectrograms nperseg=512 took 38.06 ms.

Computing spectrograms nperseg=2048 took 65.78 ms.

Computing spectrograms took 192.79 ms.

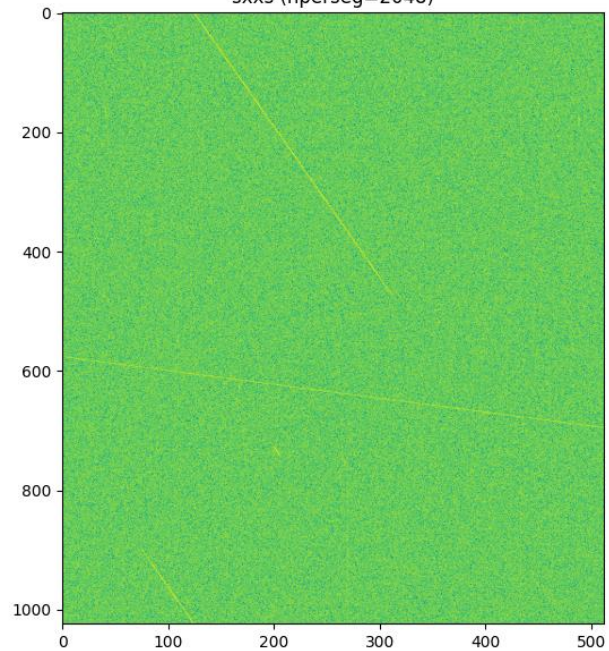
Computing the mask (AI) took 51.24 ms.

Getting the bboxes took 10.58 ms.

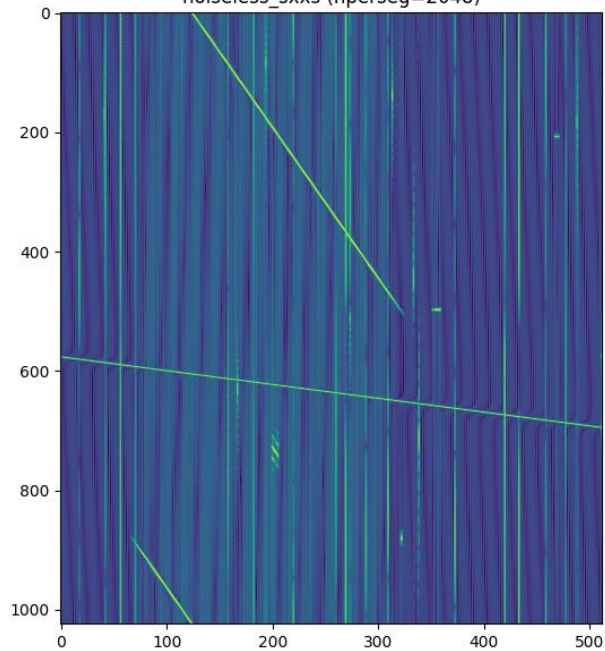
In total it took 254.84 ms.

BT 100 MSps

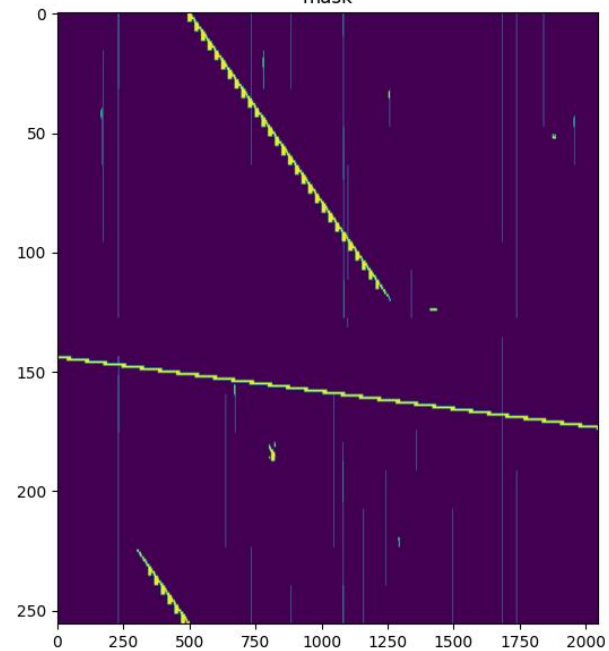
sxxs (nperseg=2048)



noiseless_sxxs (nperseg=2048)

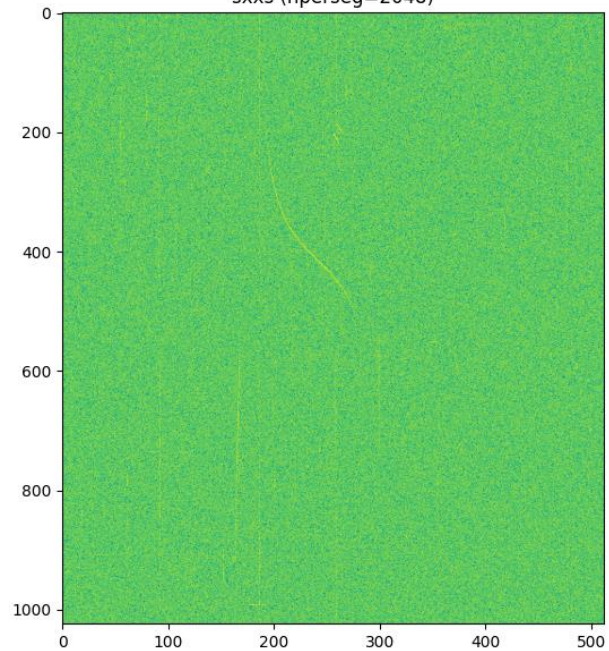


mask

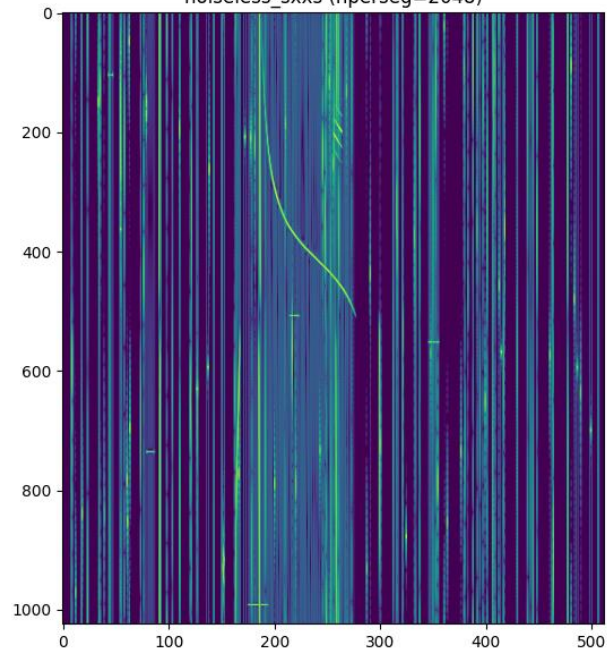


BT 100 MSps

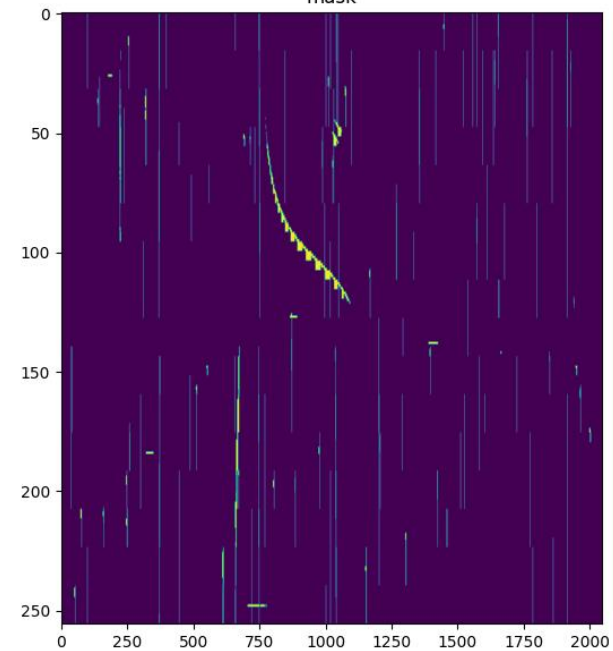
sxxs (nperseg=2048)



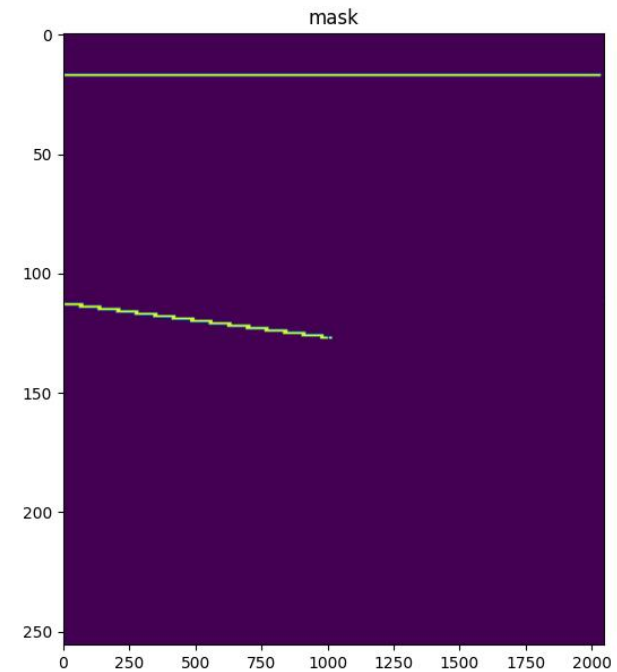
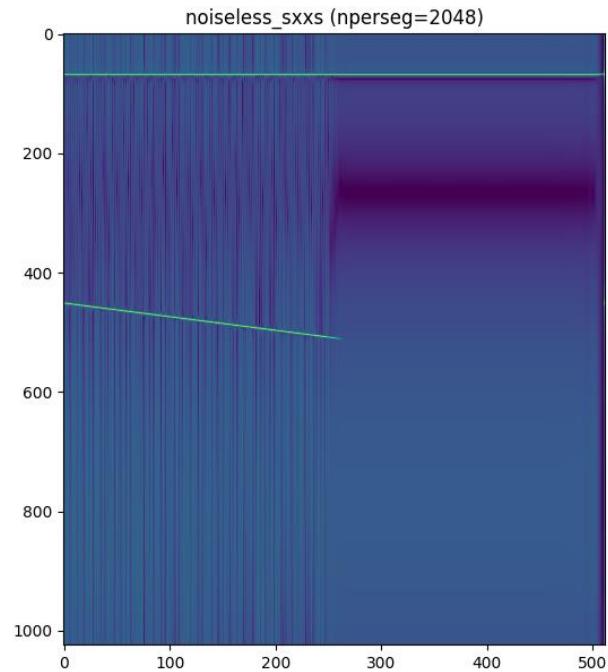
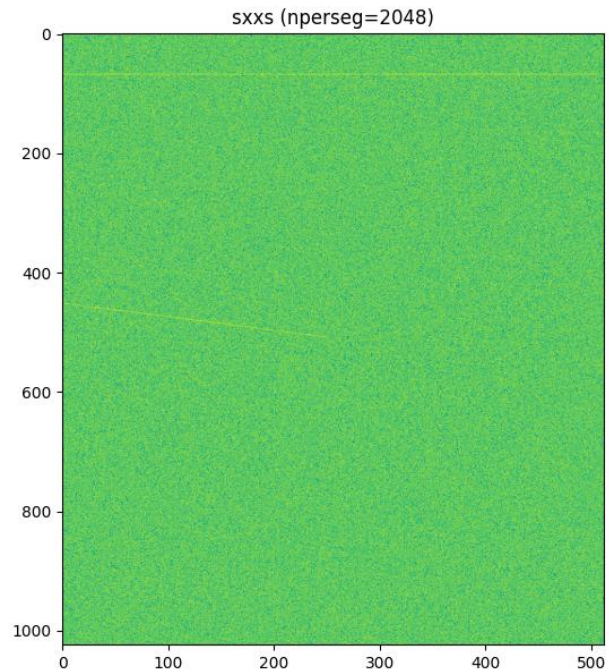
noiseless_sxxs (nperseg=2048)



mask

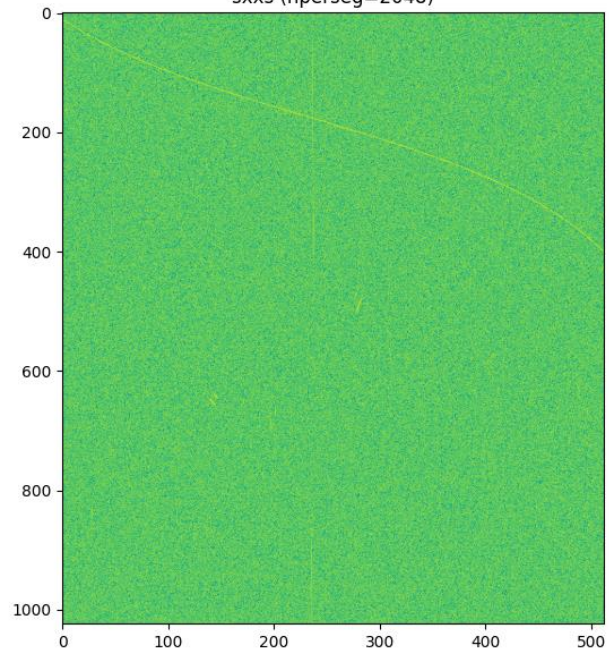


BT 100 MSps

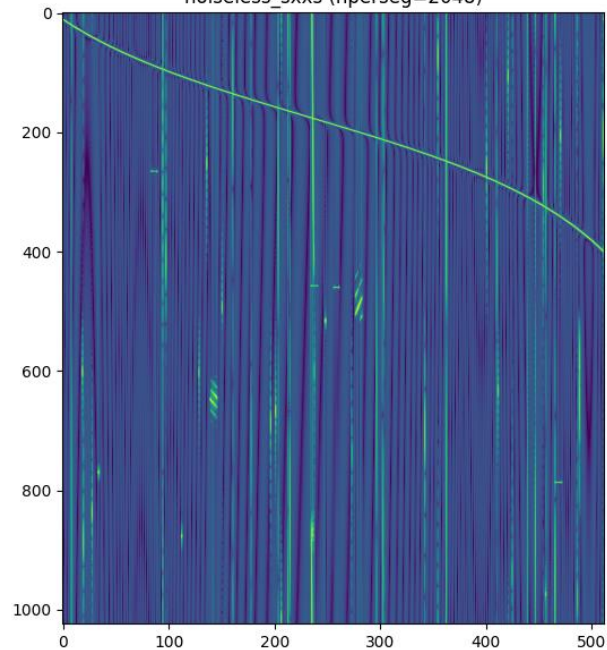


BT 100 MSps

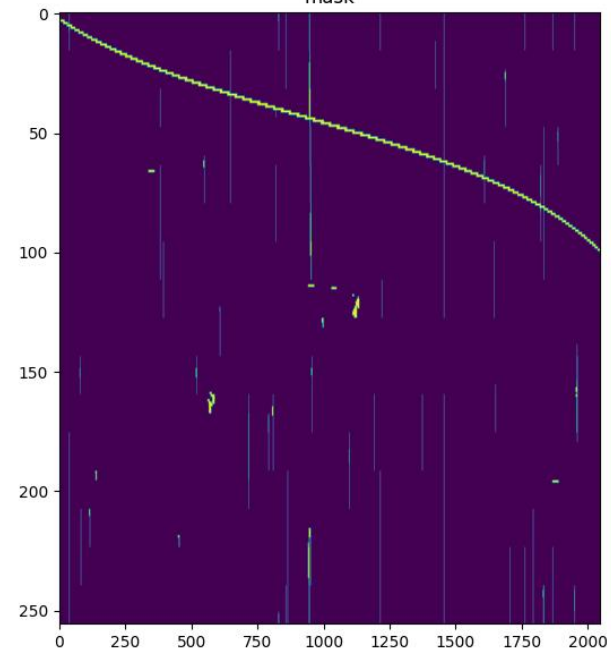
sxxs (nperseg=2048)



noiseless_sxxs (nperseg=2048)

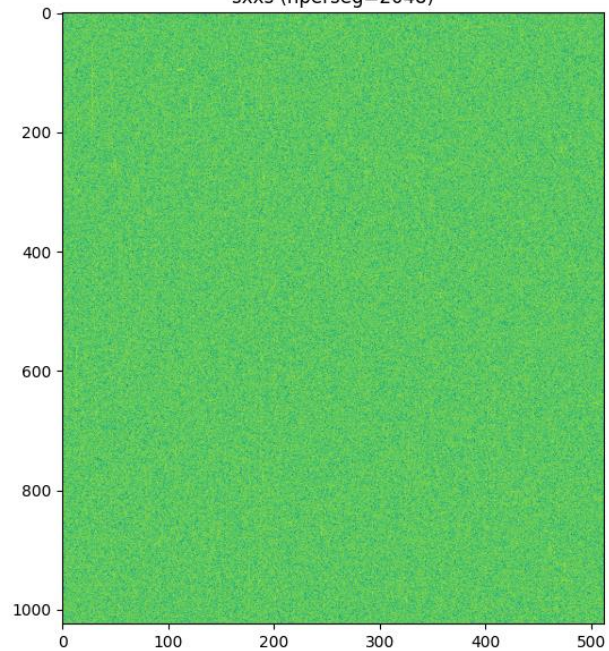


mask

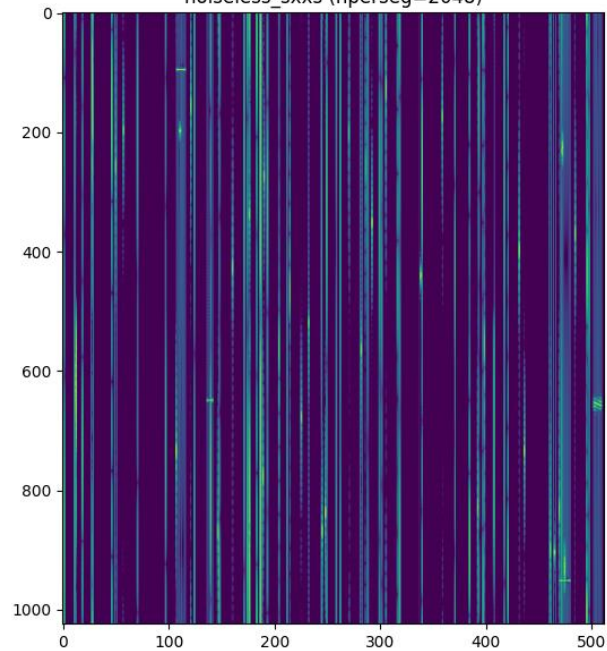


BT 100 MSps

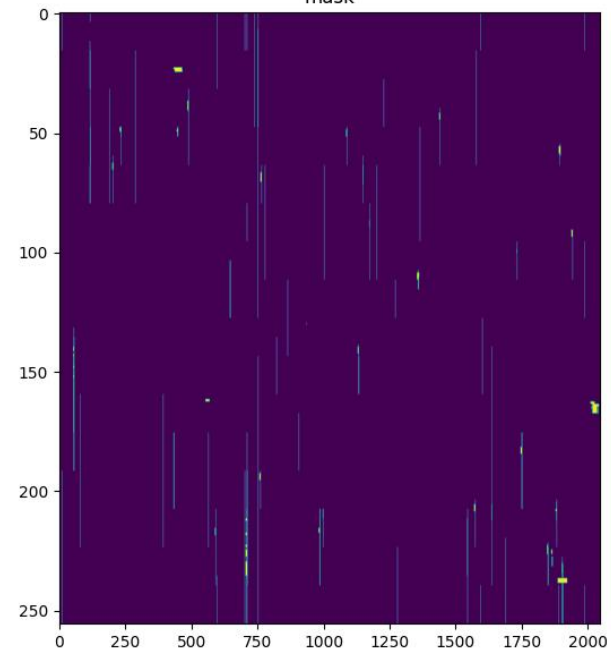
sxxs (nperseg=2048)



noiseless_sxxs (nperseg=2048)



mask

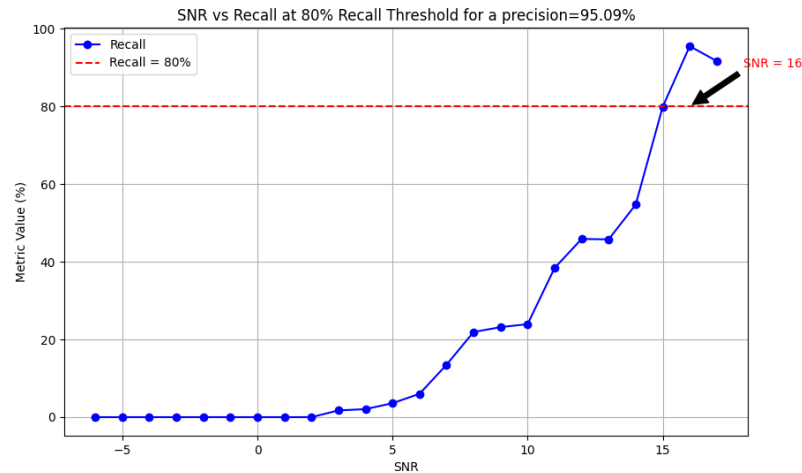


Apprentissage

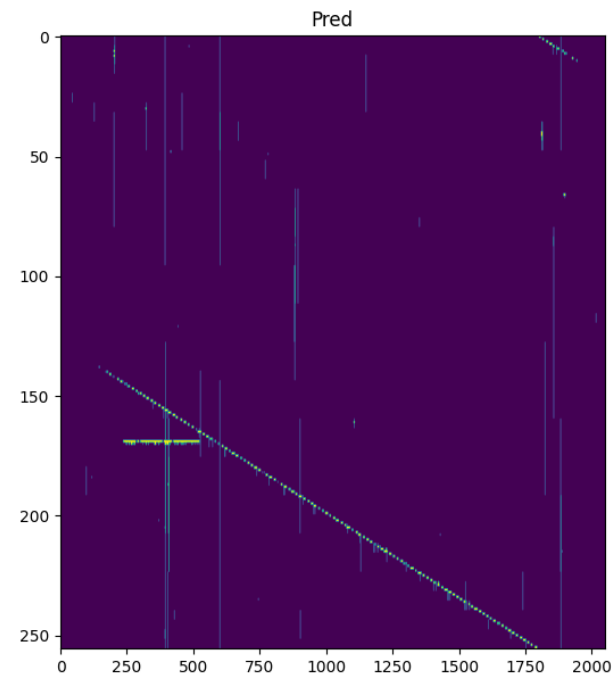
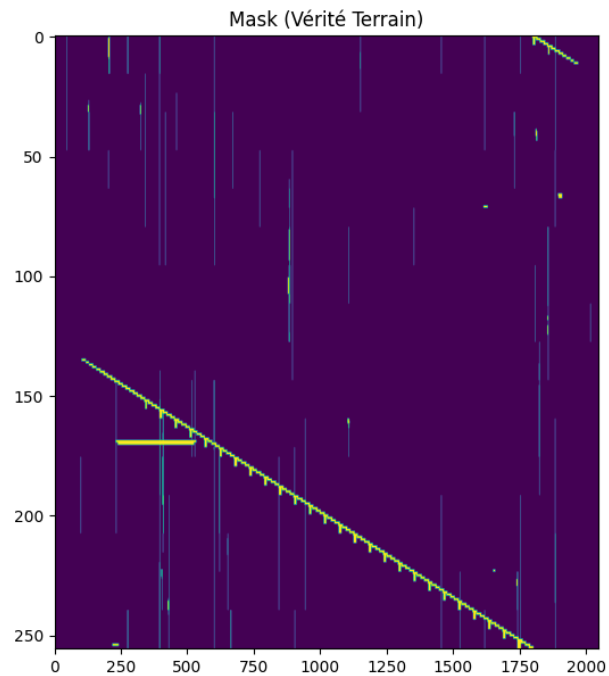
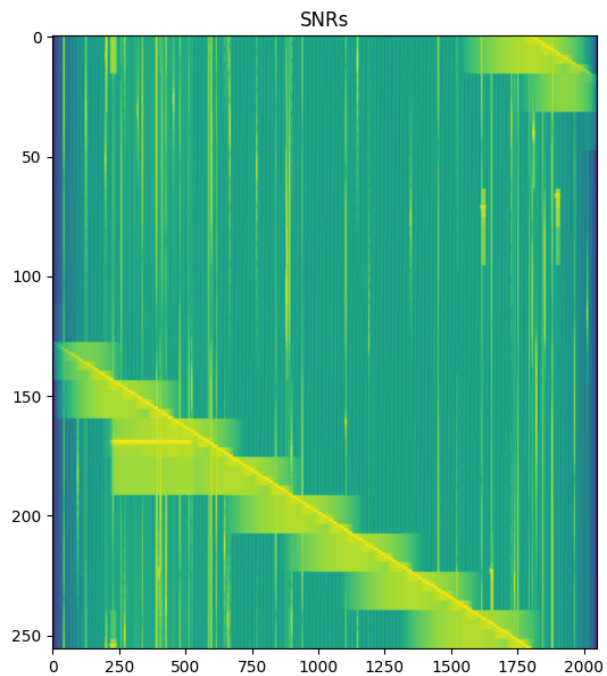
InterMergerModel à 4 branches

Act = False, bias = True

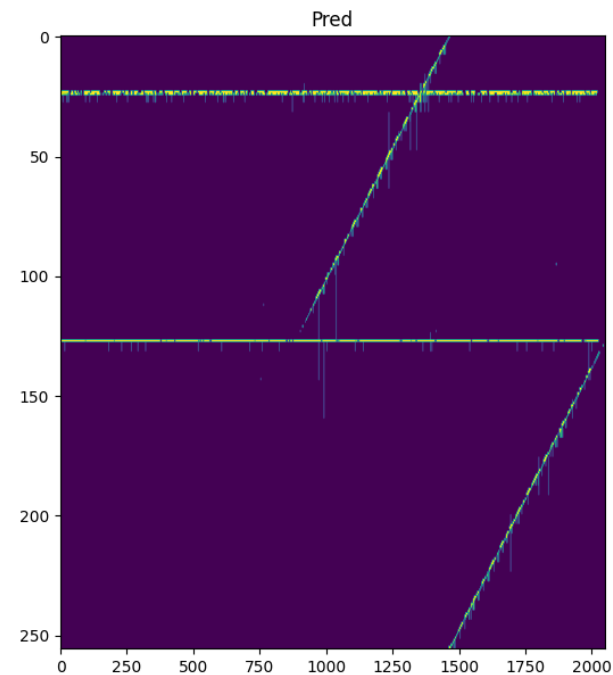
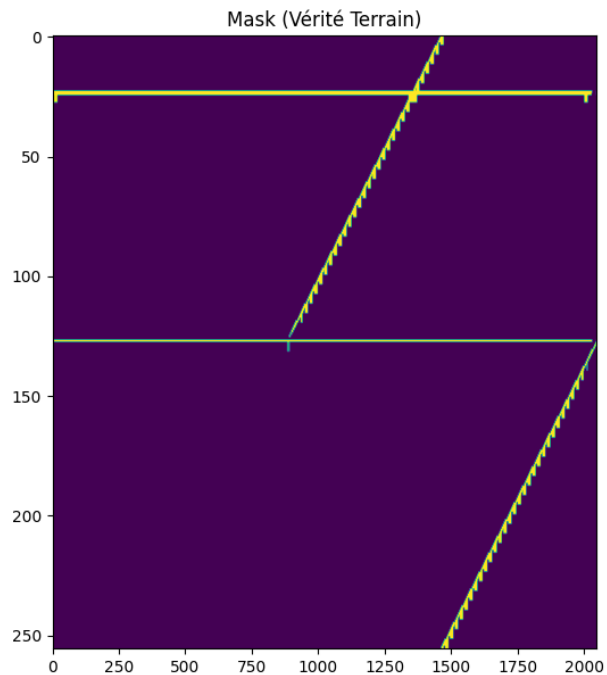
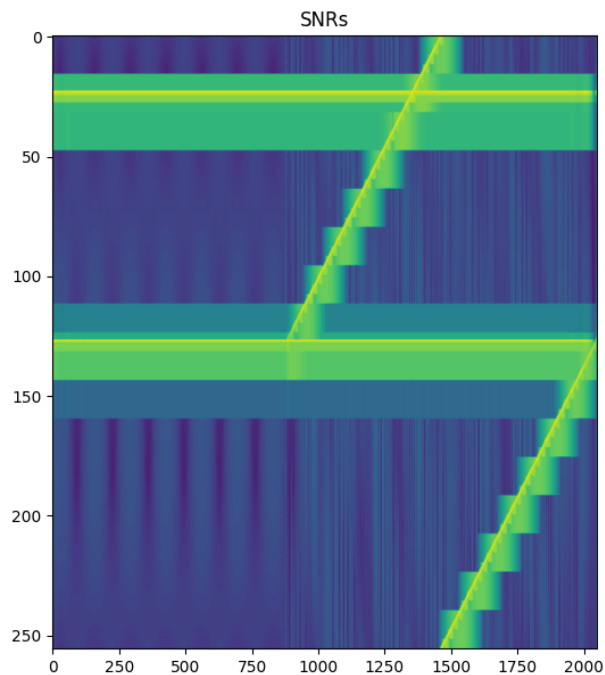
run_2025-01-20_10-38-22



Résultats

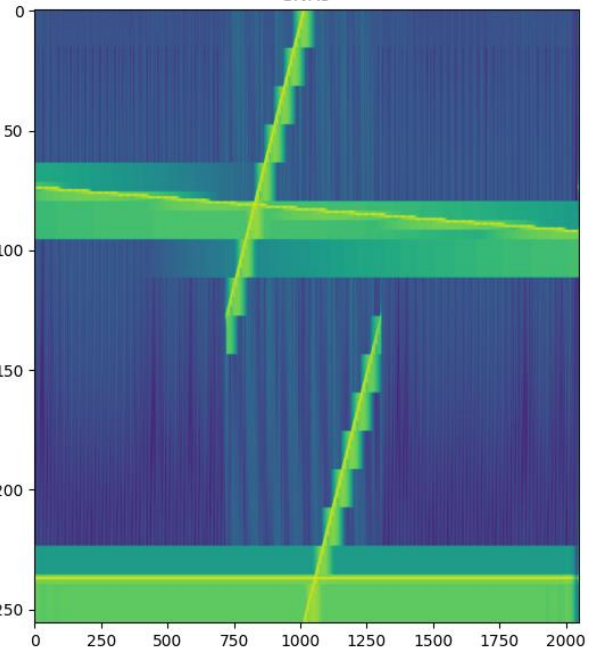


Résultats

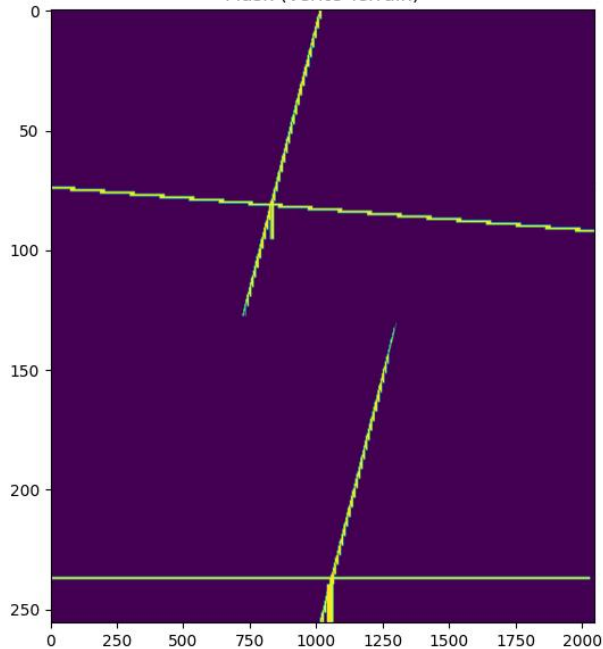


Résultats

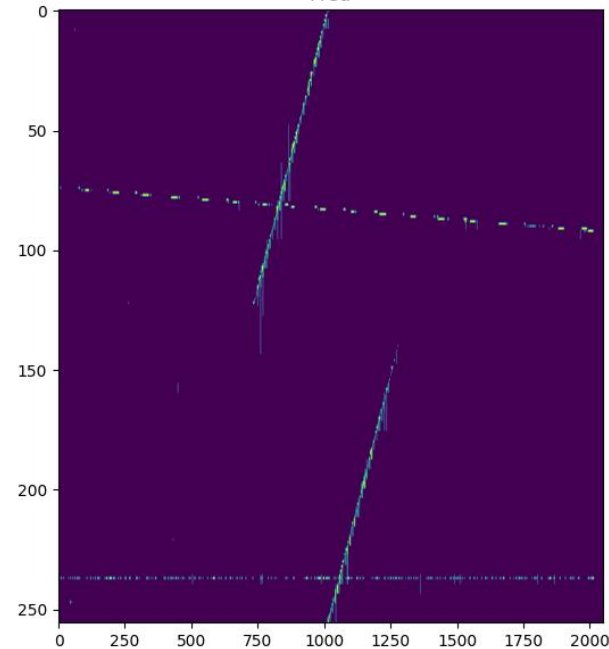
SNRs



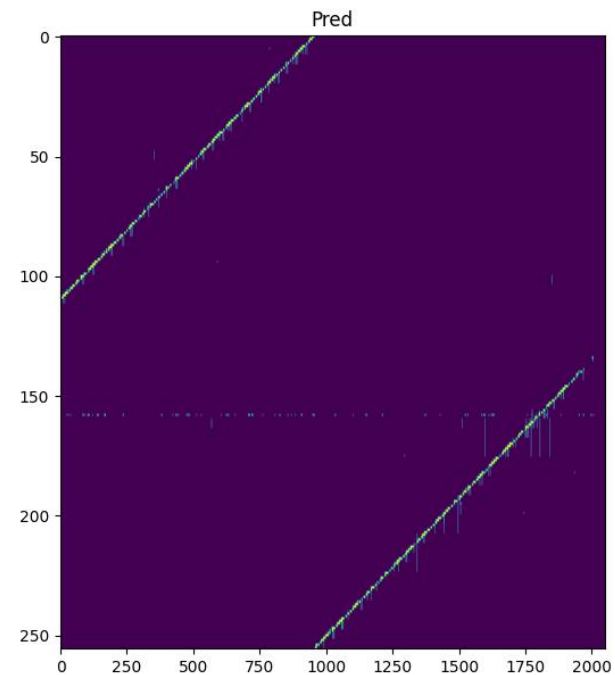
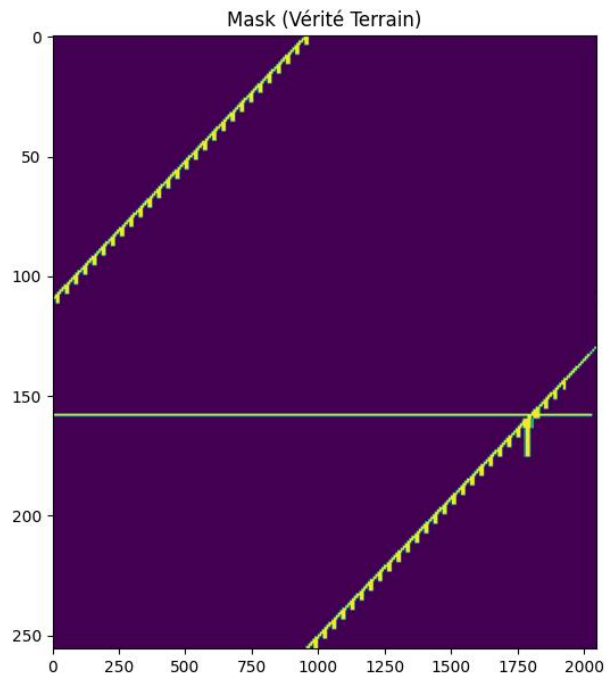
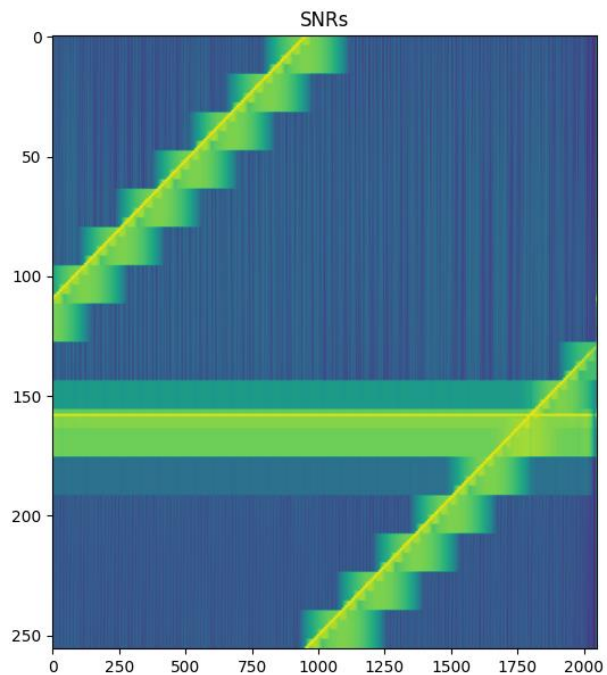
Mask (Vérité Terrain)



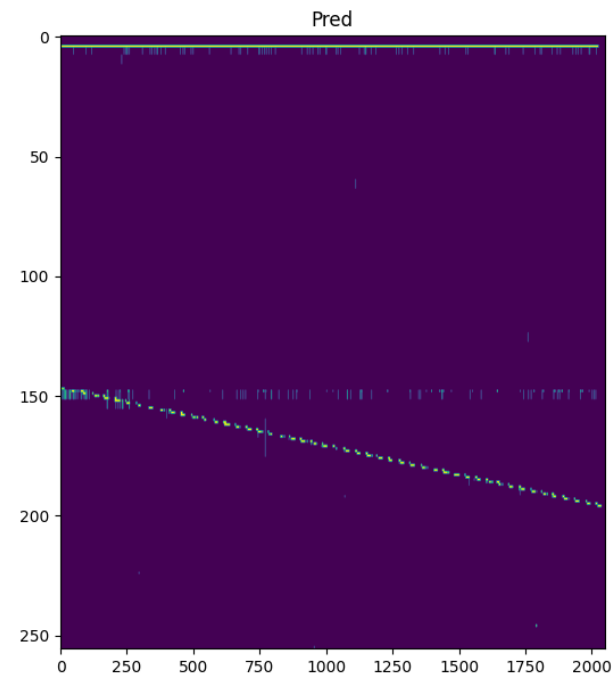
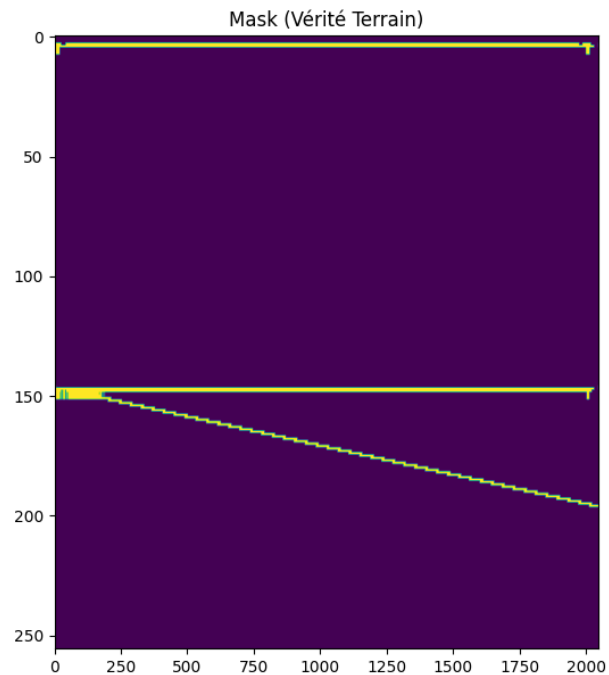
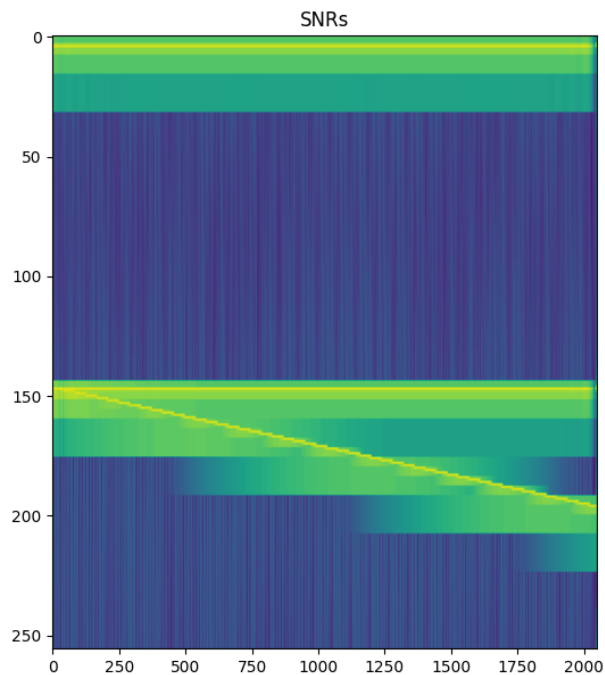
Pred



Résultats



Résultats





Inférence type de modulation (arbre de décision)



TODO

TODO

AVANTIX

MERCI