Caméra intelligente par échantillonnage compressé et apprentissage profond
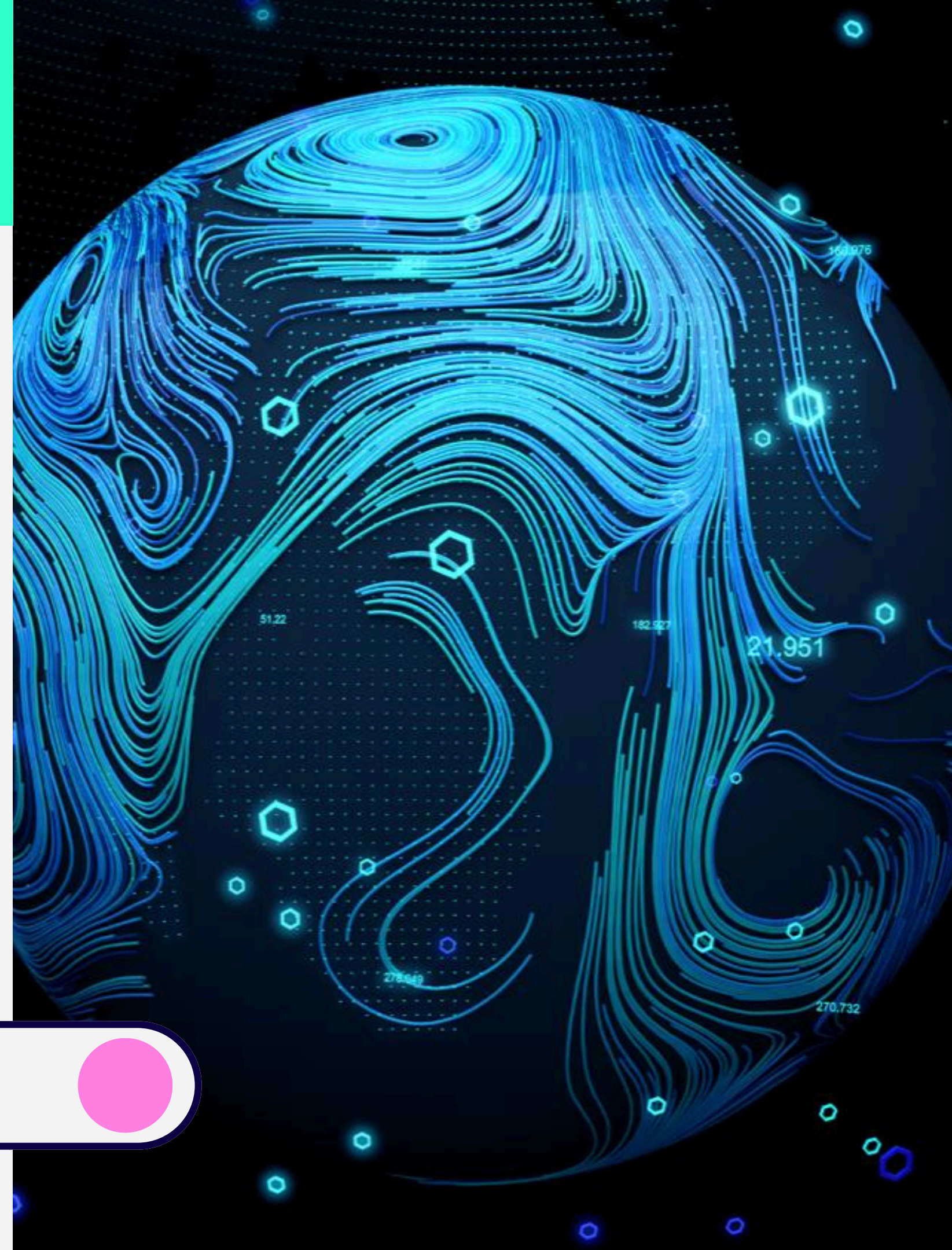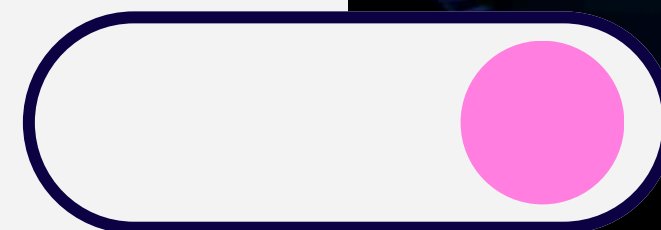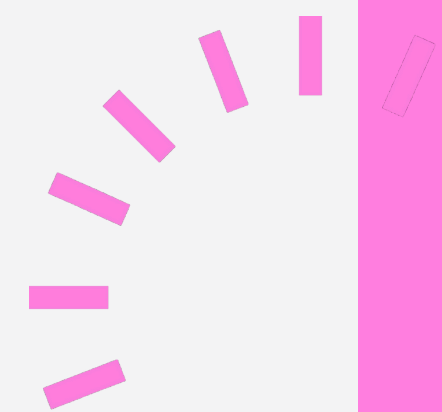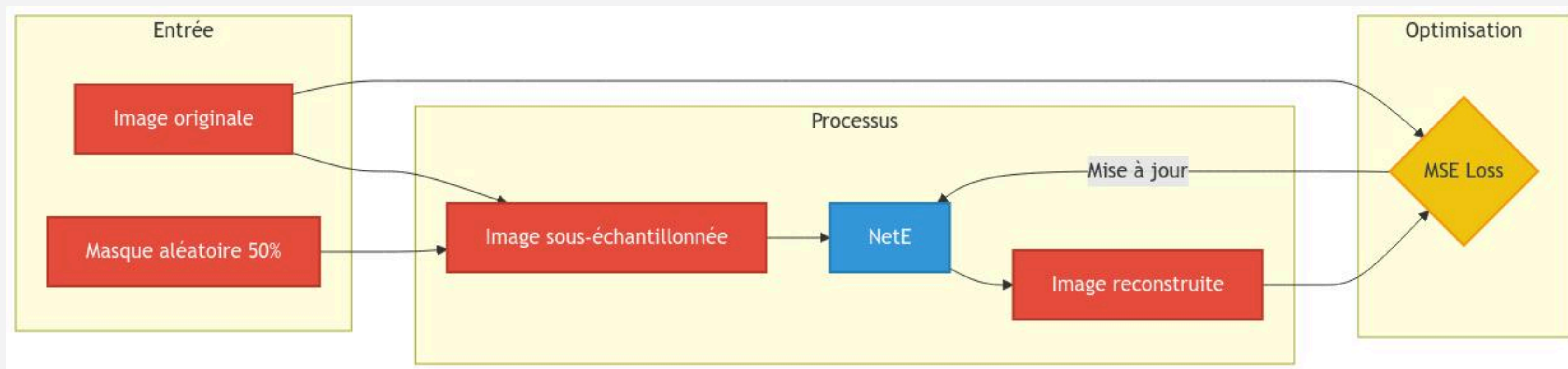
IRIT

INP N7

1

Entrée
- Image originale
- Masque aléatoire 50%

Processus
- Image sous-échantillonnée → NetE → Image reconstruite
- Mise à jour

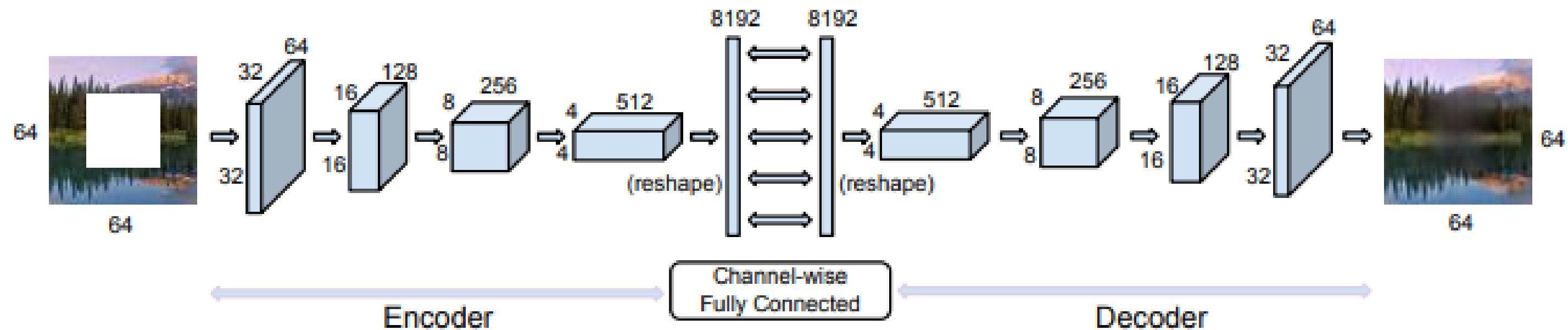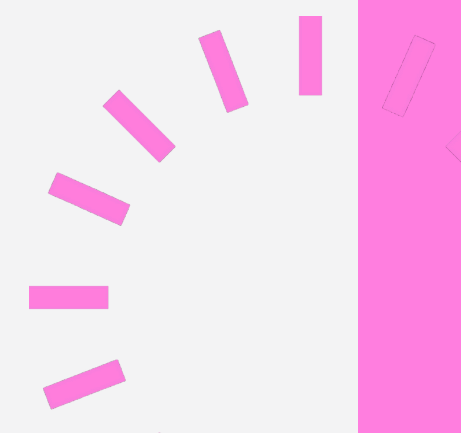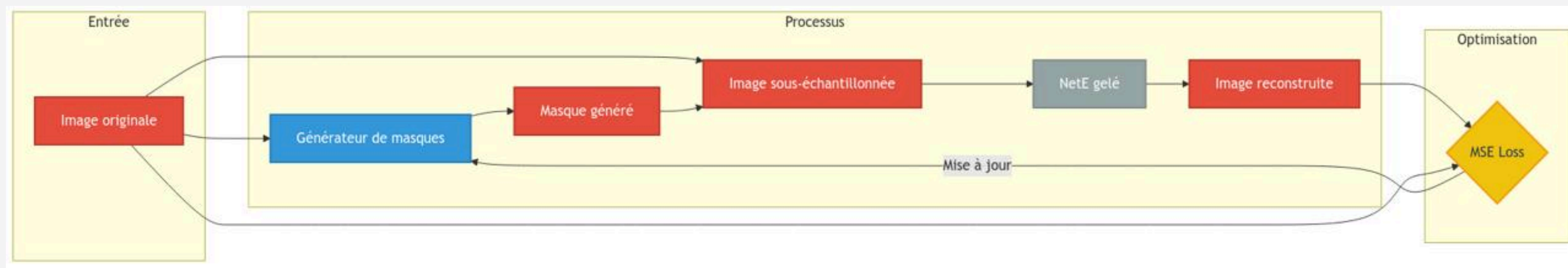**Optimisation**
- MSE Loss

5

Réconstruction

Figure 7. Network architecture for our image restoration framework. Our image restoration framework is an encoder-decoder pipeline with the encoder and decoder connected by a channel-wise fully-connected layer. The illustration is for image inpainting task. The same network architecture also holds for the other three tasks: pixel interpolation, image deblurring, and image denoising.

R. Gao and K. Grauman. From one-trick ponies to all-rounders : On-demand learning for image restoration. In arXiv preprint, 2016.
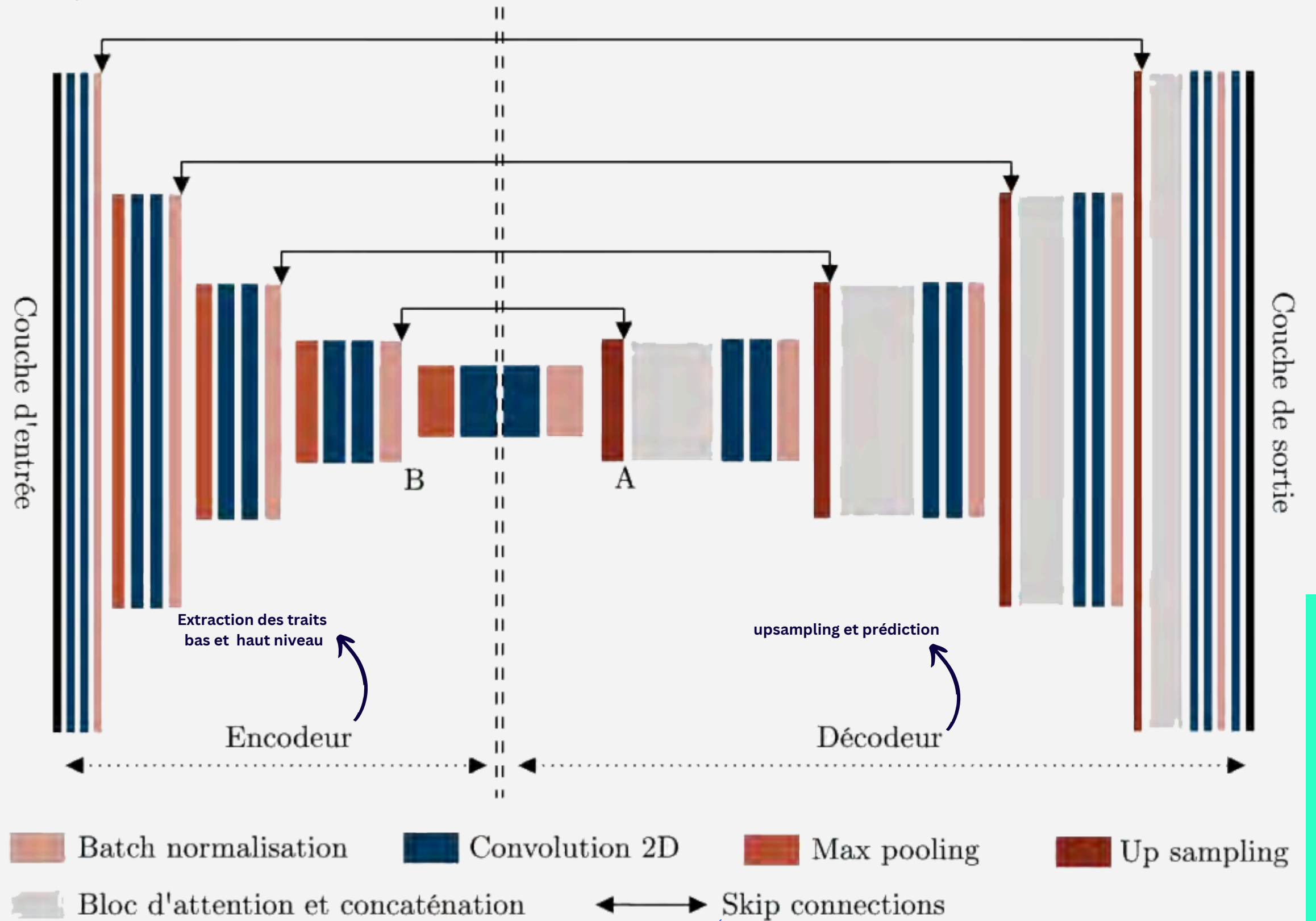
Encoder-Decoder

3

Entrée
- Image originale

Processus
- Générateur de masques
- Masque généré
- Image sous-échantillonnée
- NetE gelé
- Image reconstruite
- Mise à jour

Optimisation
- MSE Loss

5

Géneration des masques

Architecture CNN U-Net

Couche d'entrée

Couche de sortie

Extraction des traits bas et haut niveau

upsampling et prédiction

B

A

Encodeur

Décodeur

Batch normalisation

Convolution 2D

Max pooling

Up sampling

Bloc d'attention et concaténation

Skip connections

- Récupérer les détails de l'objet
- Améliorer la précision de la localisation

2