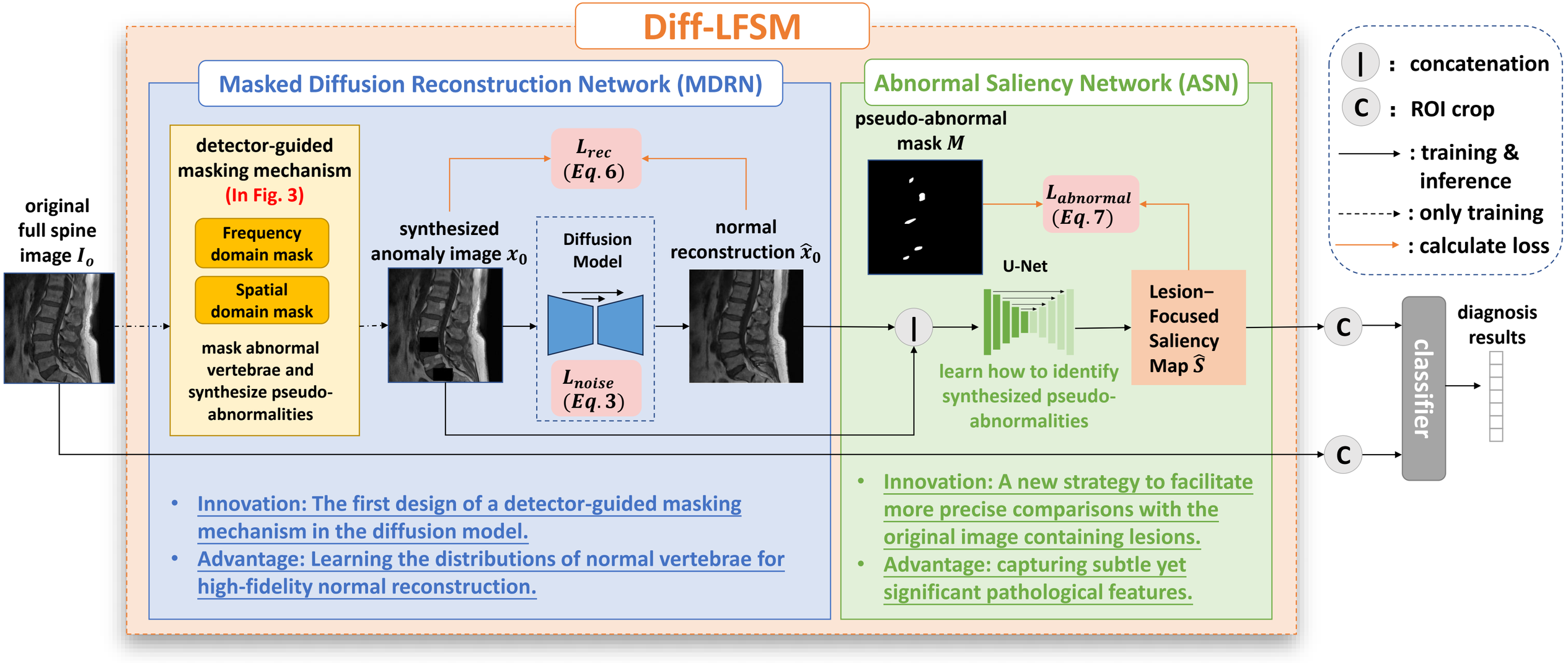
Diff-LFSM
Masked Diffusion Reconstruction Network (MDRN)
Abnormal Saliency Network (ASN)
original full spine image I_o
detector-guided masking mechanism (In Fig. 3)
Frequency domain mask
Spatial domain mask
mask abnormal vertebrae and synthesize pseudo-abnormalities
synthesized anomaly image x_0
L_{rec} $(Eq.6)$
Diffusion Model
L_{noise} $(Eq.3)$
normal reconstruction $\hat{x}_0$
pseudo-abnormal mask M
$L_{abnormal}$ $(Eq.7)$
U-Net
learn how to identify synthesized pseudo-abnormalities
Lesion–Focused Saliency Map $\hat{S}$
C
C
classifier
diagnosis results
: concatenation
C : ROI crop
: training & inference
: only training
: calculate loss
Innovation: The first design of a detector-guided masking mechanism in the diffusion model.
Advantage: Learning the distributions of normal vertebrae for high-fidelity normal reconstruction.
Innovation: A new strategy to facilitate more precise comparisons with the original image containing lesions.
Advantage: capturing subtle yet significant pathological features.