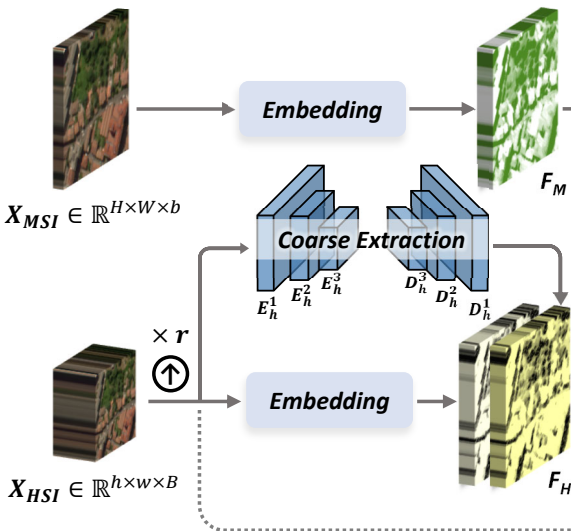**1. Coarse Extraction and Guidance**

2. Fine-Grained Adaptive Fusion

$X_{MSI} \in \mathbb{R}^{H \times W \times b}$

Embedding

F_M

Coarse Extraction

E_h^1 E_h^2 E_h^3 D_h^3 D_h^2 D_h^1

$\times r$

$X_{HSI} \in \mathbb{R}^{h \times w \times B}$

Embedding

F_H

MGC Module

ResBlock

ResBlock

ResBlock

$[E_h^1, D_h^1]$ $[E_h^2, D_h^2]$ $[E_h^3, D_h^3]$

ResBlock AMoFE ResBlock AMoFE ResBlock AMoFE ResBlock ResBlock ResBlock Conv 3×3

Skip Connection

$\hat{X} \in \mathbb{R}^{H \times W \times B}$

Pixel UnShuffle

Pixel Shuffle

Cross Stage Feature Fusion

ResBlock

Conv 3×3
ReLU
Conv 3×3