Laplacian Pyramid-based Complex Neural Network Learning for Fast MR Imaging

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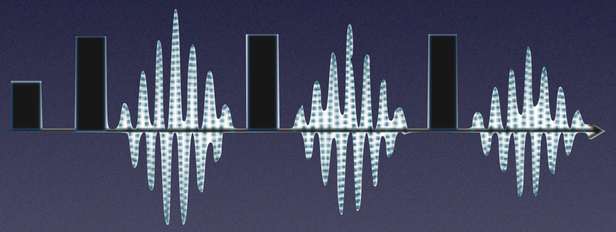
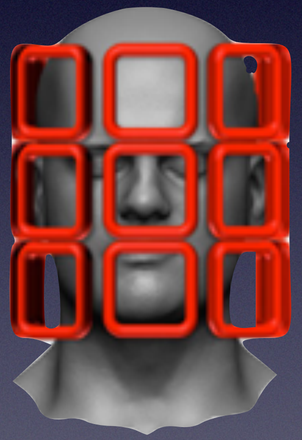
Accelerating MRI

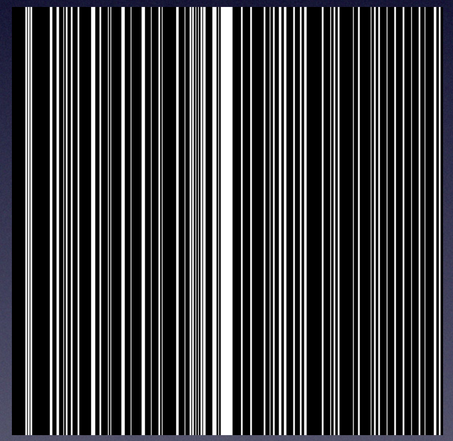
Fast Imaging Sequence



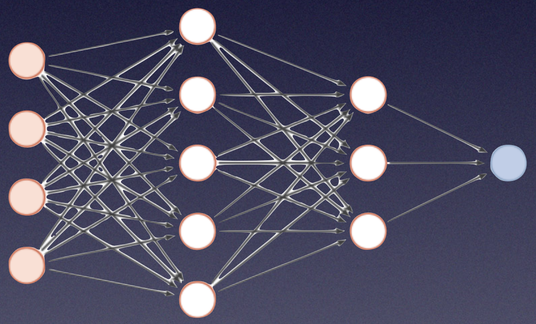
Parallel Imaging



Compressed Sensing



Deep Learning



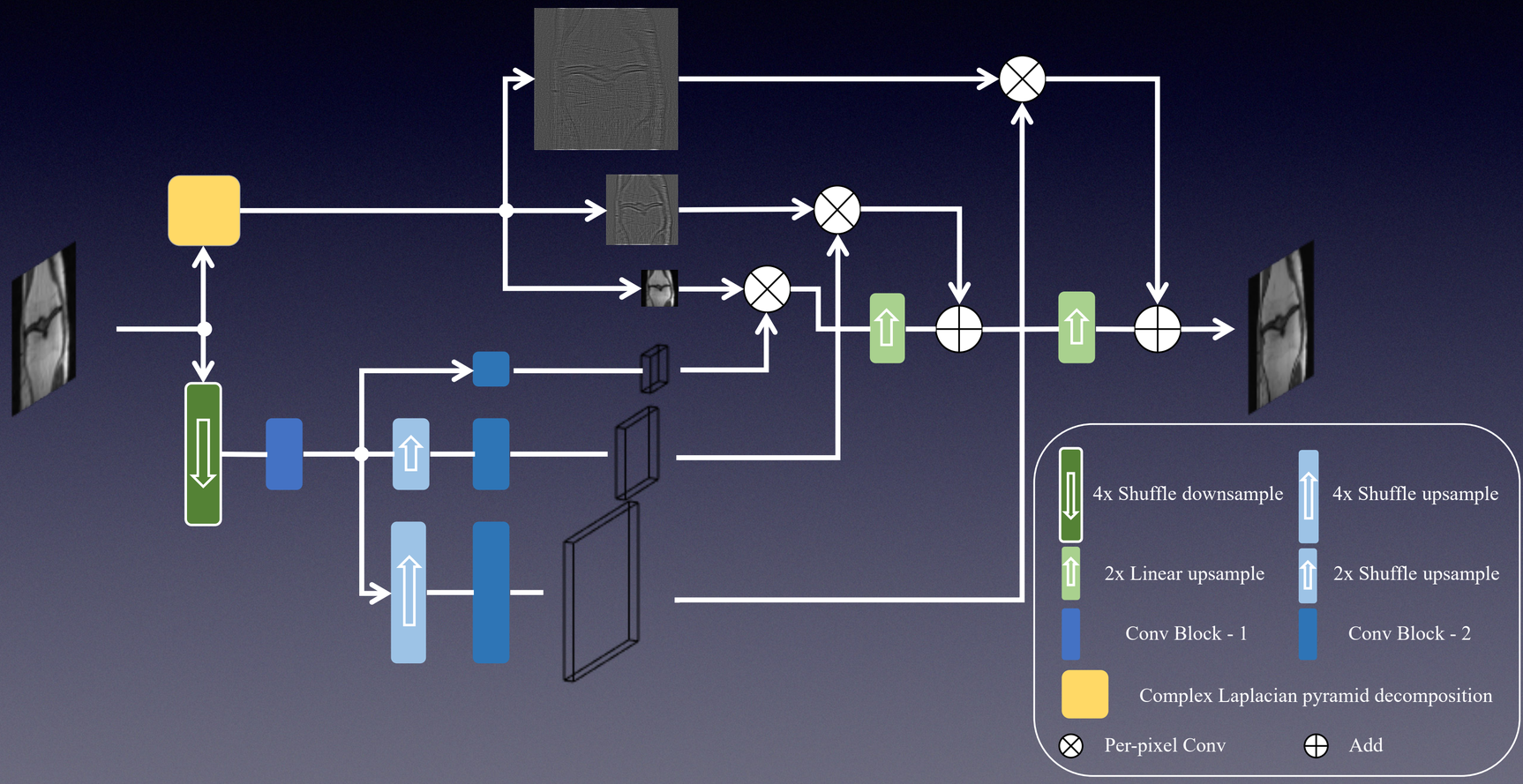
Motivations

- multi-scale properties are underutilized
- the blurring issue of textures and details of tissues and organs
- normal convolution can not make full use of the information in complex-valued MR images

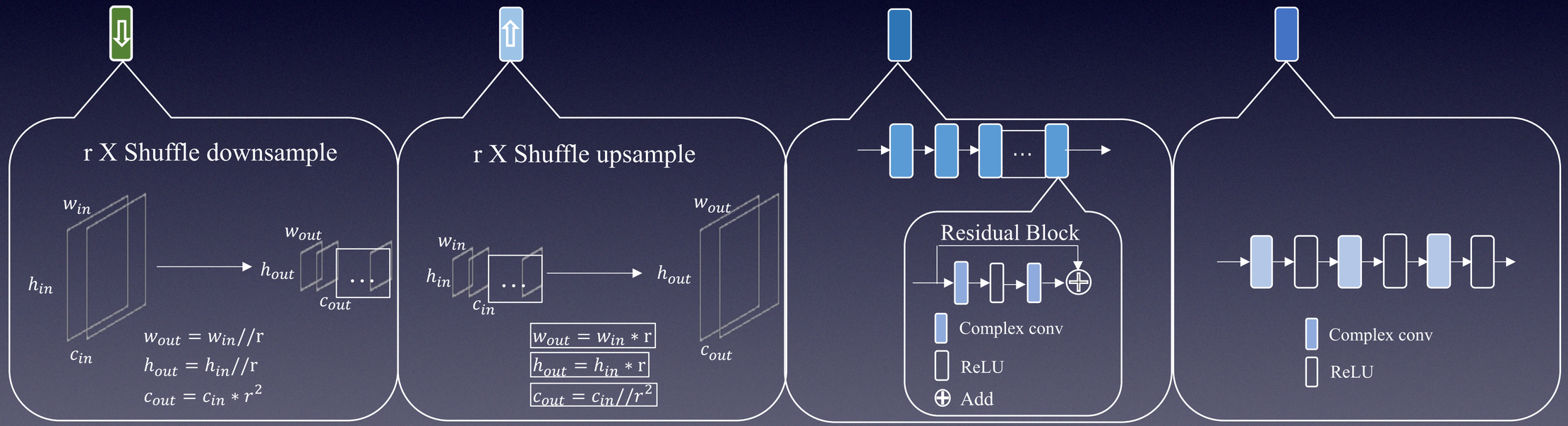
Contributions

- pyramid structure decomposition is introduced to leverage multi-scale properties
- cascaded structure is used for better restore textures and details of the reconstructed images
- complex convolution is introduced to make full use of the information in complex-valued MR images

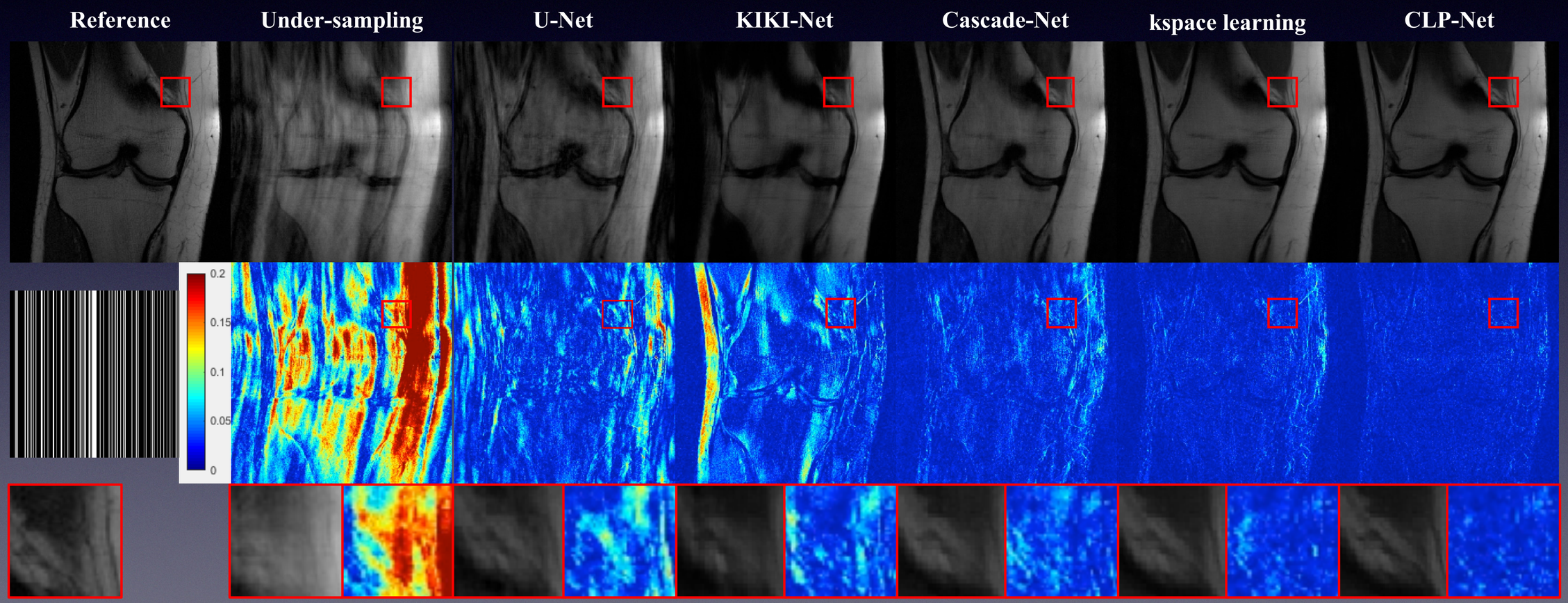
Network Structure



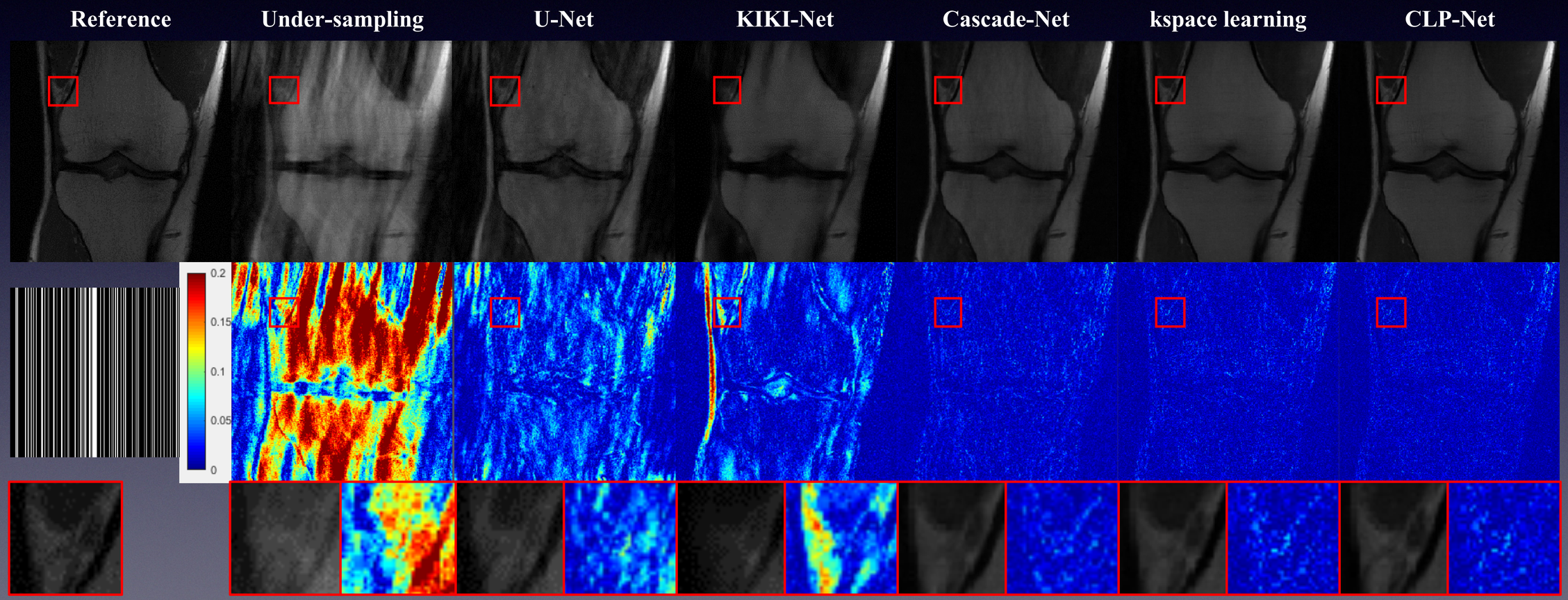
Network Structure



Result


Reference
Under-sampling
U-Net
KIKI-Net
Cascade-Net
kspace learning
CLP-Net
0.2
0.15
0.1
0.05
0

Result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