

SA-CycleGAN-2.5D Training Configuration

Hyperparameters:

Epochs: 100
Batch size: 8
Image size: 128×128
Learning rate: 2×10^{-4}
Optimizer: Adam ($\beta_1 = 0.5, \beta_2 = 0.999$)
LR schedule: Cosine annealing
Warmup epochs: 5

Model Architecture:

Generator: ResNet-based (9 blocks)
Base filters: 64
Self-attention: in bottleneck
CBAM: after each ResBlock
Discriminator: Multi-scale PatchGAN
Total parameters: 35.1M

Data Augmentation:

Random horizontal flip
Random rotation ($\pm 10^\circ$)
Gaussian noise
Intensity jittering

Loss Weights:

$\lambda_{\text{cycle}} = 10.0$
 $\lambda_{\text{identity}} = 5.0$
 $\lambda_{\text{SSIM}} = 1.0$
 $\lambda_{\text{gradient}} = 1.0$

Training Statistics:

Training samples: 42,110
Validation samples: 5,263
Test samples: 5,265
Batches per epoch: 5,264
Total iterations: 526,400
Training time: ~ 85 hours
Hardware: RTX 6000 (24GB)
Regularization:
Gradient clipping: L2 norm ≤ 1.0
Instance normalization
Spectral normalization (discriminator)
Replay buffer size: 50