

# Coordinated Training Timeline: Curriculum Learning × Sparsity

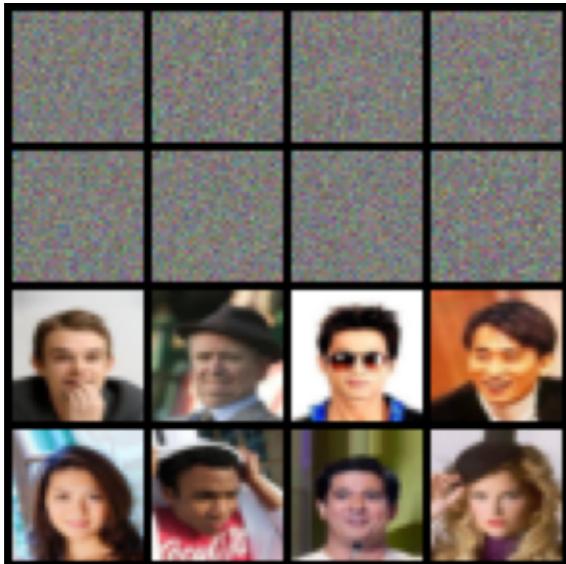
Synchronizing noise-level curriculum with model capacity release

**EARLY STAGE**  
 $t \in [0.8, 1.0]$

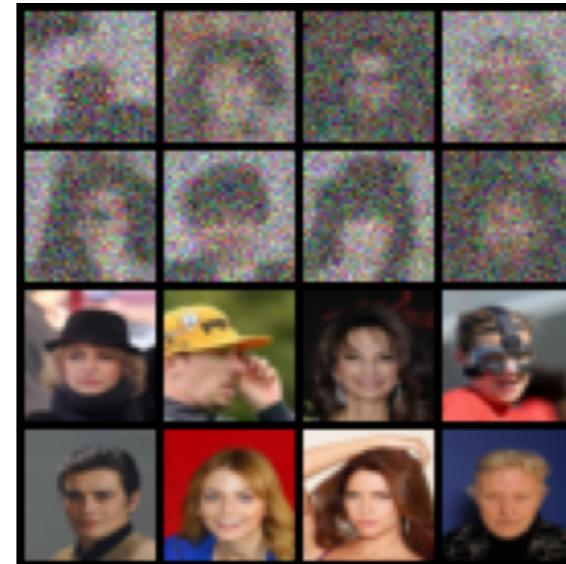
**MIDDLE STAGE**  
 $t \in [0.4, 1.0]$

**LATE STAGE**  
 $t \in [0.0, 1.0]$

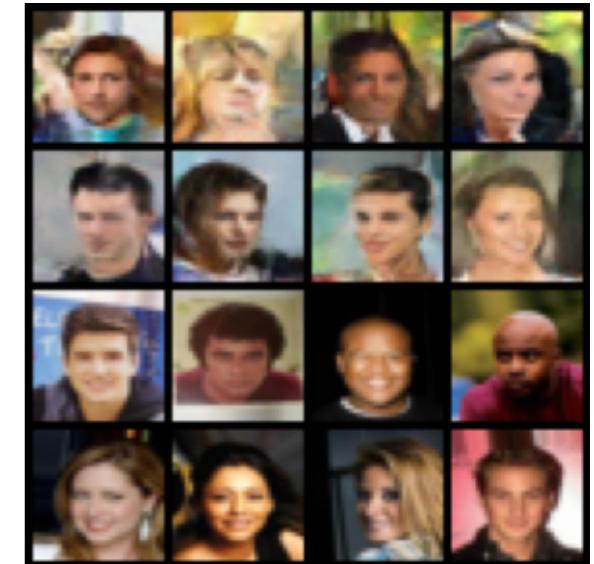
$M_1$  Coarse



Intermediate

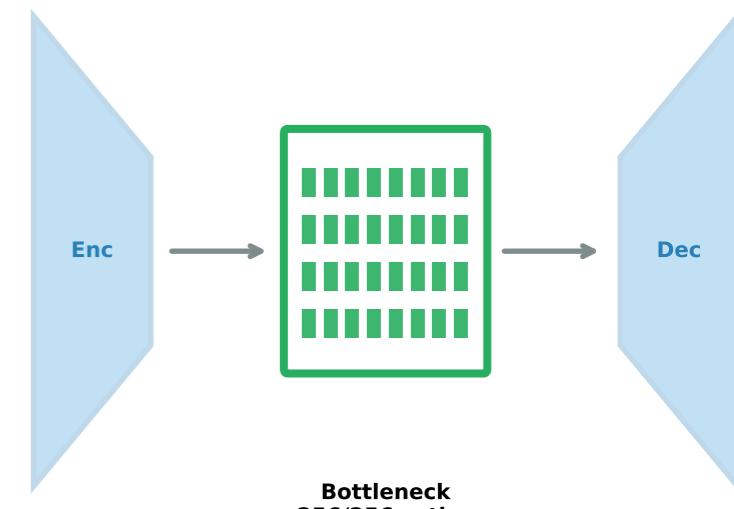
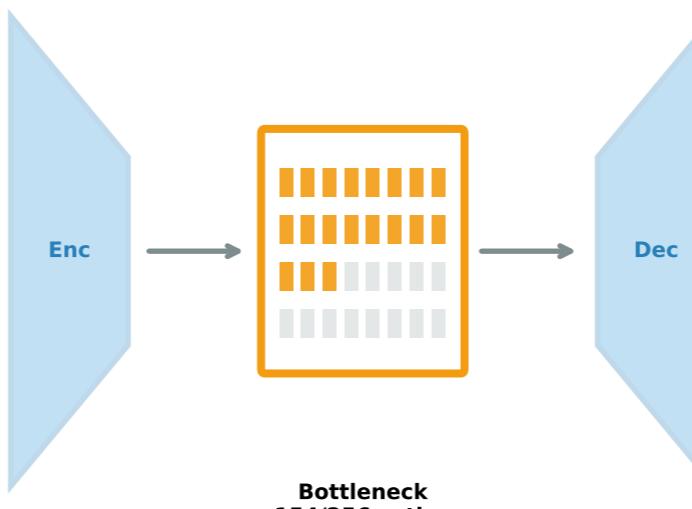
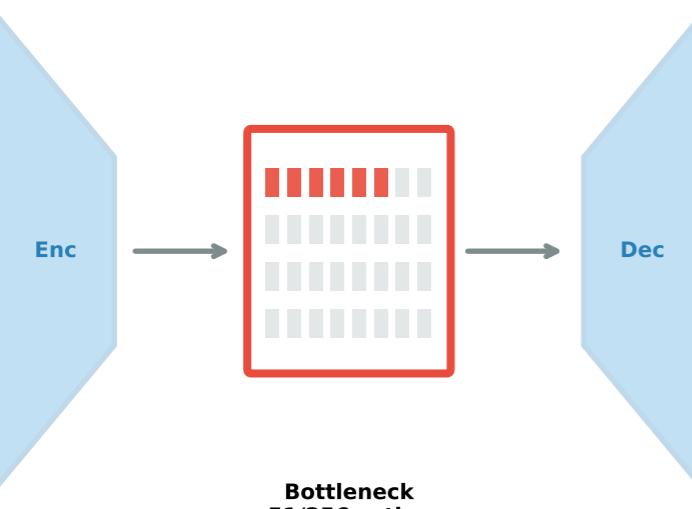


$M_2$  Fine



Noise Level & Output

UNet Bottleneck



**19% Active**

Sparsity: 80%

**60% Active**

Sparsity: 40%

**100% Active**

Sparsity: 0%

Key Insight: High Noise  $\leftrightarrow$  High Sparsity (few channels learn coarse  $M_1$ )  
Low Noise  $\leftrightarrow$  Low Sparsity (all channels active, new channels learn fine  $M_2$ )