

Conditional Generation

Part 4/7: Sampling



Goal: Generate samples conditioned on class, text, or image



Classifier Guidance Method

Base Score

s (original)

+

Classifier Gradient

$w \cdot \nabla_x \log p(y|x_t)$

=

Modified Score

\tilde{s}

Modified Score Formula

$$\tilde{s} = s + w \cdot \nabla_x \log p(y|x_t)$$

Guidance Scale

w controls conditioning strength



Applications

- Class-conditional ImageNet generation



Limitations

- Requires trained classifier
- Less flexible
- Need separate classifier for each type

💡 Key Insight: Use classifier gradients to guide generation toward desired conditions