

Mixup and CutMix

Mixup

Linear Interpolation



Formula

$$x_{\text{mix}} = \lambda \cdot x_i + (1-\lambda) \cdot x_j$$

$$y_{\text{mix}} = \lambda \cdot y_i + (1-\lambda) \cdot y_j$$

✓ Blends entire images

✓ Smooth interpolation

CutMix

Cut and Paste Regions



Mixing Ratio

$$\lambda \sim \text{Beta}(\alpha, \alpha)$$

Paste cut region to another

✓ Retains local features

✓ More natural appearance

Shared Benefits

Smoother decision boundaries

Improved robustness

Better calibration