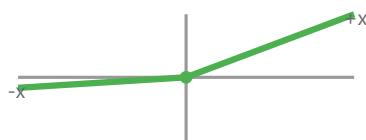


Leaky ReLU & PReLU: Addressing Dead Neurons

Leaky ReLU

$$f(x) = \max(\alpha x, x)$$

$\alpha = 0.01$ (fixed)

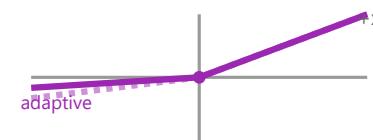


- ✓ Prevents dead neurons
- ✓ Small negative slope (0.01)
- ✓ Minimal computational cost

PReLU

$$f(x) = \max(\alpha x, x)$$

α learned during training



- ✓ Learnable parameter α
- ✓ Adapts per channel/layer
- ✓ Better in deep networks

Performance Comparison

Aspect

Leaky ReLU

PReLU

Flexibility

Fixed α

Adaptive α

Complexity

Minimal

Slight increase

Use Case

General purpose

Deep CNNs