Dense Connection (DenseNet): Maximum Connectivity
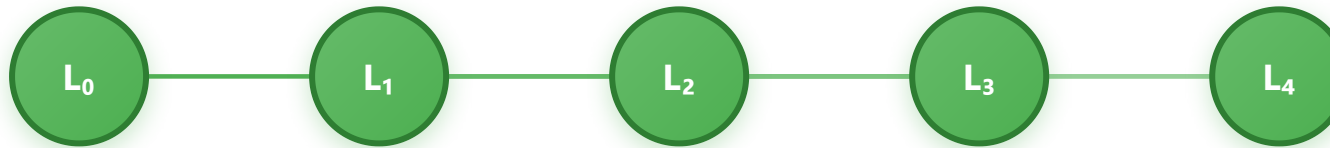
CORE IDEA

Each layer connects to ALL subsequent layers

$$x_l = H_l([x_0, x_1, ..., x_{l-1}])$$

Dense Connectivity Pattern

✓ Advantages

Maximum information flow · Feature reuse · Parameter efficiency

📊 Efficiency

Fewer parameters than ResNet for same accuracy

⚠ Memory Consideration

Requires storing all intermediate features (higher memory)

🎯 Use Cases

Image classification · Feature extraction · Limited parameters

GROWTH RATE

Each layer adds **k feature maps** (typically k=12 or k=32)