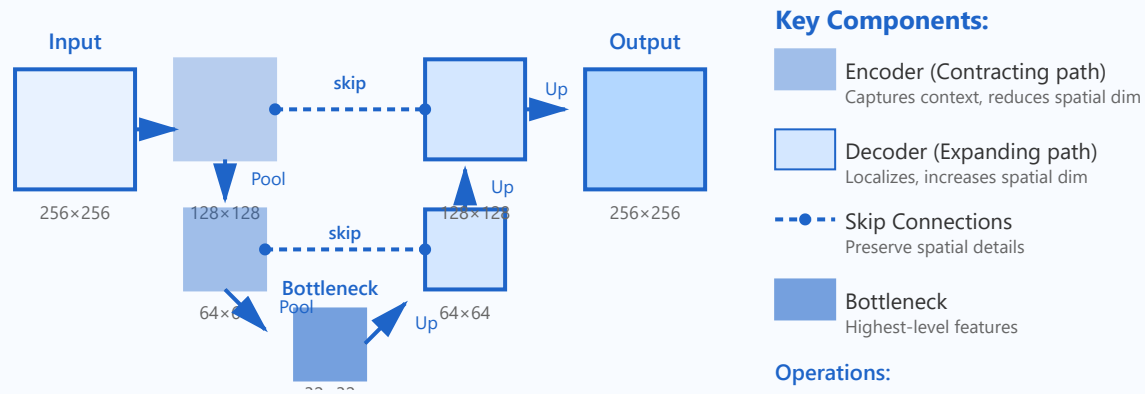


# Segmentation with U-Net

## U-Net Architecture: Encoder-Decoder with Skip Connections



### U-Net Architecture

Encoder-decoder with skip connections. Standard for medical image segmentation

### Skip Connections

Combine low and high-level features. Preserve spatial details for precise boundaries

### Loss Functions

Dice loss, focal loss, boundary loss. Address class imbalance and boundary precision

### 3D U-Net

Extension to volumetric data. Processes entire 3D volumes for organ/tumor segmentation

## **nnU-Net Framework**

Self-configuring U-Net. Automatically adapts to dataset characteristics