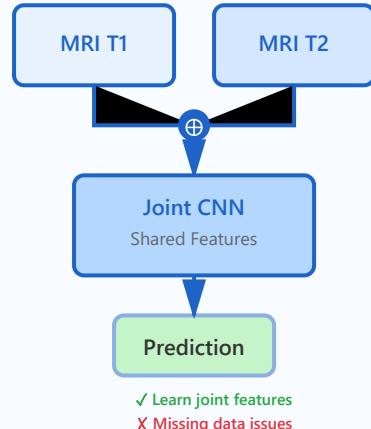


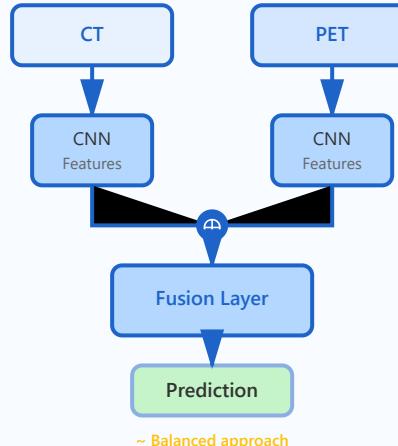
# Multi-modal Fusion

## Fusion Strategies Comparison

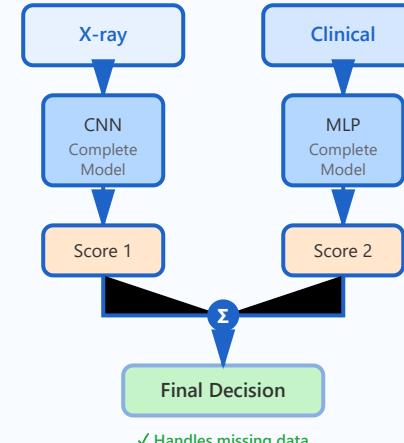
### Early Fusion



### Intermediate Fusion



### Late Fusion



### Early vs Late Fusion

Early: Combine at input/features. Late: Combine predictions.  
Depends on modality complementarity

### Attention Mechanisms

Learn importance of each modality. Dynamic weighting based on input

### Cross-Modal Learning

Transfer knowledge between modalities. Co-training and contrastive learning

### Missing Modalities

Handling incomplete data. Imputation or modality-specific pathways

## Clinical Protocols

MRI sequences (T1, T2, FLAIR), PET-CT fusion. Each modality provides unique information