

Classification Tasks

Disease Detection

Binary or multi-class classification. Pneumonia detection, cancer screening, retinopathy grading

Multi-label Classification

Multiple diseases per image. Thoracic diseases (14 classes in ChestX-ray14 dataset)

Ordinal Regression

Ordered categories (disease severity). Preserves ordering constraints in loss function

Uncertainty Estimation

Confidence in predictions. Monte Carlo dropout, ensembles, or Bayesian approaches

Ensemble Methods

Combining multiple models. Improves robustness and calibration of predictions