Fine-Tuning Overview

Full Fine-Tuning vs Parameter-Efficient Methods

Adapting pre-trained models to medical domain

Full Fine-Tuning

- Updates all model parameters
- Requires large GPU memory
- Best performance on large datasets
- High computational cost

Parameter-Efficient (PEFT)

- Updates only small subset
- 10-100x less memory
- Faster training
- Good for limited resources

Medical Data Characteristics

- Limited labeled data
- High annotation cost
- Domain-specific terminology
- Privacy constraints

Resource Requirements

- GPU memory: 24-80GB
- Training time: hours to days
- Dataset size: 1K-1M samples
- Storage: 10-500GB

Key Considerations

- **Trade-off:** Performance vs. Efficiency vs. Resource availability
- **Strategy:** Start with PEFT methods, scale to full fine-tuning if needed
- **Safety:** Medical domain requires careful validation and testing