

Model Selection Criteria

Choosing the Right Model

Performance, efficiency, safety, and regulatory compliance

Selection Dimensions

- **Performance:** Accuracy on medical benchmarks
- **Efficiency:** Inference latency and throughput
- **Safety:** Error rate on critical tasks
- **Interpretability:** Explanation capabilities
- **Cost:** Training and deployment expenses

Medical Safety Requirements

- Sensitivity to harmful outputs: < 0.1%
- Critical error rate: < 1%
- Consistency across similar inputs: > 95%
- Appropriate uncertainty quantification

Regulatory Considerations

- **FDA:** Software as Medical Device (SaMD)
- **HIPAA:** Patient data privacy compliance
- **EU MDR:** Medical device regulation

- **Documentation:** Model cards, risk analysis

Deployment Constraints

- **Latency:** < 2s for interactive applications
- **Hardware:** Available GPU/CPU resources
- **Scalability:** Handle concurrent users