Classification in Medicine

Common algorithms for diagnosis and prediction tasks

Logistic Regression

Linear model for binary/multi-class classification with probability outputs

- ✓ Highly interpretable
- ✓ Fast training
- ✗ Assumes linearity
- ✗ Limited complexity

Random Forests

Ensemble of decision trees for robust, non-linear classification

- ✓ Handles non-linearity
- ✓ Feature importance
- ✗ Less interpretable
- ✗ Can overfit

Support Vector Machines

Maximum margin classifier with kernel tricks for non-linear boundaries

- ✓ Effective in high-dim
- ✓ Versatile kernels
- ✗ Slow on large data
- ✗ Hard to interpret

Neural Networks

Deep learning models for complex pattern recognition

- ✓ Highest performance
- ✓ Automatic features
- ✗ Black box
- ✗ Needs large data