

Classification in Medicine

Common algorithms for diagnosis and prediction tasks

Logistic Regression

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

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

Random Forests

Ensemble of decision trees for robust, non-linear classification

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

Support Vector Machines

Maximum margin classifier with kernel tricks for non-linear boundaries

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

Neural Networks

Deep learning models for complex pattern recognition

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