Regression for Biomarkers

Predicting continuous outcomes - lab values, disease progression, dosages

Linear Regression

Simple, interpretable baseline model

Use case: Predicting HbA1c levels from patient features

Ridge / Lasso / Elastic Net

Regularized regression preventing overfitting

Use case: Gene expression → biomarker prediction

Random Forest Regression

Non-linear relationships, feature importance

Use case: ICU length of stay prediction

Gradient Boosting (XGBoost)

State-of-the-art performance on tabular data

Use case: Drug dosage optimization

⚠️ **Critical: Prediction Intervals**

Clinical decisions require not just point estimates but confidence intervals - quantify uncertainty!