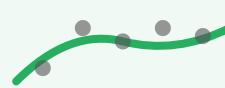# Overfitting and Underfitting

Underfitting

Too simple to capture patterns

Train Error:
Val Error:

Good Fit

Balance between bias & variance

Train Error:
Val Error:

Overfitting

Memorizes training data

Train Error:
Val Error:

🎯 **Key Insight: Finding the Sweet Spot**

Model complexity should match problem complexity • Use regularization techniques to prevent overfitting • Monitor both training and validation errors