Accuracy and Its Limitations

📊 Definition

Accuracy = (TP + TN) / Total

Percentage of correct predictions

✓ Advantages

- ✓ Simple to calculate
- ✓ Easy to interpret
- ✓ Intuitive metric (0-100%)

⚠ The Accuracy Paradox: Rare Disease Detection

Dataset

1%

Disease prevalence
(99% healthy)

→

Naive Model

99%

"Always predict healthy"
Useless accuracy!

⚖

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🎯

Imbalanced Data

Misleading with skewed class distribution

Different Costs

Ignores varying costs of FP vs FN

No Error Context

Doesn't reveal error patterns

⚡ **Critical: Always consider class distribution before relying on accuracy alone**