Sentiment Analysis Approaches

Compare different methods for analyzing text sentiment and emotions

Rule-Based

Uses predefined dictionaries and linguistic rules to determine sentiment based on word polarity and grammatical patterns.

Accuracy Range

60-70%

Pros

- ✓ Fast and interpretable
- ✓ No training data required
- ✓ Works well for simple cases

Cons

- ✗ Struggles with context
- ✗ Misses sarcasm and irony
- ✗ Limited vocabulary coverage

Machine Learning

Employs algorithms like SVM, Naive Bayes, or Random Forest trained on labeled datasets to classify sentiment.

Accuracy Range

75-85%

Pros

- ✓ Better context understanding
- ✓ Customizable for domains
- ✓ Good performance/cost ratio

Cons

- ✗ Requires labeled training data
- ✗ Feature engineering needed
- ✗ Limited semantic understanding

Deep Learning

Uses neural networks like LSTM, BERT, or Transformers to understand complex patterns and context in text.

Accuracy Range

85-95%

Pros

- ✓ Excellent context understanding
- ✓ Handles complex language
- ✓ State-of-the-art accuracy

Cons

- ✗ Requires large datasets
- ✗ Computationally expensive
- ✗ Less interpretable