TITLE

EXPOSING THE TRUTH WITH ADVANCED FAKE NEWS DETECTION POWERED BY NATURAL LANGUAGE PROCESSING

Subtitle : Combating misinformation with AI

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INTRODUCTION

Importance of truthful information in society

Rise of fake news in the digital age

Need for automated detection systems

WHAT IS FAKE NEWS?

Definition of fake news

Types: satire, misleading headlines, clickbait, propaganda

Real-world examples

CHALLENGES IN DETECTING FAKE NEWS

Linguistic complexity and subtlety

RAPID SPREAD ON SOCIAL MEDIA

DATA IMBALANCE AND BIAS

HUMAN VS MACHINE LIMITATIONS

ROLE OF NLP IN FAKE NEWS DETECTION

Natural Language Processing overview

NLP capabilities: tokenization, sentiment analysis, semantic understanding, etc.

Why NLP is suitable for text-based misinformation

SYSTEM ARCHITECTURE OVERVIEW

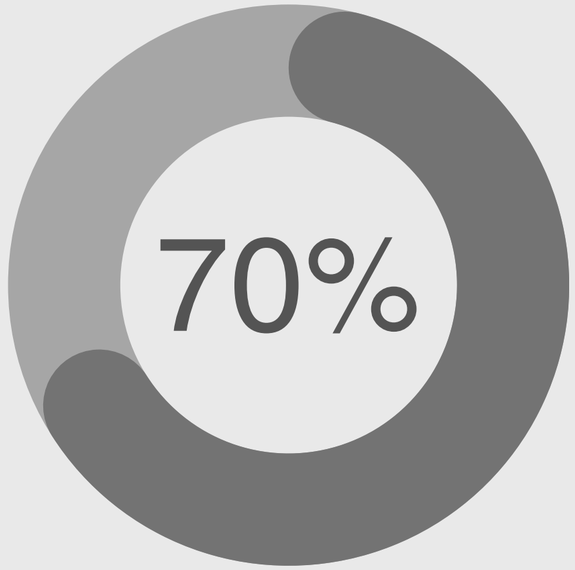
Data Collection (News Articles, Social Media)

Preprocessing (Cleaning, Tokenization)

Feature Extraction (TF-IDF, word embeddings)

Model Training (Machine learning, Deep learning)

Output: Real/Fake classification



TECHNIQUES USED

Text classification using ML/DL
(e.g., Logistic Regression, SVM,
BERT)

Sentiment Analysis

Named Entity Recognition (NER)

Stance detection

CASE STUDY OR DEMO

Dataset used (e.g., LIAR, FakeNewsNet)

Model performance (accuracy, precision, recall)

Screenshots or demo output (if available)

ETHICAL CONSIDERATIONS

Bias in training data

Free speech vs misinformation control

False positives/negatives impact

FUTURE DIRECTIONS

Multilingual detection

Real-time analysis

Integration with social platforms

Human-in-the-loop systems

CONCLUSION

Summary of how NLP aids in exposing fake news

Encouragement for continued research and vigilance