

# **YouTube Comment Analyzer**

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**Abstract:** *The exponential growth of user-generated content on digital platforms such as YouTube has resulted in an enormous volume of textual comments expressing public opinions, emotions, and reactions. Analyzing such large-scale unstructured data manually is inefficient, time-consuming, and impractical. Sentiment Analysis, a sub-field of Natural Language Processing (NLP), enables automated extraction of emotional polarity from textual content.*

*This paper presents a Transformer-based YouTube Comment Sentiment Analyzer that extracts comments using the YouTube Data API, preprocesses noisy textual data, and classifies sentiments into Positive, Negative, and Neutral categories using a fine-tuned RoBERTa model. The proposed system integrates advanced NLP preprocessing techniques such as tokenization, stop word removal, lemmatization, spam filtering, and normalization.*

*The system generates statistical summaries and graphical sentiment distributions to support decision-making. Experimental observations indicate that transformer-based models significantly improve contextual understanding compared to traditional machine learning techniques. The proposed solution demonstrates scalability, efficiency, and real-world applicability in social media analytics.*

**Keywords:** Sentiment Analysis, Natural Language Processing, RoBERTa, Transformer Models, YouTube Data API, Social Media Analytics

