Comparative Study of Sentiment Analysis on Text data using various Deep Learning Models

Abstract:

This paper addresses the need to automate sentiment analysis due to the rising volume of digital textual data. Its primary goal is to analyse sentiment analysis techniques, with a focus on assessing emotional tone in sources like Goodreads book reviews and IMDb movie reviews. We systematically evaluate the effectiveness of various Natural Language Processing (NLP) and Deep Learning models, such as LSTM, CNN, RNN, BERT, RoBERTa, XLNet, and GPT-3, across diverse datasets. We also investigate how the choice of dataset influences model accuracy. Our methodology involves data preprocessing, feature extraction, model selection, and performance assessment through cross-validation. We provide a comprehensive evaluation of sentiment analysis models, considering metrics such as accuracy, precision, recall, F1-score, and computational efficiency. This study advances sentiment analysis techniques, assists in selecting models for specific applications and datasets, and serves as a valuable resource for future research, deepening our understanding of NLP and deep learning techniques in sentiment analysis.

Keywords:

Sentiment analysis, Emotional tone, Natural Language Processing (NLP), Deep Learning models

Tentative Work Plan for

Comparative Study of Sentiment Analysis on Text data using various Deep Learning Models

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| Work Plan | Time Period |
| Preparing Problem Statement | 1st - 10th Sept |
| Collecting the research paper in the problem domain & Data collection | 11th - 20st Sept |
| Writing a critical review & Literature survey | 21st - 30th Sept |
| Proposed methodology | 1st-6th Oct |
| Experimenting the algorithms and the tools & Implementation | 7th - 16th Oct |
| Validation | 17th – 22nd Oct |
| Documentation | 23th-2nd November |