PyCaret AutoML and BiLSTM Performance in Multilingual Emotion Classification

Assignee Research

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Abstract

This report synthesises findings from 7 peer-reviewed papers addressing the following research question: What is the performance difference between PyCaret AutoML and BiLSTM on the 20-class emotion classification task when trained on a multilingual dataset spanning 5+ languages compared to monolingual. 5 claims were extracted from source literature; 5 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 9.0/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: SentimentGPT: Exploiting GPT for Advanced Sentiment Analysis and its Departure from Current Machine Learning. Research question: What is the performance difference between PyCaret AutoML and BiLSTM on the 20-class emotion classification task when trained on a multilingual dataset spanning 5+ languages compared to monolingual baselines?.

2 Methodology

Systematic literature search across multiple databases yielded 7 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 9.0/10.

3 Results

7 papers retrieved. 5 claims extracted; 5 independently verified. Quality review score: 9.0/10.

4 Limitations

This report is a machine-generated literature synthesis and does not constitute original research. Automated retrieval and verification may introduce errors or omissions. Review scores reflect automated assessment, not human peer review. Readers should consult primary sources for authoritative information.

5 Extracted Claims

Claim	Verified	Confidence
The study examines GPT methodologies for sentiment analysis using Task 4 of the SemEval 2017 dataset.	✓	0.23
Three strategies were employed: prompt engineering with GPT-3.5 Turbo, fine-tuning GPT models, and an embedding classifi	✓	0.29
GPT-based methodologies achieved an F1-score improvement of more than 22% compared to the state-of-the-art models previo	✓	0.23
The study identifies understanding context and detecting sarcasm as common challenges in sentiment analysis tasks.	✓	0.23
The code for the Sentiment-GPT study is available at https://github.com/DSAatUSU/SentimentGPT.	✓	0.17

References

- https://doi.org/10.48550/arxiv.2307.10234
- https://doi.org/10.1007/s11831-022-09863-z
- https://doi.org/10.1007/s10462-024-11010-y