

## Paper Title: **Sentiment Analysis in Portuguese Restaurant Reviews: Application of Transformer Models in Edge Computing**

Paper Link: <https://www.mdpi.com/2661716>

### summary

**Motivation:** The paper aims to traverse sentiment analysis for portuguese restaurant reviews. The restaurant reviews gives a customer a general insight but it fails to provide the details of the customer's experience. This paper focuses on the growing demand for sentiment analysis in restaurant industry, especially in Portuguese language. There is already lacking of availadble portuguese SA models made for resource-constrained edge devices like jetson Nano and Rasoberry Pi. These devices world very well for real-time applications in restaurants. The main focus of this research is to SA models tailored for portuguese restaurant reviews.

**Contribution:** This paper introduces RoBERTa-based sentiment analysis model for portuguese restaurant reviews. They have 84% accuracy and is made to balance efficiency and balance complexity for use on edge devices like jetson Nano and Raspberry Pi, making them suitable for real-time applications in restaurants.

**Methodology:**The process uses BRETimbau and RoBERTa transformer models fine-tuned for sentiment analysis for portuguese restaurant reviews. It tests emsemble models with AdaBoost for betterment of the performance. Evaluation includes matrices like accuracy, F1-score, sensitivity, specificity and pressision. These models then gets tested on various platforms like Jetson Nano, Rasperry pi and then gets compared to GPU benchmark.

**Conclusion:** In the process, the RoBERTa models outshine BERT models in SA. SentAnalysisPt (BERT-based) and SentAnalysisPtRoBERTa models creates a balance between percentage of accuracy and speed suitable for edge devices. The study achieves outstanding performance. Had better result then previous models PTT5(0.82) and BERTimbau (0.80).

#### Limitations:

1. Data dependence: There is an impact of the limitation of size and potential bias of training-data set. It might effect the model's generalizability and percentage of accuracy. In future working with larger and more diverse datasets might improve these aspects.
2. Language specificity: The study focuses on Portuguese language. So does not work well for other language. Each language has unique features and cultural references, Making it work for other language would require further research.

Synthesis: The advancement of the creation and precise SA models specially made for portuguese language reviews. It highlights the effectiveness of RoBERTa models and it emphasizes teh weighing model complexity for developing on edge devices. In future mode work can be done on larger dataset and different languages.