

Predicting the Sentiments on Apple Vision Pro using Aspect-Based Sentiment Analysis

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1. Introduction

- Sentiment Analysis is an important tool to understand public reviews and aspects.
- Traditional methods utilise (Wankhade, 2022) every word in the review to classify sentiments and challenges include sarcasm detection, context understanding, and distinguishing similar features.
- Aspect based sentiment prediction slices the data into different perspectives/opinions (Verma et al, 2022).
- The primary goal of this research is to apply aspect sentiment prediction techniques to analyze public sentiment about the Apple Vision Pro and identify the better model to predict sentiments.

2. Literature Review

- Sampathirao Suneetha et al. (2013) mention its application to product development cycles: 'The Aspect-Based Sentiment Analysis (ABSA) can help tech industry extract actionable insights from real-time consumer feedback.'
- ABSA was presented as pivotal to understanding product refinements and marketing, as well as improving customer service standards, thus demonstrating how such work could be useful to business practices.
- Alyami et al. (2022) contributed to the literature by introducing a systematic approach to ABSA through SemEval tasks with benchmarks and datasets for these models, which have been used to develop more accurate systems overall.
- Liu and Zhang (2012) identified these issues with ABSA, including how to extract aspect terms from user comments, and how to perform sentiment classification, particularly when sentiment might not be easily interpreted and the feedback might be highly technical, as in the tech industry.

3. Research Questions

- 1) How do sentiments toward the design, functionality, and price of the Apple Vision Pro vary across different consumer segments?
- 2) What are the different models available to categorize the sentiment analysis using aspect-based prediction?
- 3) Which sentiment analysis models most accurately identify and categorize sentiments?

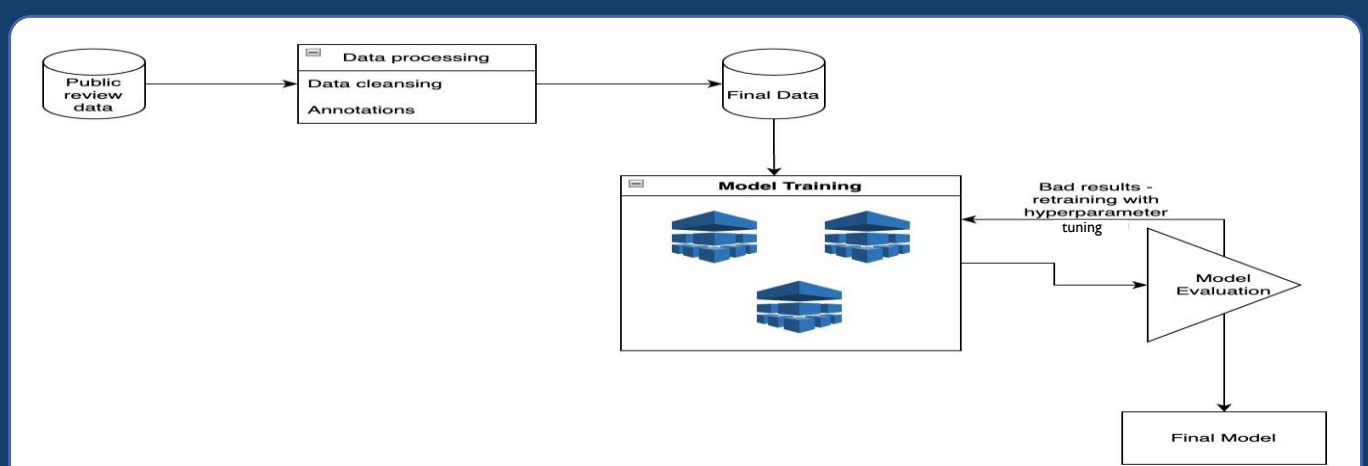
4. Methodologies

- Collect online reviews to gather a broad dataset of consumer feedback on the Apple Vision Pro and later the data is annotated to train the models.
- Identifying the better model that can be able to classify the sentiments based on the data exploration and literature review.
- Train the chosen model on the annotated and processed data and retrain the model by hyperparameter tuning based on the results of evaluation (Belete, et al, 2022).
- Evaluate model using metrics such as accuracy, precision, recall, and F1 score to understand its performance in classifying sentiment.

6. Technologies



5. Architecture



7. Next Steps

- The initial step is to download the data relevant for the research and annotate the data.
- Train and evaluate the models.

8. References

- Verma, S. and Jain, A.K., 2022. A survey on sentiment analysis techniques for twitter. In Data Mining Approaches for Big Data and Sentiment Analysis in Social Media (pp. 57-90). IGI Global.
- Sampathirao Suneetha, P. and Row, S.V., 2023. Aspect-based sentiment analysis: A comprehensive survey of techniques and applications. Journal of Data Acquisition and Processing, 38(3), p.177.
- Alyami, S., Alhothali, A. and Jamal, A., 2022. Systematic literature review of Arabic aspect-based sentiment analysis. Journal of King Saud University-Computer and Information Sciences, 34(9), pp.6524-6551.