# Benchmarking Embedding Models: Comparação performance e eficiência

Diogo Silva (A100092) — João Barbosa (A100054) Pedro Oliveira (Axxxxx)

March 31, 2025

#### Abstract

This report presents a comprehensive benchmark of various embedding models for [specific task/domain]. We evaluate [number] different embedding techniques across [metrics] metrics using [datasets]. Our analysis reveals insights into the performance, efficiency, and tradeoffs of different embedding approaches, providing practical guidance for selecting appropriate models for [applications].

### Contents

1	Introduction										
	1.1	Background and Motivation	4								
	1.2	Problem Statement									
	1.3	Contributions	4								
2	Related Work 4										
	2.1	Embedding Models	4								
	2.2	Previous Benchmarking Studies									
3	Methodology 4										
	3.1	Embedding Models	4								
		3.1.1 Model 1	4								
		3.1.2 Model 2	4								
		3.1.3 Model 3	4								
	3.2	Datasets	4								
	3.3	Evaluation Metrics	4								
		3.3.1 Accuracy Metrics	4								
		3.3.2 Efficiency Metrics	4								

4	$\mathbf{Exp}$	perimental Setup	4					
	4.1	Hardware Configuration	4					
	4.2	Software Environment	4					
	4.3	Preprocessing Steps	4					
	4.4	Implementation Details	4					
5	Res	ults	4					
	5.1	Quantitative Results	4					
	5.2	Qualitative Analysis	5					
6	Discussion							
	6.1	Performance Analysis	5					
	6.2	Trade-offs	5					
	6.3	Limitations	5					
7	Cor	nclusion	5					
	7.1	Summary of Findings	5					
A	Ada	litional Experimental Results	5					
В	Imp	plementation Details	5					

#### 1 Introduction

- 1.1 Background and Motivation
- 1.2 Problem Statement
- 1.3 Contributions
- 2 Related Work
- 2.1 Embedding Models
- 2.2 Previous Benchmarking Studies
- 3 Methodology
- 3.1 Embedding Models
- 3.1.1 Model 1
- 3.1.2 Model 2
- 3.1.3 Model 3
- 3.2 Datasets
- 3.3 Evaluation Metrics
- 3.3.1 Accuracy Metrics
- 3.3.2 Efficiency Metrics
- 4 Experimental Setup
- 4.1 Hardware Configuration
- 4.2 Software Environment
- 4.3 Preprocessing Steps
- 4.4 Implementation Details
- 5 Results

### 5.1 Quantitative Results

Table 1: Performance Comparison of Embedding Models

Model	Metric 1	Metric 2	Metric 3	Inference Time	Memory Usage
Model 1	0.XX	0.XX	0.XX	XX ms	XX MB
Model 2	0.XX	0.XX	0.XX	XX ms	XX MB
Model 3	0.XX	0.XX	0.XX	XX ms	XX MB

- 5.2 Qualitative Analysis
- 6 Discussion
- 6.1 Performance Analysis
- 6.2 Trade-offs
- 6.3 Limitations
- 7 Conclusion
- 7.1 Summary of Findings
- 7.2 Future Work

## References

- A Additional Experimental Results
- **B** Implementation Details