Cem Mil Podcasts: A Spoken Portuguese Document Corpus

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Abstract. This document describes the Portuguese language podcast dataset released by Spotify for academic research purposes. We give an overview of how the data was sampled, some basic statistics over the collection, as well as brief information of distribution over Brazilian and Portuguese dialects.

Keywords: Dataset · Podcast · Spoken data.

Portuguese Podcast Dataset for Academic Research

Podcasts, a new and emergent spoken mass communication medium, come in many formats and levels of formality. Podcasts are typically produced as topically or stylistically consistent shows which consist of episodes, which are published serially with some regularity over time. Podcast shows can be educational, journalistic, or fictional; formal or informal; conversational or monologues; and vary over type, style, form, and topic. Podcast consumption has been growing rapidly [10] and podcasts have in the past years become a topic of interest for research in speech and language technology, linguistics, information access technology, and media studies. Podcasts are available in a wide variety of languages. The Anchor podcast creation app is available in thirty-five languages [1] with many more podcasters creating podcasts in other languages.

In order to facilitate academic research on podcasts, in 2020 we released an English language podcast dataset for research purposes [4]. The English language podcast dataset has been shared to more than one thousand research groups since it was published. It is orders of magnitude larger than previous transcribed speech datasets, and contains a rich variety of genres, subject matter, speaking styles, and structural formats, departing from other collections of English language data [6]. The Portuguese dataset described here is of comparable size and breadth. In addition, like the English dataset, it contains metadata that can be used as proxy labels for supervised learning tasks, such as creator descriptions for the summarization task and show publisher for authorship attribution tasks.

The Portuguese language is the sixth most-spoken language in the world, with 250 million native speakers, and 24 million more L2 speakers [2]. Morais et al [9] surveyed 566 Brazilian podcast listeners, and found that they listen to
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podcasts across a range of topic areas, and like information that is complementary to the information found in other media. There have been smaller-scale studies of Portuguese podcasts. We know of no previous large-scale study of Portuguese language podcasts. In order to facilitate research on podcasts in Portuguese, we now release a podcast dataset consisting of 123,054 podcast episodes in Portuguese from 16,131 shows, encompassing more than 76,000 hours of speech audio. This extends the English language podcast dataset with a Portuguese language podcast dataset, effectively more than doubling the collection size.

**Composition and Selection of the Dataset**

The Portuguese language podcast episodes were randomly selected from our catalog and were published between September 9, 2019 and March 31, 2022.

The process to build the Portuguese language podcast dataset followed the procedure used to build the English language podcast dataset as detailed in the description of that dataset. The filters used in this process were as follows.

- The language of the show must be Portuguese (pt-BR or pt-PT)
- The episode must have more than 50% of speech over its duration. A proprietary speech detection algorithm was used here. This filters out podcasts which contain mostly music, white noise or ambient sounds, rather than speech.
- The episodes are all Spotify owned-and-operated, for copyright reasons.
- The episode descriptions must be identified as Portuguese by the langid Python package.

All episodes have been transcribed to text with Azure’s speech-to-text service, which requires a target language and regional variant to be specified. In this dataset this can be either pt-PT (Portuguese from Portugal) or pt-BR (Portuguese from Brazil). We used the following heuristics based on the available episode and show metadata to select the target language:

1. if the show language is ‘pt-PT’ or ‘pt-BR’, use that as the language for transcription.
2. if the episode language is ‘pt-PT’ or ‘pt-BR’, use that as the language for transcription.
3. if the show’s country of origin is ‘pt’ or ‘br’, set the transcription language as ‘pt-PT’ or ‘pt-BR’ accordingly.
4. otherwise, fall back to ‘pt-BR’ because the number of podcast producers in Brazil is larger.

In the end, 114,387 episodes were transcribed using pt-BR and 8667 were transcribed using pt-PT as a target. Examples of each are shown in Figure 1.

[1] https://docs.microsoft.com/en-us/azure/cognitive-services/speech-service/index-speech-to-text
Some manual inspection reveals that some classification errors between pt-PT and pt-BR remain: words such as “legal”, Brazilian for “cool” or the Brazilian-only pronoun “cê” appear in the pt-PT set.

| pt-PT | Olá és curioso sobre o que se passa no mundo, gosta de saber o que afetou diversos ecossistemas e como podes ajudá-los. E esta ao sítio certo, não podcast e como escola São Pedro do Sul, podes encontrar informação sobre o ambiente, novidades relacionadas com o nosso planeta e muitas curiosidades, incluindo as diversas medidas que podes aplicar para ajudares a proteger a natureza. Serás capaz de aprofundar os teus conhecimentos sobre diversos temas, desde alterações climáticas até ao ruído. A equipa de 2 ou 3 vezes por mês que vai contar tudo é composta pelo Miguel Almeida, Rodrigo Cardoso, Tiago Rocha e Filipe Correia. Para não perder nada, subscreve. Já o nosso podcast na tua plataforma preferida e não te esqueças após cada episódio, Podes sempre visitar o nosso website para saberes mais. |
| pt-BR | Olá você que é nosso ouvinte do podcast de arte saúde o fiba hoje estaremos nossa segunda entrevista e contaremos com a presença de uma convidada mais do que especial? Ela estéfane psicóloga e arte terapeuta. Oi eu sou estefani eu sou psicóloga formada pela universidade de Passo Fundo com especialização em arteterapia também pela universidade de Passo Fundo e recentemente eu encontrei uma ponte entre a psicologia e a arte terapia através de uma especialização em psicologia clínica e um. Indo pela fam acne Porto Alegre eu tô muito feliz com o convite da área de saúde para falar um pouquinho sobre esse assunto que deixa o meu coração tão quentinho que é arte terapia e sempre . . . |

Fig. 1. Example transcripts for the two target varieties of Portuguese. The pt-PT example was extracted from the show “EESPS: Podcast sobre o ambiente”. The pt-BR was extracted from the show “Arte e Saúde - UFBA”

### Descriptive Statistics

In Table 1 we give some descriptive statistics for the Portuguese dataset and compare to the English dataset.

### Data Overview

For each episode, we provide the audio file, the transcription of this audio file and the associated metadata. The following metadata is provided:

- `show_uri`: Spotify uri for the show. (e.g. spotify:show:2GfMFAmQseZlfOtiLQyZ39)
- `show_name`: Name of the show. (e.g. “Hoje no TecMundo Podcast”)


Table 1. Descriptive statistics for the English and Portuguese Language Podcast Dataset.

|                        | English | Portuguese |
|------------------------|---------|------------|
| Number of episodes     | 105 360 | 123 054    |
| Number of shows        | 18 376  | 16 131     |
| Average episode duration (minutes) | 33.8 | 37.3 |
| - 25%                  | 13.6    | 10.9       |
| - 50%                  | 31.6    | 31.2       |
| - 75%                  | 50.4    | 55.0       |
| - max                  | 305     | 695        |
| Average number of words (from transcript) | 5 700 | 9 539 |

We also provide the RSS feeds for each podcast show. This is a rich source of metadata which enables a number of different perspectives for a research project.

In Table 2 we can see the distribution of episodes per genre. The top 5 genres account for 69% of all episodes. Business, Education, Sports and Comedy are part of the top 5 genres of both the English and Portuguese podcasts dataset.

Usage

The Portuguese language podcast dataset is available for non-commercial research purposes in the same way and under the same agreement as the English language podcast dataset. The English language podcast dataset has been most notably used in shared tasks on segment retrieval and summarization in TREC 2020 [5] and TREC 2021 [7] but is also currently used for many other research purposes such as document segmentation or dialogue modelling and there are several annotations and enrichments such as a search index, human assessments, and precomputed audio features available for the English language section. We expect that this extension will broaden the scope of research and lower the
| Genre               | Number of Episodes in Portuguese Dataset |
|---------------------|------------------------------------------|
| Business            | 26 915                                   |
| Education           | 23 541                                   |
| Sports              | 13 467                                   |
| Comedy              | 11 211                                   |
| Arts                | 9 869                                    |
| TV & Film           | 5 451                                    |
| Science             | 5 379                                    |
| Music               | 3 952                                    |
| Technology          | 3 193                                    |
| Society & Culture   | 3 192                                    |
| Kids & Family       | 3 036                                    |
| Leisure             | 2 756                                    |
| Health & Fitness    | 2 337                                    |
| History             | 2 254                                    |
| Fiction             | 2 024                                    |
| True Crime          | 1 749                                    |
| News                | 1 098                                    |
| Religion & Spirituality | 1 037                              |
| Government          | 531                                      |
| None                | 62                                       |

Table 2. Portuguese Podcasts dataset: number of episodes per genre

threshold to apply methods to more than one language. We welcome contributions to further enrich the dataset through annotations of various kinds.

To request the dataset, please go to [https://podcastsdataset.byspotify.com/](https://podcastsdataset.byspotify.com/) and follow the instructions.
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