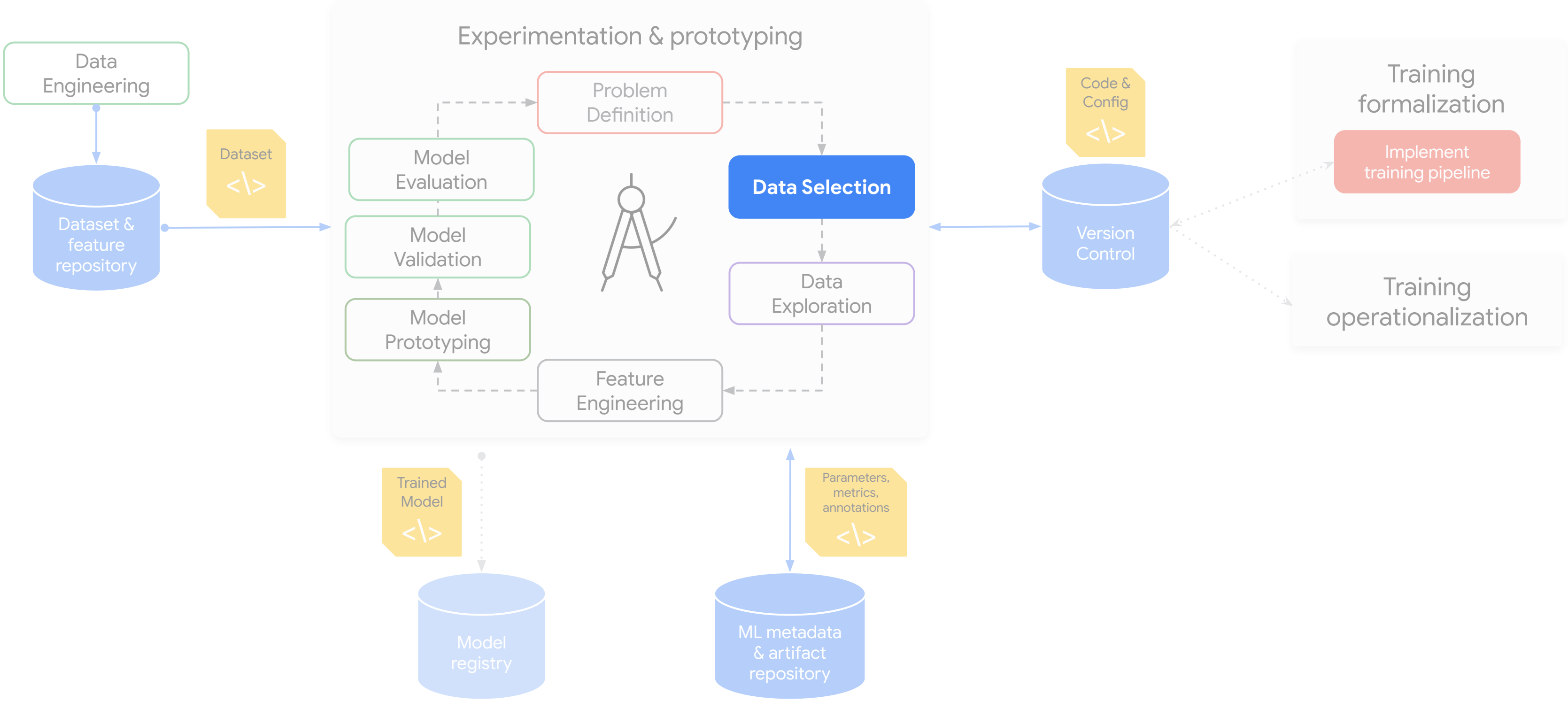
ML Development: Data Selection

MLOps: ML Development



The MLOps **Personas**

ML Engineer

ML Researcher

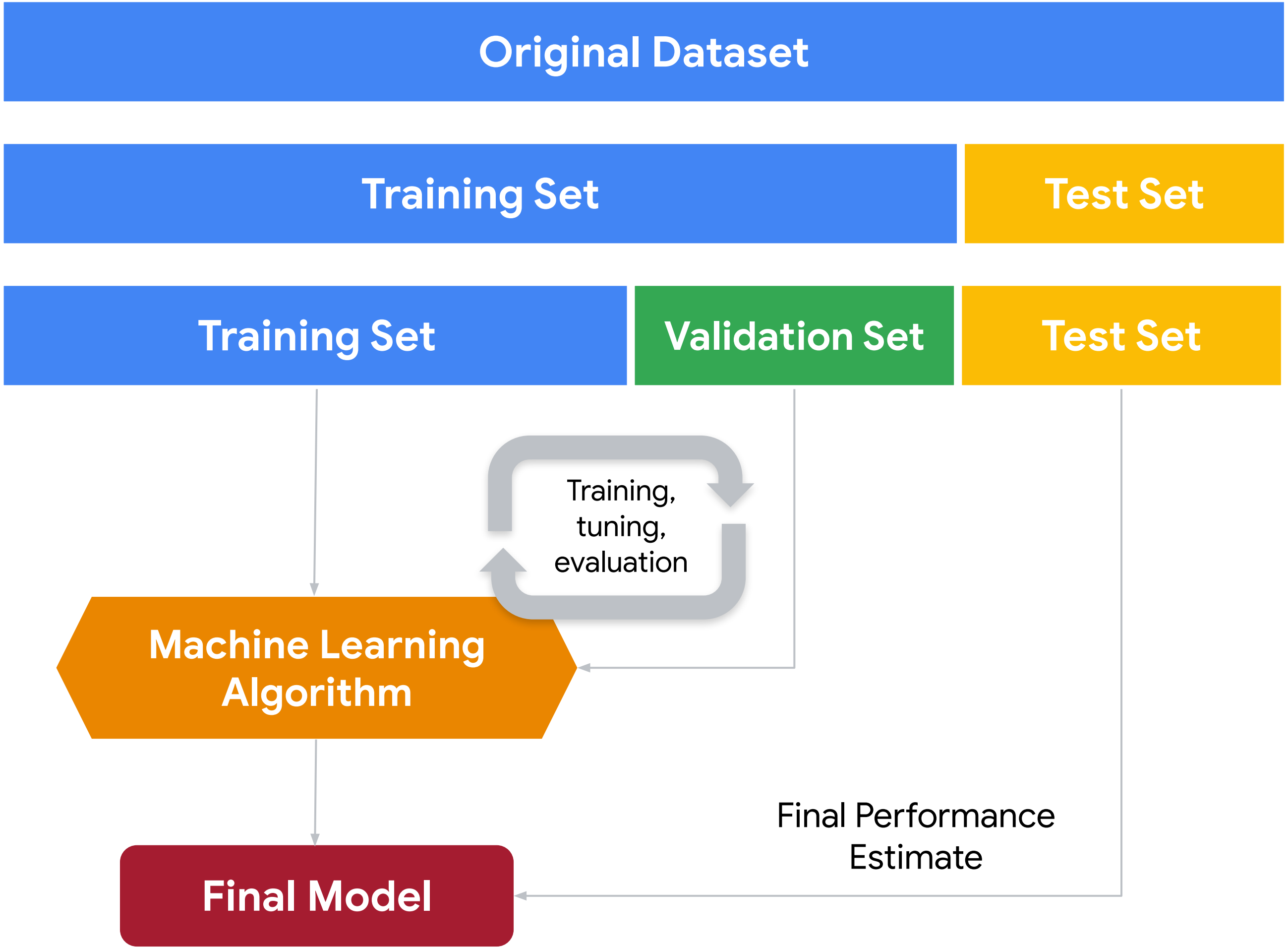
Data Scientist

Data Engineer

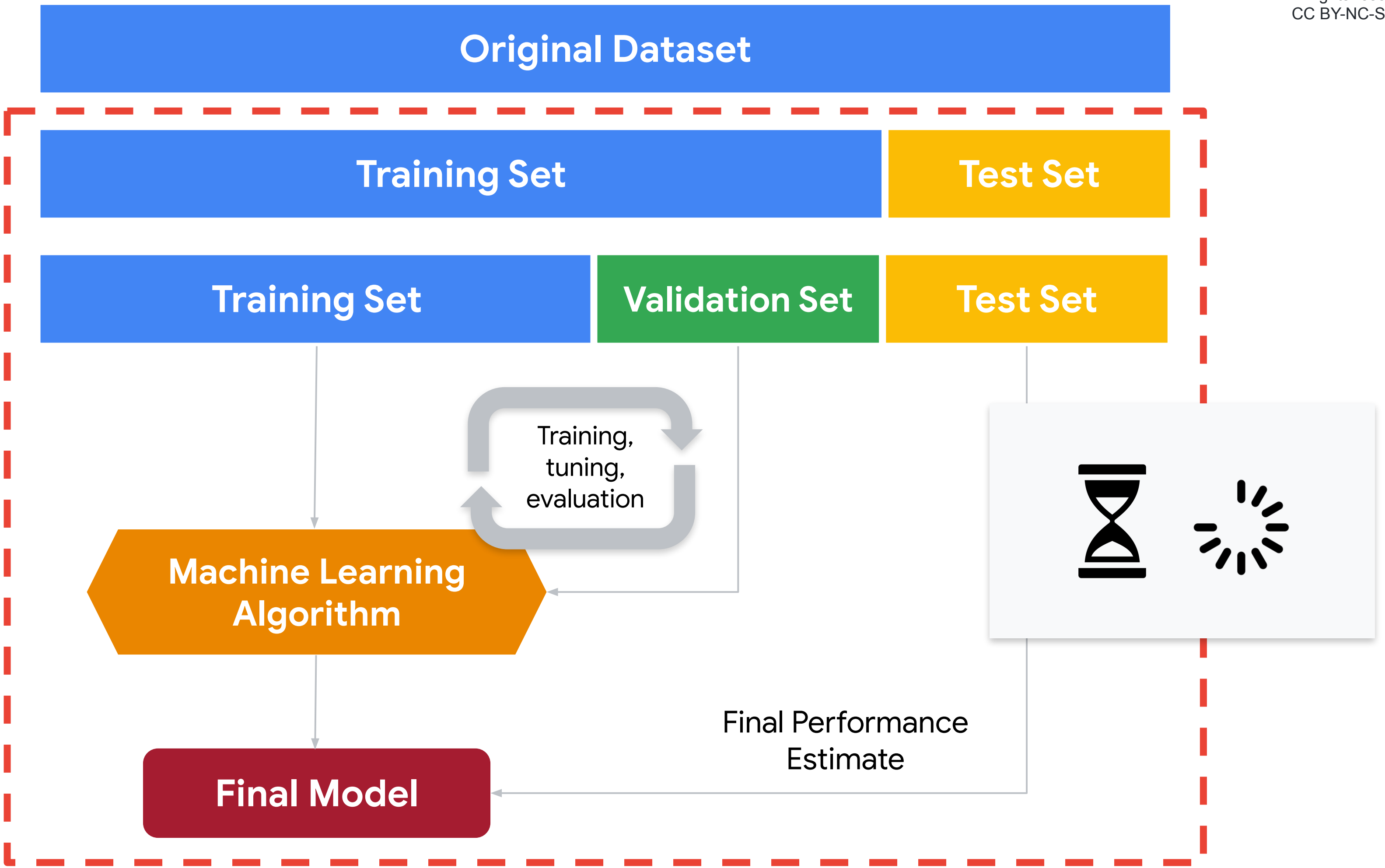
Software Engineer

DevOps

Business Analyst



Original Dataset
Training Set
Test Set
Training Set
Validation Set
Test Set
Training, tuning, evaluation
Machine Learning Algorithm
Final Performance Estimate
Final Model



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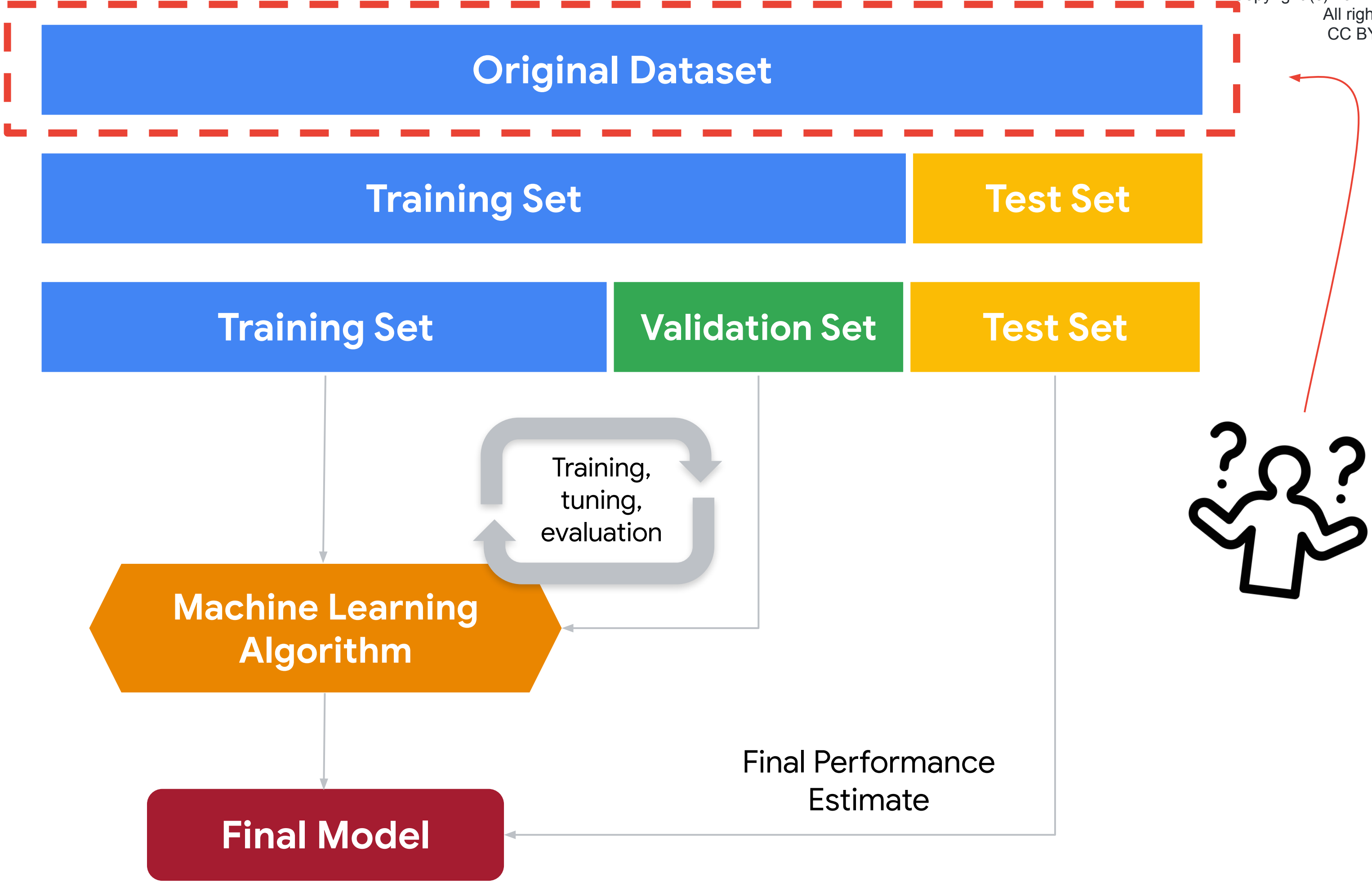

Original Dataset

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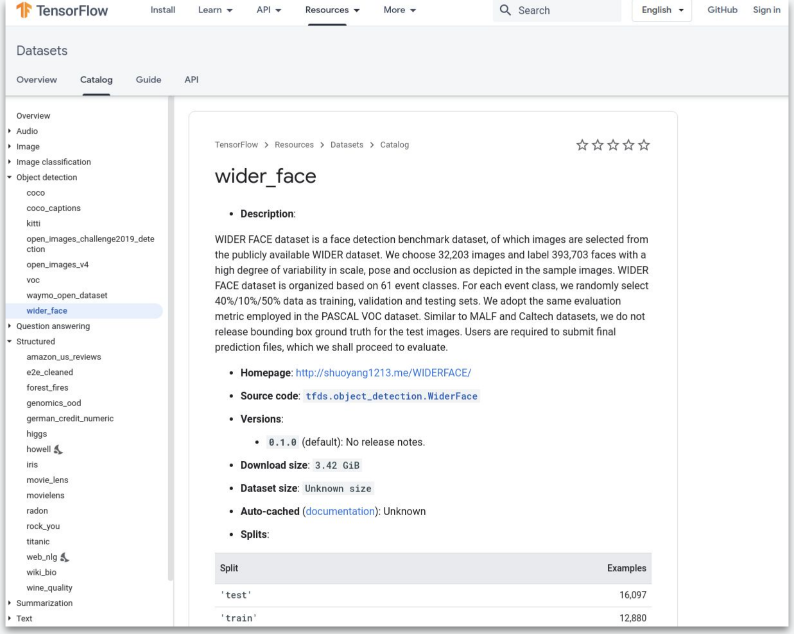
Dataset Sources

- What **relevant datasets** are available?

Audio
Image
Image Classification
Object Detection
Question Answering
Structured
Summarization
Text
Translate
Video

TensorFlow
Datasets Catalog



wider_face

- **Description**:

WIDER FACE dataset is a face detection benchmark dataset, of which images are selected from the publicly available WIDER dataset. We choose 32,203 images and label 393,703 faces with a high degree of variability in scale, pose and occlusion as depicted in the sample images. WIDER FACE dataset is organized based on 61 event classes. For each event class, we randomly select 40%/10%/50% data as training, validation and testing sets. We adopt the same evaluation metric employed in the PASCAL VOC dataset. Similar to MALF and Caltech datasets, we do not release bounding box ground truth for the test images. Users are required to submit final prediction files, which we shall proceed to evaluate.

- **Homepage**: http://shuoyang1213.me/WIDERFACE/
- **Source code**: `tfds.object_detection.WiderFace`
- **Versions**:
  - `0.1.0` (default): No release notes.
- **Download size**: `3.42 GiB`
- **Dataset size**: `Unknown size`
- **Auto-cached** (documentation): Unknown
- **Splits**:

Split	Examples
'test'	16,097
'train'	12,880

Dataset Sources

- What **relevant datasets** are available?

Audio
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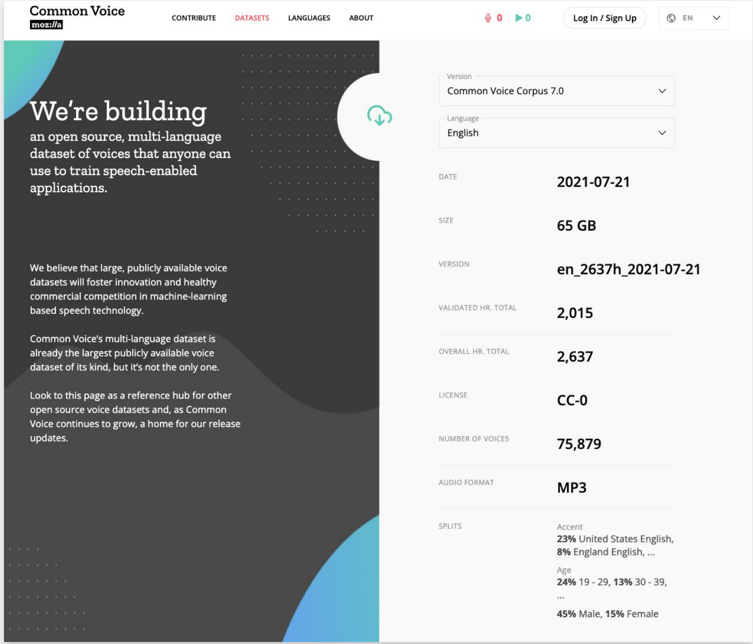
Mozilla
Common Voice



We're building

an open source, multi-language dataset of voices that anyone can use to train speech-enabled applications.

We believe that large, publicly available voice datasets will foster innovation and healthy commercial competition in machine-learning based speech technology.

Common Voice's multi-language dataset is already the largest publicly available voice dataset of its kind, but it's not the only one.

Look to this page as a reference hub for other open source voice datasets and, as Common Voice continues to grow, a home for our release updates.

Version: Common Voice Corpus 7.0

Language: English

DATE	2021-07-21
SIZE	65 GB
VERSION	en_2637h_2021-07-21
VALIDATED HR. TOTAL	2,015
OVERALL HR. TOTAL	2,637
LICENSE	CC-0
NUMBER OF VOICES	75,879
AUDIO FORMAT	MP3
SPLITS	Accent **23%** United States English, **8%** England English, ... Age **24%** 19 - 29, **13%** 30 - 39, ... **45%** Male, **15%** Female

Dataset Sources

- What **relevant datasets** are available?

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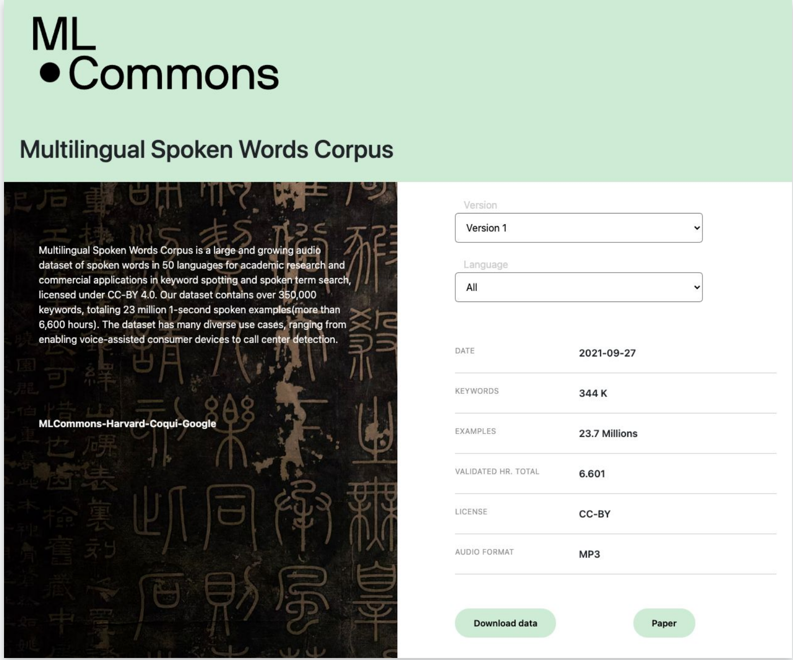


ML Commons

Multilingual Spoken Words Corpus

Multilingual Spoken Words Corpus is a large and growing audio dataset of spoken words in 50 languages for academic research and commercial applications in keyword spotting and spoken term search, licensed under CC-BY 4.0. Our dataset contains over 350,000 keywords, totaling 23 million 1-second spoken examples(more than 6,600 hours). The dataset has many diverse use cases, ranging from enabling voice-assisted consumer devices to call center detection.

MLCommons-Harvard-Coqui-Google

Version: Version 1

Language: All

DATE	2021-09-27
KEYWORDS	344 K
EXAMPLES	23.7 Millions
VALIDATED HR. TOTAL	6.601
LICENSE	CC-BY
AUDIO FORMAT	MP3

Dataset Sources

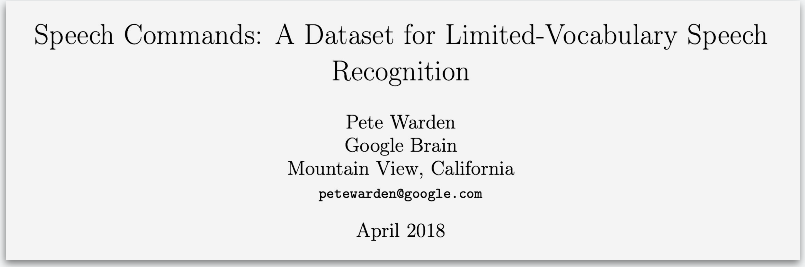
- What **relevant datasets** are available?
- Is this data **accurate and reliable**?

What **problem** are you trying to ***solve***?

Both ***quantity*** and ***quality*** will influence your model’s performance

Dataset Sources

- What **relevant datasets** are available?
- Is this data **accurate and reliable**?
    - ➔ **2,618** volunteers
        - ◆ Variety of accents
    - ➔ 1,000+ examples for **each** word
    - ➔ All 105,829 remaining utterances **manually reviewed** through crowdsourcing



Speech Commands: A Dataset for Limited-Vocabulary Speech Recognition

Pete Warden
Google Brain
Mountain View, California
petewarden@google.com

April 2018

Dataset Sources

- What **relevant datasets** are available?
- Is this data **accurate and reliable**?
- Can stakeholders get **access to data**?

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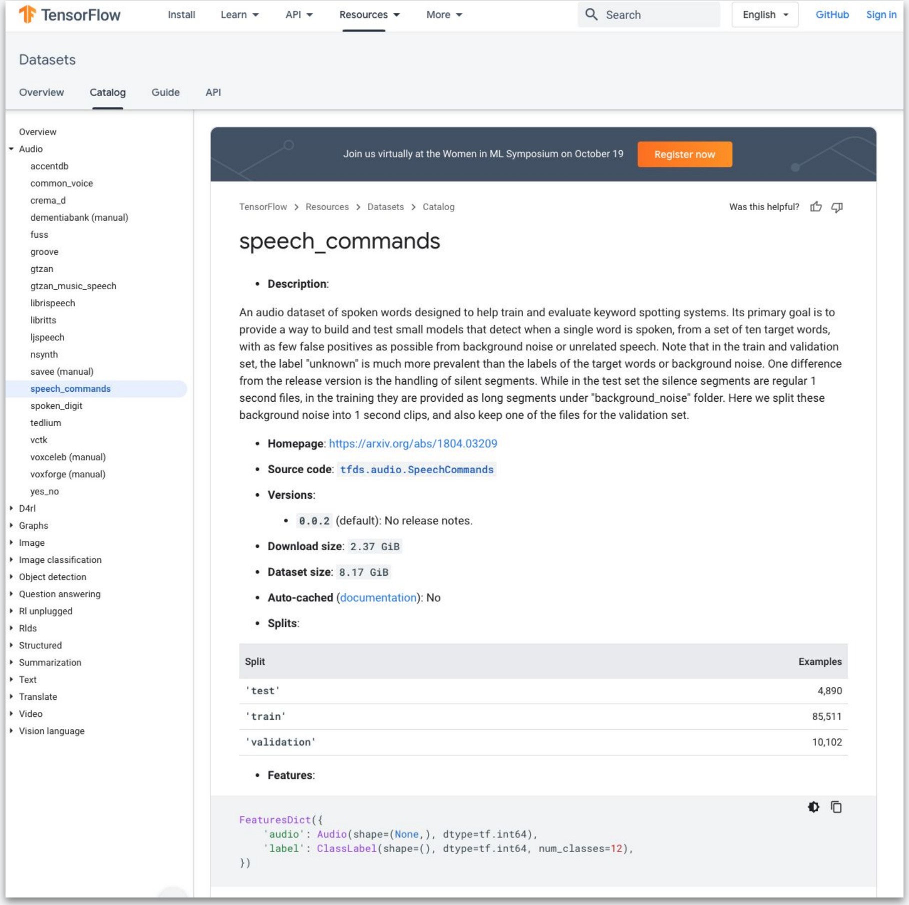

speech_commands

- **Description**:

An audio dataset of spoken words designed to help train and evaluate keyword spotting systems. Its primary goal is to provide a way to build and test small models that detect when a single word is spoken, from a set of ten target words, with as few false positives as possible from background noise or unrelated speech. Note that in the train and validation set, the label "unknown" is much more prevalent than the labels of the target words or background noise. One difference from the release version is the handling of silent segments. While in the test set the silence segments are regular 1 second files, in the training they are provided as long segments under "background_noise" folder. Here we split these background noise into 1 second clips, and also keep one of the files for the validation set.

- **Homepage**: https://arxiv.org/abs/1804.03209
- **Source code**: `tfds.audio.SpeechCommands`
- **Versions**:
  - `0.0.2` (default): No release notes.
- **Download size**: `2.37 GiB`
- **Dataset size**: `8.17 GiB`
- **Auto-cached** (documentation): No
- **Splits**:

Split	Examples
'test'	4,890
'train'	85,511
'validation'	10,102

- **Features**:

```
FeaturesDict({
    'audio': Audio(shape=(None,), dtype=tf.int64),
    'label': ClassLabel(shape=(), dtype=tf.int64, num_classes=12),
})
```

Dataset Sources

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- Is this data **accurate and reliable**?
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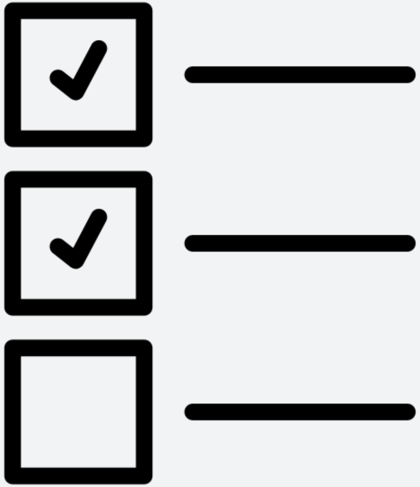
- What **properties** are in this dataset?



Dataset Sources

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- Is this data **accurate and reliable**?
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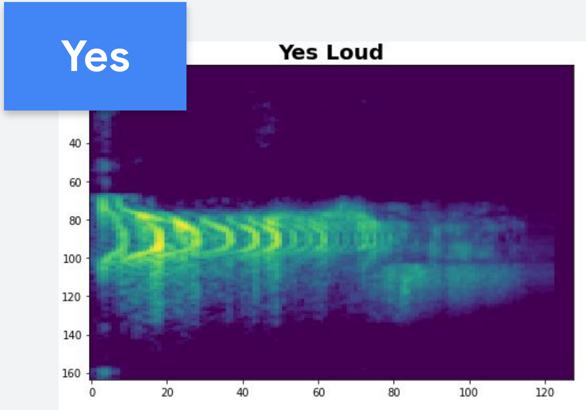

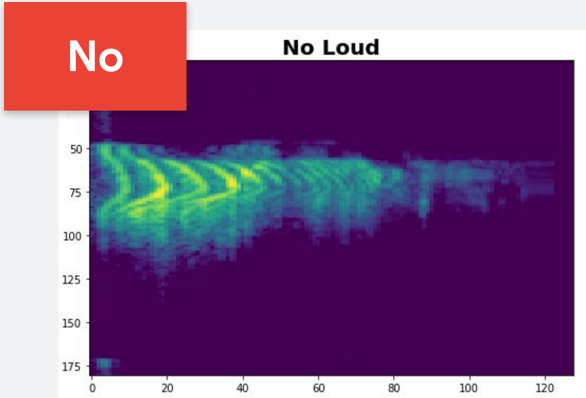

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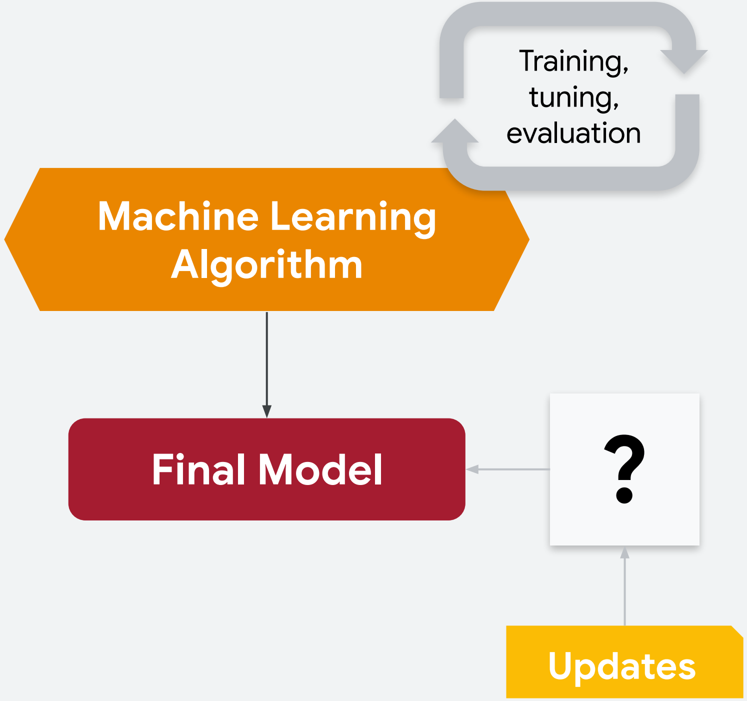
- How will it be **updated** post training?



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- How will it be **updated** post training?
- What are the licenses and terms of use?
    - ➔ Open?
    - ➔ Copyrighted?
    - ➔ Licensed?
    - ➔ Product users?

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Security & Privacy

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