EPIC Kitchens 100 Dataset

EPIC-Kitchens-100 is the largest dataset in first-person (egocentric) vision; itself an extension of the EPIC-Kitchens-55 dataset.

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Citing

When using the dataset, kindly reference:

TBA

Dataset Details

The EPIC-Kitchens-100 dataset is an extension of the EPIC-Kitchens-55 dataset. Videos are distinguished as follows:

- `PXX_YY.MP4` videos originate from EPIC-Kitchens-55.
- `PXX_1YY.MP4` videos originate from the extension collected for EPIC-Kitchens-100 (thus represent new videos).

The dataset currently has 6 active benchmarks:

- Action Recognition
- Weakly Supervised Action Recognition
- Action Detection
- Action Anticipation
- Unsupervised Domain Adaptation
- Action Retrieval

We provide csv files for the train/val/test sets of each benchmark detailed below for ease of use.

Ground truth is provided for action segments as action/verb/noun labels along with the start and end times of the segment.

Quick Start

Here you can download the annotation files for all of the challenges. For more information on each challenge, please see the paper here. Download scripts are provided for the videos, RGB Frames and Flow frames here.

Action Recognition Challenge

Download the Action Recognition train/val/test files.

Weakly Supervised Action Recognition Challenge

This challenge uses the Action Recognition files, download the train/val/test files.

Action Detection Challenge

This challenge uses the Action Recognition files, download the train/val/test files.

Action Anticipation Challenge

This challenge uses the Action Recognition files, download the train/val/test files.

Unsupervised Domain Adaptation Challenge

Download the Unsupervised Domain Adaptation source train/target train/target test files.

Action Retrieval Challenge

Download the Action Retrieval train/test files.

Important Files

We direct the reader to RDSF for the videos and RGB/Flow frames. For ease of use, download scripts are provided (see file_downloads for more details). We provide html and pdf alternatives to this README which are auto-generated.

- `README.md (this file)`
- `README.pdf`
- `README.html`
- `license.txt`
- `EPIC_100_train.csv` (info) (Pickle)
- `EPIC_100_validation.csv` (info) (Pickle)
- `EPIC_100_test_timestamps.csv` (info) (Pickle)
- `EPIC_100_noun_classes.csv` (info)
- `EPIC_100_verb_classes.csv` (info)

Additional Files

- `EPIC_100_UDA_source_train` (info) (Pickle)
- `EPIC_100_UDA_target_train_timestamps` (info) (Pickle)
- `EPIC_100_UDA_target_test_timestamps` (info) (Pickle)
- `EPIC_100_retrieval_train` (info) (Pickle)
- `EPIC_100_retrieval_test` (info) (Pickle)

File Structure

EPIC_100_train.csv

This CSV file contains the action annotations for the training set and contains 15 columns:

Column Name	Type	Example	Description
uid	int	0	Unique ID for the segment as a float.
narration_id	string	P01_01_0	Unique ID for the segment as a string with participant ID and video ID.
participant_id	int	P01	ID of the participant (unique per participant).
video_id	string	P01_01	ID of the video where the segment originated from (unique per video).
narration_timestamp	string	00:00:01.089	Timestamp of when the original narration was recorded in HH:mm:ss.SSS.
start_timestamp	string	00:00:00.14	Start time in HH:mm:ss.SS of the action segment.
stop_timestamp	string	00:00:03.37	End time in HH:mm:ss.SS of the action segment.
start_frame	int	8	Start frame of the action.
stop_frame	int	202	End frame of the action.
narration	string	open door	Transcribed description of the English narration provided by the participant.
verb	string	open	Parsed verb from the narration.
verb_class	int	3	Numeric ID of the verb's class.
noun	string	door	First parsed noun from the narration.
noun_class	int	3	Numeric ID of the first noun's class.
all_nouns	list of string (1 or more)	[door]	List of all parsed nouns within the narration.
all_noun_classes	list of int (1 or more)	[3]	Numeric ID of all of the parsed noun's classes.

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EPIC_100_validation.csv

This CSV file contains the action annotations for the validation set and contains 15 columns:

Column Name	Type	Example	Description
uid	int	4972	Unique ID for the segment as a float.
narration_id	string	P01_01_11	Unique ID for the segment as a string with participant ID and video ID.
participant_id	int	P01	ID of the participant (unique per participant).
video_id	string	P01_11	ID of the video where the segment originated from (unique per video).
narration_timestamp	string	00:00:00.560	Timestamp of when the original narration was recorded in HH:mm:ss.SSS.
start_timestamp	string	00:00:00.00	Start time in HH:mm:ss.SS of the action segment.
stop_timestamp	string	00:00:01.89	End time in HH:mm:ss.SS of the action segment.
start_frame	int	1	Start frame of the action.
stop_frame	int	113	End frame of the action.
narration	string	take plate	Transcribed description of the English narration provided by the participant.
verb	string	take	Parsed verb from the narration.
verb_class	int	0	Numeric ID of the verb's class.
noun	string	plate	First parsed noun from the narration.
noun_class	int	2	Numeric ID of the first noun's class.
all_nouns	list of string (1 or more)	[plate]	List of all parsed nouns within the narration.

Column Name	Type	Example	Description
`all_noun_classes`	list of int (1 or more)	`[2]`	Numeric ID of all of the parsed noun's classes.

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EPIC_100_test_timestamps.csv

This CSV file contains the action annotations for the testing set and contains 9 columns:

Column Name	Type	Example	Description
`uid`	int	`1924`	Unique ID for the segment as a float.
`narration_id`	string	`P01_101_0`	Unique ID for the segment as a string with participant ID and video ID.
`participant_id`	int	`P01`	ID of the participant (unique per participant).
`video_id`	string	`P01_101`	ID of the video where the segment originated from (unique per video).
`narration_timestamp`	string	`00:00:02.851`	Timestamp of when the original narration was recorded in `HH:mm:ss.SSS`.
`start_timestamp`	string	`00:00:02.86`	Start time in `HH:mm:ss.SSS` of the action segment.
`stop_timestamp`	string	`00:00:03.87`	End time in `HH:mm:ss.SSS` of the action segment.
`start_frame`	int	`143`	Start frame of the action.
`stop_frame`	int	`193`	End frame of the action.

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EPIC_100_noun_classes.csv

This CSV file contains information on the 300 noun classes and contains 4 columns.

Column Name	Type	Example	Description
`id`	int	`222`	Unique ID for the noun class.
`key`	string	`label`	Key used for the noun class (all keys are a member of their own class).
`instances`	list of string (1 or more)	`"['label', 'sticker']"`	All nouns within the class, including the key.
`category`	string	`materials`	Name of the higher-level noun category that this noun class belongs to.

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EPIC_100_verb_classes.csv

This CSV file contains information on the 97 verb classes and contains 4 columns.

Column Name	Type	Example	Description
`id`	int	`79`	Unique ID for the verb class.
`key`	string	`let-go`	Key used for the verb class (all keys are a member of their own class).
`instances`	list of string (1 or more)	`"['let', 'let-go']"`	All verbs within the class, including the key.
`category`	string	`leave`	Name of the higher-level verb category that this verb class belongs to.

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Additional Information

File Downloads

Due to the size of the dataset we provide scripts for downloading parts of the dataset:

- videos (GB)
- frames (GB)
  - rgb-frames (GB)
  - flow-frames (GB)

Note: These scripts will work for Linux and Mac. For Windows users a bash installation should work.

These scripts replicate the folder structure of the dataset release on RDSF, found here.

If you wish to download part of the dataset, instructions can be found here.

Differences to EPIC-Kitchen-100

Whilst videos from EPIC-Kitchens-55 are used within EPIC-Kitchens-100 some of the annotations have been modified to improve the quality of the annotations. Additionally, with EPIC-Kitchens-100, the verb/noun classes have been updated to cover the annotations from the new videos. Because of this, the annotations from EPIC-Kitchens-55 cannot be used for EPIC-Kitchens-100.

Pickle Files

We also provide pickle files for all of the main train/val/test csvs for ease of use. These files require python 3.5+ and pandas 1.0.0+ to read. The pickle files are automatically tagged with the commit hash and version for version control purposes which can be found as follows in python:

```
>>> import pandas as pd
>>> train = pd.read_pickle('EPIC_100_train.pkl')
>>> train._metadata
{'commit_hash': 'ce7a0fb', 'version_number': '0.1'
```

showing that this version of the `EPIC_100_train.pkl` came from commit hash ce7a0fb and version number 0.1.

License

Changelog

Please see the release history for the changelog.