

iLab AI-Human Video Database

Gathering data, especially video data, for machine learning is a challenging task. Directly interfacing with a database can be highly unintuitive and tedious. For these reasons we created an [online interface](#) for exploring and verifying data.

Problems? Questions? Feature requests?
Go [here](#) and click the green “new issue” button.

The latest version of this document should always be available [here](#).
(Current version: Jan 11th 2021)

Features

1. Adding Data

- Add Observation
 - Negative Confidence
 - Usernames
- Upload Bulk Observations
- Add Video
- (Future) Add Video Info
- Add Label

2. Finding Data

- Search Filters
- Navigating Observations
- (Future) Sorting Results
- Video Controls

3. Validating Data

- Confirm / Reject Methods
- Search + Validate
- (Future) False Negatives

4. Analyzing Data

- Downloading Data
- Stats

5. Editing Data

- Edit Observation
- (Possible Future) Bulk Edit Observations
- (Possible Future) Edit Label

6. Deleting Data

- Delete Observation
- Delete Label
- (Possible Future) Bulk Delete Observations

Adding: Observations

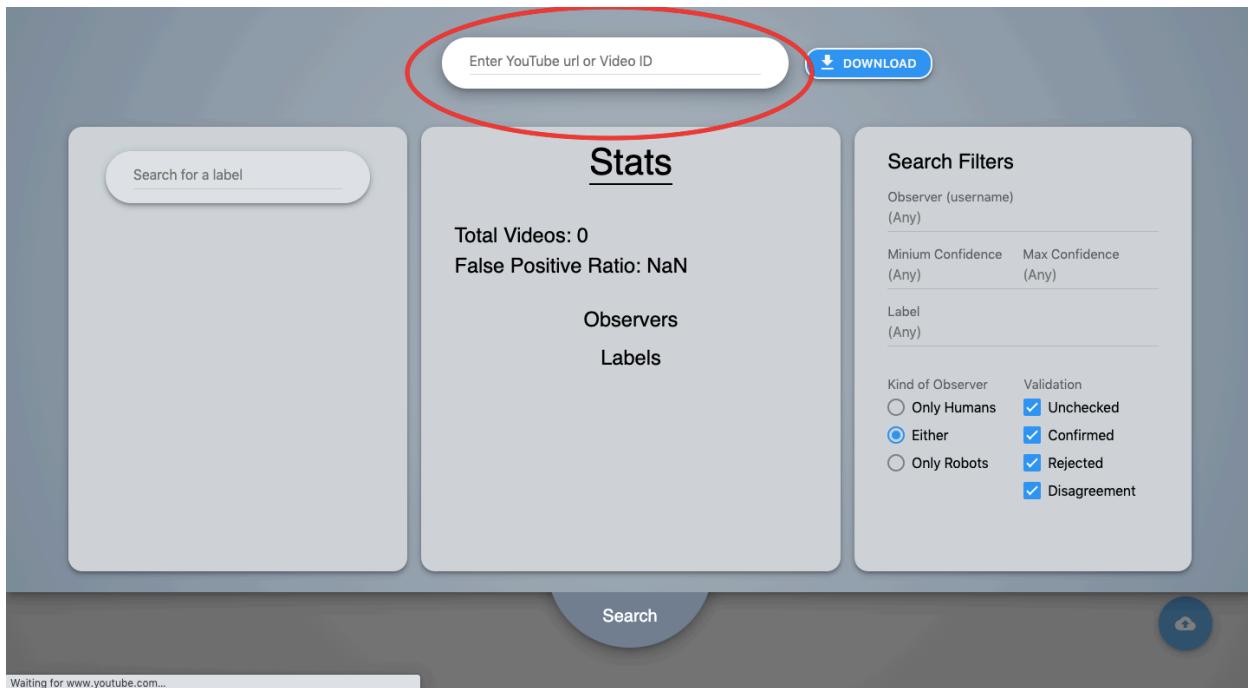
The website is built around “observations” which have a few different fields

Observation 1		Observation 2	
Start Time (seconds)	125.659	Start Time (seconds)	92.433
End Time (seconds)	127.661	End Time (seconds)	96.193
Label	Happy	Label	Sad
Label Confidence	0.99	Label Confidence	0.85
Observer (username)	jimbob	Observer (username)	YOLOv4-jimbob
Video Id	FLK5-00l0r4	Video Id	FLK5-00l0r4
<input checked="" type="checkbox"/> Observer Is Human		<input type="checkbox"/> Observer Is Human <input type="checkbox"/> Confirmed By ≥ 1 Human <input type="checkbox"/> Rejected By ≥ 1 Human	
Youtube video ID (autofilled most of the time)			

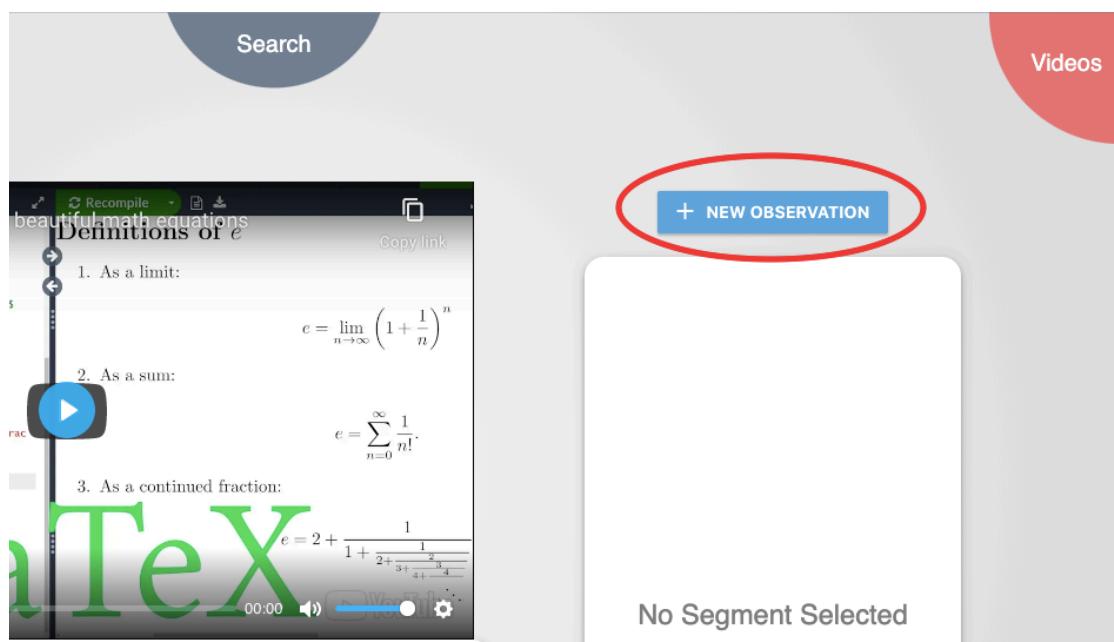
False negatives **can only be measured** if you keep a record of which videos your model did **not** find labels for, and then give them an observation with a negative confidence value.

Adding: Manual Observations

First we need a video. Selecting a video can be done by either getting a YouTube video URL and pasting it in the search section (gray tab) or by selecting a video in a “videos” list (red tab) on the right side of the page.

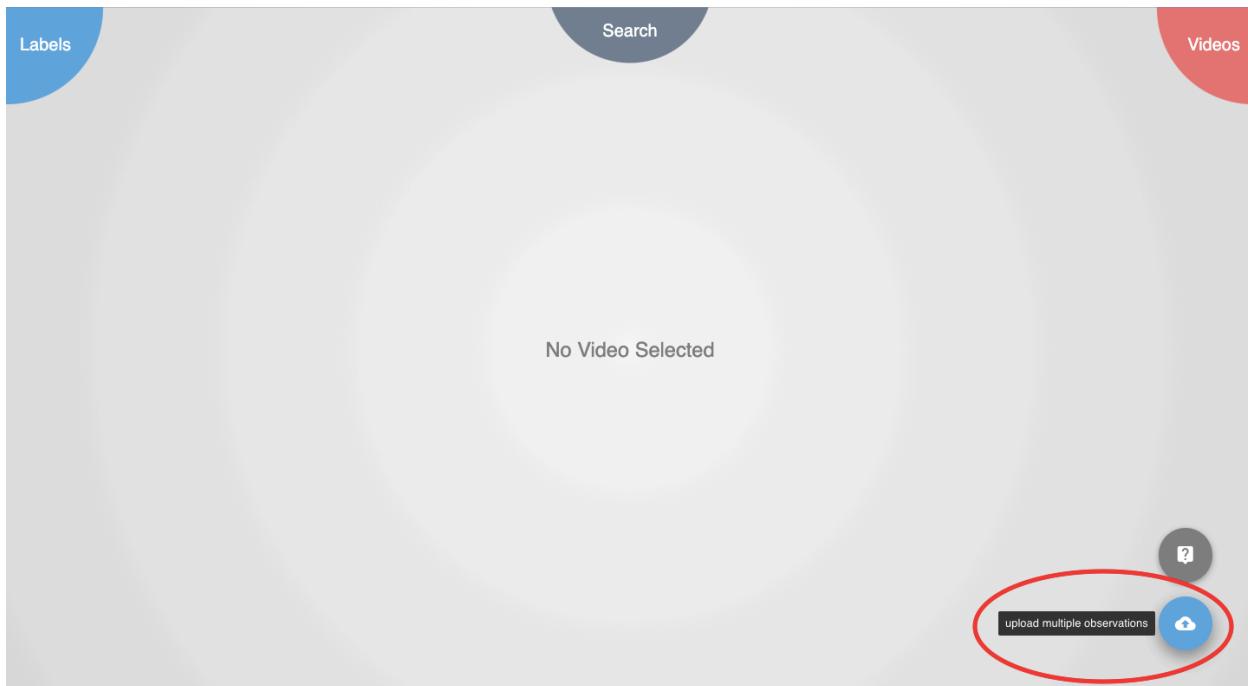


Once a video is selected, the new observation button can be used.



Adding: Uploading Bulk Observations

Hovering over the blue button in the bottom right corner will show the gray help button. The help section is interactive and explains how to format the file.



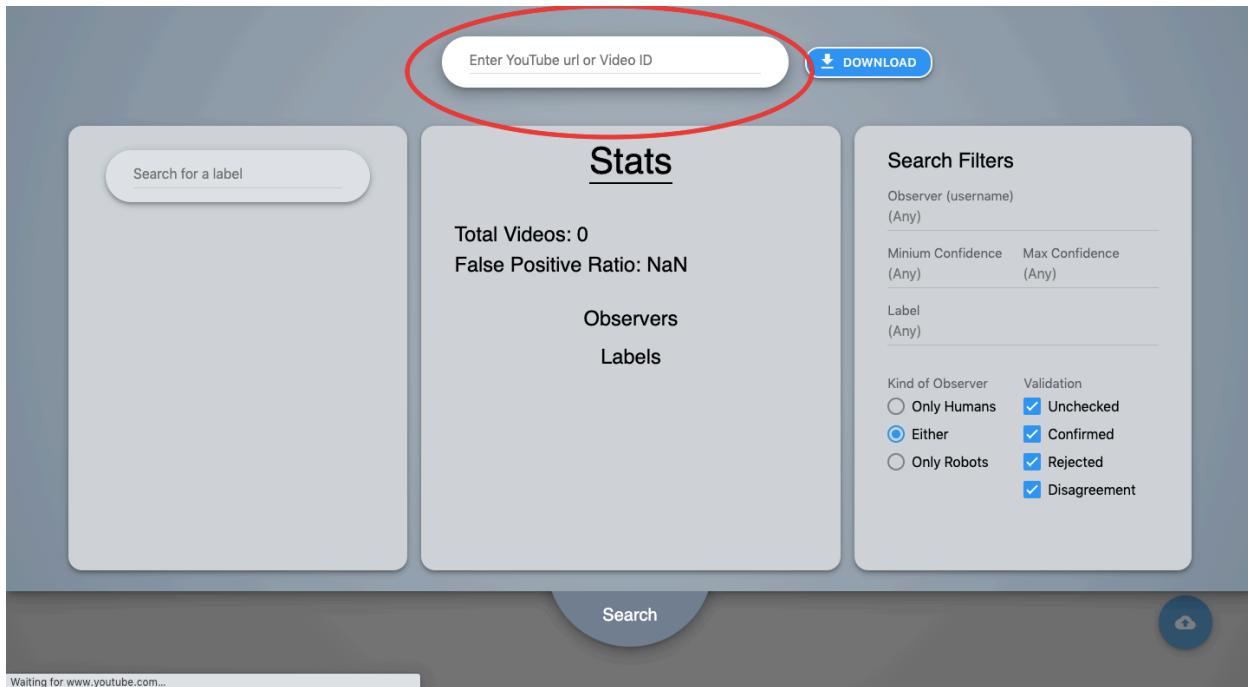
Caution: There is no undo button! If you accidentally upload 300 observations (or accidentally set all confidence values to 0), currently they must be deleted/edited individually, which takes a very long time. So be careful when you upload.

Note: Currently the **upload size is limited** (not by choice) to ~345 observations. A future update will alleviate this. However, several features need to be implemented to make this possible so it may take some time.

Note: When designing a model, if you want to analyze the **false-negative rate** of the model, you'll need to record videos that didn't have any observations. Use a negative confidence value to show how confident the model was that the label did not exist in that video.

Adding: Videos

To view (and add) a video, first go to the search tab at the top, paste the URL to the video in the box at the top. The video should then begin loading.



As soon as you add an observation (see the “Adding: Observation” section) the video will show up in the side bar. Until an observation is added however, the video won’t be saved in the database.

(Future) Adding: Video Information

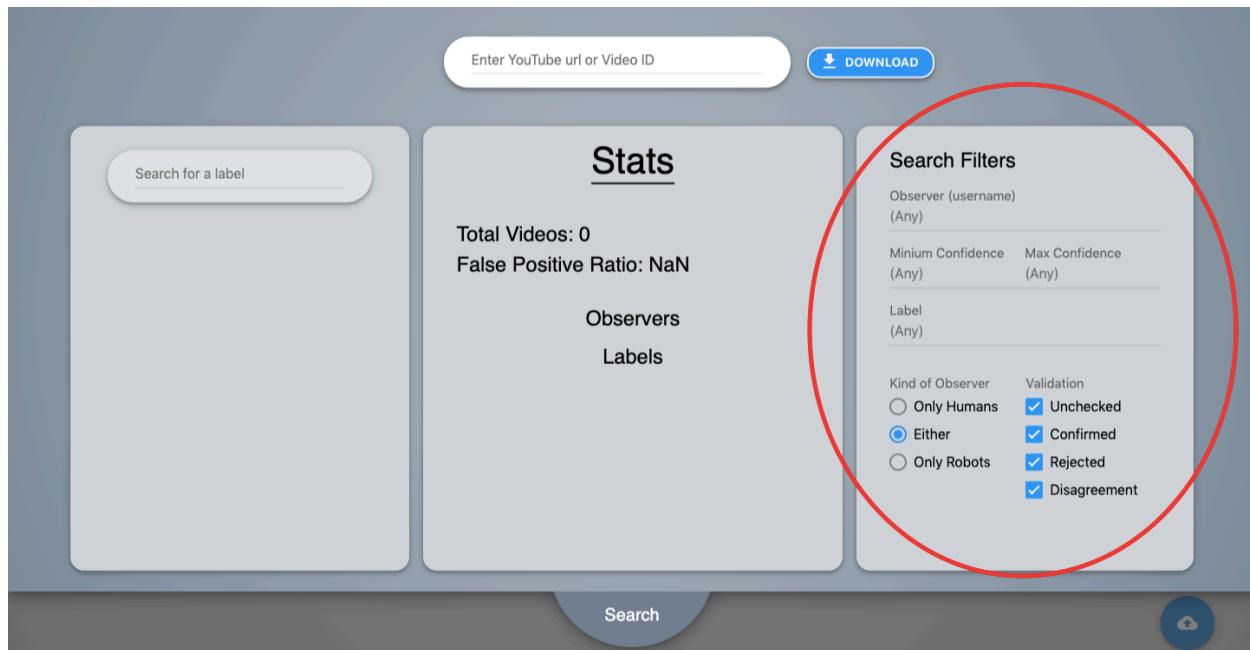
Sometimes you want to attach information to the video itself, such as the resolution, or simply adding it to the database for future use. Currently this feature is not yet supported.

Adding: Labels

Currently labels and their color are generated automatically. Create an observation, use the label name that you want, then as soon as you save the observation the label will be created.

Finding: Using Search Filters

The search filters affect the list of videos (red tab) and also the Stats section. Filtering by observer (either yourself or your model) is recommended.



Finding: Observations

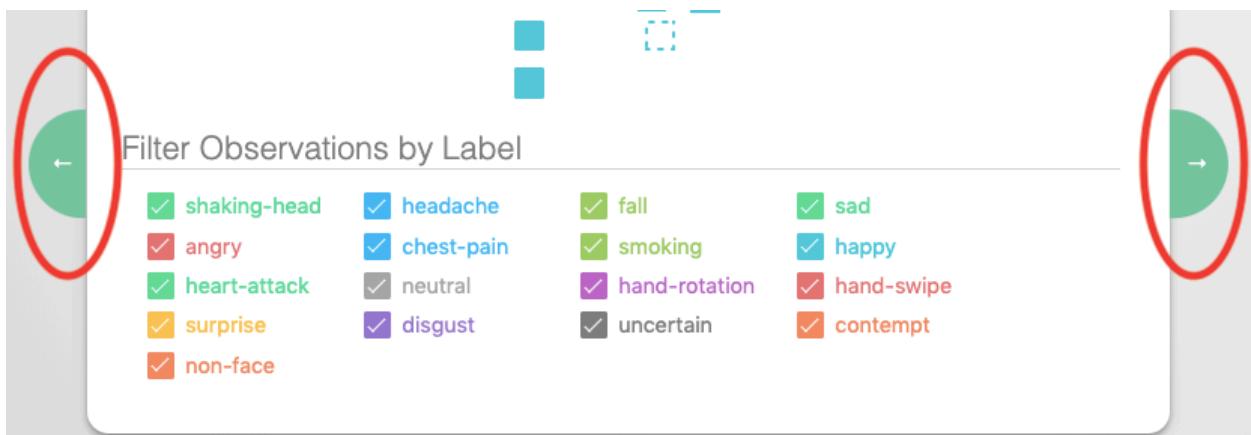
The screenshot shows a video player interface. At the top, there's a video thumbnail for "How Stormzy Got Kicked Out of College | The Jonathan Ross Show". Below the video, a control bar includes a play button, a timestamp at 00:59, and volume and settings icons. A large white overlay box is centered over the video. The title "Observations" is at the top of the overlay. Below it, there are several colored rectangles representing observations: a solid grey rectangle, two solid cyan rectangles, one dashed cyan rectangle with a checkmark, one dashed cyan rectangle with an X, and a solid grey rectangle with a cyan rectangle inside. At the bottom of the overlay, there's a section titled "Filter Observations by Label" with a list of 16 labels each with a checkbox:

shaking-head	headache	fall	sad
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Once a video is selected, all of the observations for that video are displayed below it in the shape a rectangle. Colors correspond to the name of the label.

- The active label has a pulse animation (can't really show it in a PDF)
- Human observations are solid/filled rectangles
- Unchecked non-human observations are dashed
- Confirmed/Rejected observations have a ✓ or a ✗

Clicking on any of the rectangles will select the observation, and the green arrows can be used to navigate to the next/previous observation.



Details on the current time, video, and selected observation are shown in the bottom right side for easy copy+pastin

The screenshot displays a video player showing a segment from 'How Stormzy Got Kicked Out of College | The Jonathan Ross Show'. Below the video is a 'More videos' section. To the right is a detailed view of an observation:

- Observation**: Start Time (seconds): 79.372, End Time (seconds): 80.372, Label: happy, Label Confidence: 0.95, Observer (username): Stevens_Machine, Video Id: FLK5-00lOr4.
- Observations**: A list of 10 observations represented by colored rectangles (grey, cyan, light blue, yellow, purple, magenta).
- Filter Observations by Label**: The same filter interface as the first screenshot, allowing selection of specific labels.
- Bottom Right Summary**: Shows the Selected Label: happy, Current Video ID: FLK5-00lOr4, Pause Time: 79.37 sec, and Selected Segment UUID: f4dc1df3-4845-4c41-a3c.

Finding: Video Controls

Spacebar: play/pause

Left/Right Arrow: forwards/backwards 5 seconds

Shift + Left/Right Arrow: forwards/backwards 1 frame

Alt + Left/Right Arrow: forwards/backwards 10 seconds

Validating: Confirming / Rejecting

Once a video and non-human observation are selected, you can agree or disagree about the label. Click the edit button, and then flip the switch.

The image displays two side-by-side mobile application screens for editing an observation. Both screens have a light gray header bar with the word 'Observation' and a small 'X' icon. Below this is a white content area containing various data fields and control buttons.

Left Screen (Initial State):

- Start Time (seconds): 79.372
- End Time (seconds): 80.372
- Label: happy
- Label Confidence: 0.95
- Observer (username): Stevens_Machine
- Video Id: FLK5-00l0r4
- Observer Is Human
- Confirmed By ≥1 Human
- Rejected By ≥1 Human

Right Screen (After Edit):

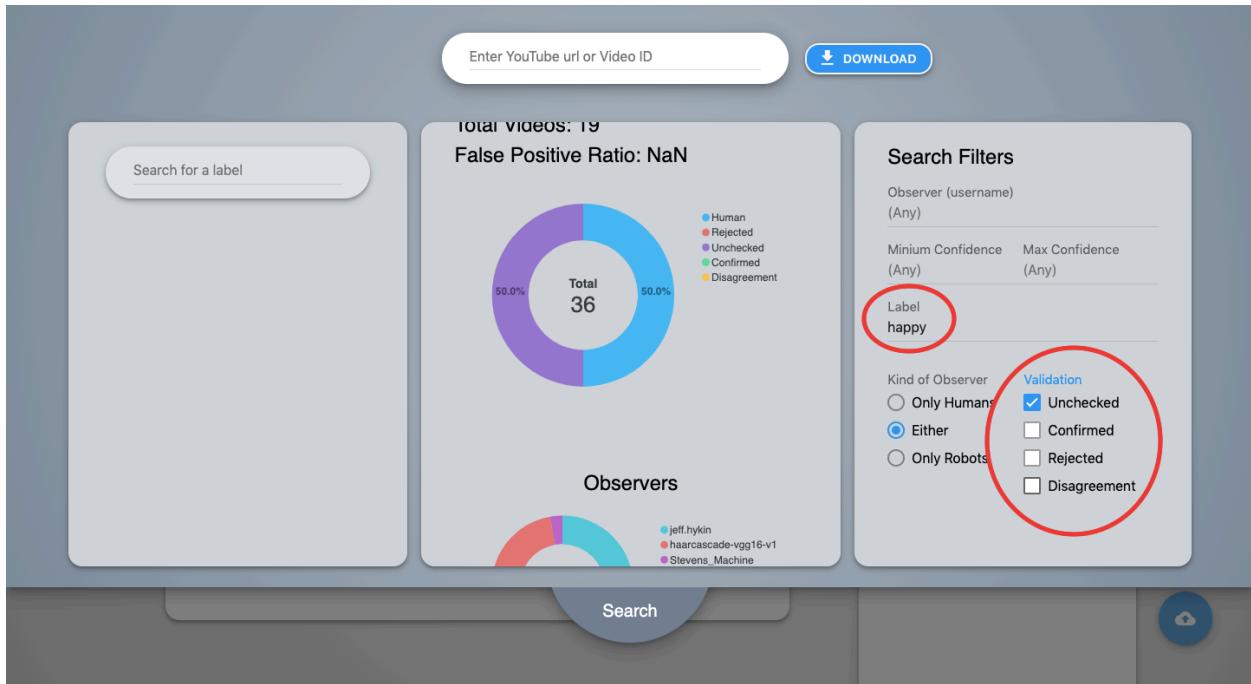
- Start Time (seconds): 79.372
- End Time (seconds): 80.372
- Label: happy
- Label Confidence: 0.95
- Observer (username): Stevens_Machine
- Video Id: FLK5-00l0r4
- Observer Is Human
- Confirmed By ≥1 Human
- Rejected By ≥1 Human

Both screens also feature a blue 'SAVE' button and a red 'DELETE' button at the top, and a 'CANCEL' button below them.

It is possible/allowed for an observation to be both confirmed and rejected (which in the search filter is called disagreement).

Validating: Search + Validate

Use the search filter at the top to get all the videos with unchecked observations for your particular label.



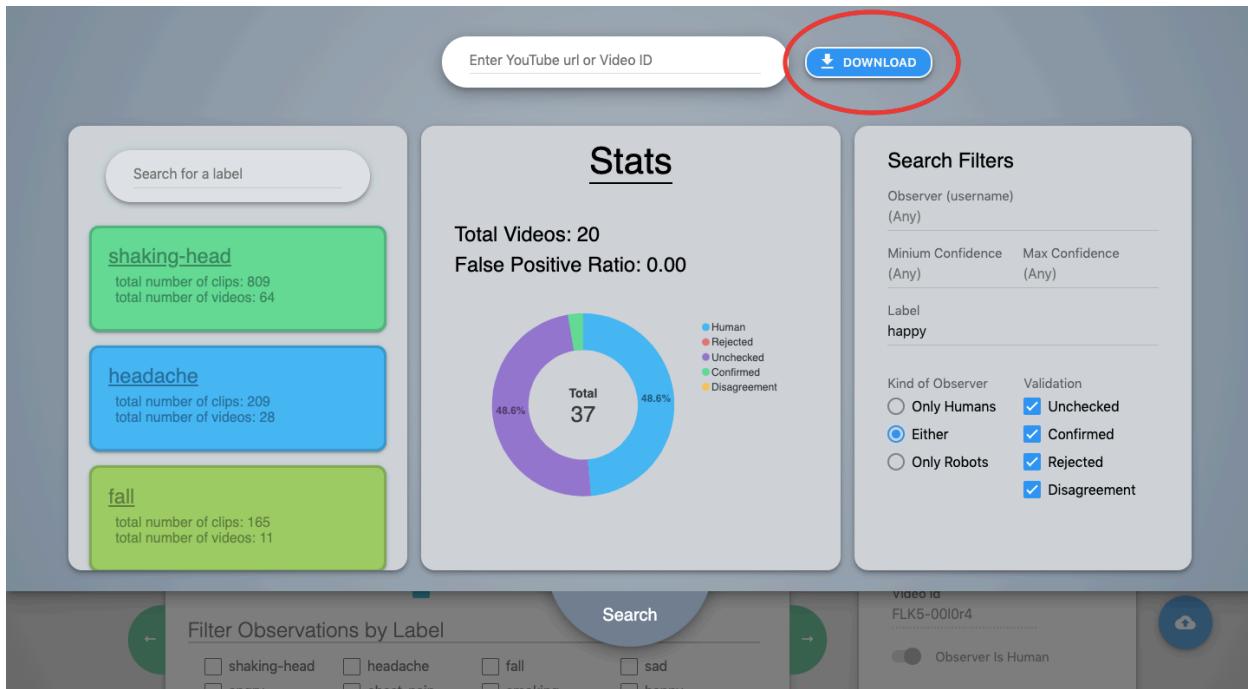
After that, use the red “videos” tab on the right side to directly get to all of the videos that need checking.

(Future) Validating: Sort

In the future there will be a way to sort by different priorities so that the most valuable/useful observations can be checked by humans first. Currently there is no designated sorting order.

Analysis: Downloading

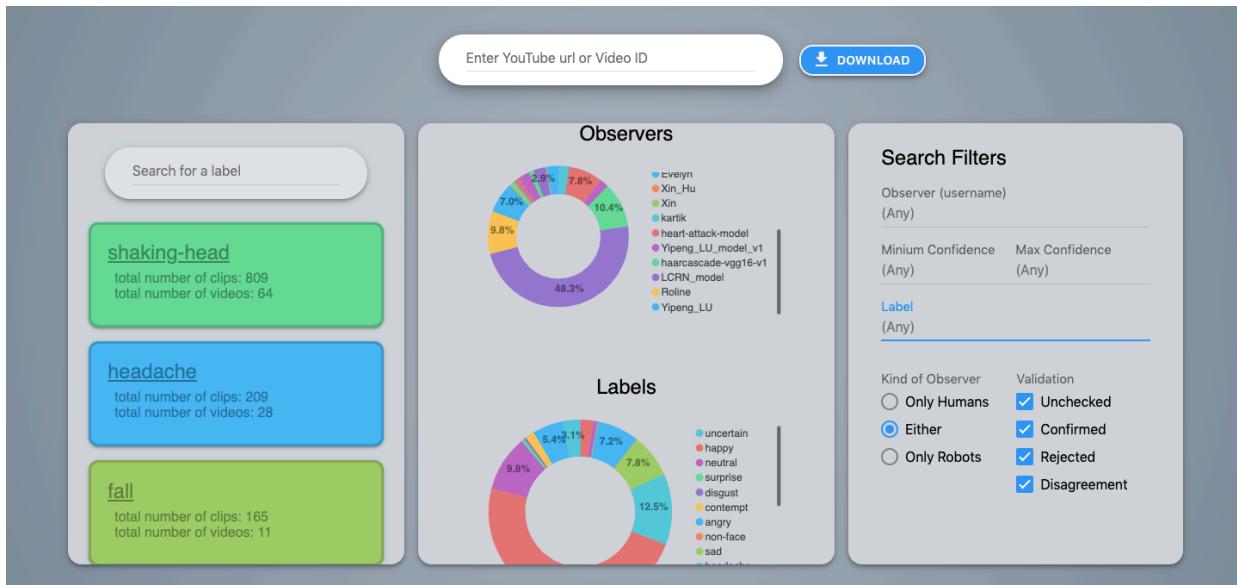
Just add the search filters you want, then click the download button to receive them in a JSON format. The format will be the same as the one described in the bulk upload section.



Analysis: Stats

Similarly, any search filters used will affect the stats section.

Make sure to try scrolling! It looks like it doesn't scroll, but there are additional graphs.



Editing: Observation

As shown in the other sections, find a video, then click one of the observations shown below the video. Then use the edit button shown below.
Make sure to save or cancel the edit before selecting another observation.

Observation EDIT X

Start Time (seconds)
79.372

End Time (seconds)
80.372

Label
happy

Label Confidence
0.95

Observer (username)
Stevens_Machine

Video Id
FLK5-00l0r4

Observer Is Human

Confirmed By ≥1 Human

Rejected By ≥1 Human

Observation SAVE DELETE X CANCEL

Start Time (seconds)
79.372

End Time (seconds)
80.372

Label
happy

Label Confidence
0.95

Observer (username)
Stevens_Machine

Video Id
FLK5-00l0r4

Observer Is Human

Confirmed By ≥1 Human

Rejected By ≥1 Human

(Future) Editing: Videos & Labels

Currently this is not supported, but hopefully bulk edit support will be added, although it is not a guaranteed future feature.

Deleting: Observation

Follow the steps for editing an observation (see table of contents), then click the delete button.

Deleting: Labels

Currently you must delete each observation with the label, the the label will be automatically removed.