

iLab AI-Human Video Database

Note: simply viewing this on [GitHub.com](#) won't allow the links to be clicked.
Download the PDF from GitHub to open the links.

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)

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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	FLK5-00I0r4	Video Id	FLK5-00I0r4
<input checked="" type="checkbox"/> Observer Is Human		<input type="checkbox"/> Observer Is Human	<input type="checkbox"/> Confirmed By ≥ 1 Human
Youtube video ID (autofilled most of the time)		<input type="checkbox"/> Rejected By ≥ 1 Human	

Labels should be like a variable name (although dashes are allowed)

Observer should also be like a variable name.

This needs a unique name to function properly. This means every time a model is trained on new data, **it needs a new name**, even if the structure of the neural network didn't change. Version numbers, and dates are recommended as part of the name.

End time must be greater than start time (not equal)

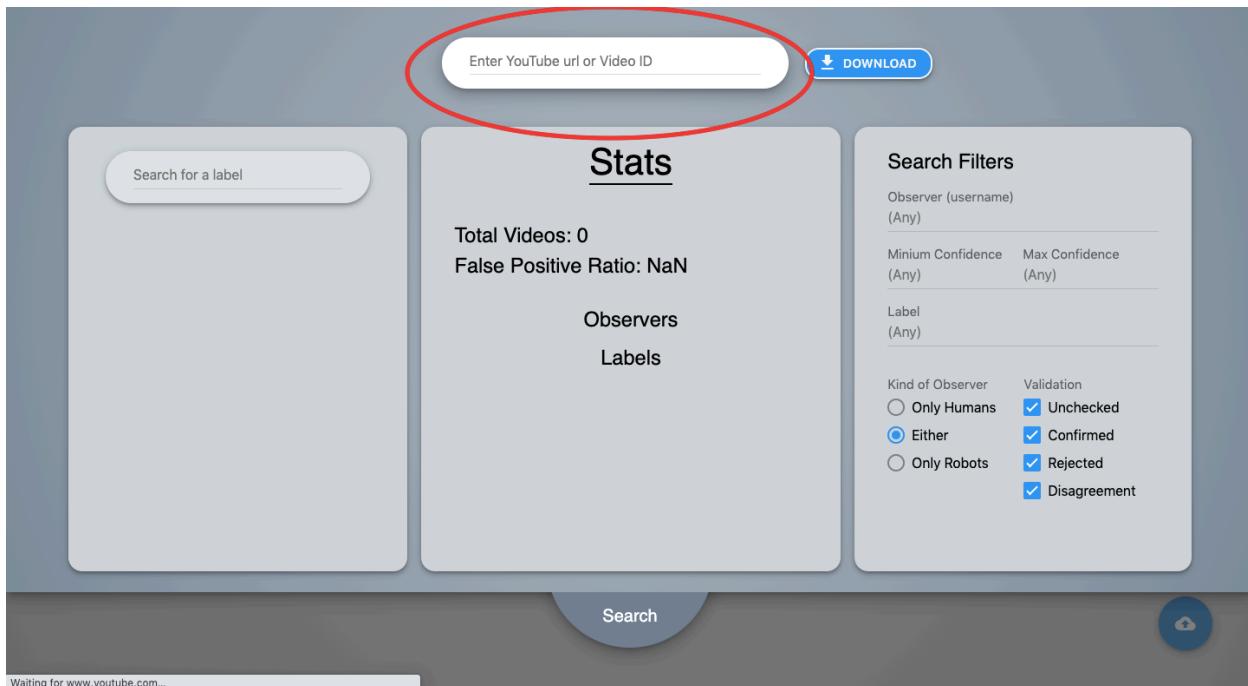
A value of -1.0 means; I'm 100% certain the label does **not exist**

A value of 0 means; I have no idea (a blind person would be a 0)

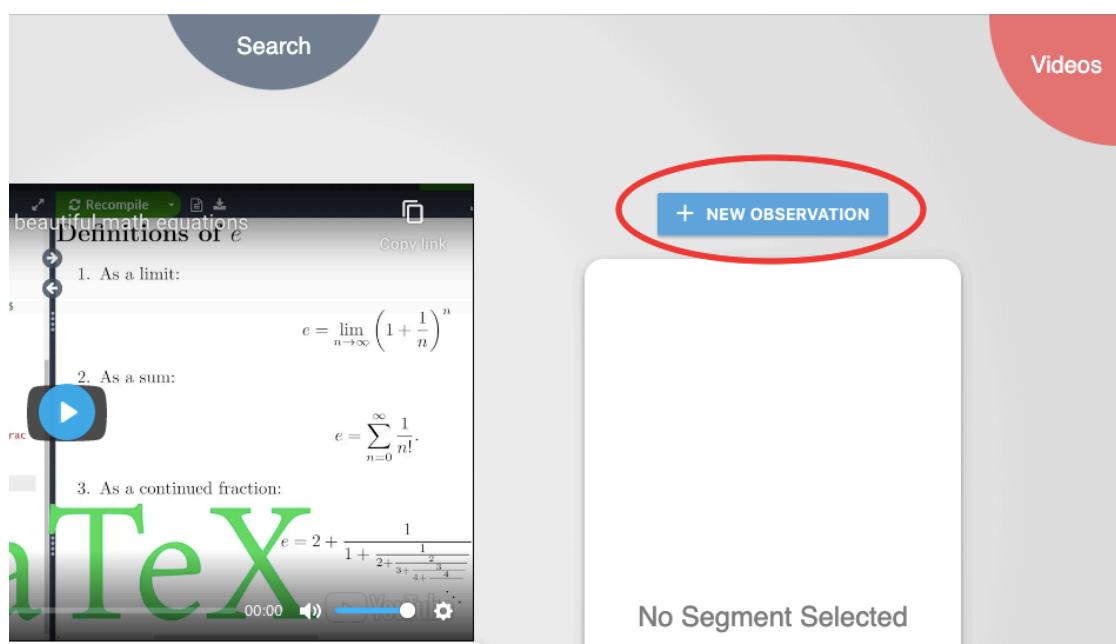
A value of 1.0 means; I'd bet \$1 million the label is true

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.

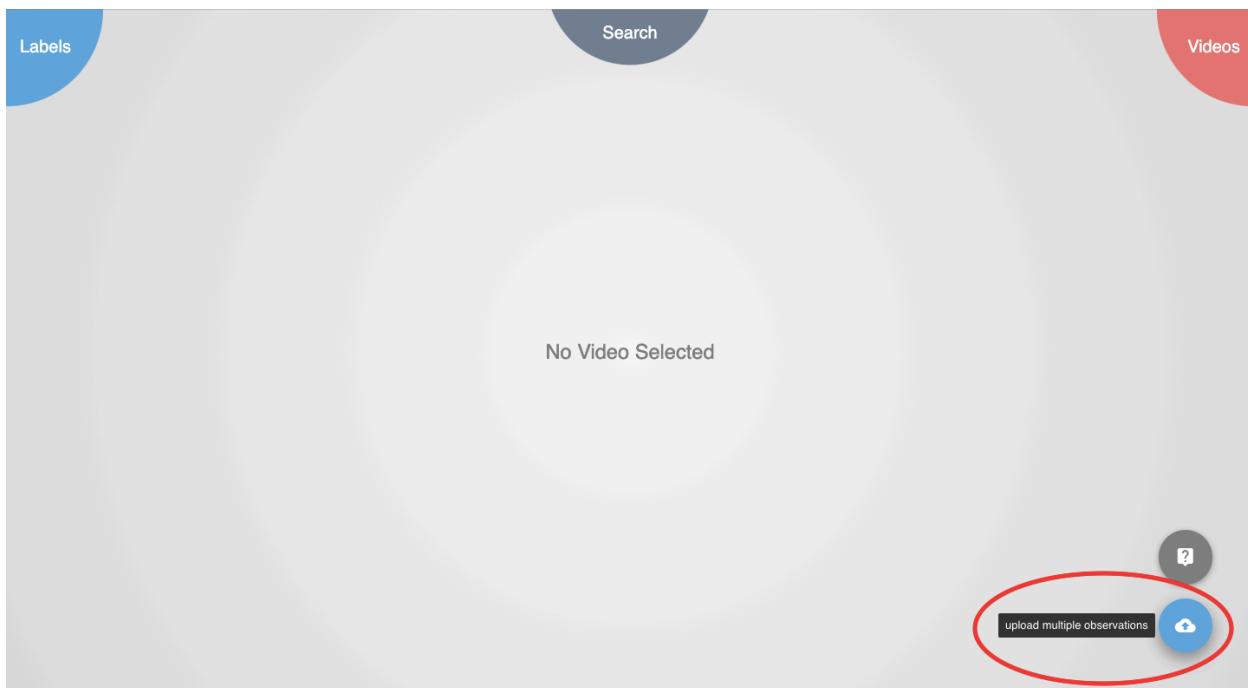


Once a video is selected, the new observation button can be used.



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.

Adding: Uploading Format

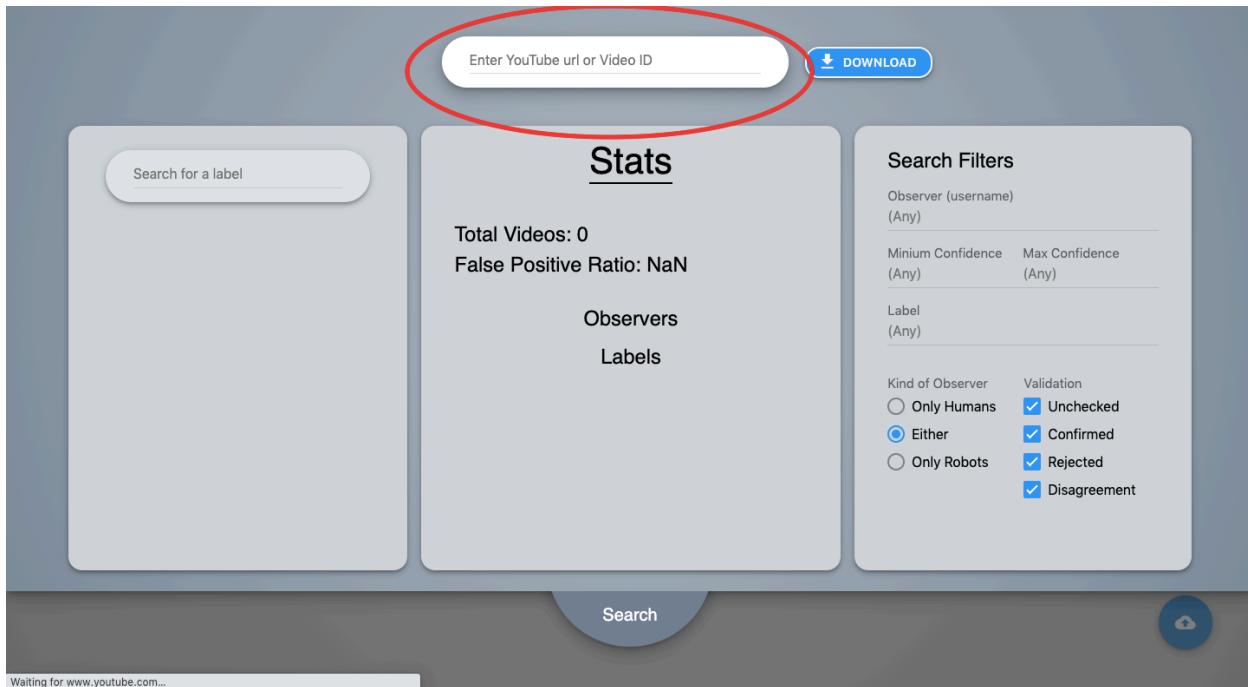
The upload expects a [JSON file](#). The website has [an interactive explanation](#) of the format, which is the recommended over simply reading about the format here.

The website expects the JSON file to be a list of objects, as shown below. If that basic structure is met, then the website will report any errors about the data types will be provided and how to fix the issue.

<u>Observation</u>		<u>JSON File</u>
Start Time (seconds)	92.433	[{ "videoId": "FLK5-00l0r4", "type": "segment", "startTime": 92.433, "endTime": 96.193, "observer": "CSCE636-Spring2021-WuAiSeDUdl-Y0L0v3-v12", "isHuman": false, "confirmedBySomeone": false, "rejectedBySomeone": false, "observation": { "label": "Sad", "labelConfidence": 0.85 } }]
End Time (seconds)	96.193	
Label	Sad	
Label Confidence	0.85	
Observer (username)	CSCE636-Spring2021-	
Video Id	FLK5-00l0r4	
<input type="checkbox"/> Observer Is Human		
<input type="checkbox"/> Confirmed By ≥1 Human		
<input type="checkbox"/> Rejected By ≥1 Human		

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

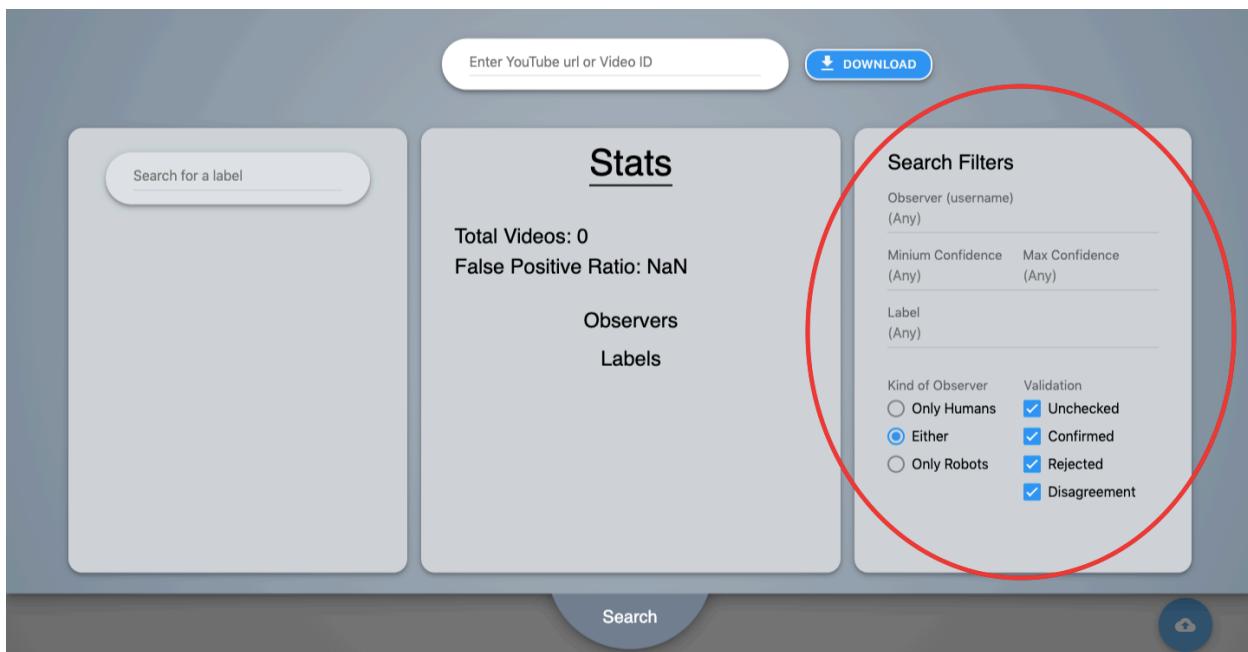
Sometimes you want to attach information to the video itself, such as the resolution, or simply adding it to the database for future use. Currently this feature is not yet supported.

Adding: Labels

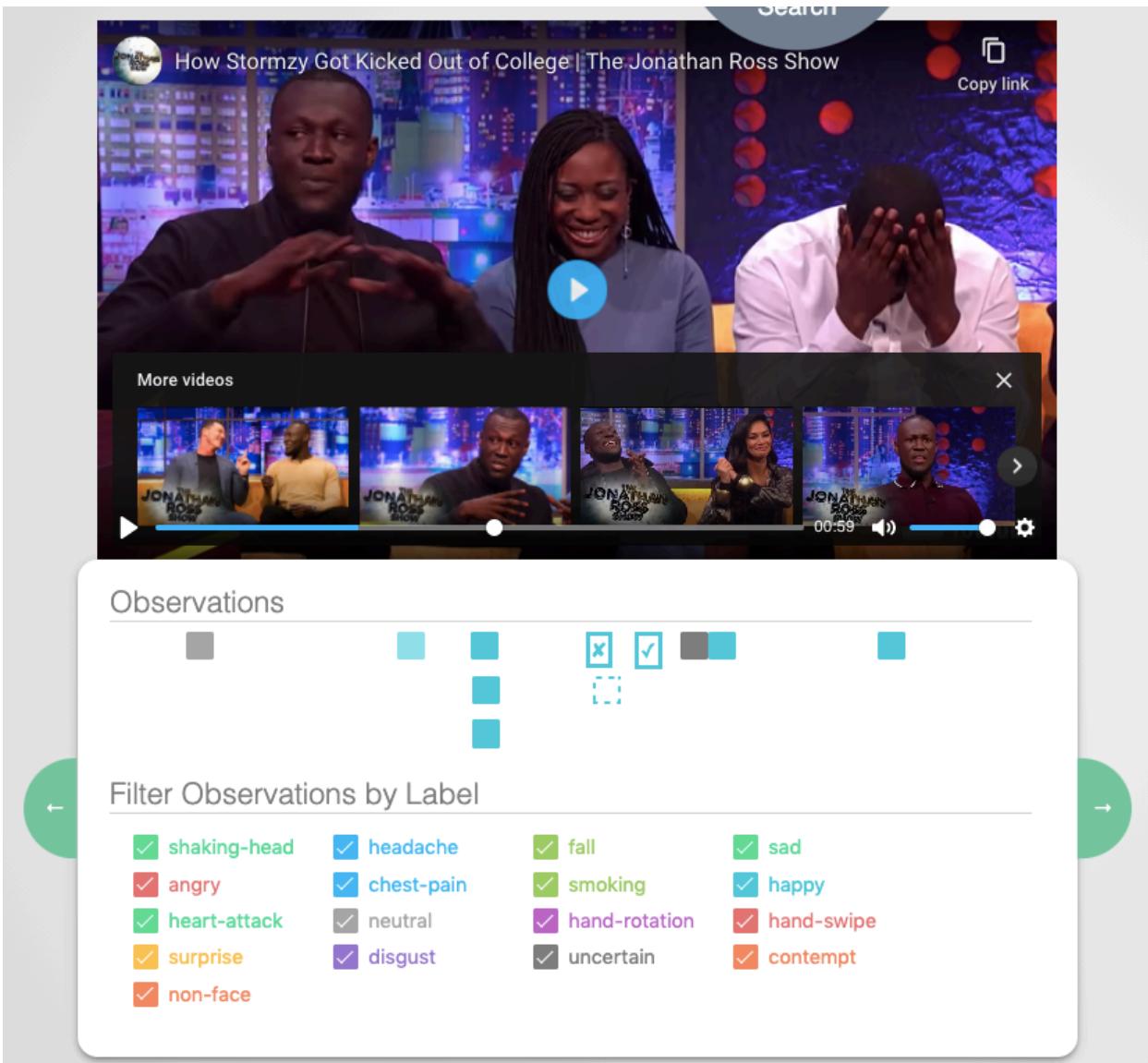
Currently labels and their color are generated automatically. Create an observation, use the label name that you want, then as soon as you save the observation the label will be created.

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



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.

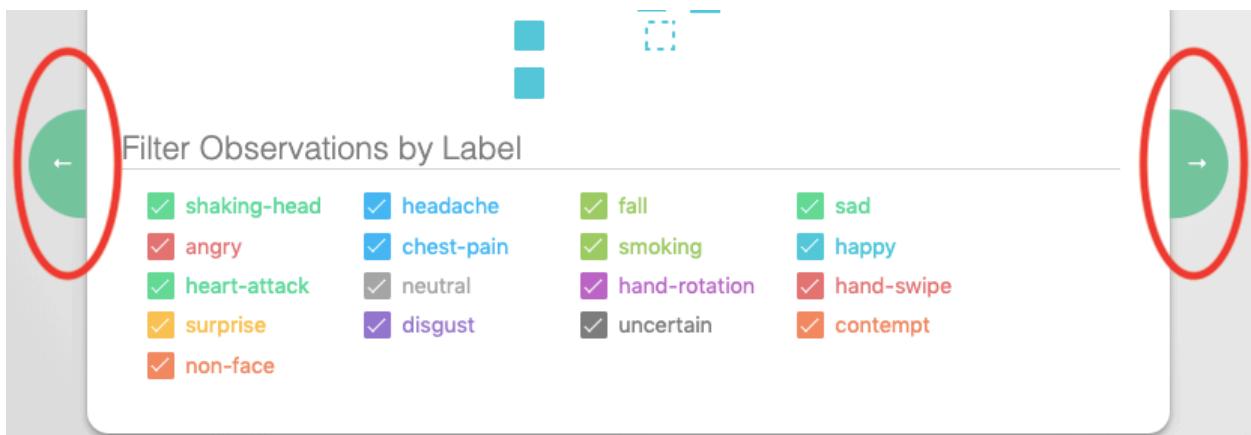
The active label has a pulse animation (can't really show it in a PDF)

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, there's a 'More videos' section with thumbnail previews. To the right, a detailed observation summary is shown in a modal window:

- 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.
- Below the summary are three toggle switches: 'Observer Is Human' (grey), 'Confirmed By ≥1 Human' (grey), and 'Rejected By ≥1 Human' (grey).
- At the bottom of the summary window, a red circle highlights the text: 'Selected Label: happy, Current Video ID: FLK5-00lOr4, Pause Time: 79.37 sec, Selected Segment UUID: f4dc1df3-4845-4c41-a3c'.

On the left side of the interface, there's a 'Search' bar with the text 'How Stormzy Got Kicked Out of College | The Jonathan Ross Show', a 'Copy link' button, and a 'More videos' section. Below these are sections for 'Observations' (with several small colored squares) and 'Filter Observations by Label' (with the same 16 categories as the top section, with 'happy' checked).

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.

Observation

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

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

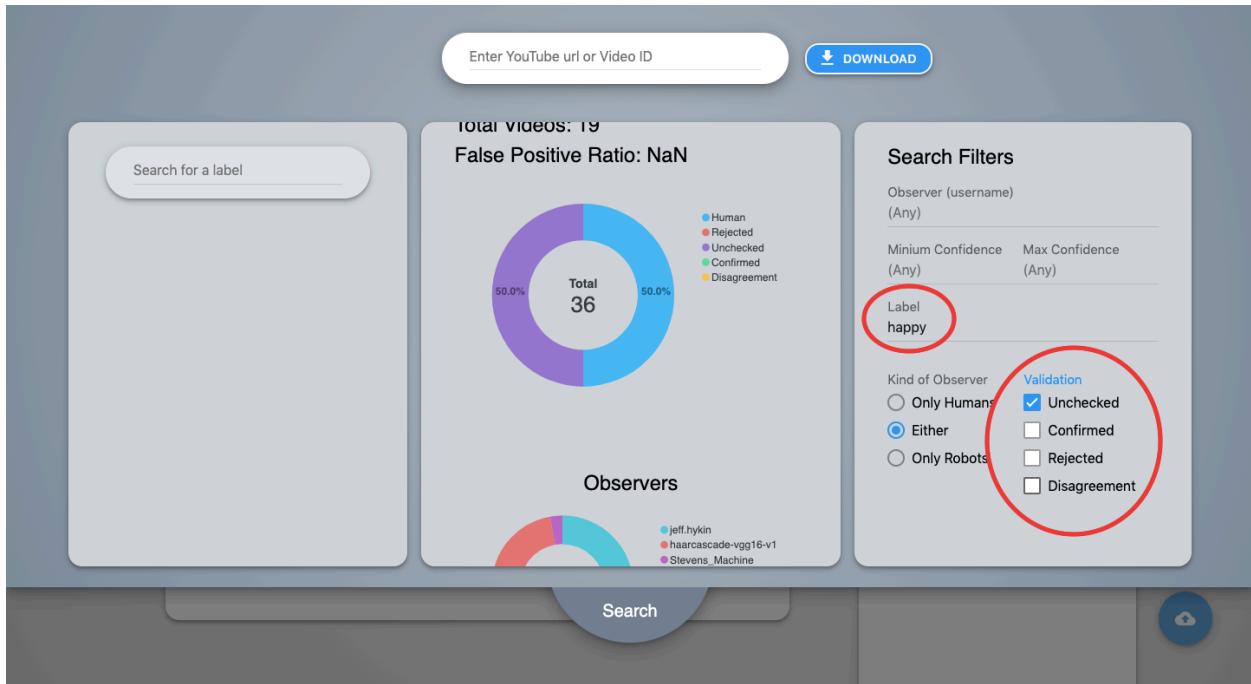
Confirmed By ≥1 Human

Rejected By ≥1 Human

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.



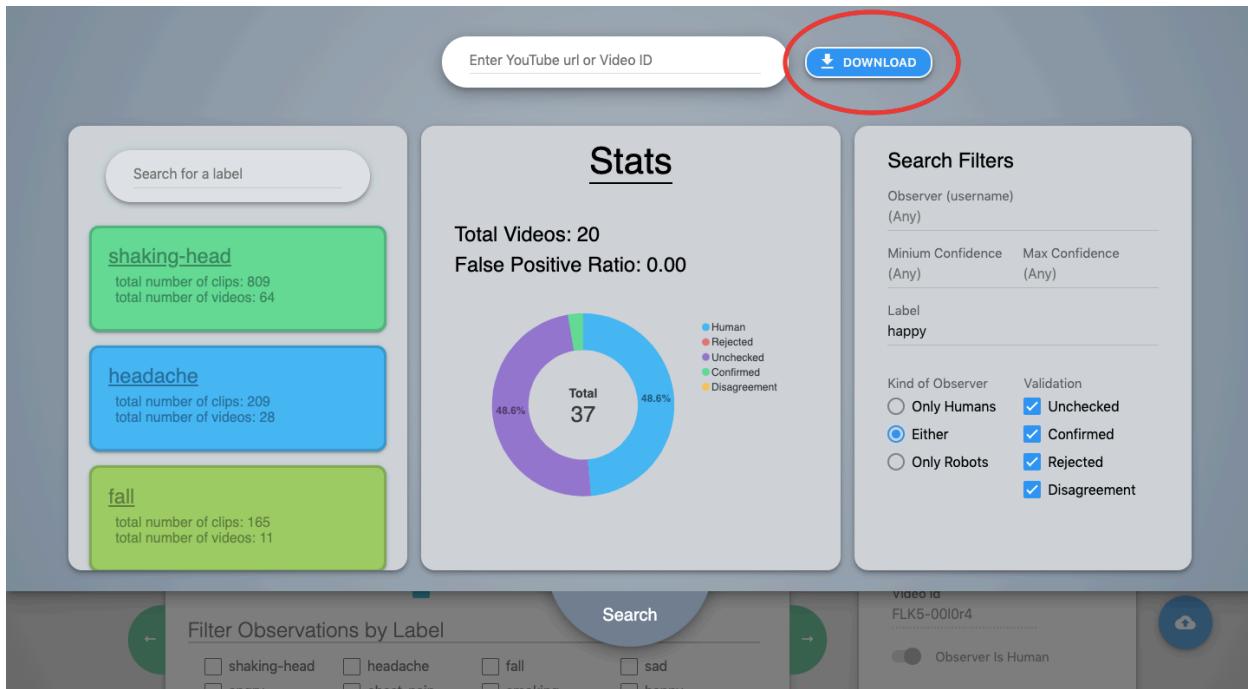
After that, use the red “videos” tab on the right side to directly get to all of the videos that need checking.

(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 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

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.