Image Tagging

Sloth

Setup

In order to tag images, we use a piece of software called Sloth. To install it from the robosub debian repository, run the following command:

```
sudo aptitude install sloth
```

Using Sloth

To use sloth and start tagging images, you can run the following command.

```
sloth -c /path/to/vision_dev/sloth/robosub_config.py
/path/to/annotation/file
```

-c Is a flag to give the path to a configuration file. This file is provided in the vision_dev/sloth directory. The path you provide should point to this file.

The last argument is a path to an annotation file. This is most likely named something like `labels.json`. You will need to provide this path in order to tag images.

Should you find this tedious, there is a script in the sloth directory of the vision_dev repository which performs some of this for you. It can be used as follows:

```
./robosub_sloth.sh /path/to/annotation/file
```

This removes the need to add the -c flag repeatedly. This script can also be symlinked to without issues.

Sloth Keybindings

The full list of keybindings used in sloth can be found in the robosub_config.py file near the bottom. A shorthand list is provided below

Default keybindings

- **Space** Mark image as labeled/confirmed and go to next

- **Backspace** Next image/frame
- **PgDown** Previous image/frame
- **PgUp** Previous image/frame
- **Tab** Select next annotation
- **Shift+Tab** Select previous annotation
- **Ctrl+f** Fit current image/frame into window
- **Del** Delete selected annotations
- **Esc** Exit insert mode
- **Shift+l** Mark current image as labeled
- **Shift+c** Mark all annotations in image as confirmed

Robosub Specific

- **F5** Toggle the visibility of label names on annotation boxes
- **Ctrl+Shift+Del** Delete all annotations from the current image and mark it as unlabeled
- **c** Copy all annotations from the previous image to this one
- **n** Mark image as labeled/confirmed and go to next then copy all annotations from the previous image. (Equivalent to **Space** then **c**)

Annotations

- **r** Red Buoy
- **y** Yellow Buoy
- **g** Green Buoy
- **s** Start Gate Post
- **p** Path Marker
- **m** Marker Drop Platform
- **,** Object Pickup Platform
- **.** Object Drop-off Platform
- **h** Hexagon
- **t** Torpedo Target
- **z** Navigation Channel Post
- **x** Navigation Channel Bar

Sloth Mouse Controls

While creating annotations, the following are useful mouse controls.

- **Right Click and Drag**

  Resize an annotation. Resizing is based upon the quadrant of the annotation clicked on.

- **Ctrl+Left Click**

  Select multiple annotations at once.

Getting Data to Label

We use the download_data.sh and download_data_current.sh scripts from the vision_dev repository to get data from the server. Make sure that you always do a git pull before getting new data because the scripts change frequently.

First claim one or more batches to label from the current spreadsheet of data. The current spreadsheet is located here. Note which numbers you want.

Once you have claimed some batches run the following command in vision_dev to download and extract the data:

```
./download_data.sh bag_prefix_0 ## ## ##
```

For example if you want batch numbers 00 04 and 12 of the path_marker batch you would run:

```
./download_data.sh path_marker_0 00 04 12
```

Before downloading the data it will ask you for a username and password, please ask in either the it or general channels on slack

Uploading Data

Here is the upload link for .json files. Just drag and drop it.