BBoxEE Quick Start Guide

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This quick start guide is intended to introduce the basic functionality of BBoxEE. It is not intended to be a comprehensive user guide.

BBoxEE is a open-source tool for annotating bounding boxes and exporting data to training object detectors. BBoxEE was specifically developed for the Animal Detection Network (Andenet) initiative, however, it is not limited to annotating camera trap data and can be used for any bounding box annotation task.

Source: https://github.com/persts/BBoxEE

License

Data Layout & Project Configuration

Directory Structure

Many researchers use their computer's file system as a pseudo-database for initially storing image data from collection events (Figure 1). BBoxEE was designed to work on a single directory of images at a time.

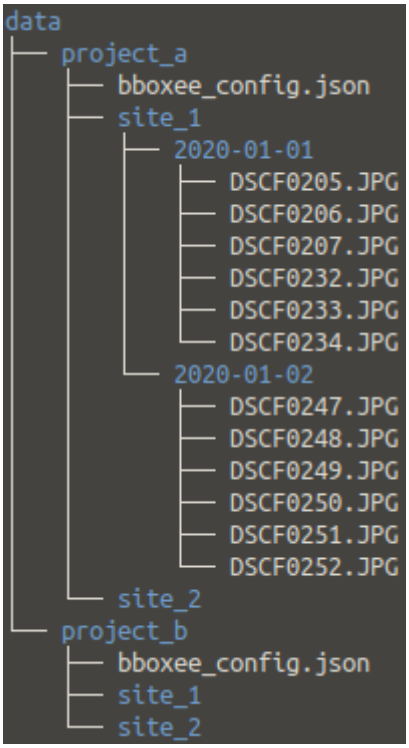

Figure 1. Directory structure.

Configuration File

BBoxEE uses a simple JSON format to store label and license information. You can have multiple configuration files for different projects or even within the same project. When you select a directory or existing annotation file, BBoxEE will traverse up your directory structure and use the first configuration file it finds.

When you begin a new project, copy the default bboxee_config.json file to the top level of your project and edit with your favorite text editor.

Example Configuration File

```
{
    "labels": [
        "Human",
        "Whitetale Deer"
    ],
    "license": {
        "default": {
            "attribution": "Jane Smith",
            "license": "Attribution 4.0 International (CC BY 4.0)",
            "license_url": "https://creativecommons.org/licenses/by/4.0/"
        },
        "licenses": [
            {
                "name": "Attribution 4.0 International (CC BY 4.0)",
                "url": "https://creativecommons.org/licenses/by/4.0/"
            }
        ]
    }
}
```

Annotating Images

Loading Data

There are two ways to load data into BBoxEE:

1. Select a directory ( )
2. Select an existing annotation file ( )

Selecting an existing annotation file will allow you to pick up where you left off or edit/correct existing bounding boxes.

Interface Buttons

- ( ) Zoom in by pressing this button or using the mouse wheel
- ( ) Zoom out by pressing this button or using the mouse wheel
- ( ) Load the next image
- ( ) Load the previous image
- ( ) Jump the next image with an annotation, skipping all unannotated images in between
- ( ) Jump the previous image with an annotation, skipping all unannotated images in between
- ( ) Delete all bounding boxes on the current image
- ( ) Toggle the visibility of bounding boxes

Defining a Bounding Box

1. Left click and drag on the image to define a new bounding box.
2. Select your target's label from the Annotation Assistant dialog's select box and check any of the descriptive features that apply.
3. Press the submit button.

If you need to draw a bounding box that starts or is completely contained within another bounding box, press and hold the CTRL key then left click and drag to define the new bounding box.

Moving a Bounding Box

1. Hover over an existing bouding box to make the box active.
2. Left click and drag to move the bounding box.

Adjusting a Bounding Box

1. Hover over an existing bouding box to make the box active.
2. Hover over the edge or corner that you want to adjust then left click and drag to adjust the bounding box.

Deleting a Bounding Box

There are two ways to delete a bounding box.

1. Press the button in a row of the bounding box table.
2. Press the button in the tool bar to clear all bounding boxes for the current image.

Selecting a Bounding Box (Sticky Mode)

There are two ways to select a bounding box.

1. Hover over a bounding box to activate it then left mouse click.
2. Click a row number in the bounding box table.

While in sticky mode mouse events over other bounding boxes will be ignored. To exit sticky mode, left mouse click on the image anywhere outside of a bounding box.

Saving

All annotation data are saved in a .bbx file that must be saved inside the same directory with the associated images. The annotation file is a simple JSON format. BBoxEE does not save full path names to images, thus allowing you to reorganize and move your image directories as needed without impacting your existing annotations.

Save often!

Exporting Your Bounding Boxes

You can export your bounding boxes for use in your favorite machine learning pipeline. BBoxEE currently supports three formats.

1. Tensorflow Record
2. YOLO v3
3. COCO Format

Export

1. Click the Export tab.
2. Press the  button.
3. Select the top level directory of your project. BBoxEE will find all of the annotation (.bbx) files and display them in the table.
4. Select the rows that you want to include in the export.
5. Select an export format from the pull down.
6. Press the export button.

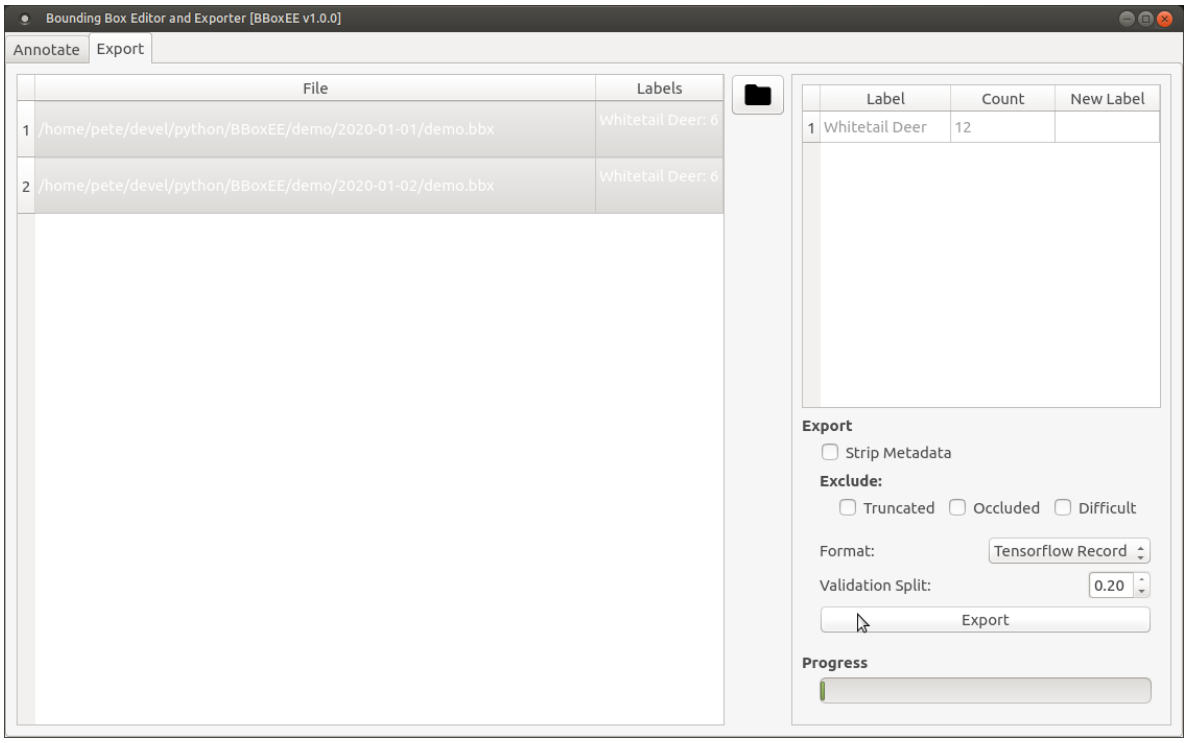

Figure 2. Exporting bounding boxes to train object detectors.

Keyboard Shortcuts

Nudge

You can use the arrow keys to move the active bounding box.

Expand & Shrink

SHIFT+Right-Arrow - Expand bounding box to the right.
SHIFT+Left-Arrow - Contract bounding box from the right.

SHIFT+Up-Arrow - Expand the top of the bounding box.
SHIFT+Down-Arrow - Contract bounding box from the top.

Duplicate

CTRL+C - Duplicate the selected bounding box and place at the current cursor location.

Delete Bounding Box

CTRL+D - Delete the selected bounding box.
CRTL+SHIFT+D - Delete all bounding boxes on current image.

Hide & Show

CTRL+H - Toggle bounding box visibility.

Next & Previous Row

Tab - Select next row.
SHIFT+Tab - Select previous row.

Next & Previous Image

Space - Next image.
CTRL+Space - Previous image.

SHIFT+Space - Next annotated image.
CRTL+SHIFT+Space - Previous annotated image.

Pan

SHIFT+Left-click+Drag - Pan image.
Right-click+Drag - Pan image.

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