**Annotation instruction (draft)**

First, thank you for helping us estimate annotation time. It is vital in our ‘imperfect annotation’ project. The whole task will take around 2 to 3 hours. Please finish the whole process during one sitting if possible. Please read this file below before you start your work.

Your task is to annotate all human objects in images.

**Order of annotation**

Please follow the order of annotation types listed below.

1. Perfect annotation
2. Bounding box: each object gets one box
3. Bounding box: one box contains ALL objects

Note: Sorry I forgot to mention this part yesterday. I would like to change this type to: no limit for number of bounding boxes. For example, for two objects close to each other, they could be in one box. The reason I want to remove one box for all objects is that based on IoU criteria, this method performs too bad: even 60k image for train results into 0.45 IoU. So it is not competitive to other methods. Instead, if we allow use one box for multiple objects, it could also reduce annotation time compared to one box for one object, while it won’t sacrifice too much accuracy.

1. Approximate contour
2. More approximate contour
3. Triangle
4. Pentagon
5. Polygons with edges from 8 to 12
6. One point
7. Scribble

**Image Types**

There will be 10 images for you to annotate. Below are some special cases for you to consider that may require annotations to be done differently.

* Type A: the object is partially covered by something else
  + A person carrying a surfboard in the ocean

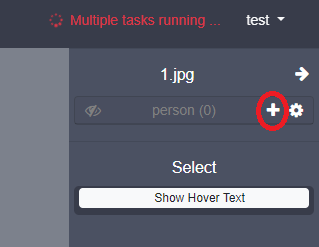
    Description automatically generated with medium confidence
  + For drawing bounding boxes and polygon, please consider the entire human as one object that needs one box.
  + For other methods, such as the ~~polygons,~~ points, scribbles, please draw a separate polygon for each part of the object (so this image would have two polygons).
  + For other methods, such as approximate contours, points, scribbles, please draw a separate contour for each part of the object (so this image would have two contours). Be sure to not include any of the area that is covered.

(Note: I think two points should be together. Otherwise, annotator may be confused to draw one bounding box but with no covered area inside box.)

* + Be sure to not include any of the area that is covered.
* Type B: the object is only partially shown
  + A picture containing food, plate, table, snack food

    Description automatically generated
  + For this case, you can simply annotate as much as you can see.

**Getting Started**

1. Type “chrislew.tplinkdns.com:5000” into your browser. Please contact [Christopher.lew@duke.edu](mailto:Christopher.lew@duke.edu) if you are unable to open the webpage.
2. Please use the login information given to you to login.
3. You will now see 10 different datasets. They should all include your name and the type of annotation you will be performing on that dataset.
4. Click on the dataset you would like to start annotating (please follow the order given to you).
5. Click on the first image in the dataset.
6. In the top-right area, click the “+” next to the “person” label
   1. 
7. The tools on the left will now be available for use and you are now ready to do all your annotations. You can continue drawing many annotations (boxes, polygons, etc) without needing to do any other steps.
   1. Before you begin annotating your first image, you should try using each of the tools (described below) so you know how to use them.
   2. Once you are ready to begin, please be sure to keep track of how long it takes for you to annotate each image.
8. When you are done with your current image, you can click the arrow in the top right corner to move to the next images.
9. When you are done with all images, you can click “Datasets” in the top tool bar to return to the datasets page and start on your next annotation method.

**Annotation Tools**

1. Select tool
   1. Can be used to click and drag points to a new location
   2. Hold “shift” when clicking points to remove them
   3. You can also click on areas on lines without points to add a new point for you to use/edit.
2. BBox tool
   1. The first click specifies the top left corner of a bounding box and the second click specifies the bottom right corner.
3. Polygon tool
   1. The first way to use this tool is by doing separate clicks to specify each point of a polygon. The polygon will automatically complete when you click a point that is very close to the starting point.
   2. The second way to use this tool is by holding the mouse down to draw a continuous line.
4. Magic wand tool
   1. We will not be using this in our project.
5. Brush tool
   1. This functions like a large area that can be painted. You can adjust the size on the right.
6. Eraser tool
   1. This is the reverse of the brush tool and removes areas that you paint. The size can be adjusted on the right.
7. Keypoints tool
   1. We will not be using this.
8. DEXTR tool
   1. We will not be using this.
9. Other
   1. You can always press “control + z” to undo your previous actions.
   2. If you want to start over completely, you can click on the trashcan on the top right and then press “+” again (like how you did to start the annotation process) to
   3. The scroll wheel can be used to zoom in and out.

**Detailed instructions and examples**

1. Perfect annotation
   1. The goal for this annotation is to carefully trace each object by holding down your mouse button as you use the polygon tool. You can use the brush and eraser to fix any small errors. Please try to be as precise as possible. This should be done for each object.
   2. A picture containing water, outdoor, water sport, sport

      Description automatically generated
2. Bounding box: each object gets one box
   1. Use the bounding box tool to draw one box for each object. They can overlap if needed. The edges of the box should barely contain the object. This is most easily achieved by using the select tool to help move points to better fit the object.
   2. A picture containing text, floor, indoor, desk

      Description automatically generated
3. Bounding box: one box contains ALL objects (same as first note)
   1. Like before, use the bounding box tool, but now use one box to contain ALL the objects.
   2. A picture containing text, indoor, person

      Description automatically generated
4. Approximate contour
   1. Like the perfect annotation, draw a continuous line by holding down the polygon tool. However, you should now try to be less precise. ~~Please try to keep all points within the object~~. This should be done for each object.

Note: As I only use average filter now, there is no need to restrict annotation inside object. But for more approximate one, I believe most human would prefer to draw outside instead of inside when drawing quickly. Please correct me if I’m wrong.

* 1. A picture containing outdoor, water, green, beach

     Description automatically generated

1. More approximate contour
   1. This is the same as the approximate contour, but try to be even less precise. You should still try to keep points ~~within~~ outside the object. This should be done for each object.
   2. A picture containing outdoor, green, surfing, wave

      Description automatically generated
2. Triangle
   1. Using the polygon tool (now clicking instead of holding it down), please create a triangle that you feel best covers the object while including a minimal amount of background. Parts of the object will likely not be included, which is okay. This should be done for each object.
   2. The select tool can be used to move points to better cover the object.
   3. A picture containing outdoor, water, water sport, surfing

      Description automatically generated
3. Pentagon
   1. This is done the same as the triangle method, but now with five points.
   2. A picture containing water, outdoor, surfing, beach

      Description automatically generated
4. Polygons with edges from 8 to 12
   1. This is done the same as the triangle/pentagon method, but now with 8-12 points.
   2. A picture containing outdoor, water, beach, surfing

      Description automatically generated
5. One point
   1. Please use a brush with radius size 5 to click a single point within the object.
   2. A person surfing on the waves

      Description automatically generated with low confidence
6. Scribble
   1. Using a brush with size 5, draw a scribble that covers the main area of the object. You do not need to include small extremities.
   2. A picture containing surfing, water, outdoor, water sport

      Description automatically generated

**Thank You!**

Please let us know if you have any questions. You can contact us on teams or via email.

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