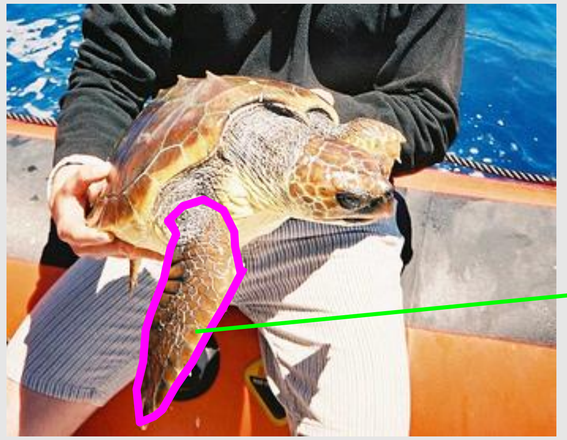
Announcement 2/24/24

- When annotating turtles be sure to pay attention to the "Reptile-Foot" prompt. Some species turtles *do not* have shank/forearms, thigh/upper arm, toes etc.. They have a "*fin*" instead. Be sure to pay attention to this when annotating. In these cases only *fin* should be annotated.



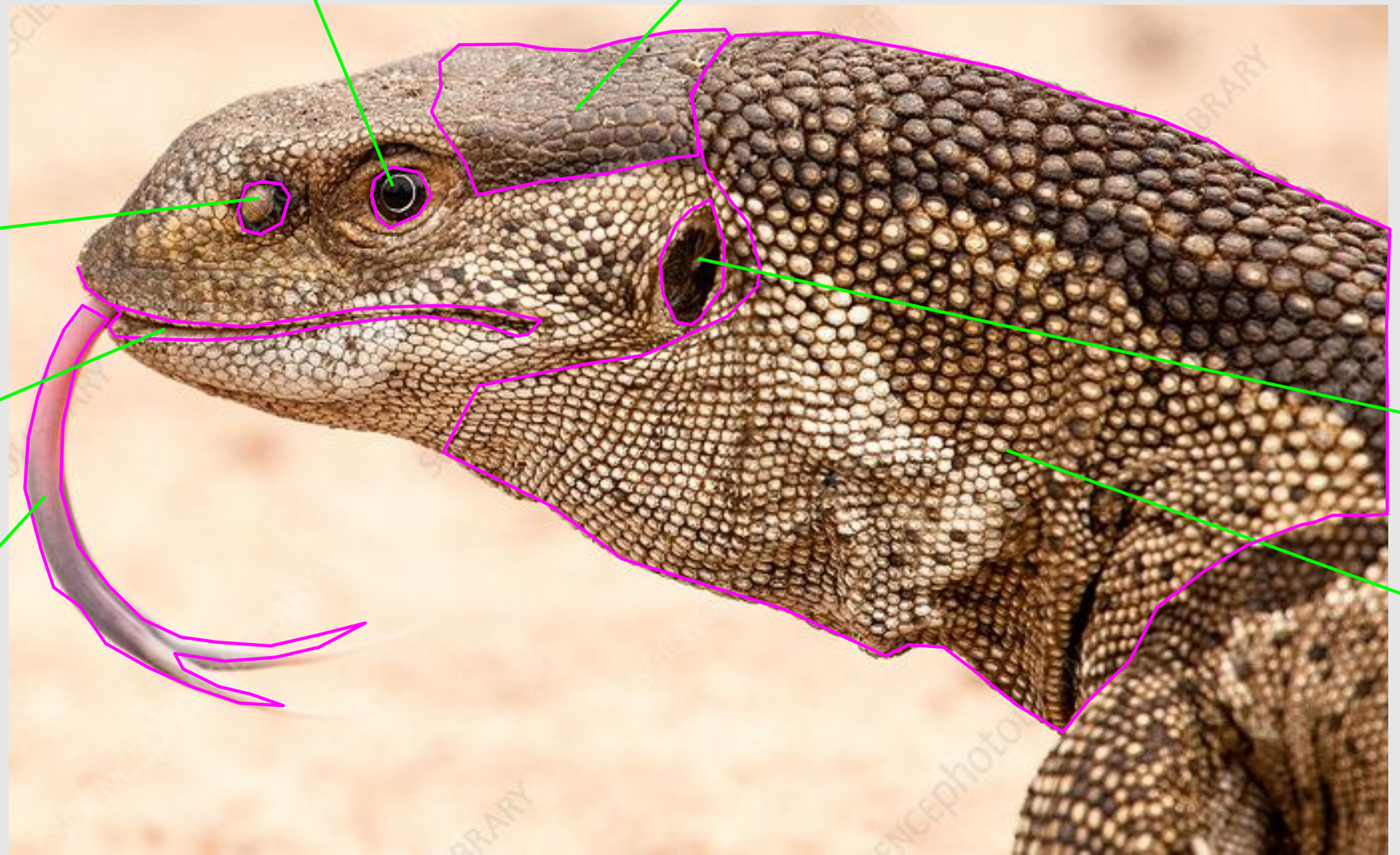
The worker incorrectly identified subparts shank/forearm, thigh/upper arm, and toes.

Instead, the annotation should reflect "*fin*" since this species of turtle does feature a shank/forearm, thigh/upper arm, or toes. The correct way to annotate this type of turtle featuring a fin is pictured to the left.

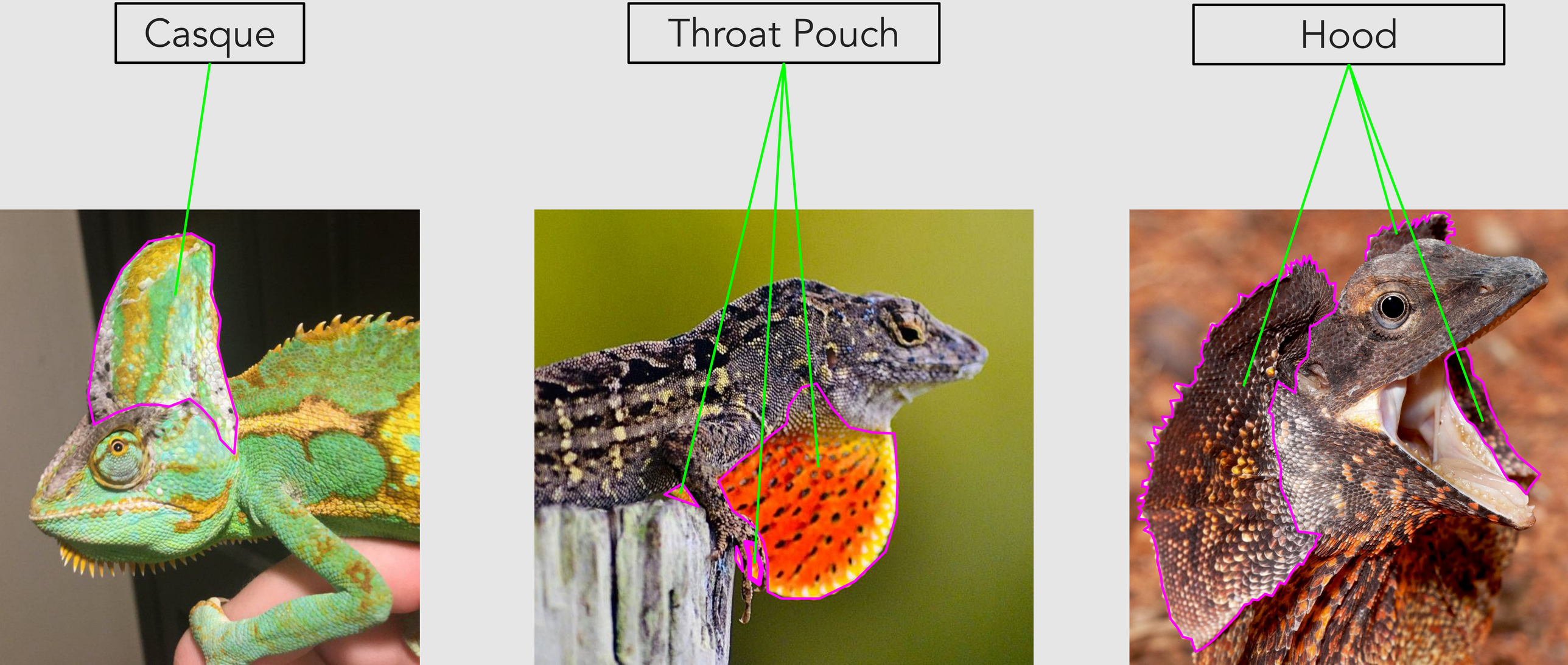
Announcement 2/23/24

- The last of the Biped category is now deployed. The next category for annotations is Reptile.
- Please review the following slides for annotation examples for the Reptile class and its composite sub-parts. The slides are also linked below:
    - Reptile Head Example 1
    - Reptile Head Example 2
    - Reptile Torso Examples
    - Reptile Foot Examples
- Please review this link for a description of each subpart.
- The HITs for Reptiles will be deployed when Bipeds are completed
- Reptile is the final class for this project.
- After completing Reptile we will process all of the annotations and reissue HITs that require re-annotations due to interface bugs, quality, etc…

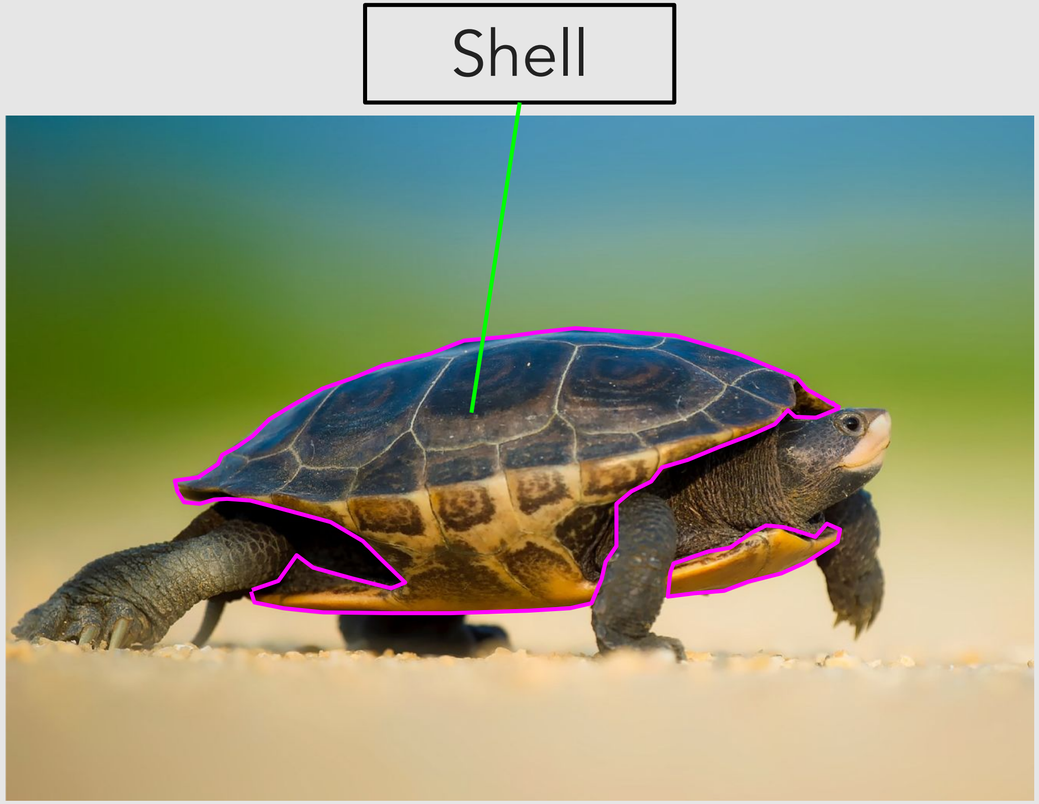
Reptile Head 1

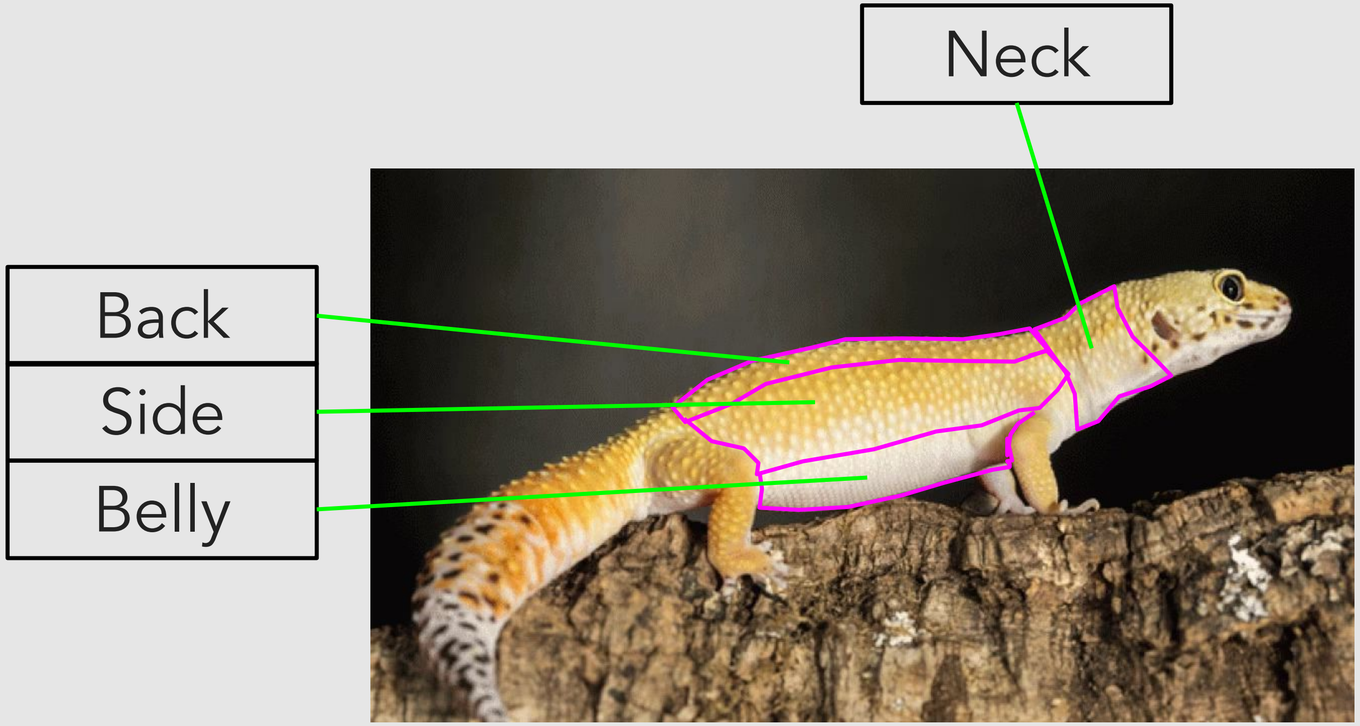


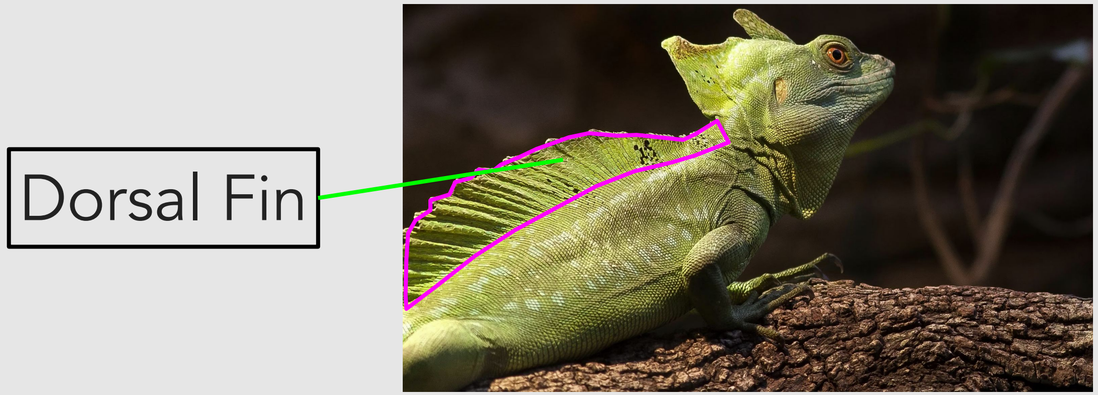
Reptile Head 2



Reptile Torso

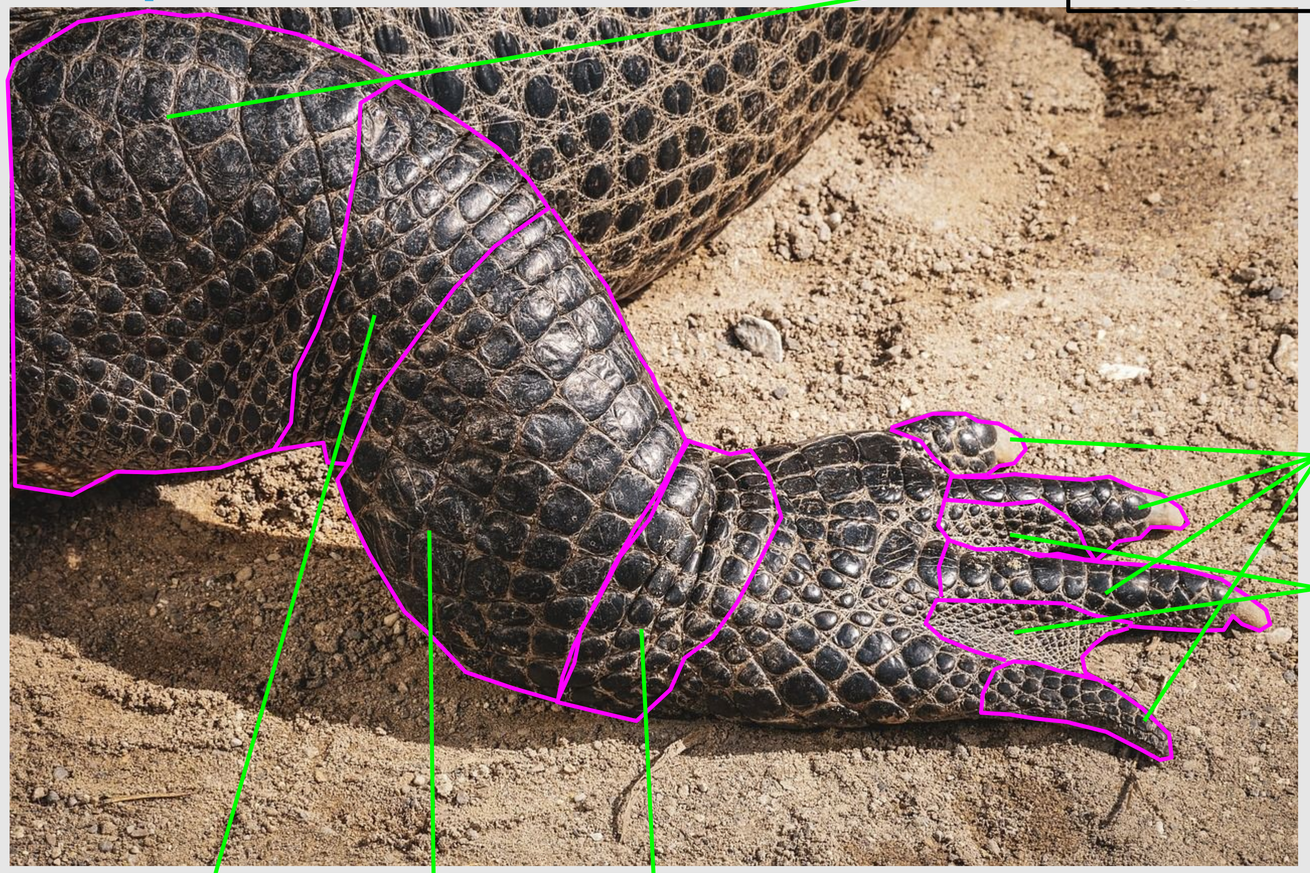


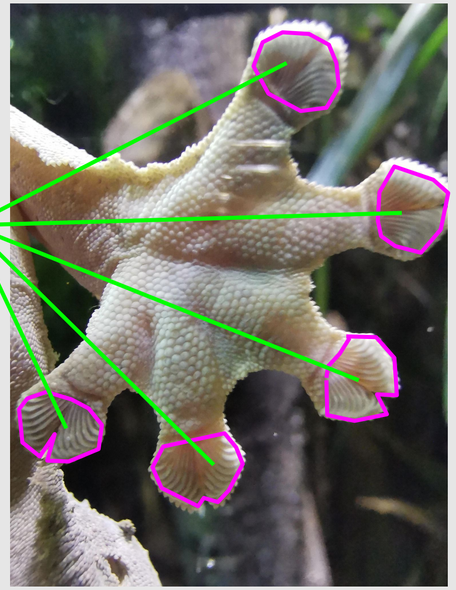




Note - Back, Side, and Belly subparts should be skipped on Turtles since the shell covers these subparts.

Reptile Foot



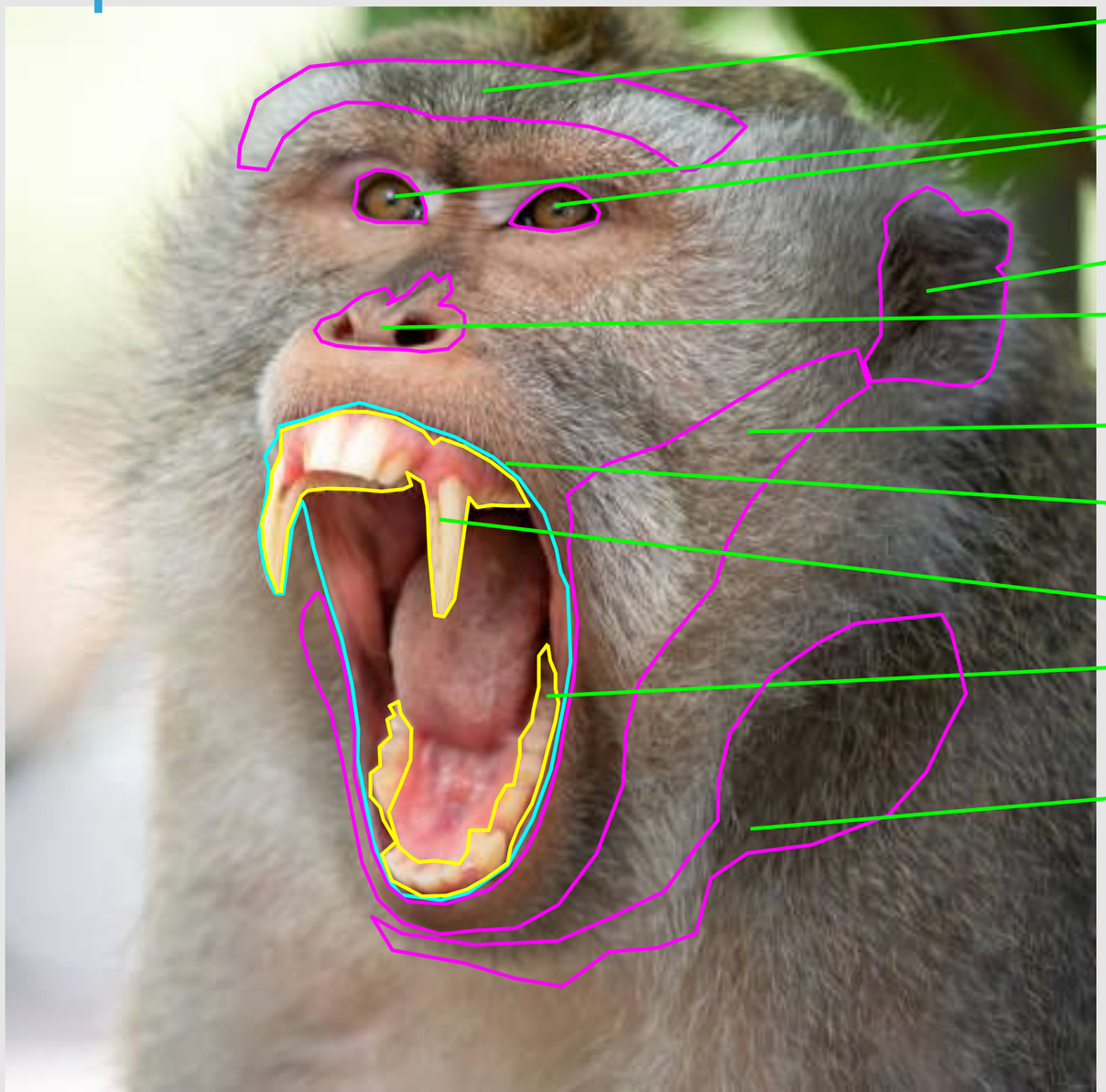


Announcement 2/20/24

- The last of the Snake category is now deployed. The next category for annotations is Biped.
- Please review the following slides for annotation examples for the Biped class and its composite sub-parts. The slides are also linked below:
    - Biped Head Example
    - Biped Torso Example
    - Biped Foot Example
    - Biped Arm Example
- Please review this link for a description of each subpart.
- The HITs for the Biped object class will be deployed as we near completion of the Snake object class.
- After Biped, the only remaining class is Reptile

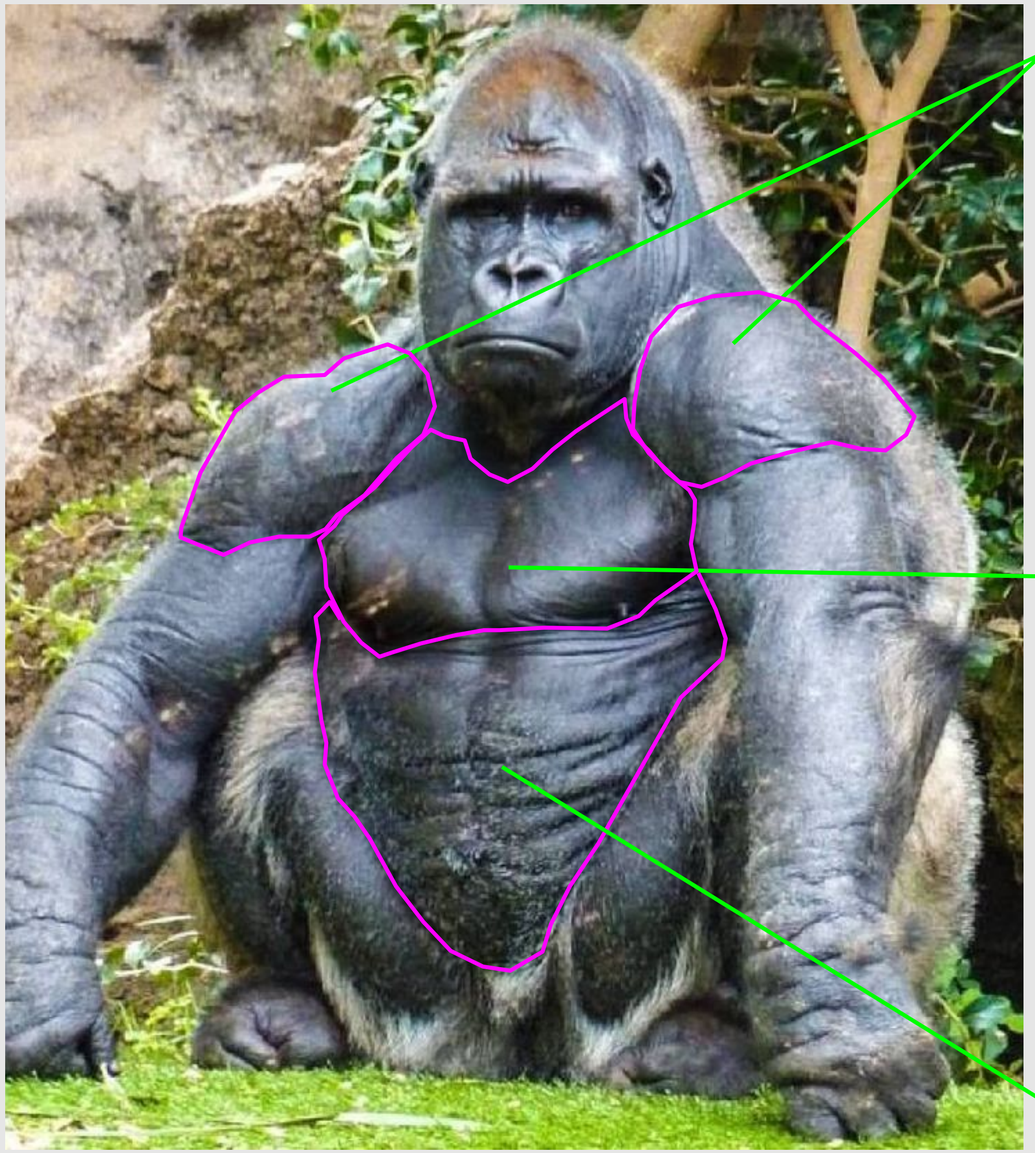
SPIN - Part Taxonomy

Biped Head



- Forehead
- Eyes
- Ears
- Nose
- Jaw
- Mouth
- Teeth
- Neck

Biped Torso

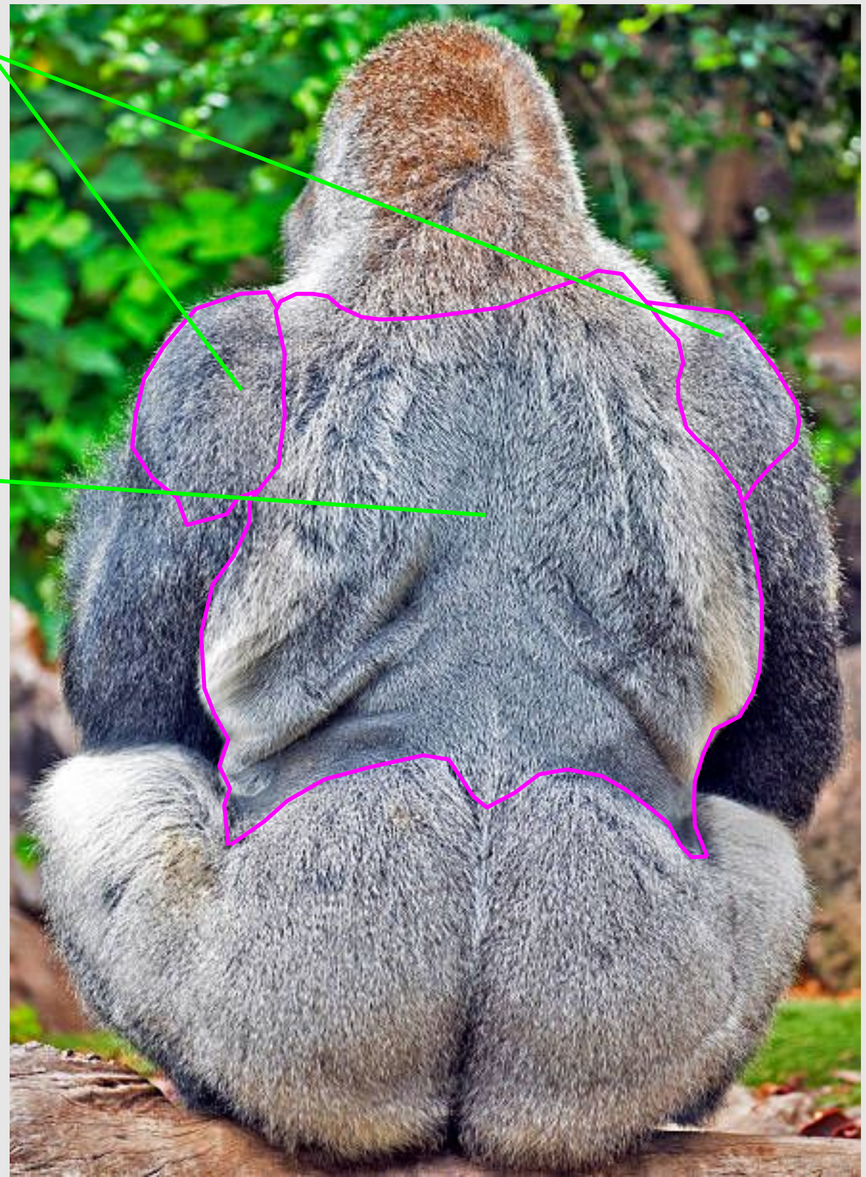


Shoulders

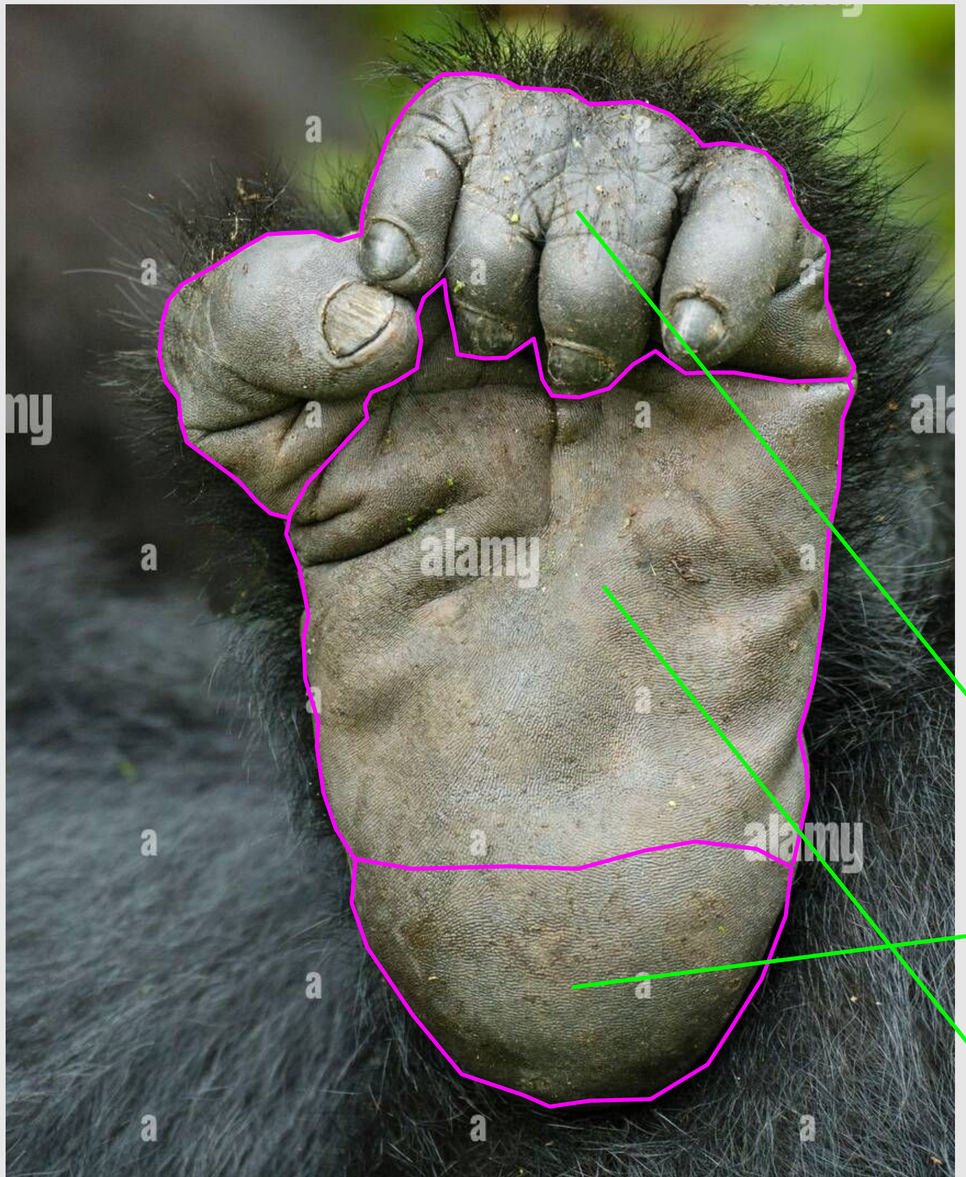
Back

Chest

Abdomen



Biped Foot



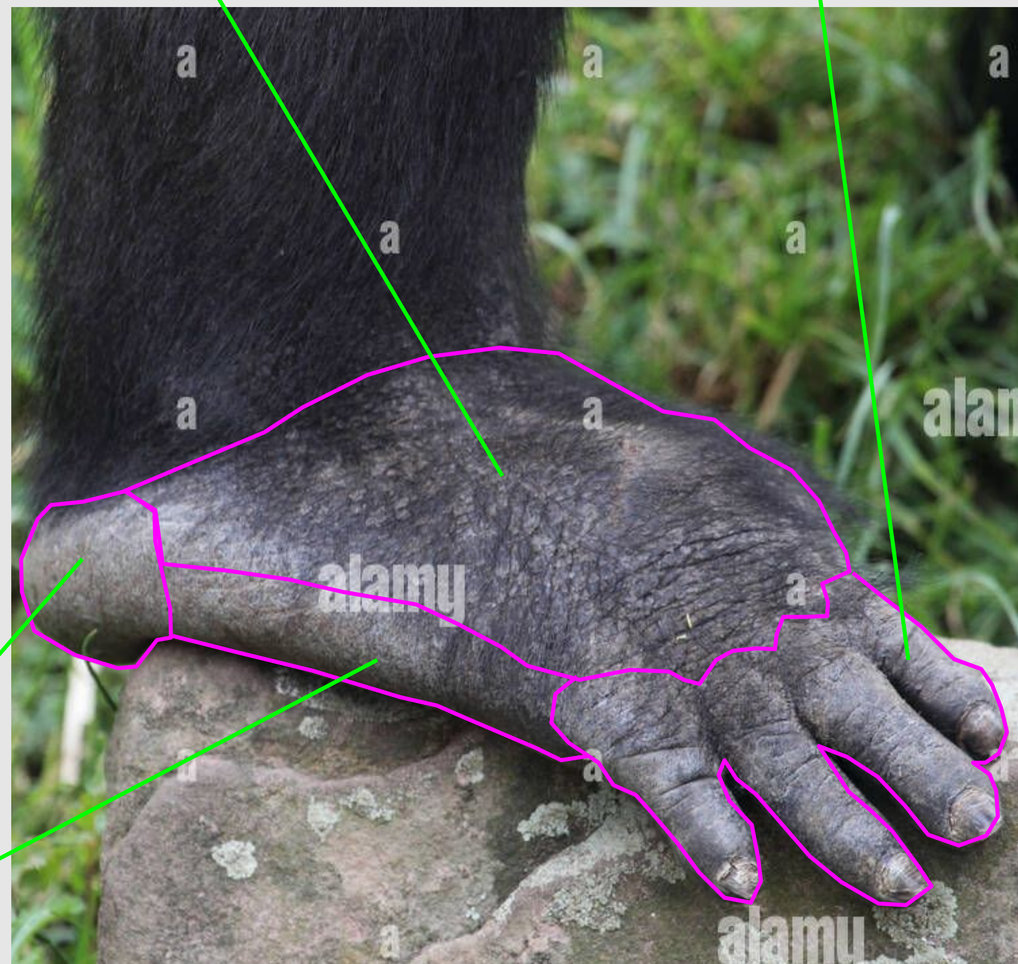
Toes

Heel

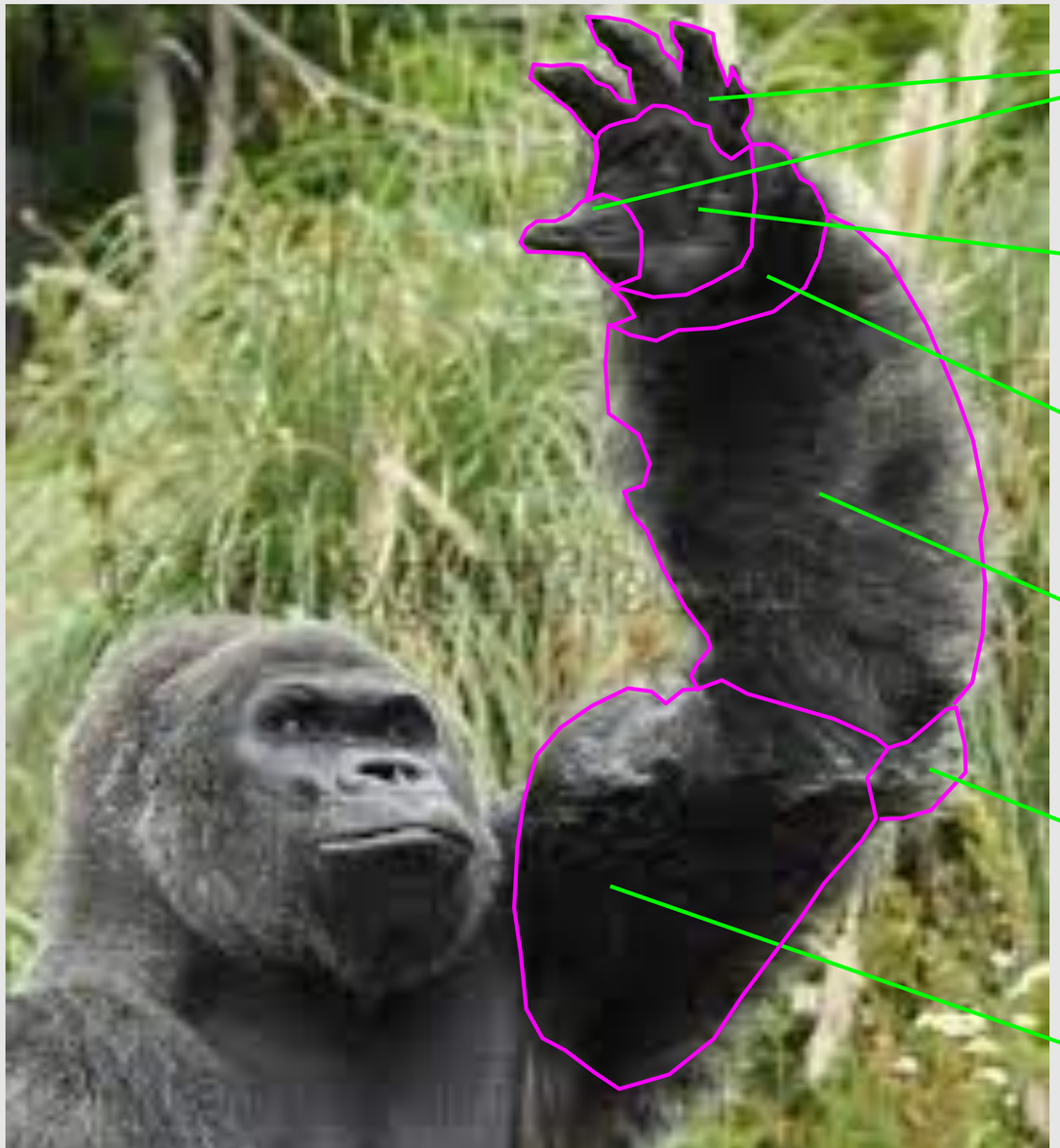
Sole

Dorsal Area

Toes



Biped Arm



Fingers

Palm

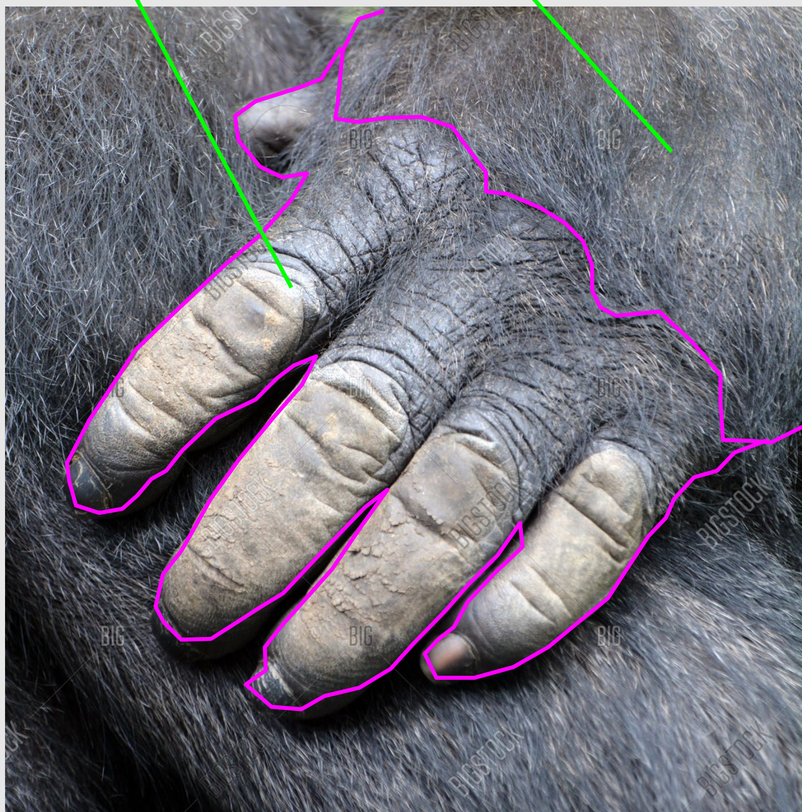
Wrist

Forearm

Elbow

Upper Arm

Dorsal Area



Announcement 2/19/24

- There has been a dramatic improvement in annotation quality with today's batches. Thank you for being receptive to and employing our feedback. Below are some great examples from the Snake class. Keep up the good work!

Announcement 2/19/24

- We understand that the pre-drawn boundary polygons can be difficult to work with. Please just do you best to work around them while doing your best to ensure annotation quality.

- The interface supports multiple polygons, so feel free to use multiple polygons per sub-part to ensure a quality annotation.

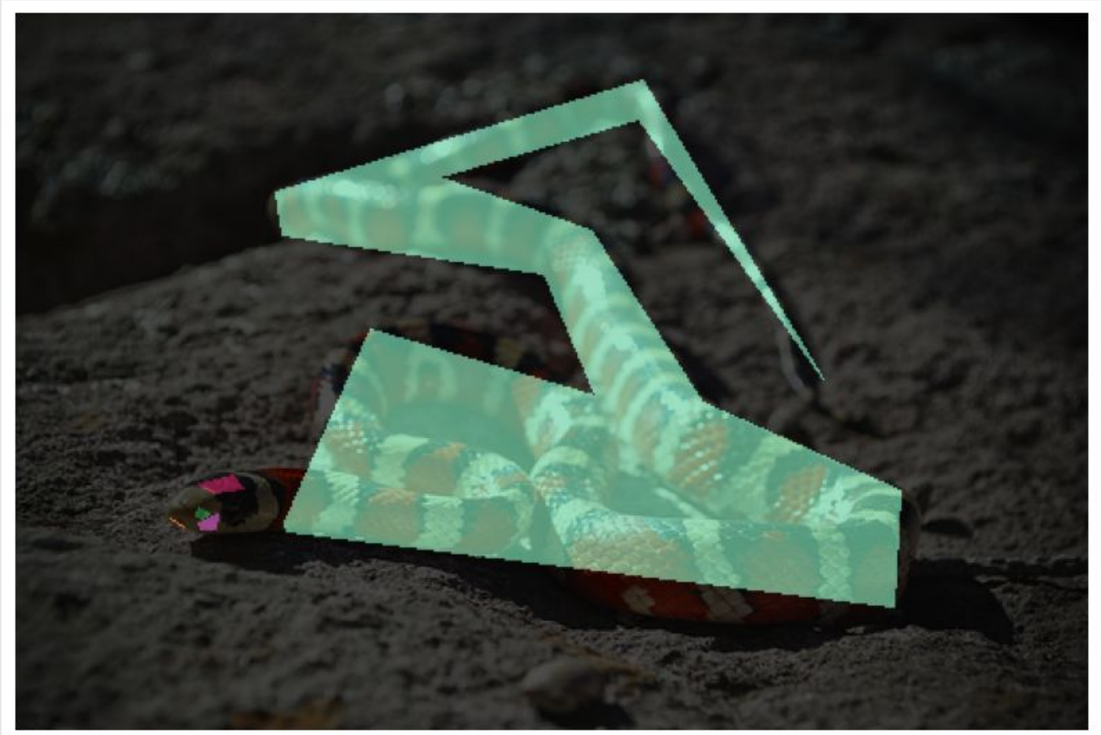
- This morning's test batch has shown a great improvement, please keep up the great work and thank you all for being receptive to our feedback.

- Once the current batch it complete I will begin deploying larger batches of Snake HITs.

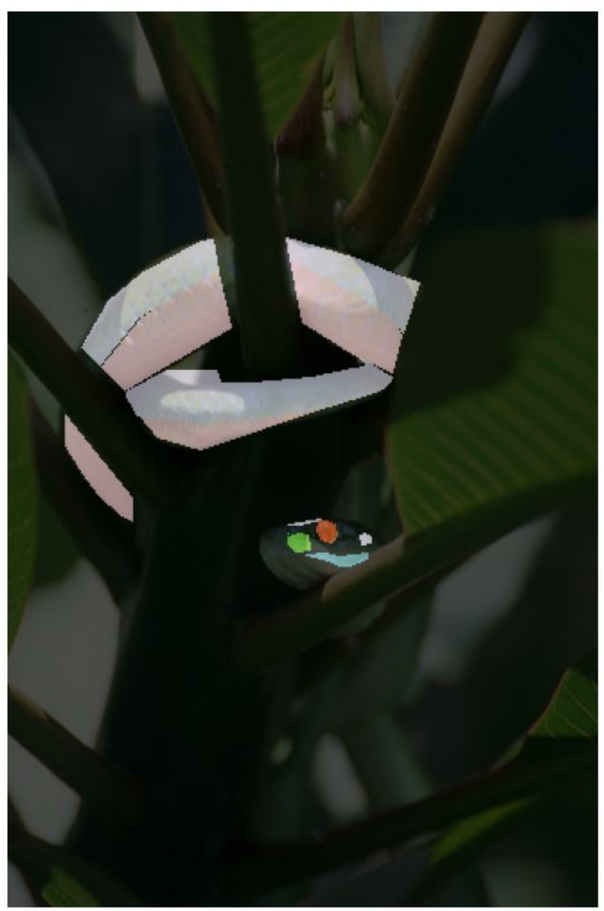
Announcement 2/19/24

- When annotating snakes, like all the previous tasks before do you best not to include holes in the annotation while keeping boundaries precise. See examples below:

Sub-par, please avoid holes

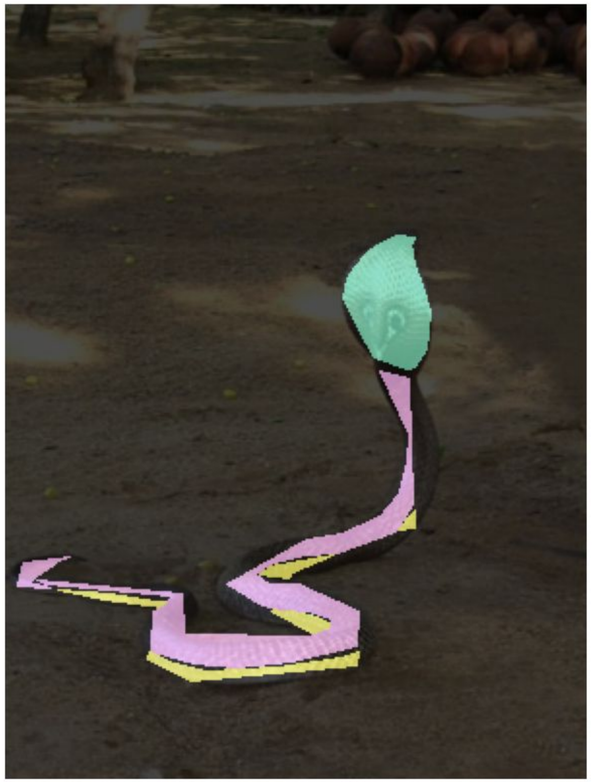


On par, holes are not included in the annotation.



Announcement 2/19/24

- When viewed from the back Snake Hoods should be fully traced. When viewed from the front only the sides should be traced since the center is obfuscated by the body and head.



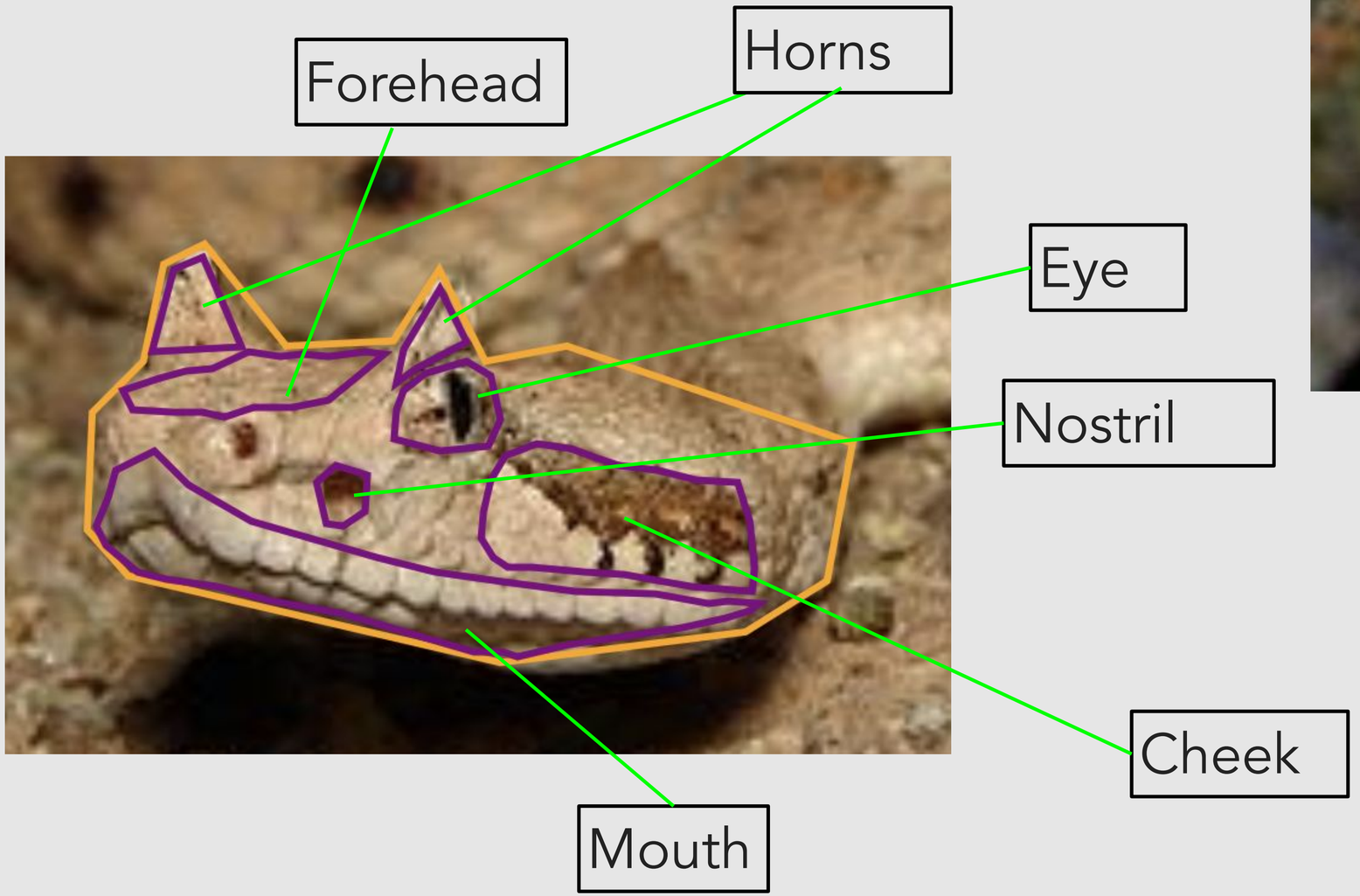
On par, the entire hood was traced

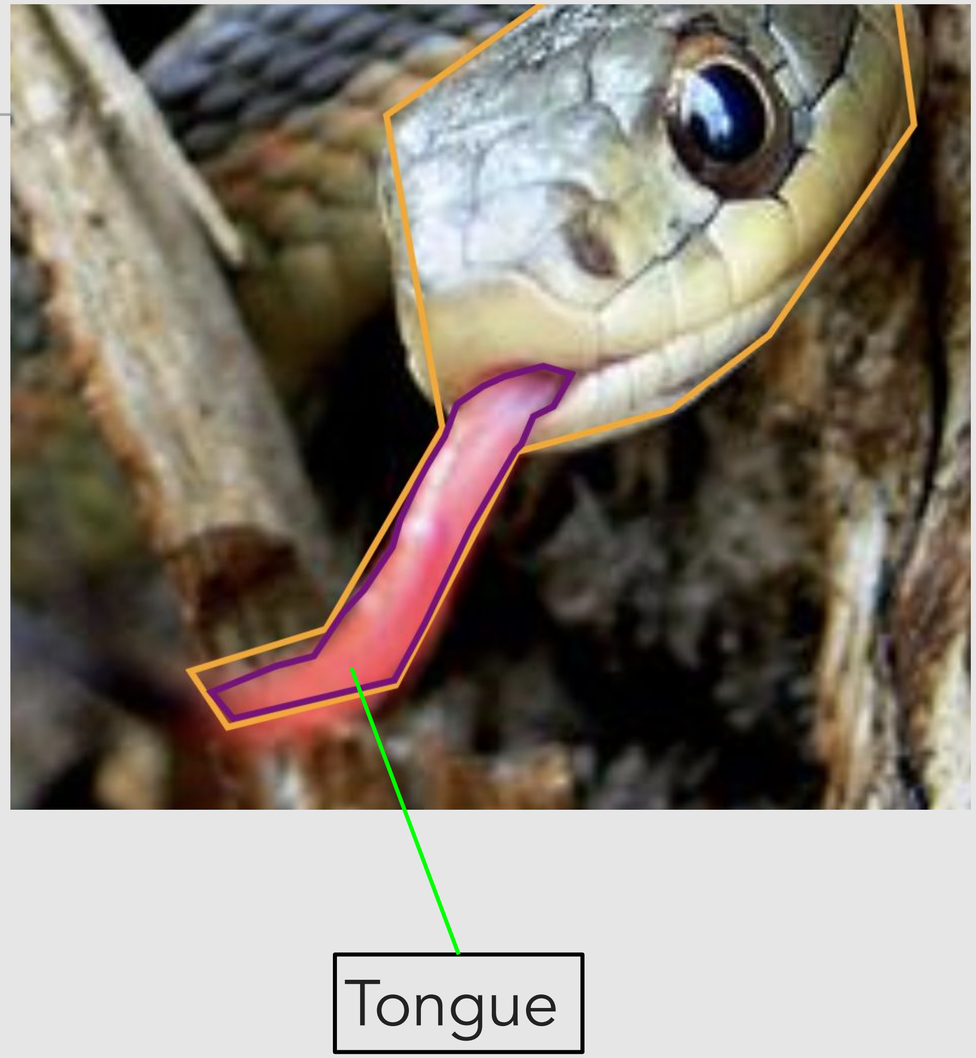
sub-par the center of the hood was not included in the annotation.

Announcement 2/18/24

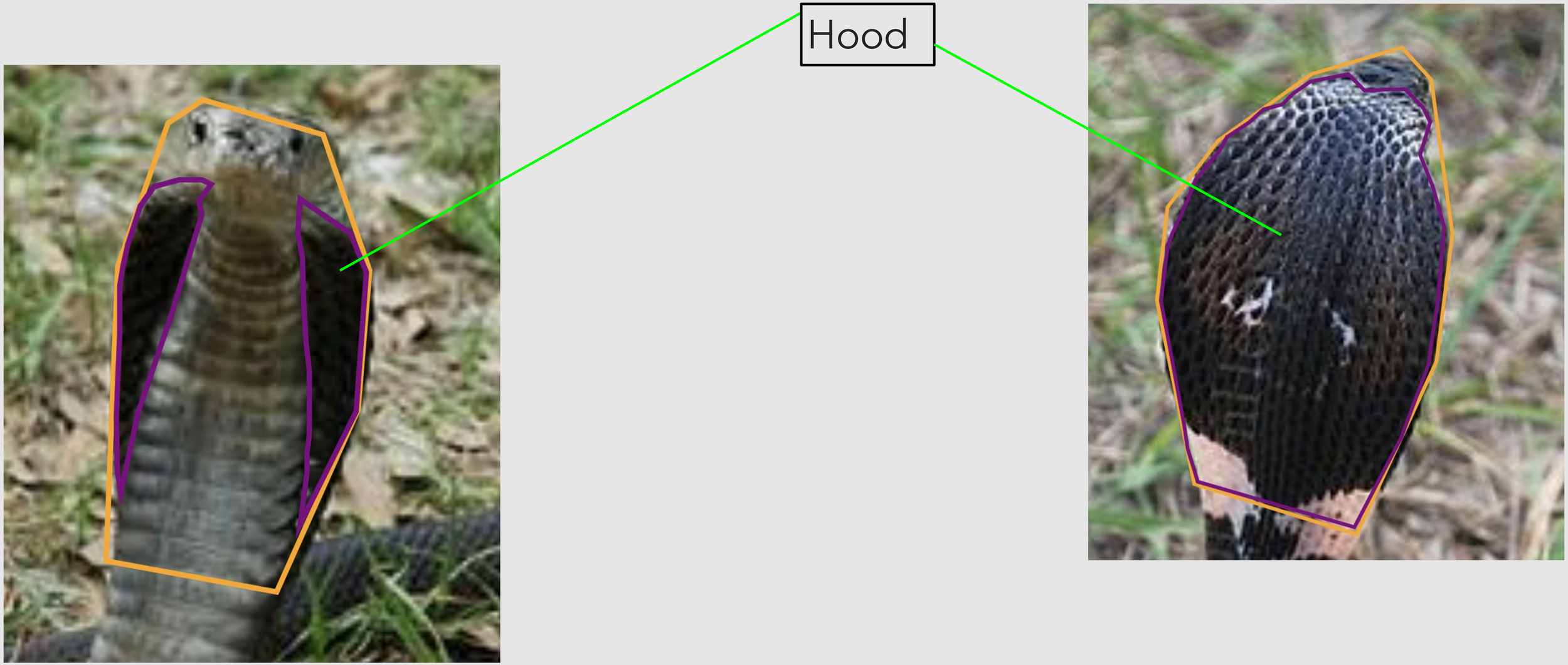
- The last of the Fish category is now deployed. The next category for annotations will be Snake.
- Please review the following slides for annotation examples for the Snake class and its composite sub-parts. The slides are also linked below:
    - Snake Head Example 1
    - Snake Head Example 2
    - Snake Body Example 1
    - Snake Body Example 2
- Please review this link for a description of each subpart.
- The HITs for the Snake object class will be deployed as we near completion of the Fish object class.
- After Snake, the remaining classes are Reptile and Biped

Snake Head 1

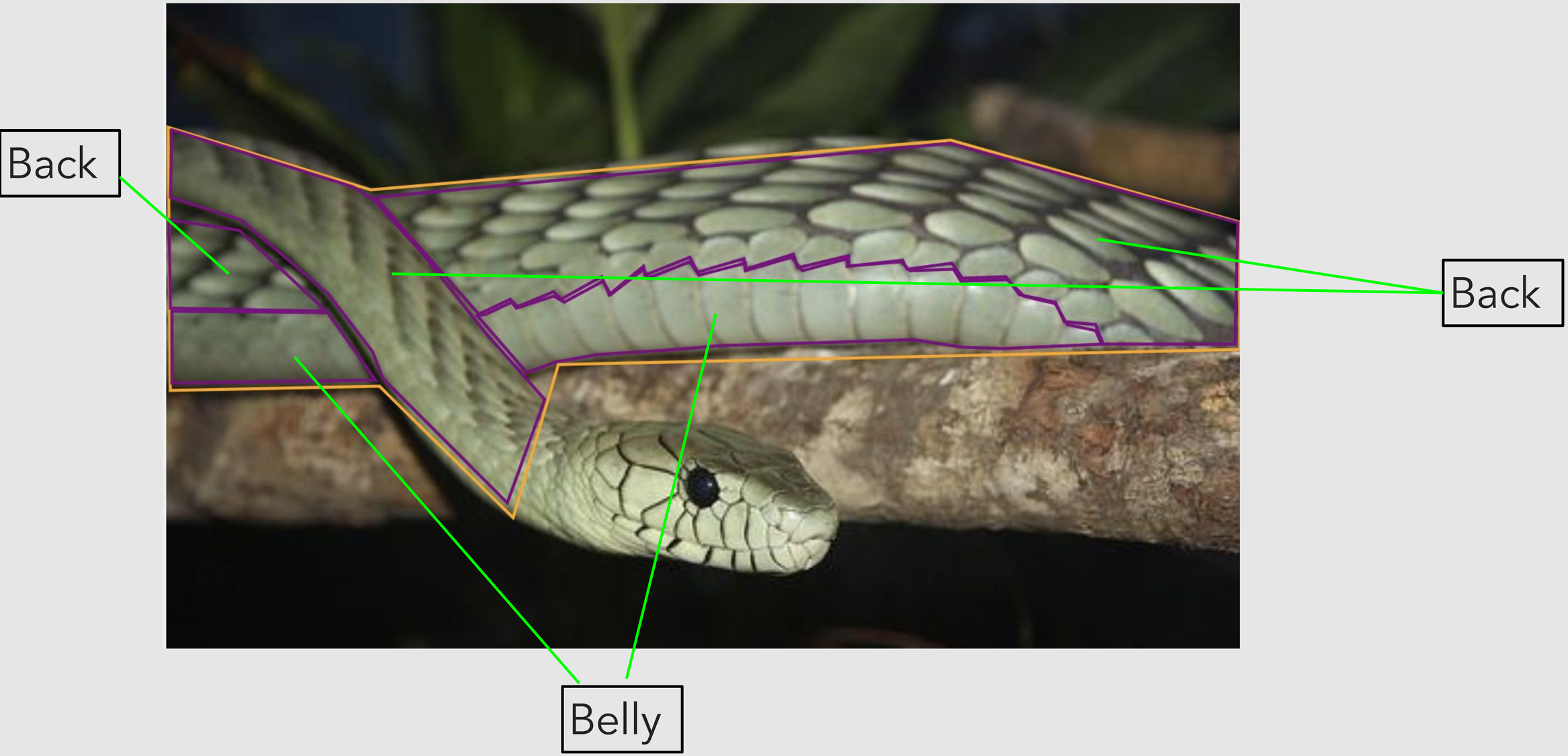




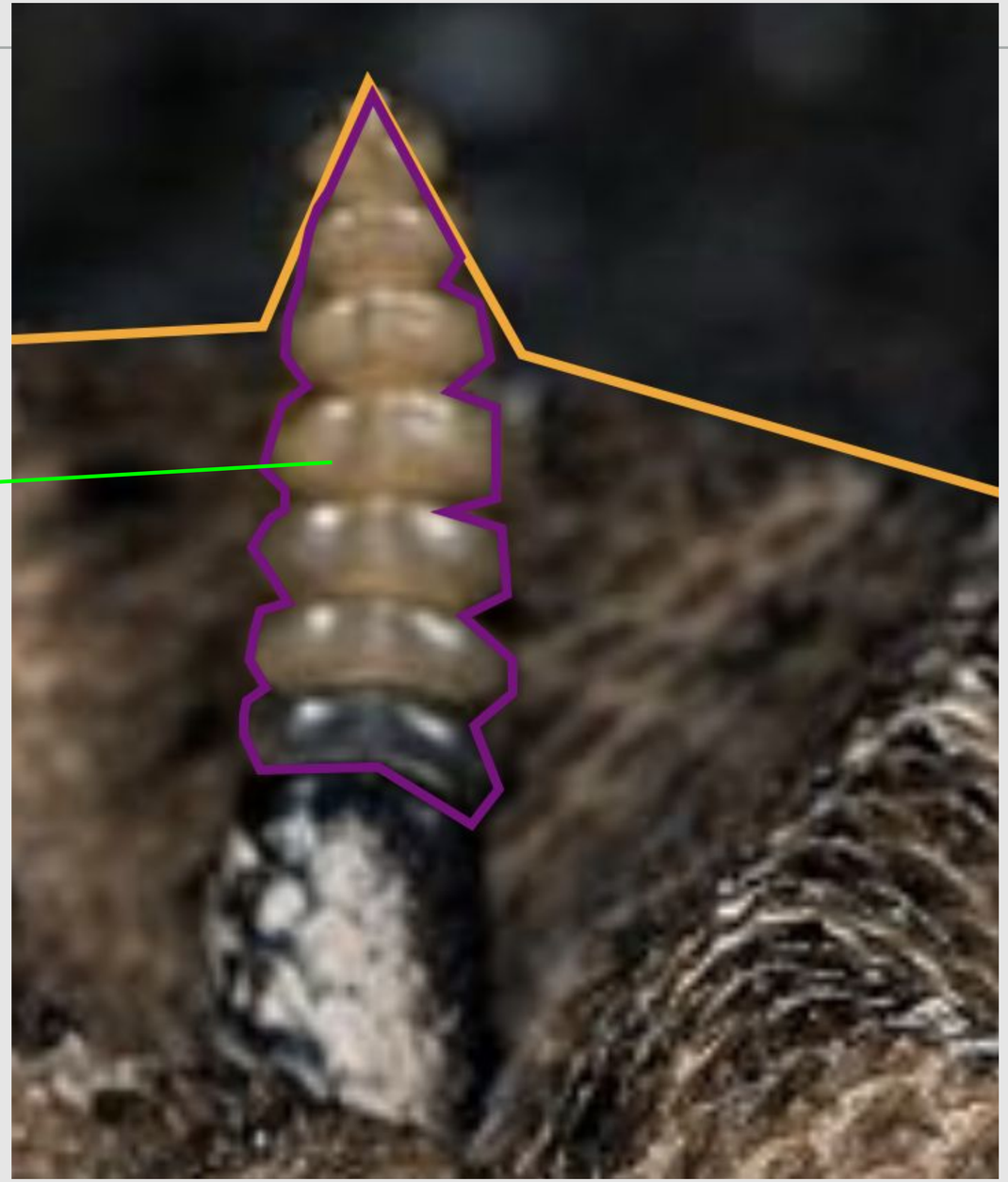
Snake Head 2



Snake Body 1



Snake Body 2

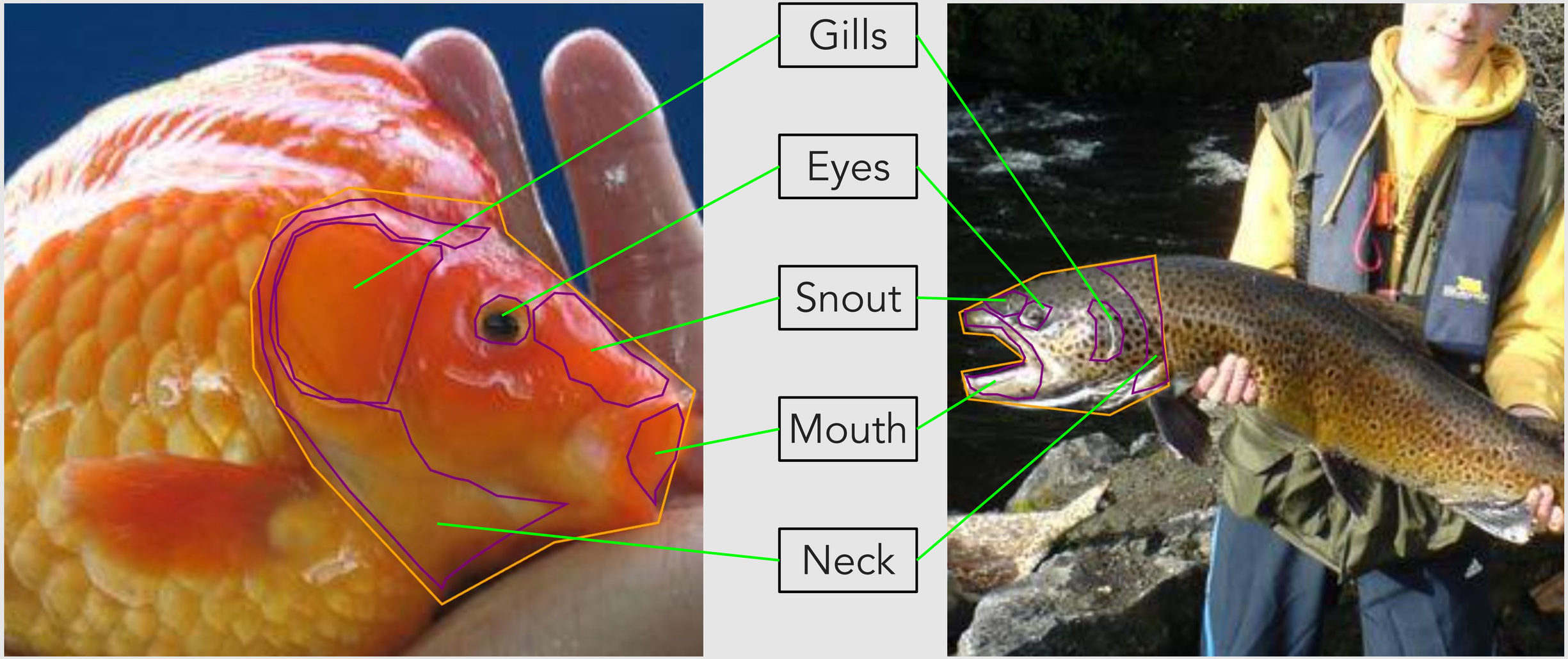


Announcement 2/15/24

- The last of the Quadruped category is now deployed. The next category for annotations will be Fish.
- Please review the following slides for annotation examples for the Fish class and its composite sub-parts. The slides are also linked below:
    - Fish Head Example
    - Fish Torso Example
    - Fish Fins Example
    - Fish Tail Example
- Please review this link for a description of each subpart.
- The HITs for the Fish object class will be deployed as we near completion of the Quadruped object class.
- The Fish Category is less complex than quadrupeds so it should be a nice halftime break of sorts before we get into Reptiles, Snakes, and Bipeds.

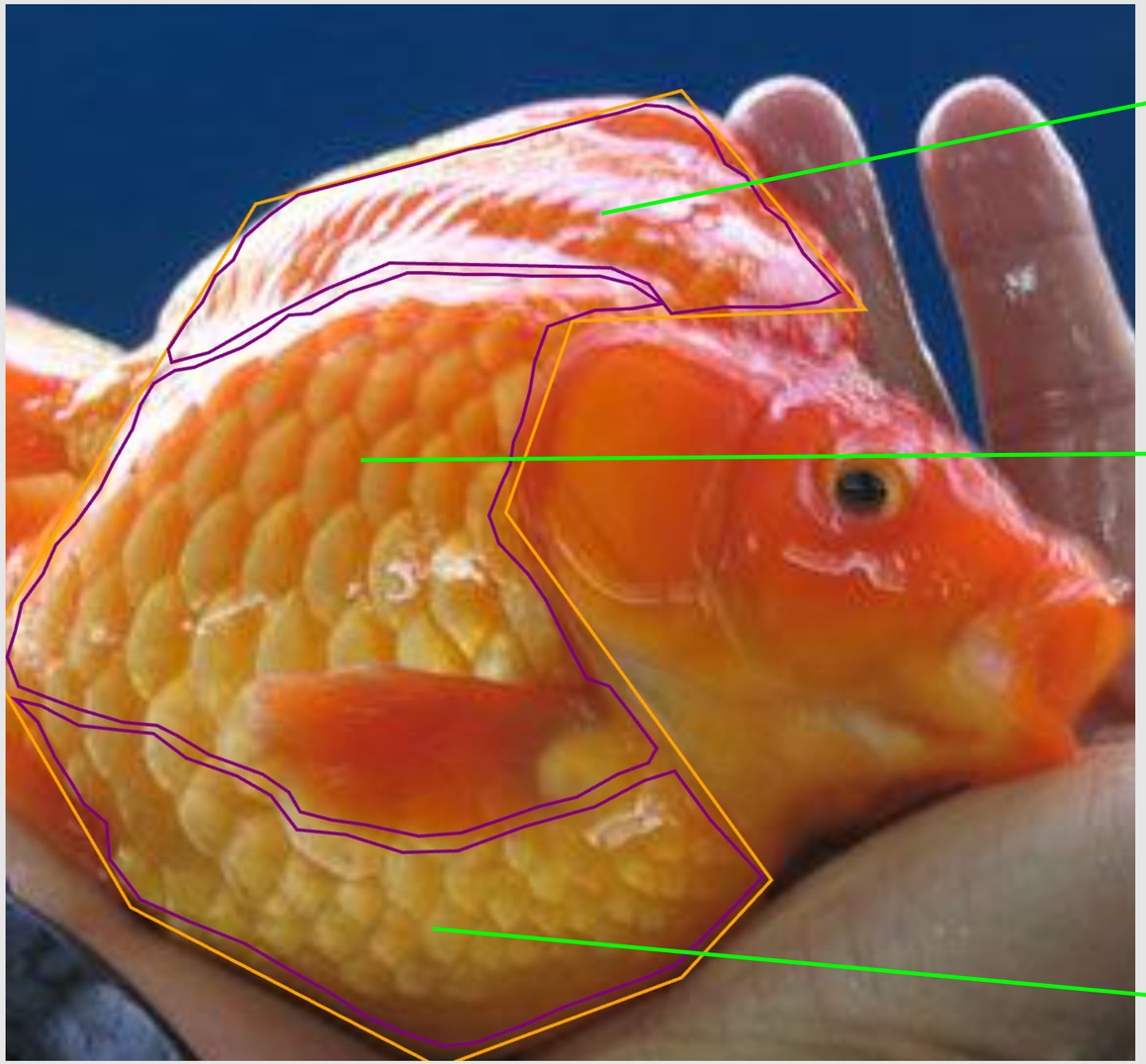
SPIN - Part Taxonomy Examples

Fish Head



SPIN - Part Taxonomy Examples

Fish Torso



Dorsal (Upper) Surface

Side

Ventral (Under) Surface

Fish Fins

Dorsal (Upper) Fins

Pectoral (Side) Fins

Ventral (Under) Fins

Fish Tail

Upper Lobe

Lower Lobe

Announcement 2/13/24

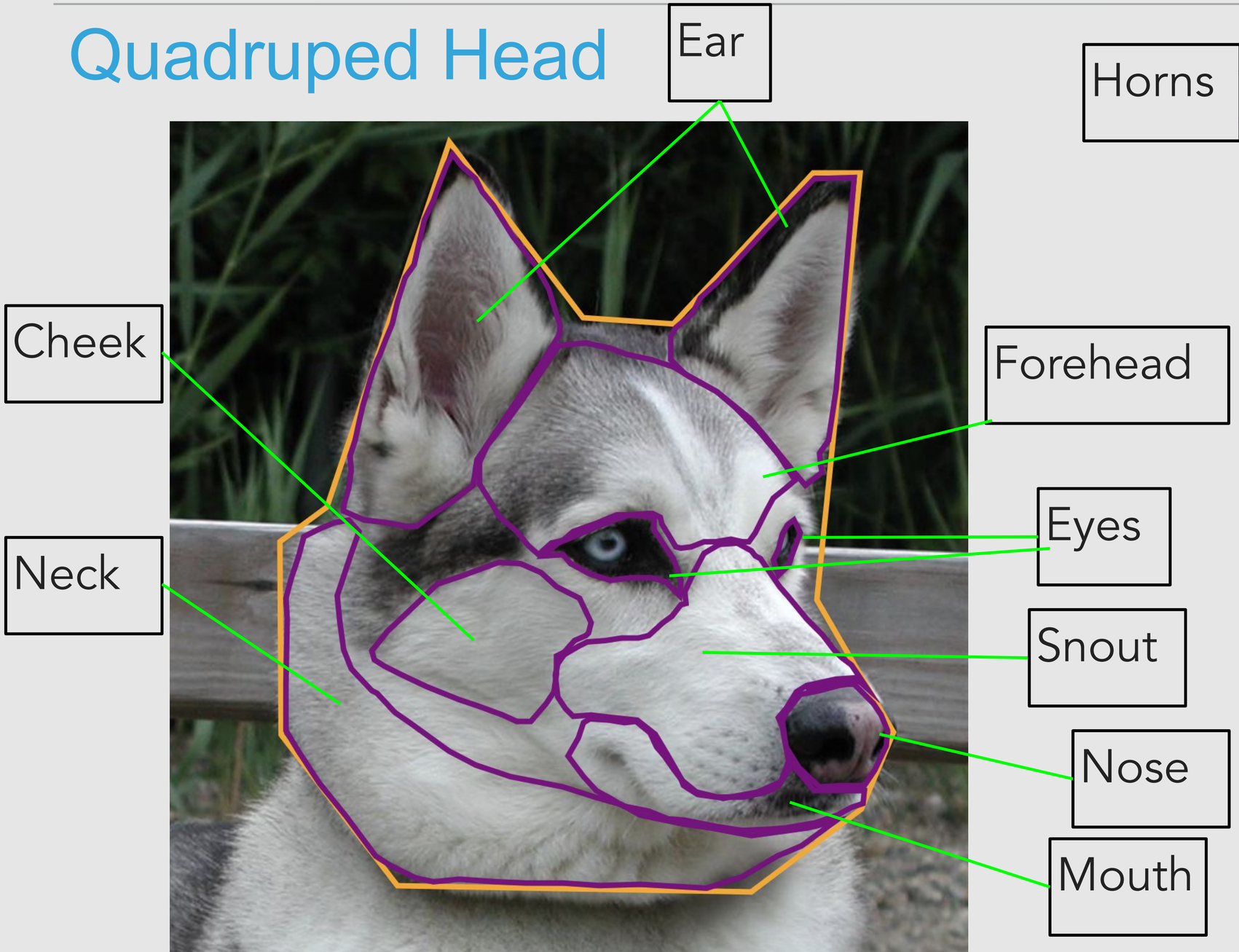
- Great job with Quadrupeds so far everyone! You all are doing a phenomenal job Here are some great examples from our spot checks:

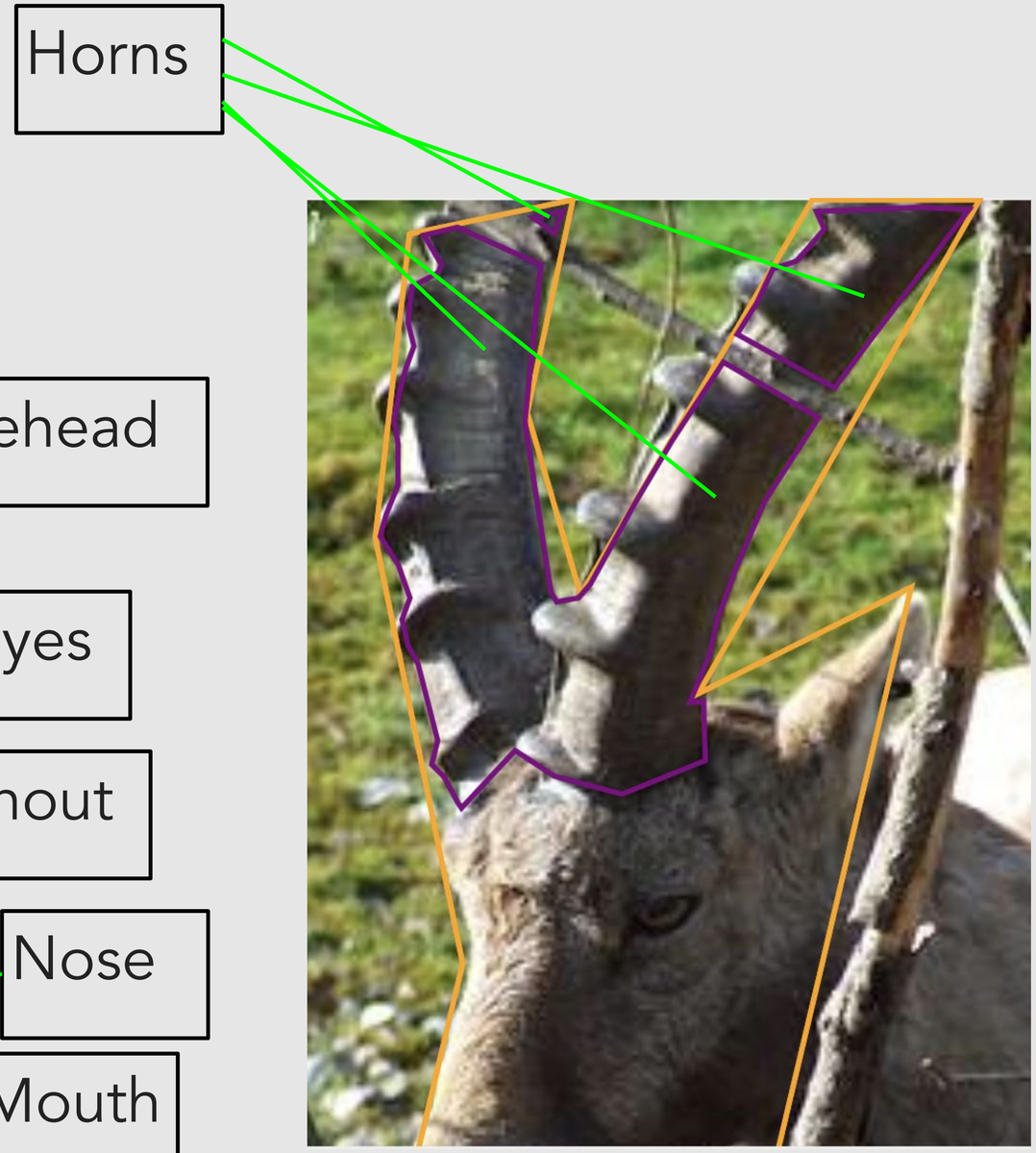
Announcement 2/13/24

- The next phase of the task will consist of completing HITs for the Quadruped object class.
- Please thoroughly review the next five slides for example of how to annotate the Quadruped class and its composite sub-parts. The slides are also linked below:
    - Quadruped Head Example 1
    - Quadruped Head Example 2
    - Quadruped Torso Example 1
    - Quadruped Foot Example 1
    - Quadruped Foot Example 2
- Please review this link for a description of each subpart.
- The HITs for the Quadruped object class will be deployed as we near completion of the Bird object class.

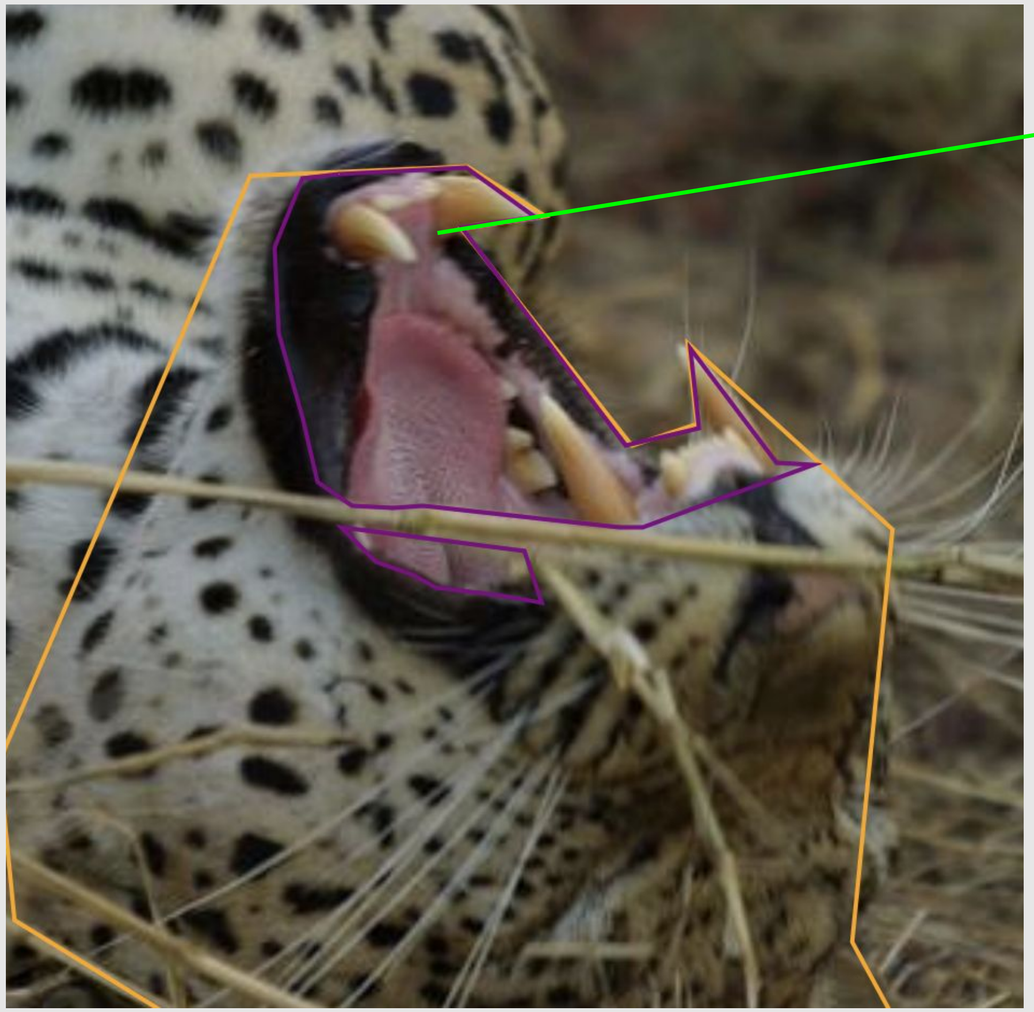
SPIN - Part Taxonomy Examples

Quadruped Head



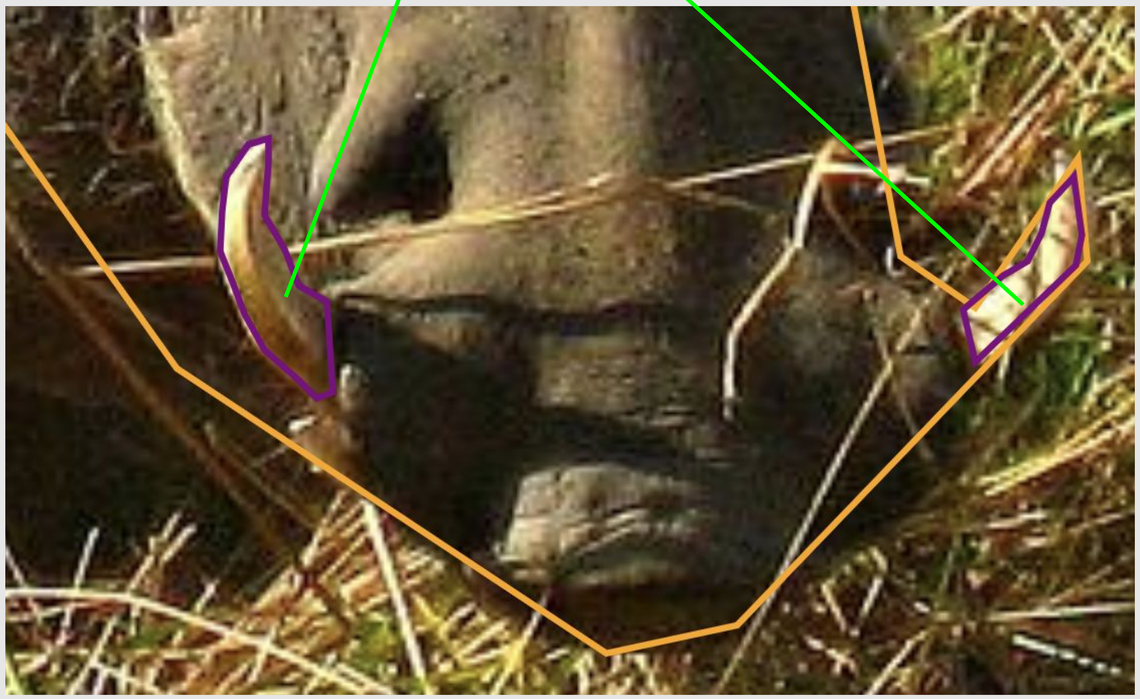


Quadruped Head

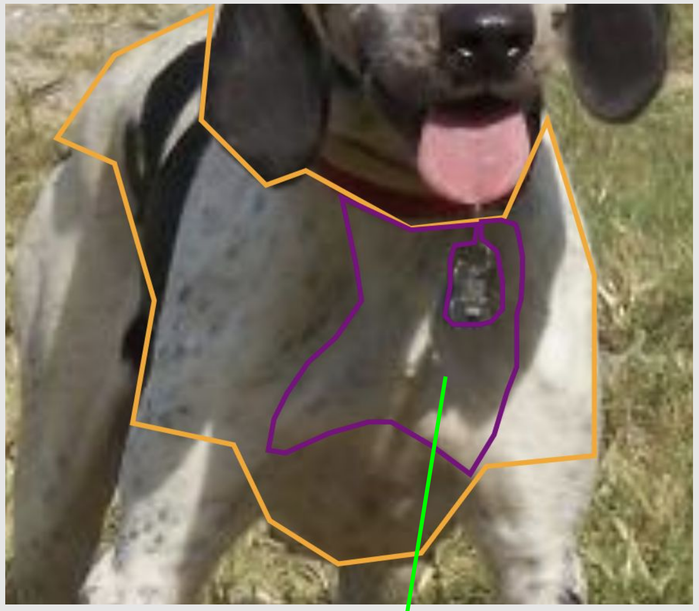


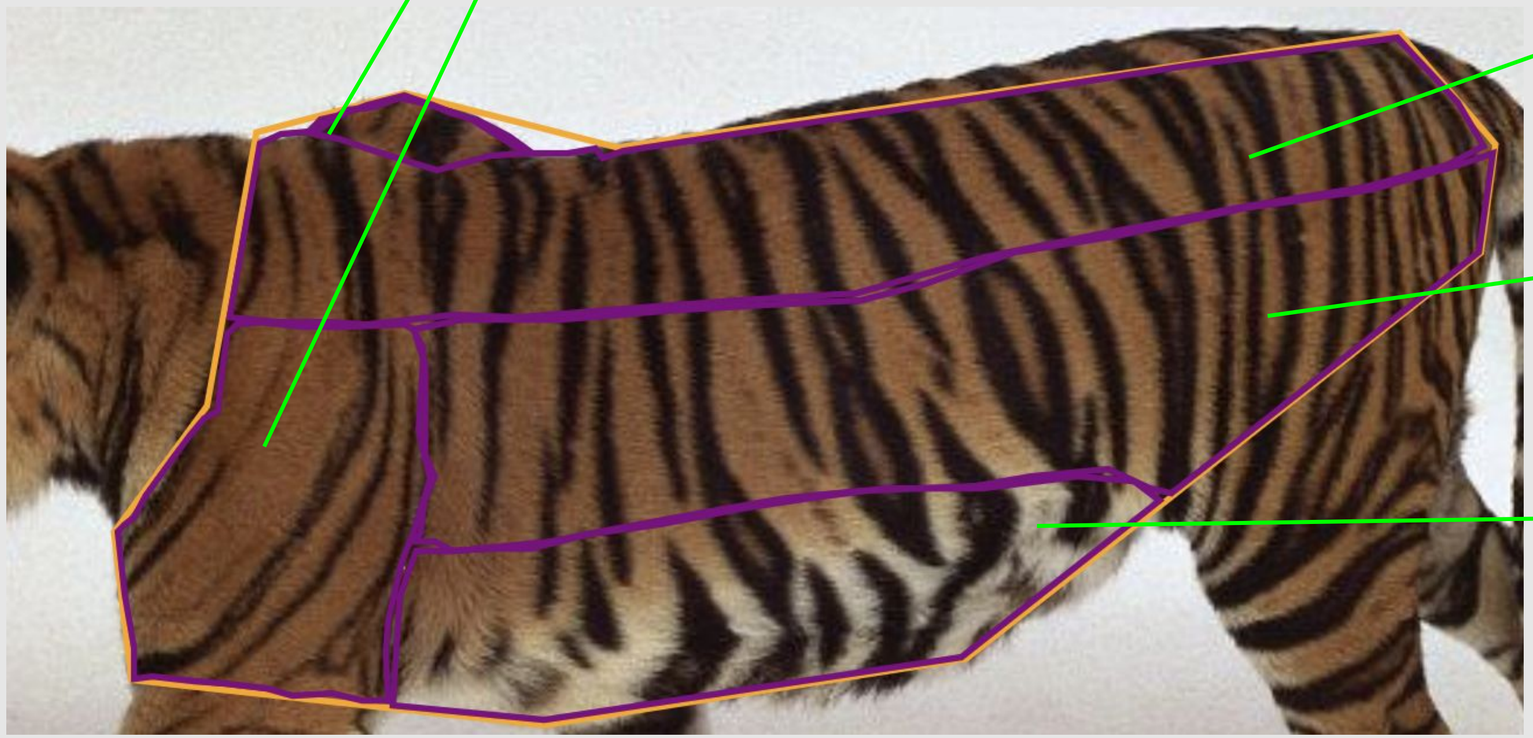
Mouth

Tusk

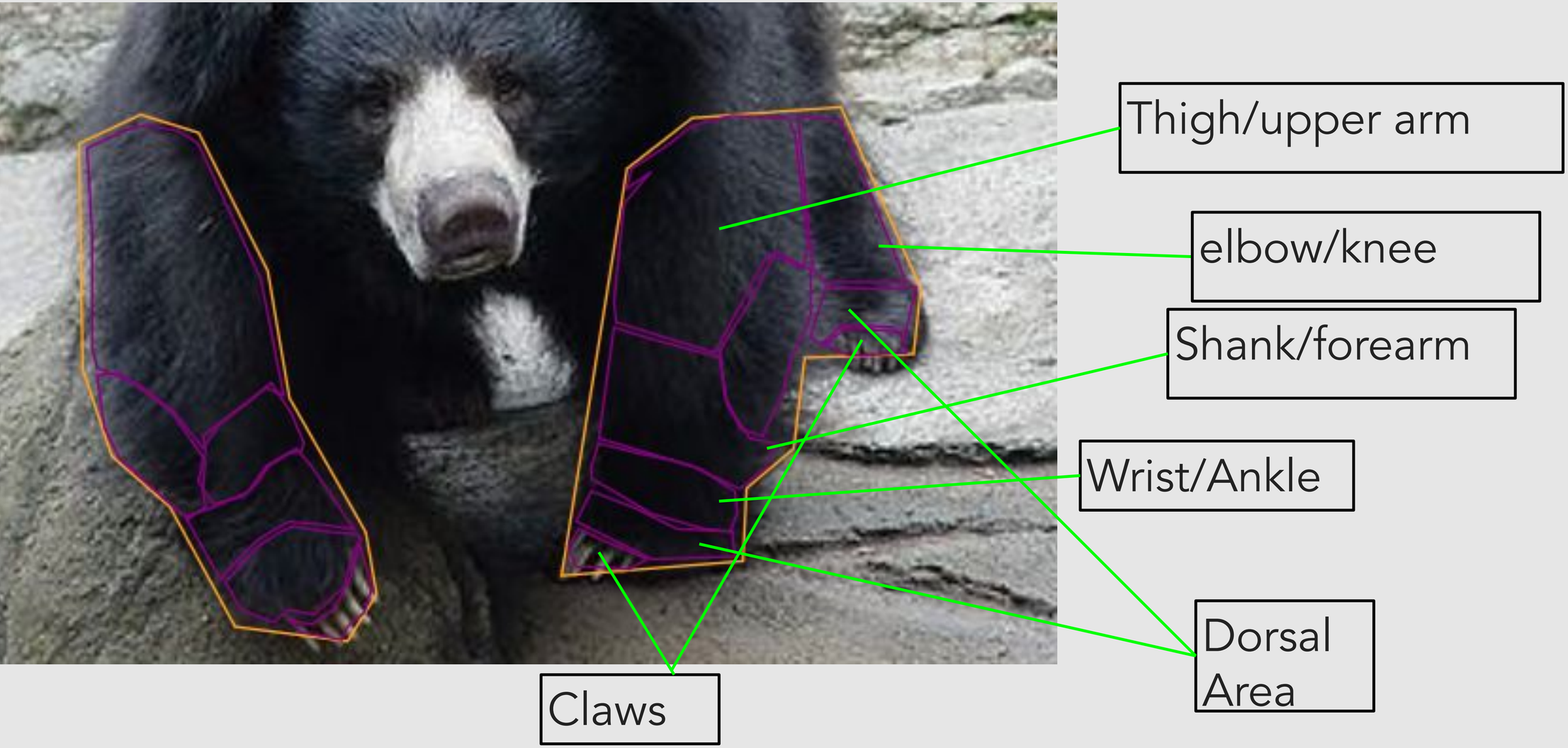


Quadruped Torso

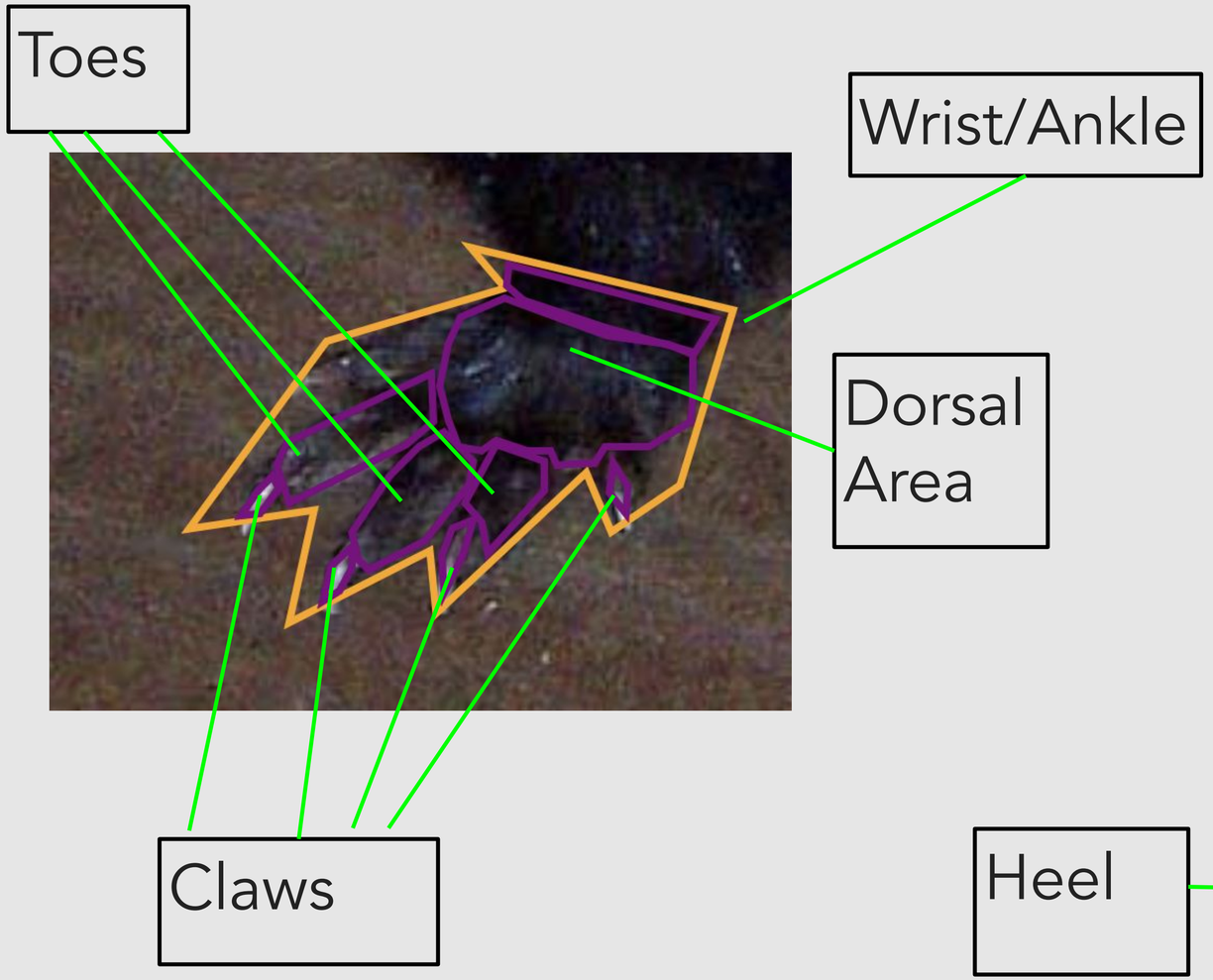


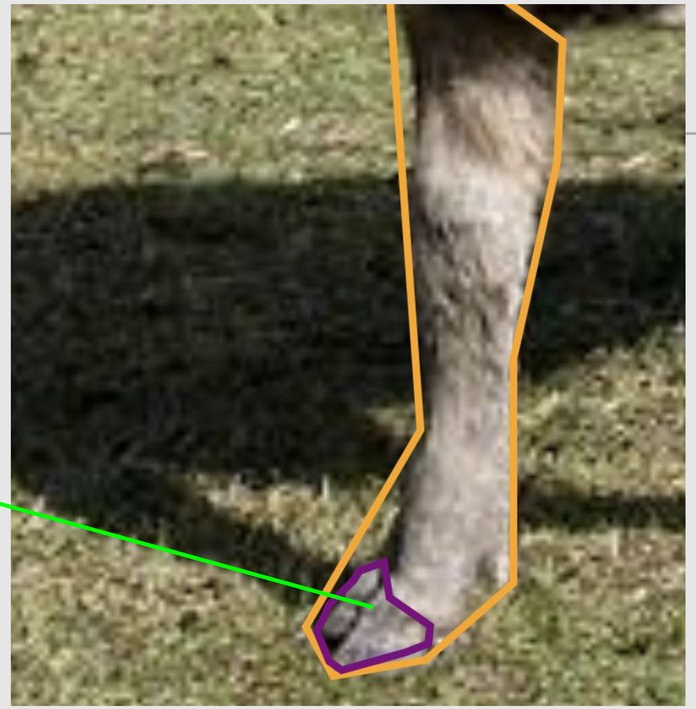


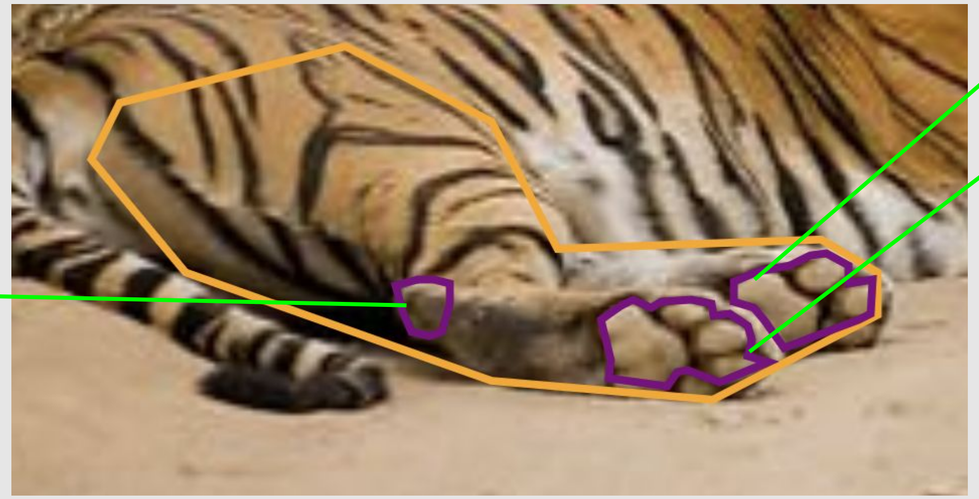
Quadruped Foot (may include leg)



Quadruped Foot (may include leg)







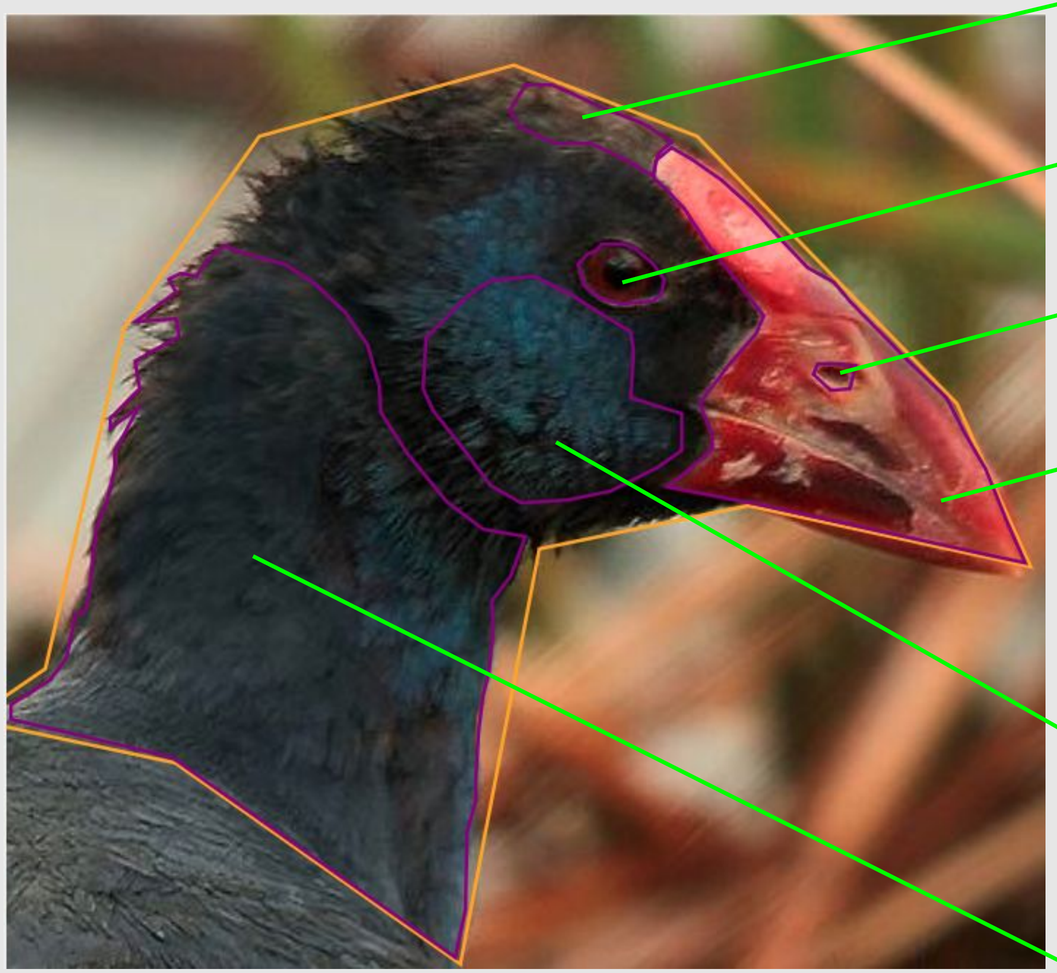
Announcement 2/12/24

- Great job with Birds so far everyone! You all are doing a phenomenal job Here are some great examples from our spot checks pictured below:

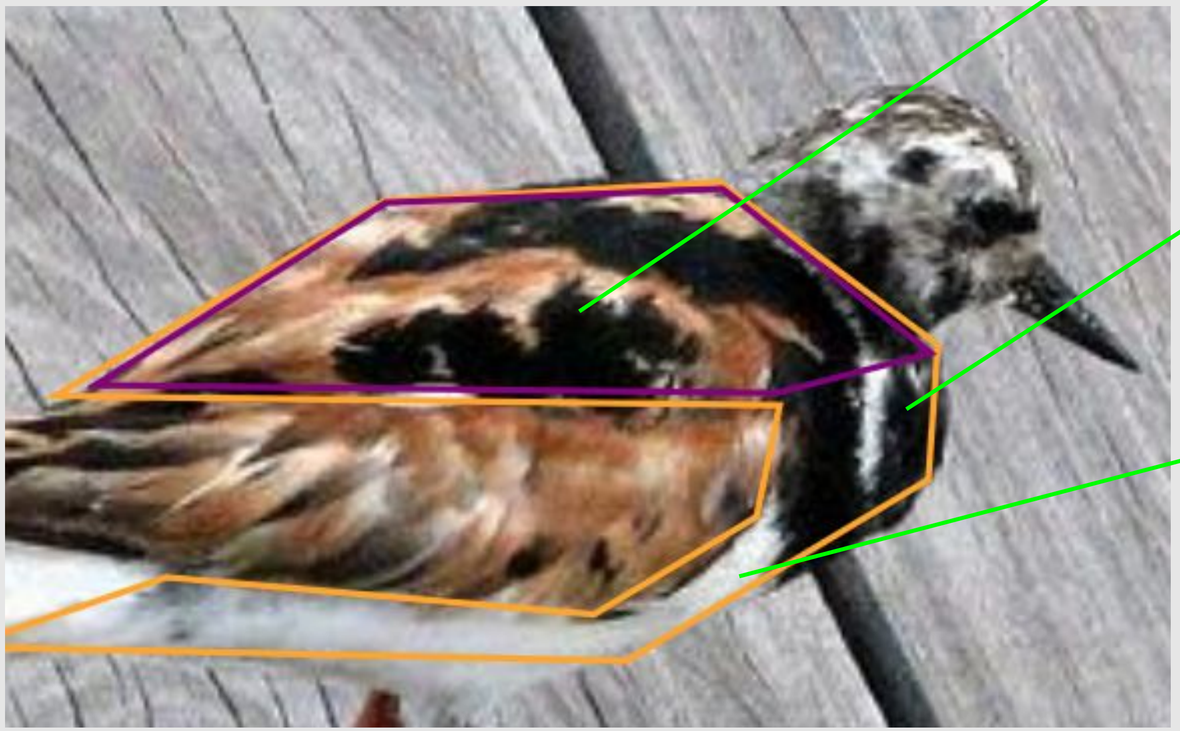
Announcement 2/12/24

- The next phase of the task will consist of completing HITs for the bird object class.
- Please thoroughly review the next three slides for example of how to annotate the bird class and its composite sub-parts. The slides are also linked below:
    - Bird Head
    - Bird Torso
    - Bird Foot
    - Bird Foot Guide
- Please review this link for a description of each subpart.
- The HITs for the bird object class will be deployed as we near completion of the car object class.

Bird Head - Example



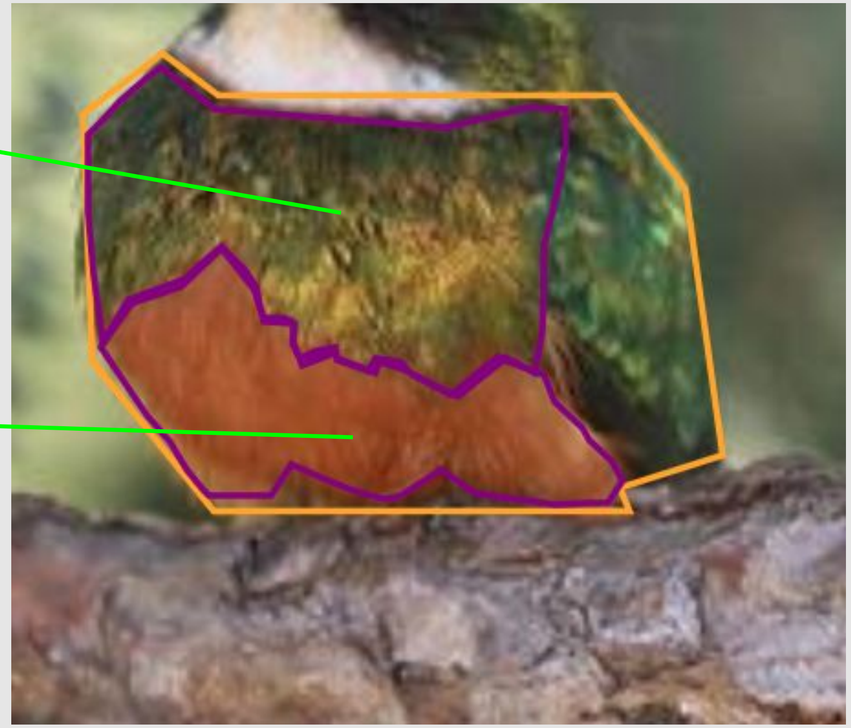
Bird Torso - Example



Back

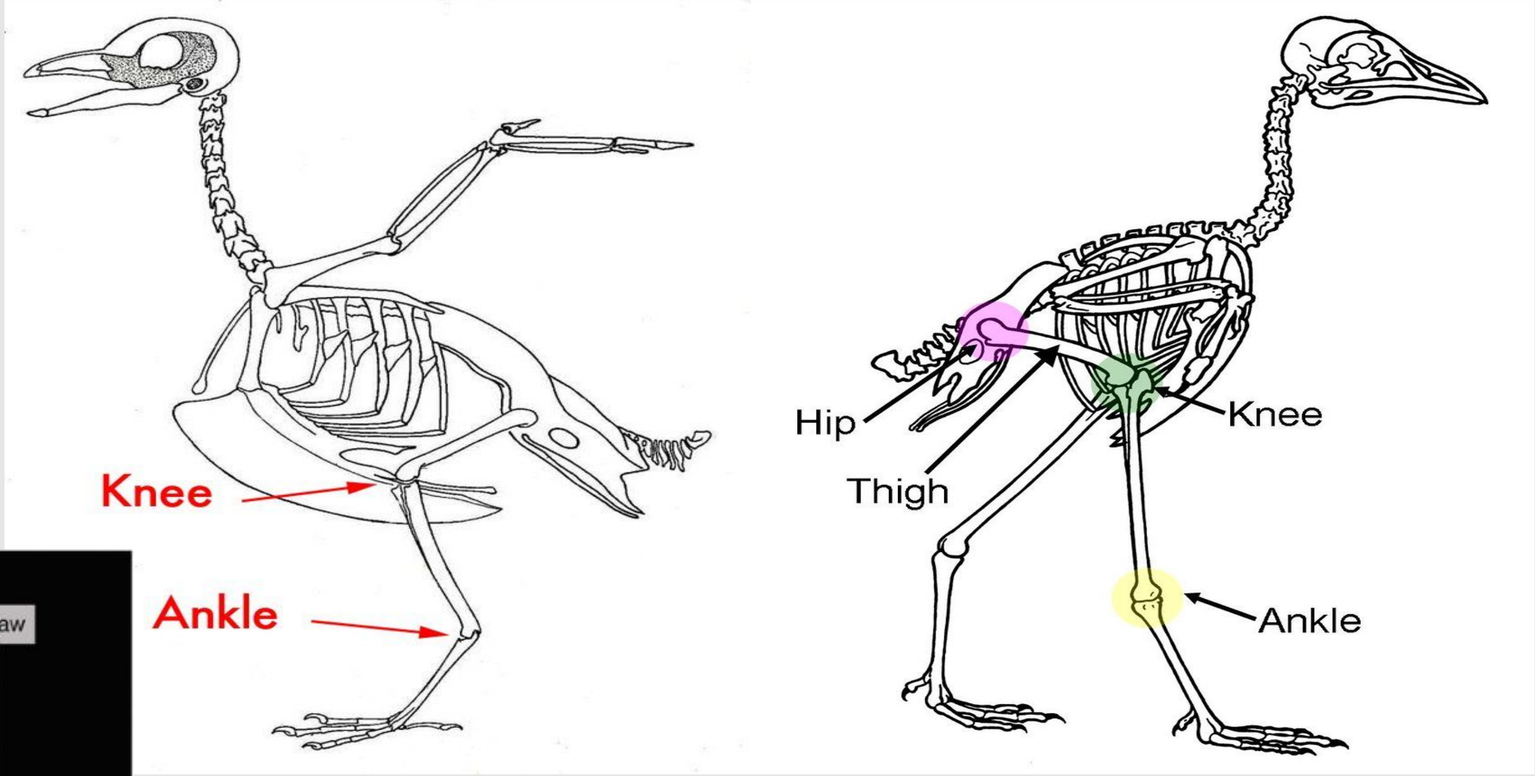
Breast

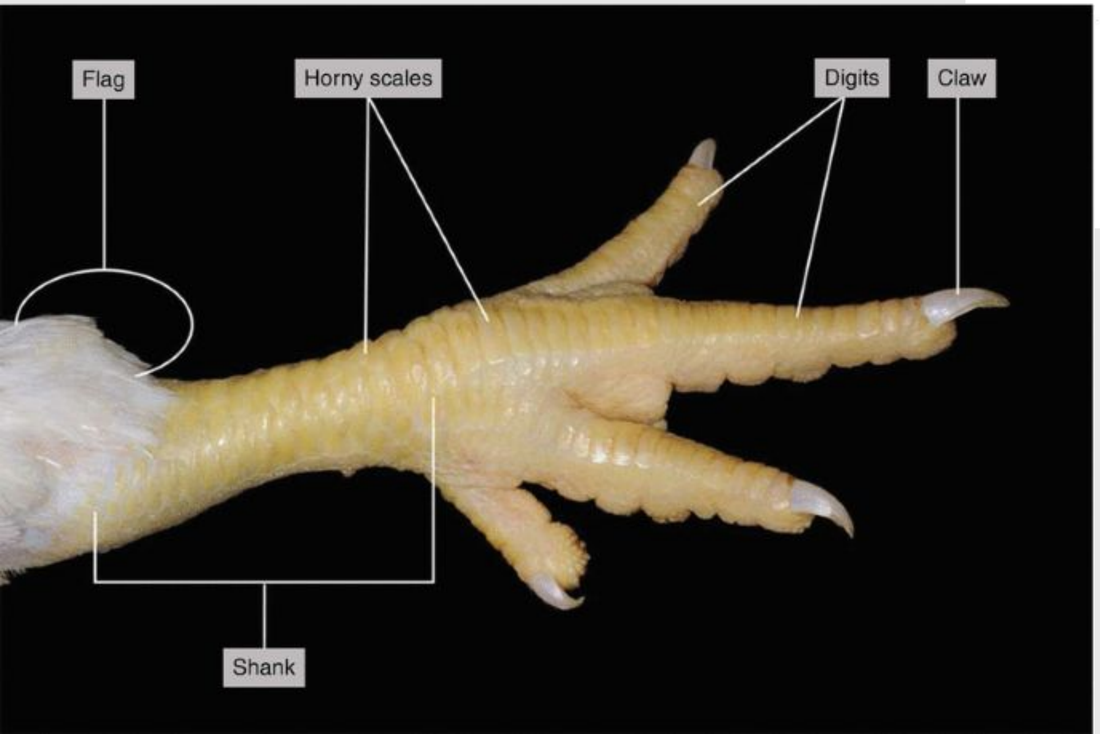
Belly



Bird Foot - Example

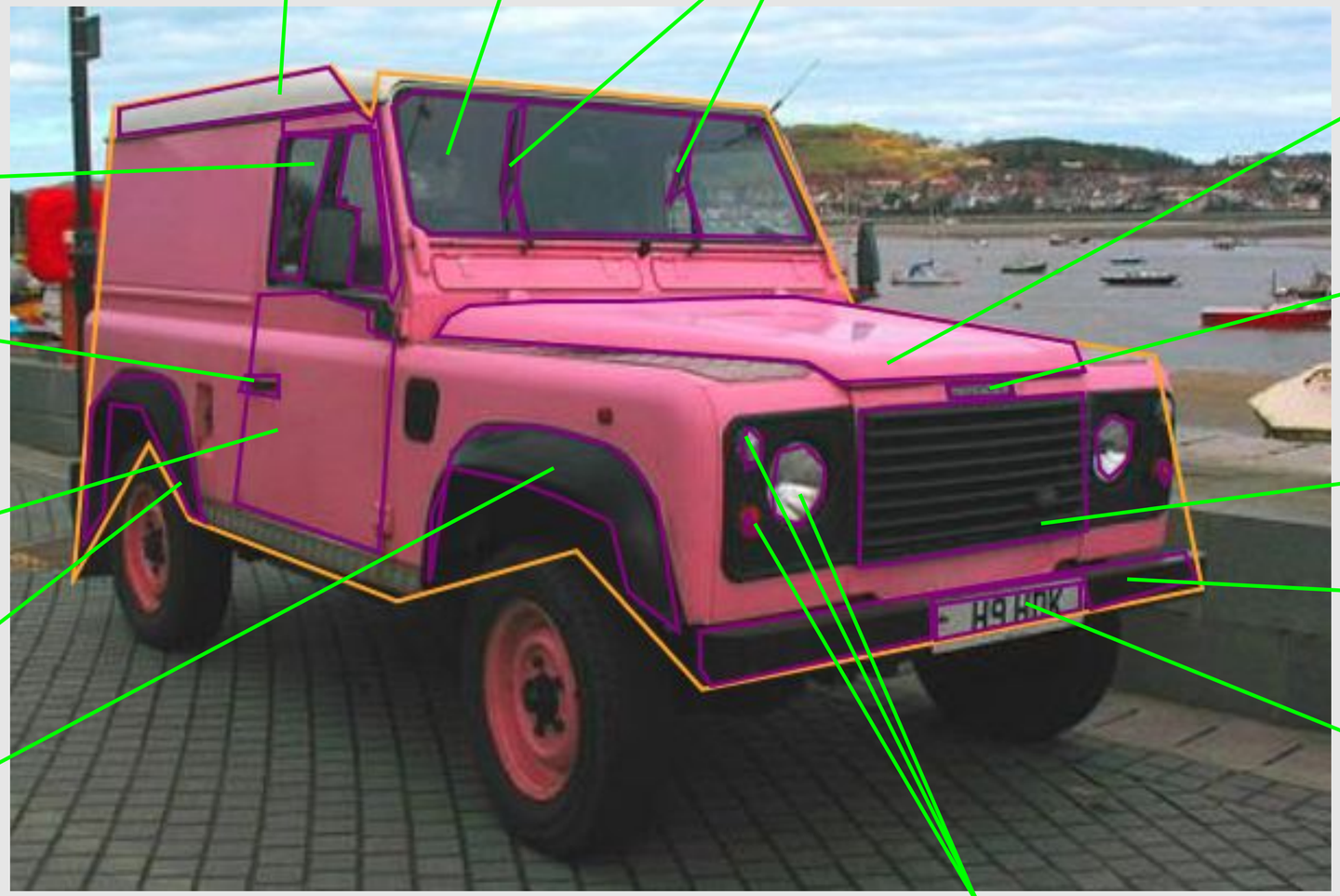
Bird Foot - Guide





SPIN - Part Taxonomy

Car Body



Announcement 2/8/24

- These are looking solid! Will send out feedback later if needed
- Helping with my open house so will try to get everything out by 4pm MST

Please reach out with any questions or concerns at jomy5901@colorado.edu!

Announcement 2/8/24

- Car test set going out!
  - please make sure to thoroughly review the examples
- If you encounter any bugs, please follow these steps:
  - right click -> inspect
  - go to console tab
  - take a screenshot of this and email it to me and jarek
  -

Please reach out with any questions or concerns at jomy5901@colorado.edu!

Announcement 2/7/24

- ~30 bike hits left as of 10:45pm – once these are done then cars will start going out!
- Jarek will be taking over starting friday – feel free to still reach out after that too if needed!

Please reach out with any questions or concerns at jomy5901@colorado.edu!

Look how pretty these are turning out!

Great work!

Announcement 2/6/24

- Remainder of bikes are going out here soon! Great work on this test batch.
- If those are finished (or close to finished) by the morning I will release another test set for birds just as a refresher with the goal of releasing a larger batch mid-day.
- I will intermittently send out some redos, I won't announce these as there aren't too many. First come on these.

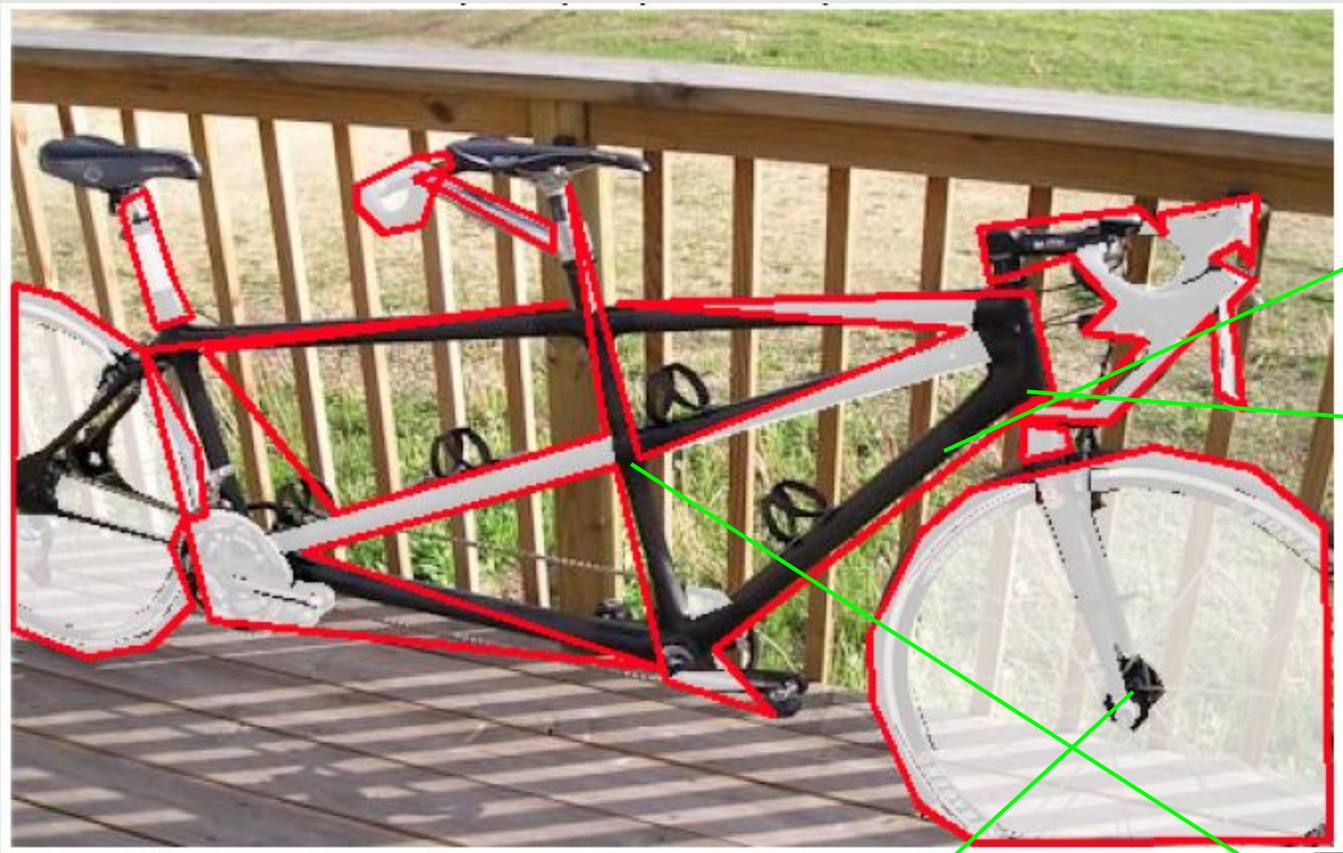
Please reach out with any questions or concerns at jomy5901@colorado.edu!

Announcement 2/6/24

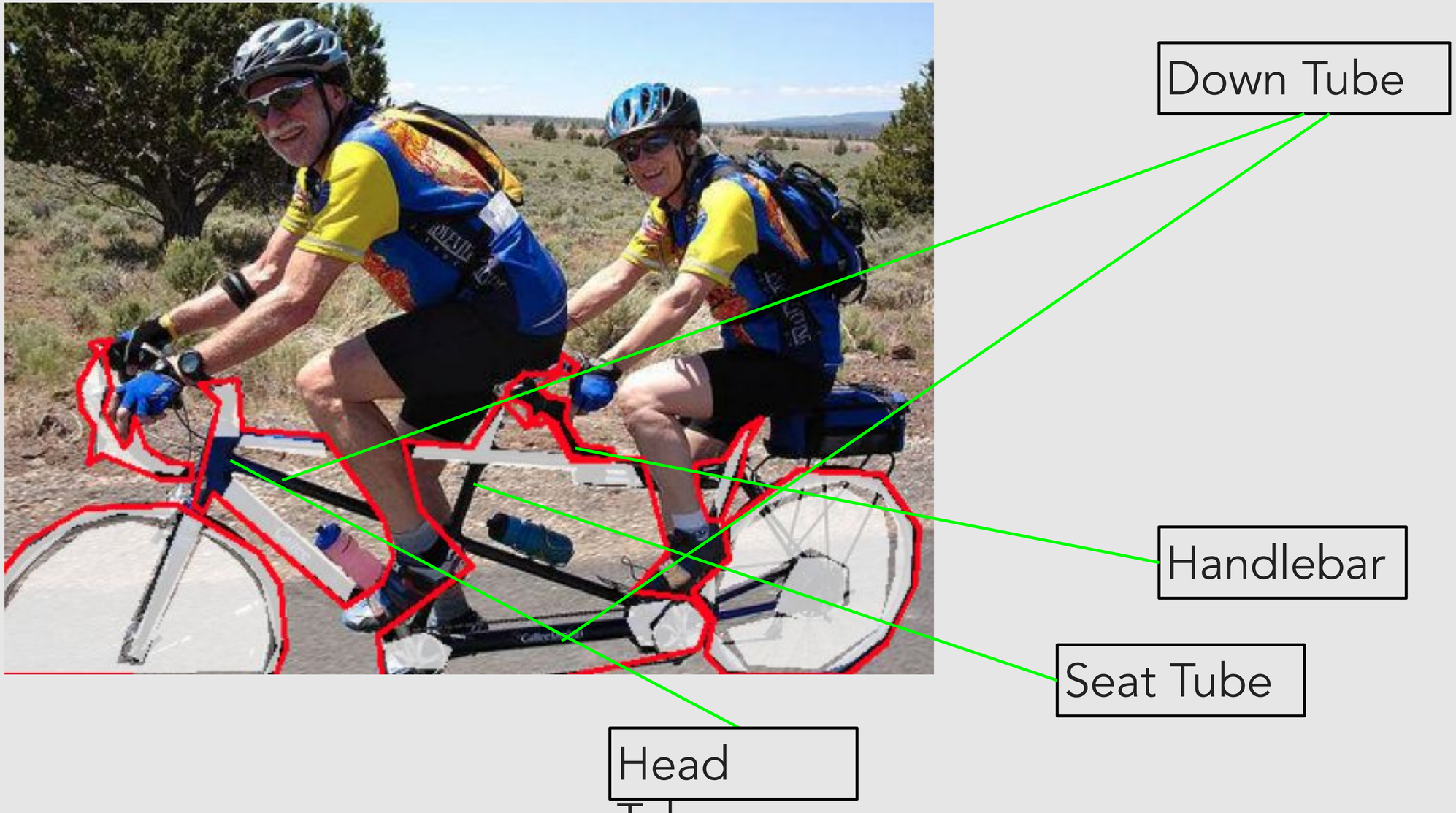
- I will be sending out another test batch of bicycles by 9am MST.
- I am merging tread and sidewall as it is hard to delineate them – I will add more tire examples tomorrow.
- Please make sure you are reviewing examples before starting the task – feel free to ping me with any questions.
- The next slides highlight some missed annotations from the first test batch.

Please make sure to review all examples or email me with any questions – repeated omissions of subparts may lead to a qualification removal for the bicycle task.

Announcement 2/6/24 - Missing Annotations

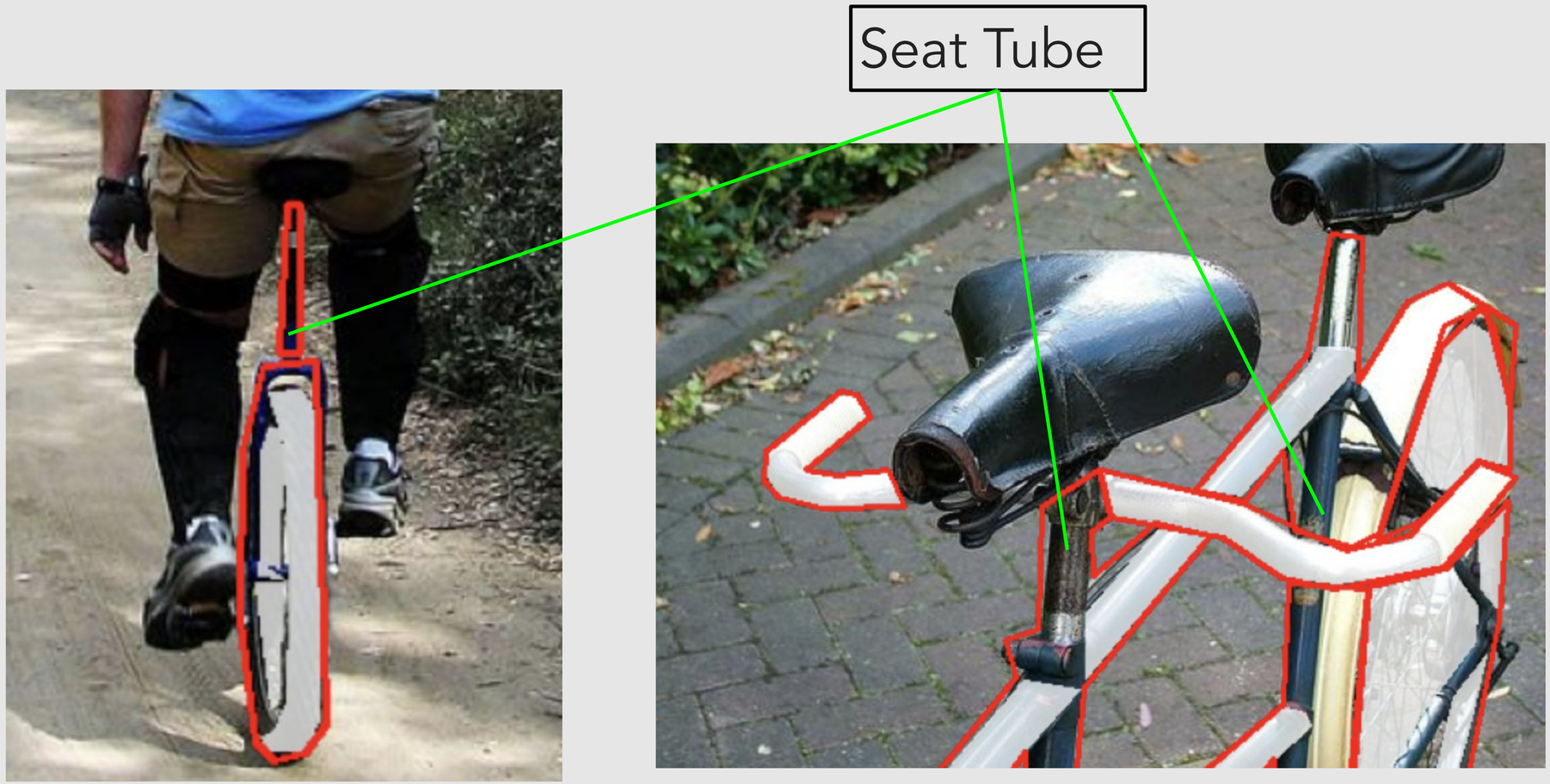


Announcement 2/6/24 - Missing Annotations

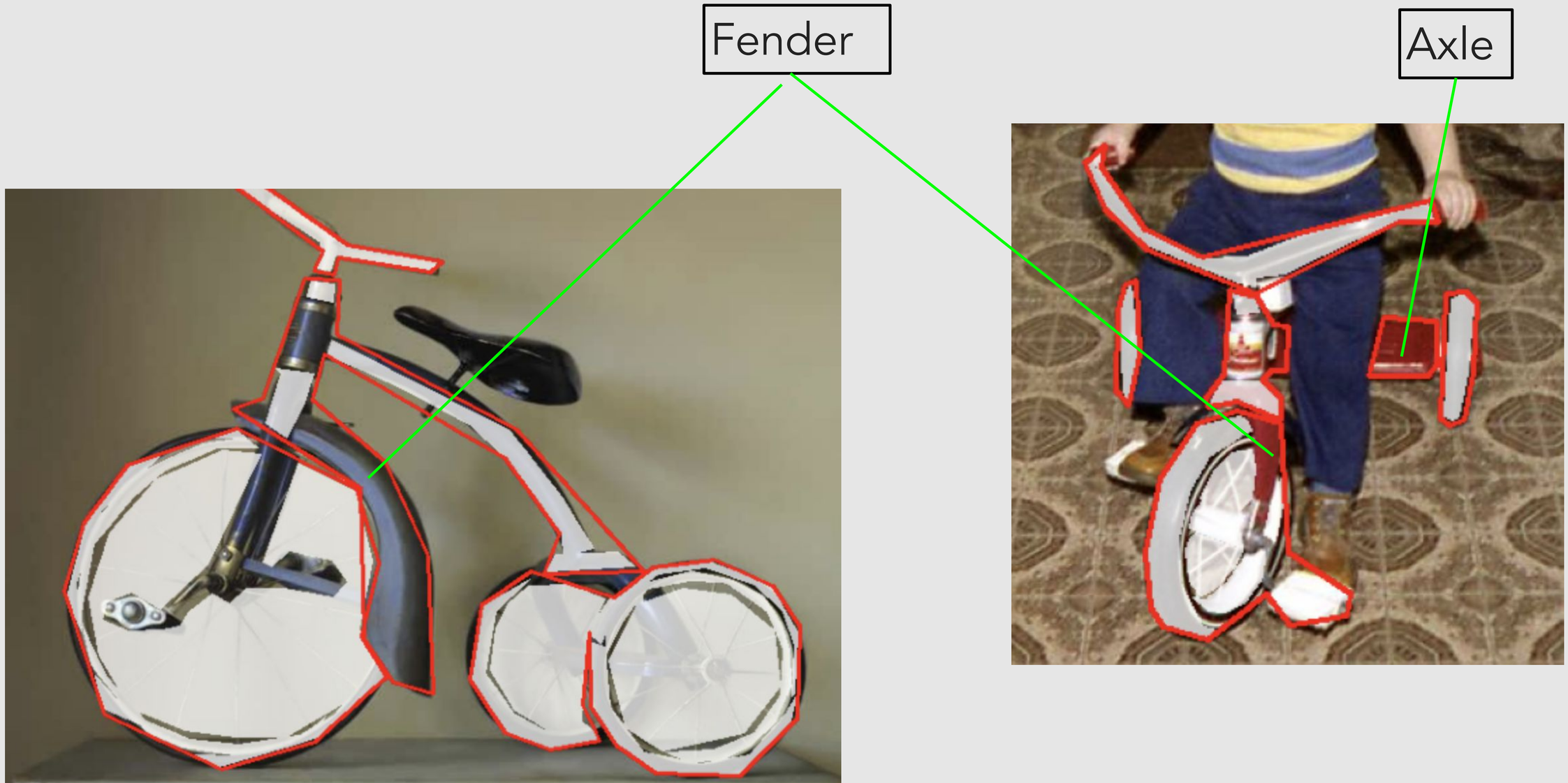


Announcement 2/6/24 - Missing Annotations

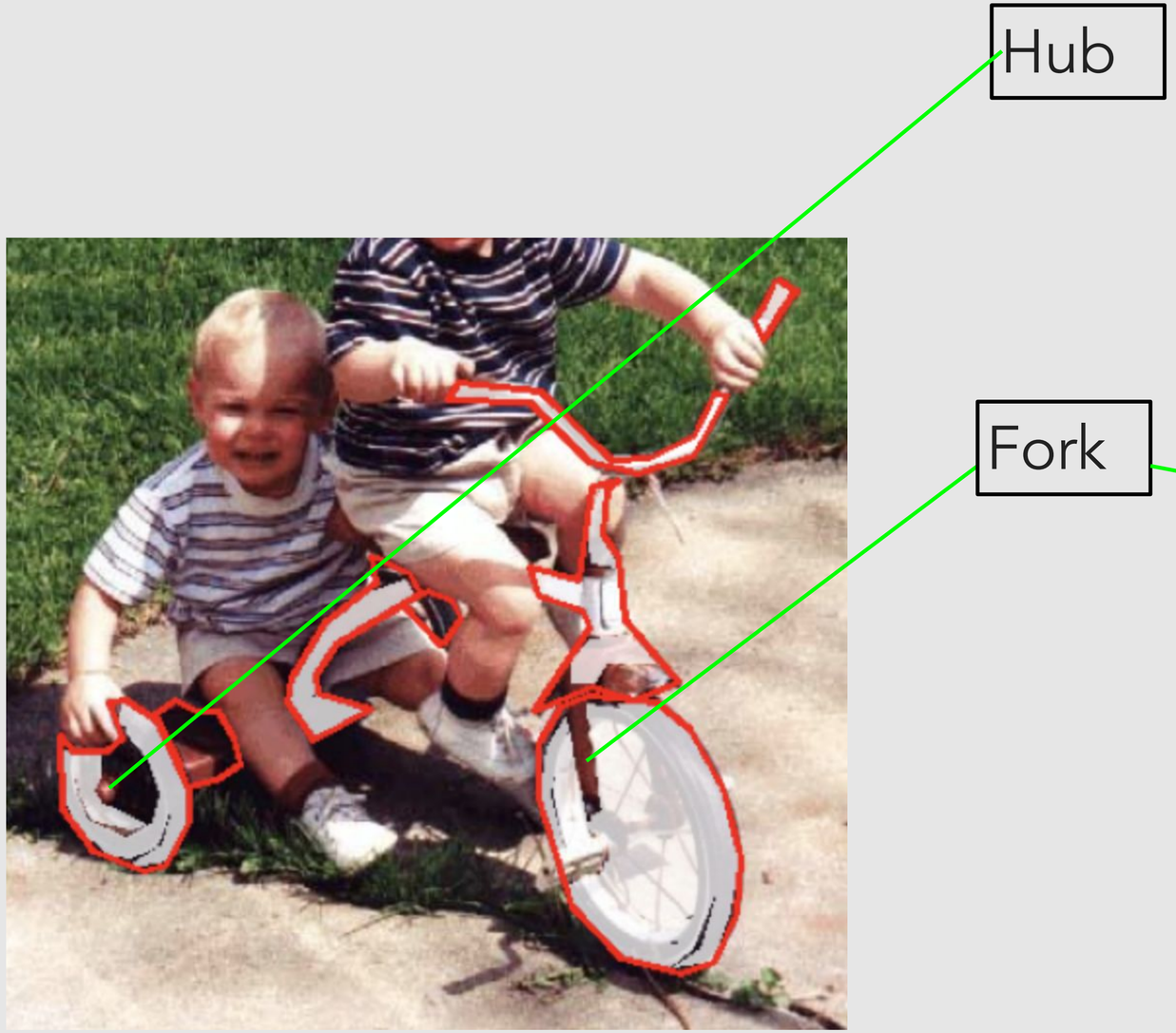
Announcement 2/6/24 - Missing Annotations



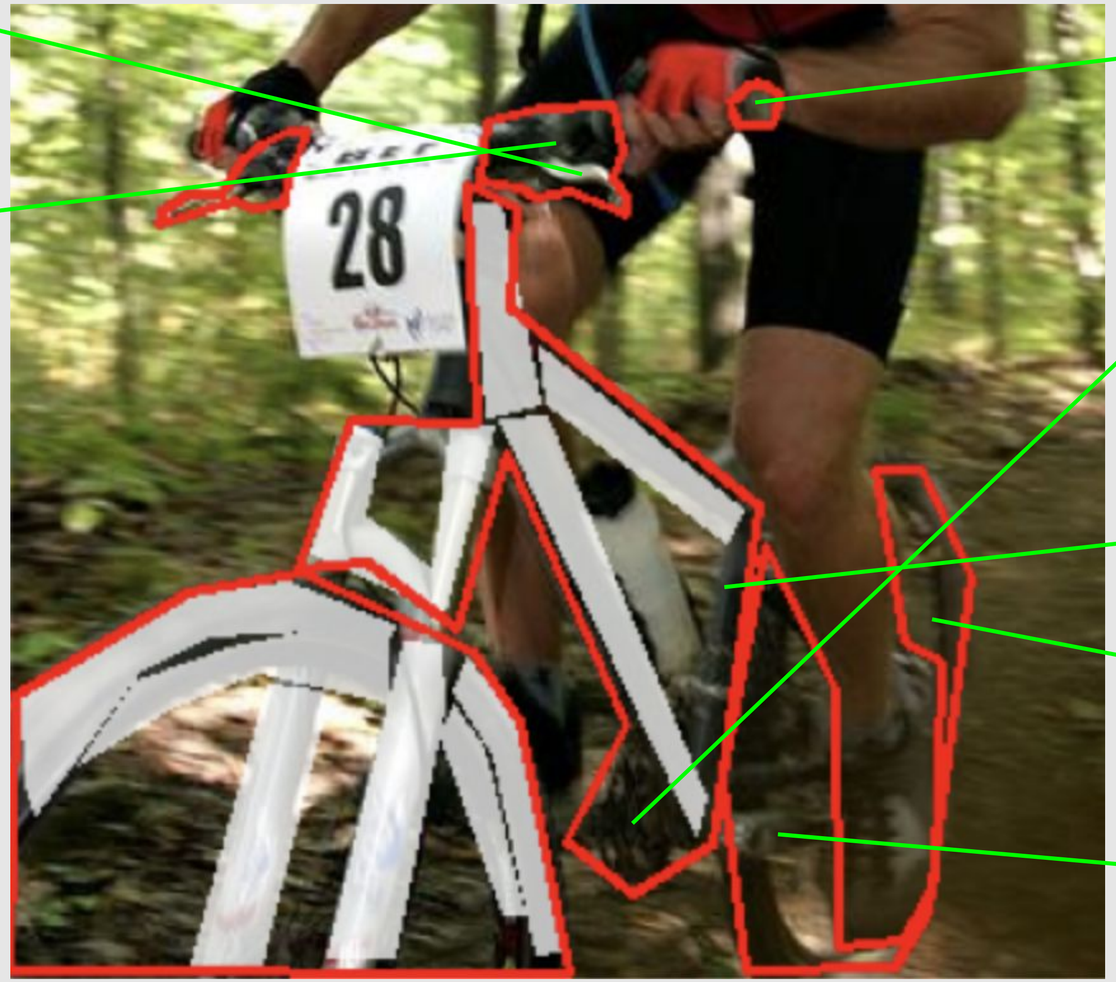
Announcement 2/6/24 - Missing Annotations



Announcement 2/6/24 - Missing Annotations



Announcement 2/6/24 - Missing Annotations



Brake Lever

Handle bar

Grip

Chain ring

Seat tube

Spokes

Crank

Announcement 2/5/24

- Boats are done!
- Bicycle is up next – please look at the examples starting on slide 26 before getting started

Announcement 2/4/24

- Some objects are far away and hard to see even with zoom – do your best to annotate what is visible

Announcement 2/4/24

- After some feedback, I will plan on releasing test batches at night, as it has come to my attention that this is leading to undesired downtime as not all workers are able to grab them.

- I will then try to review them that same night, provide feedback, and release the next larger batch in the morning.

- I'm hoping this allows for a more equitable distribution of work for these larger batches! I will release a boat test batch at 5:30 MST. I apologize for the short notice on this!
- Thank you all for bearing with me as we figure out this schedule!
- As always, please do not hesitate to reach out at jomy5901@colorado.edu.

Announcement 2/4/24

- Test batch looks excellent and y'all were very fast! I will send out the rest of Bottle at 10:45 MST.
- A few clarifying points:
  - for label, let's do anything that has text/imagery (e.g., a barcode) – I have added an example of this below!
- I'll be sending out a couple of plane re-issues over the next 24 hours, there's only 3 of them right now so It'll just be first come-first-served
- Boat test set will go out at 9am MST tomorrow!
- Tentative release schedule: https://docs.google.com/document/d/1Z1MTxhP3SOwQX5-QXXWpVduQljXZAZ7yHVCfYn9D2Yw/edit?usp=sharing
- As always, please do not hesitate to reach out at jomy5901@colorado.edu.

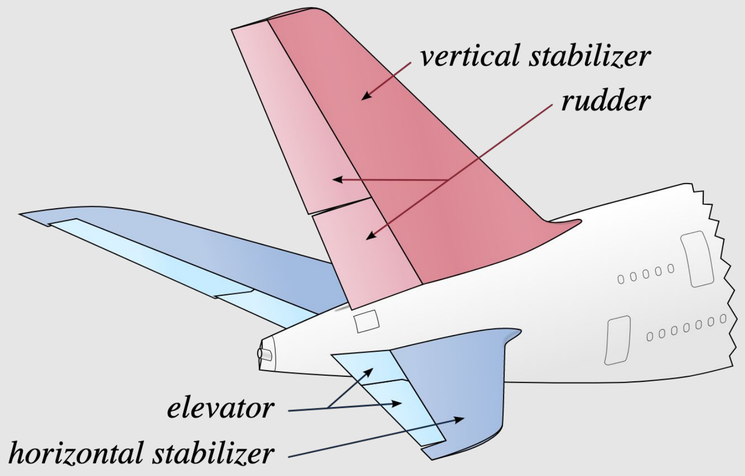
Announcement 2/4/24

- Test batch went out for bottle today!
  - examples are below
- If those look good I will send out the rest of bottle at 4pm MST!
- Quick reminder that now we pay HITs as a function of how many subparts they have to more equitably compensate you for you time.
- If you are unable to put down points, try to press shift or reset the zoom – this was suggested by a worker and worked for them.
- Thank you!

- As always, please do not hesitate to reach out at jomy5901@colorado.edu.

Announcement 2/3/24

- Sending out another test batch today to test for a bug!
- Will go out at 10am MST.
- Please let me kow if you see any bugs.
- If you are unable to click in something, try repressing the y button.
- This is a good diagram of plane tail anatomy:



- As always, please do not hesitate to reach out at jomy5901@colorado.edu.

Announcement 2/2/24

- Thank you for the great work! Annotations are looking solid.
- HITs are now priced based off of the number of subparts they may contain.
- A batch of 50 test aeroplane images will go out tonight with 261 more at 10am MST tomorrow.
- Some part annotations will be missing, this is an artifact of the dataset we are building off of.
- If the annotations for the existing parts are poor, do your best to label the supbart within what is visible.
- As always, please do not hesitate to reach out at jomy5901@colorado.edu.

Announcement 2/2/24

- Thank you for the great work! Annotations are looking solid.
- As a reminder, HITs are now 1 image and are $1/HIT.
- HITs go out today at 11am (a couple minutes earlier). We will be doing birds!
- I will be available on zoom for 30 minutes following (then I have to go to an appt) on: https://cuboulder.zoom.us/j/8107962305
- I've convinced myself that overlapping polygons are okay if needed! e.g., claws and toes, feet and webbing
- As always, please do not hesitate to reach out at jomy5901@colorado.edu.

Announcement 2/1/24

- Thank you for the great feedback! We have heard you that this is a fatiguing task so we will make the HITs 1 image instead of 3. We will be having these as $1/HIT.
- I will release a batch of 100 HITs tomorrow (2/2) at 11am MST.
  - If these go smoothly I will release a batch of 1-2000 each day until we are done with a category!
- I will send out individual feedback (if needed) and back pay later today once the batch is complete.
- I will be sending out Birds next as they have fewer subparts than Quadrupeds but similar complexity.
- As always, please do not hesitate to reach out at jomy5901@colorado.edu.

Announcement 1/31/24

- First batch of 55 has gone out!
- For the small batches we are mostly looking for bugs so there will be a limited amount (first-come-first-served). There are 20 workers so they may go fast initially but as we roll out more, there will be many more. Once we are confident in quality/bugs we will deploy 500 at a time.
- We will be increasing the HIT rate to $2.50, unfortunately we will not be able to go higher than this as we are a small university lab with limited funding.
- We will be annotating 11 object categories in total, this first one has more subparts than most of the others so it may take longer (especially as you get used to the task).
- As always, please do not hesitate to reach out at jomy5901@colorado.edu.

Motivation for collecting subpart data

- We aim to build an intelligent system that can decompose an object into its constituent parts and subparts. This work is motivated to meet the interests of people with vision impairments.

- We ask you to carefully review the steps and examples provided. If you have any questions email me at jomy5901@colorado.edu

- Additionally, I will hold office hours over zoom to answer any questions. I will announce the timing of these office hours when the HITs are deployed.

Introduction

- First, thank you for participating in our effort! This would not be possible without talented annotators like yourself.

- Our goal is to build a dataset consisting of subpart segmentations.

- A subpart is a part of an object part. Examples include mouths, eyes, hoods, lights, handlebars, rims, ears, etc. -> A subpart is a part of an object part. Examples include mouths and eyes which are parts of a head which are, in turn, parts of a body (the object).

- We will release tasks in phases. Each task will ask you to label subparts present in a category (e.g., Quadruped).

Background

- We will be extending another dataset (PartImageNet) to create our dataset. PartImageNet is a part segmentation dataset and we aim to segment it to the subpart level.

- For each part of an object, we will ask you to draw a polygon around a certain subpart, if it is present.

- The part segmentations may be imperfect, but we ask that you stay within the given polygon when annotating the subparts. Our interface does not permit going outside of the polygon boundaries.

The Interface - Overview

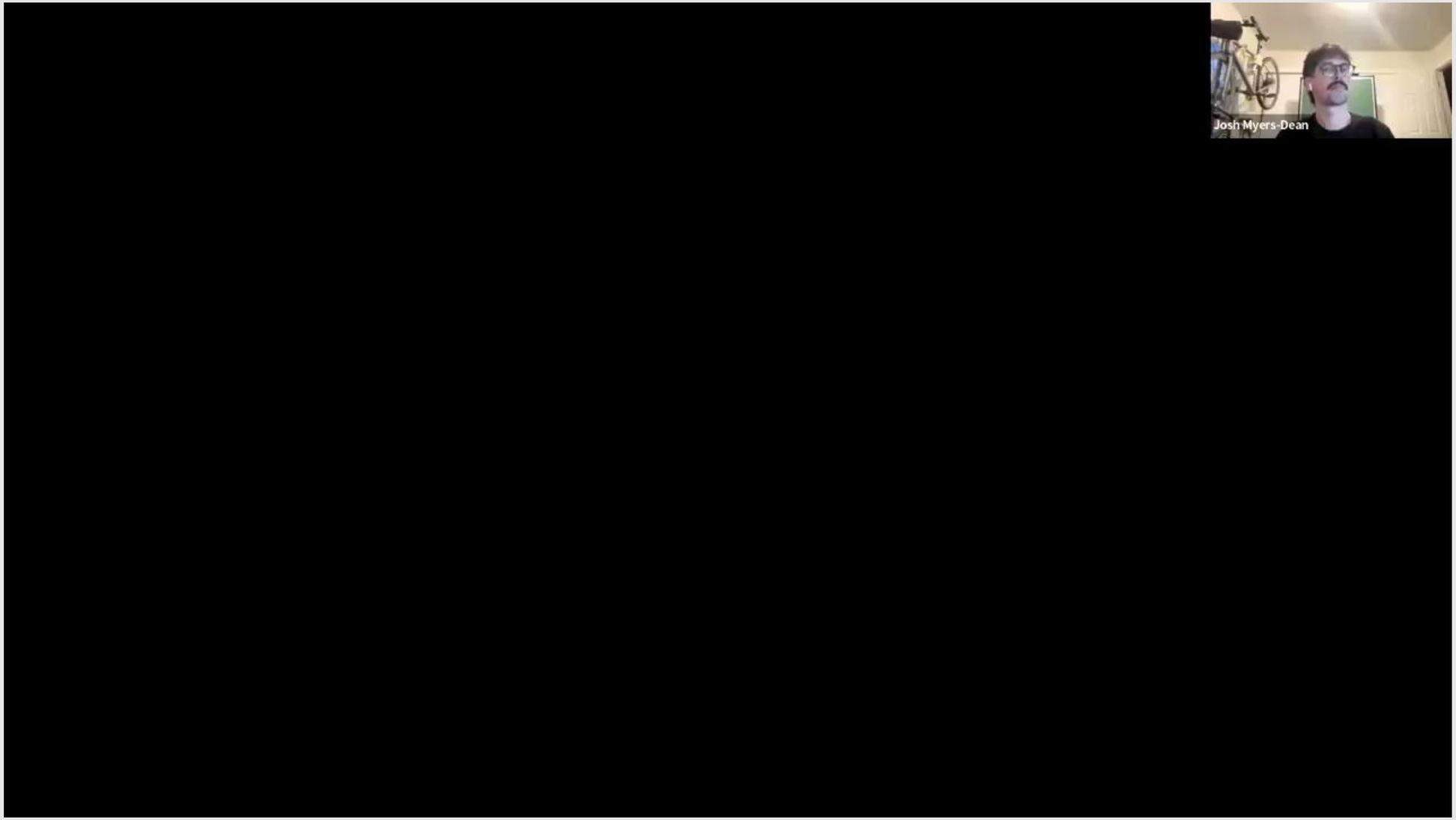
- Similar to the previous task the interface consists of three images in a tabbed container.

- Each series of three images will consist of the same object, and you will be asked to locate each ‘part’ of the object and the subparts of the part for each of three images.

- The part should already be enclosed in an orange polygon. However, we provide a “no” option to account for the possibility of technical glitches.

- Once you locate the part, you will then cycle through questions asking if a specific subpart is visible. If yes, then the interface will be unlocked and you will be able to trace the subpart.

The Interface - Demo

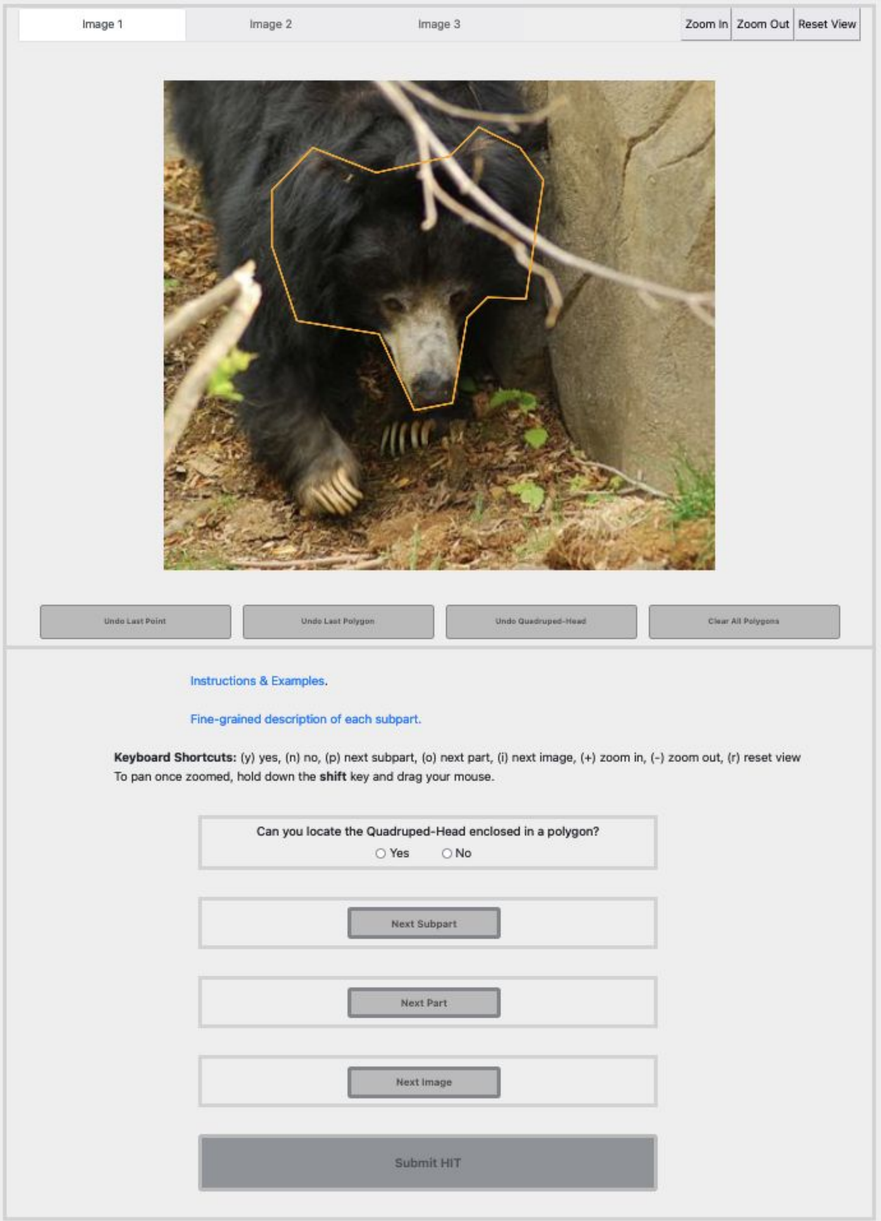


The Interface - Undo Buttons

- You have four buttons available for an 'Undo' operation.
- *Undo Point* - Undoes the most recent point.
- *Undo Last Polygon* - Undoes the most recent polygon.
- *Undo Current Subpart* - Undoes all polygons for the current subpart. 'Fish-Head' is the object pictured in the example.
- *Clear All Polygons* - Clears all polygons and resets the canvas, this is equivalent to starting over from the beginning.

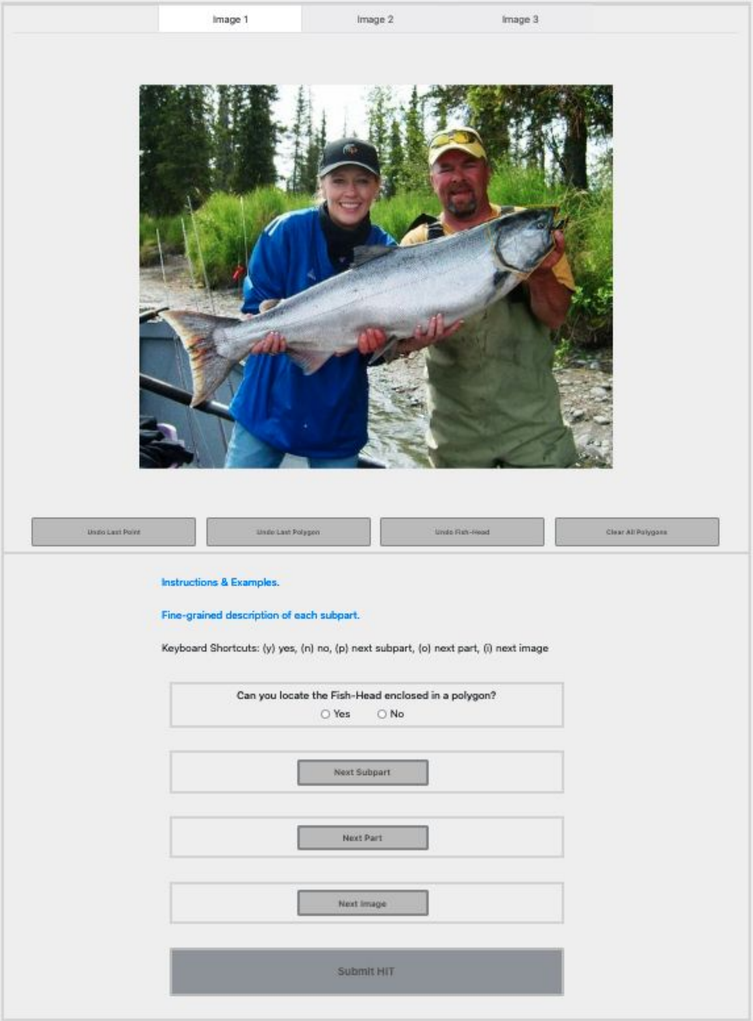
The Interface - Questions

- You will first be asked if you can locate the part. If ‘Yes’ then you will proceed to subparts. If ‘No’ you will proceed to the next part. You should rarely (if ever) have to say no on this step.



The Interface - Questions

- After tracing the part you will be asked if you can locate a ‘subpart.’ If yes, then you will trace the part. If no, then you will proceed to the next part. Not every part will have every subpart.



- You will repeat these steps for all parts and associated subparts. Once the visible object and all of its visible subparts are located and traced, you will proceed to the next image. After tracing for all three images you will be asked to Submit the HIT.

The Interface - Navigation

- You have three buttons to navigate the interface
- <u>next subpart:</u> navigate to the next subpart in the set after annotating the current subpart. Becomes available if “no” is selected or after annotation is finished.
- <u>next part:</u> go to the next part in the image. requires all subparts to be annotated
- <u>next image:</u> head to next image in tab group, requires all parts to be annotated

The Interface - Keyboard Shortcuts

Keyboard Shortcuts: (y) yes, (n) no, (p) next subpart, (o) next part, (i) next image

- You have five shortcuts available. We do not provide shortcuts for undoing as we do not want those to accidentally get pressed and for you to lose valuable work.
- y: select the “yes” radio button
- n: select the “no” radio button
- p: head to the next subpart in set
- o: head to next part in image, requires all subparts to be annotated
- i: head to next image in tab group, requires all parts to be annotated
- +: zoom in on the image
- -: zoom out of the canvas
- r: reset the image to original view

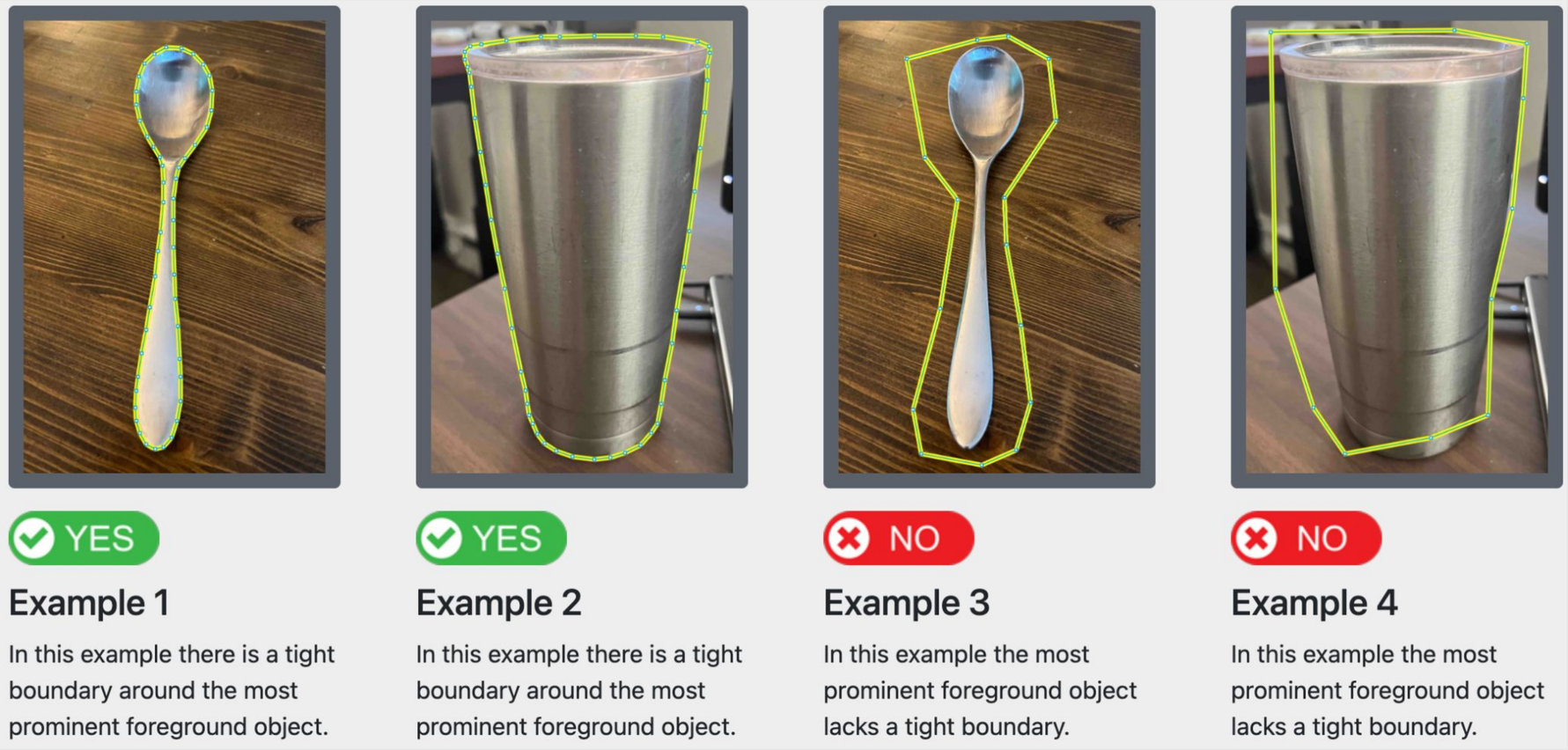
The Interface - Tracing Subparts

- Use as many polygons as necessary to fully trace each object and each of the object's parts. Please be as precise as possible.
- For example, a head could have more than one 'Eye' on it as a subpart. In this case use a single polygon to demarcate each eye on the head.

- To trace an object or object part simply click around the edges until you form a polygon. To close the polygon hover the mouse over your first point. Clicking when the polygon turns 'purple' closes the polygon. You cannot move on until the polygon is purple.
- If you started a polygon and decided it doesn't belong, simply hit "undo last polygon"

The Interface - Tracing - Complex Geometry

Traced objects shown for simplicity but in reality these will be subparts



- Some subparts will have more complex geometry than others. Do your best to keep the boundaries around the subpart as tight as possible.

The Interface - Tracing - Zooming (Highly recommended)

- We enable zooming in (+) and out (-) and panning through the object to get more accurate segmentations for subparts.
- To pan, simply hold shift and drag your mouse over the image.

Original View

Zoom + Start of Poly

Zoom + Completed Poly

Subpart Categories

- Please carefully review the next series of slides.
- We provide a document with descriptions of each category. We welcome your feedback as well.
- Each slide features an example of a part and examples of some of its parts that you will be asked to trace during the crowdsourcing task.
- If you are unsure of what a specific subpart may look like, either use google images, refer to this document, or shoot us an email.
- Please annotate the locatable and discernible subparts to the best of your ability. We truly appreciate your time and help; advances in our field would not be possible without your contributions.

Examples

- The next set of slides contain examples of the categories we're wanting you to annotate

Examples – Car

- Link to document describing each subpart
- Next we provide examples of subparts for
  - Car Body
  - Car Tire
  - Car Side Mirror

SPIN - Part Taxonomy

Car Body

Decal

Windshield

Window

Window

Lights

Decal

Grille

Bumper

Bumper

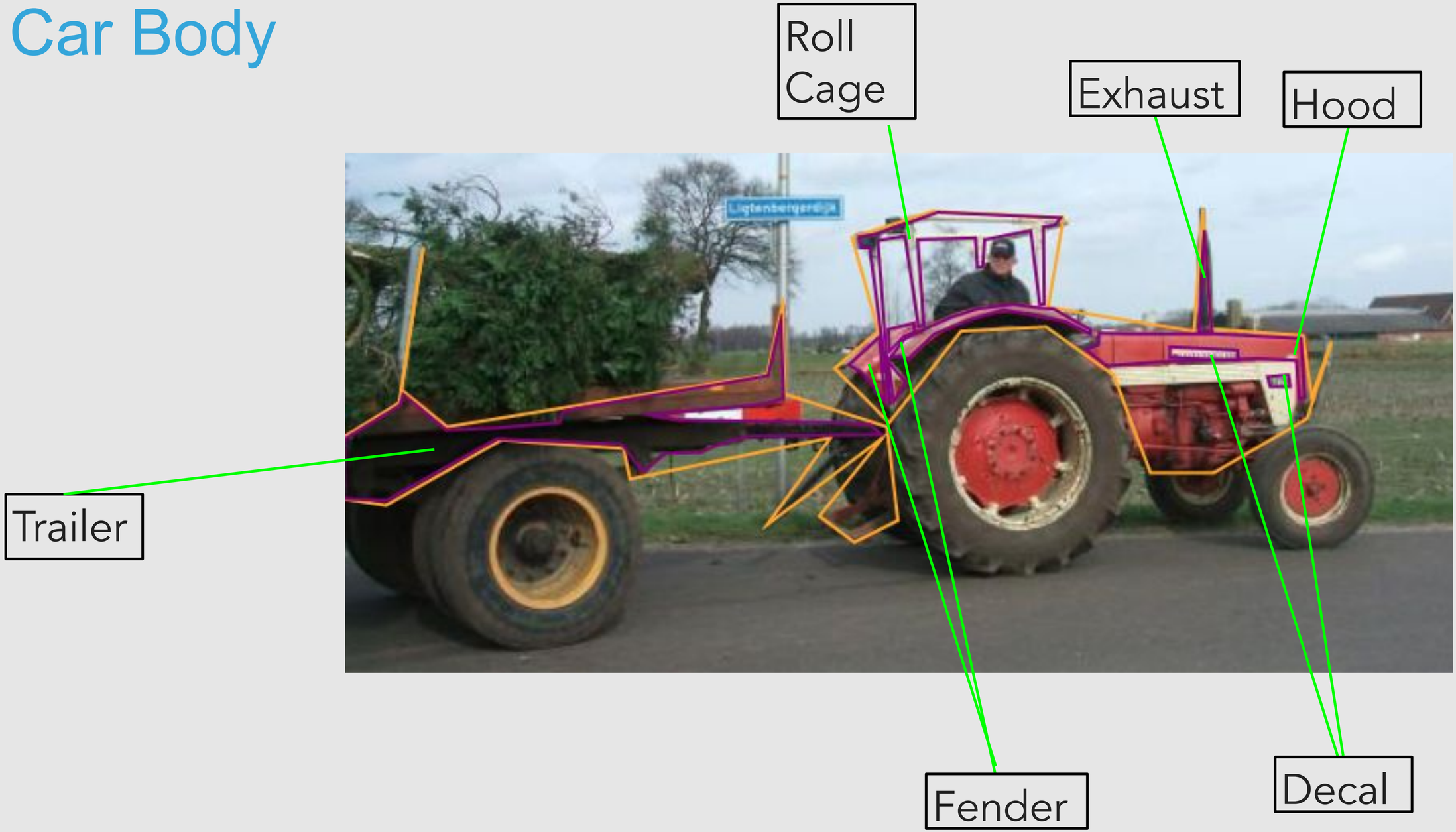
Door Handle

Seat

Door

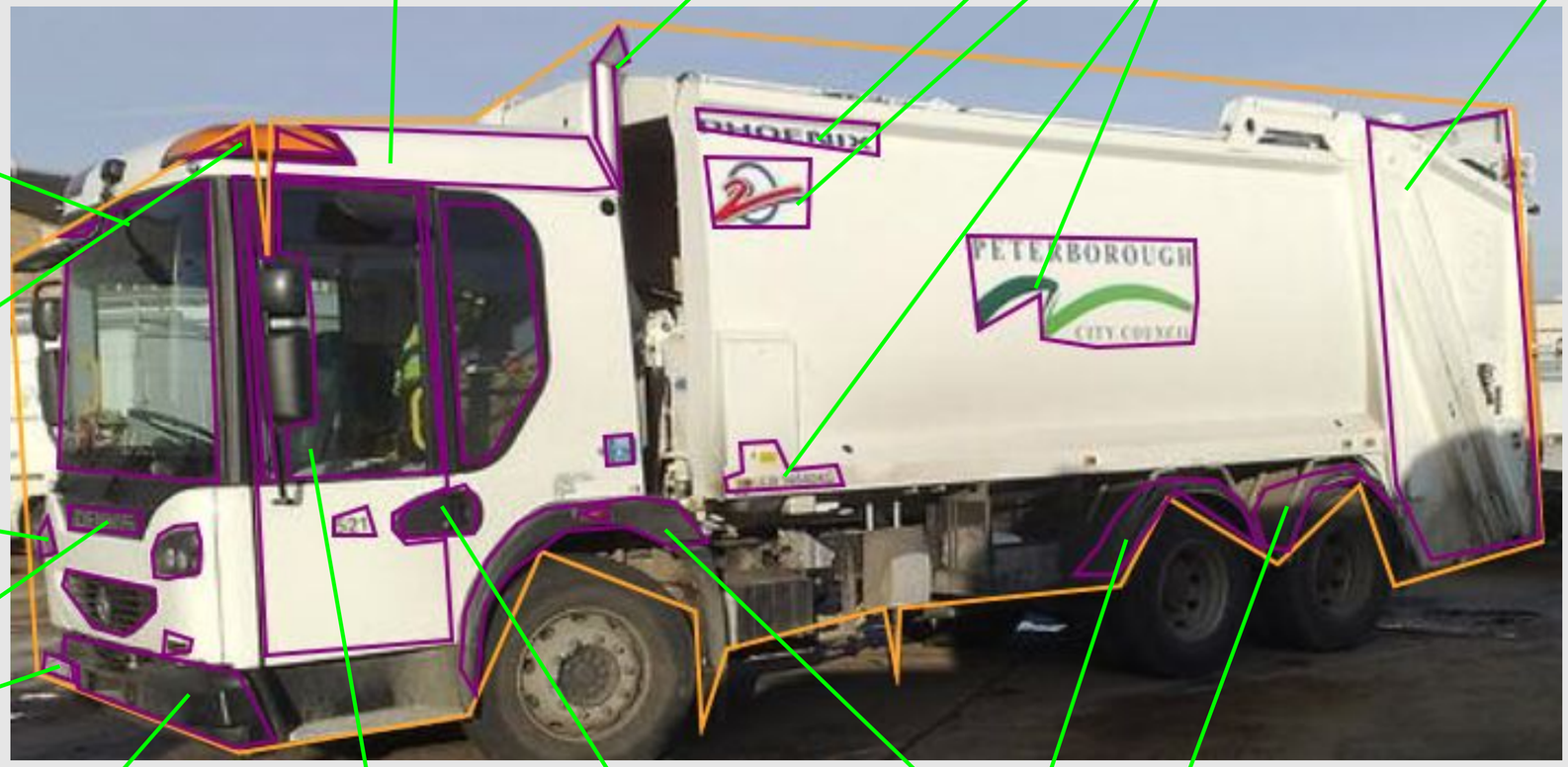
Decal

Car Body



SPIN - Part Taxonomy

Car Body



Roof
Exhaust
Decal
Hopper
Windshield
Light
Grille
License Plate
Bumper
Window
Door Handle
Fender

Car Body

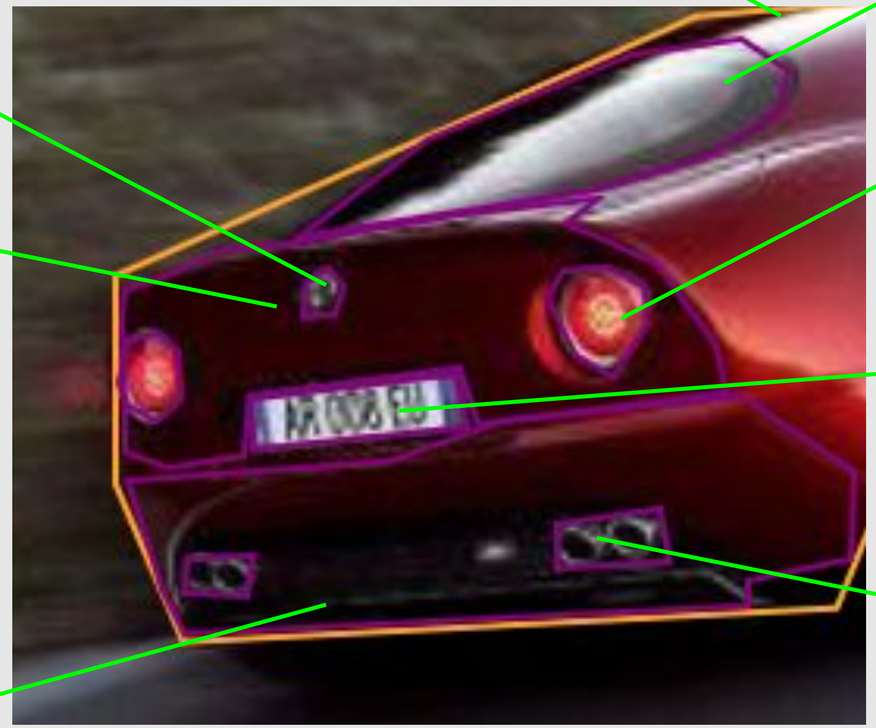
Light
Decal
Ladder
Window
Light
Light
License Plate
Spare Tire
Citation
KAMLOOPS, B.C.
Jubilee
RV CENTRE

SPIN - Part Taxonomy

Car Body

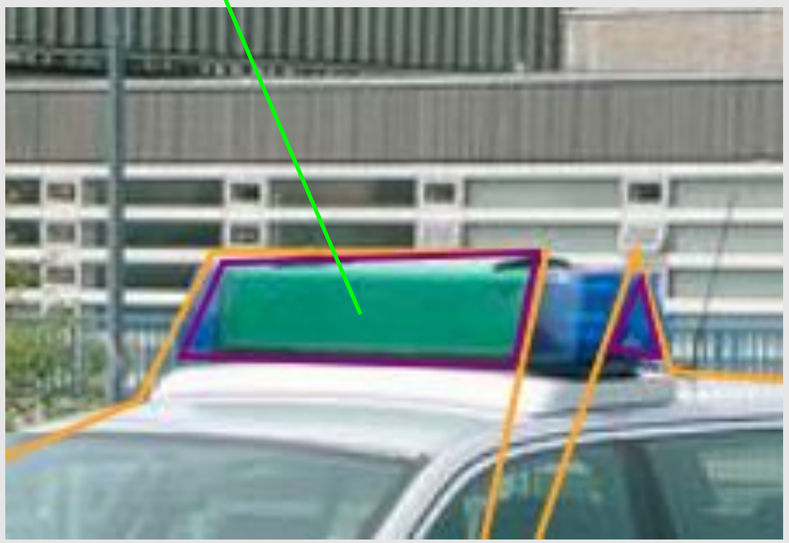
SPIN - Part Taxonomy

Car Body



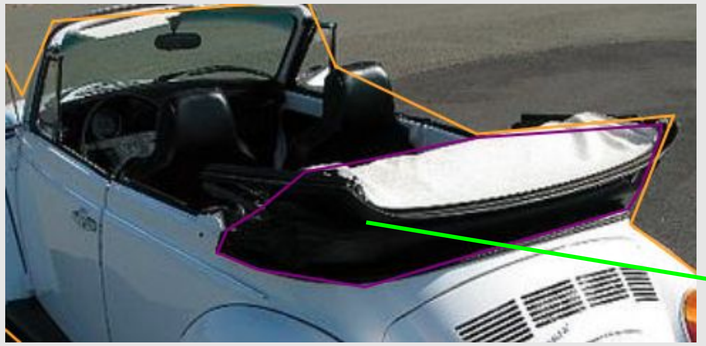
Car Body

Siren



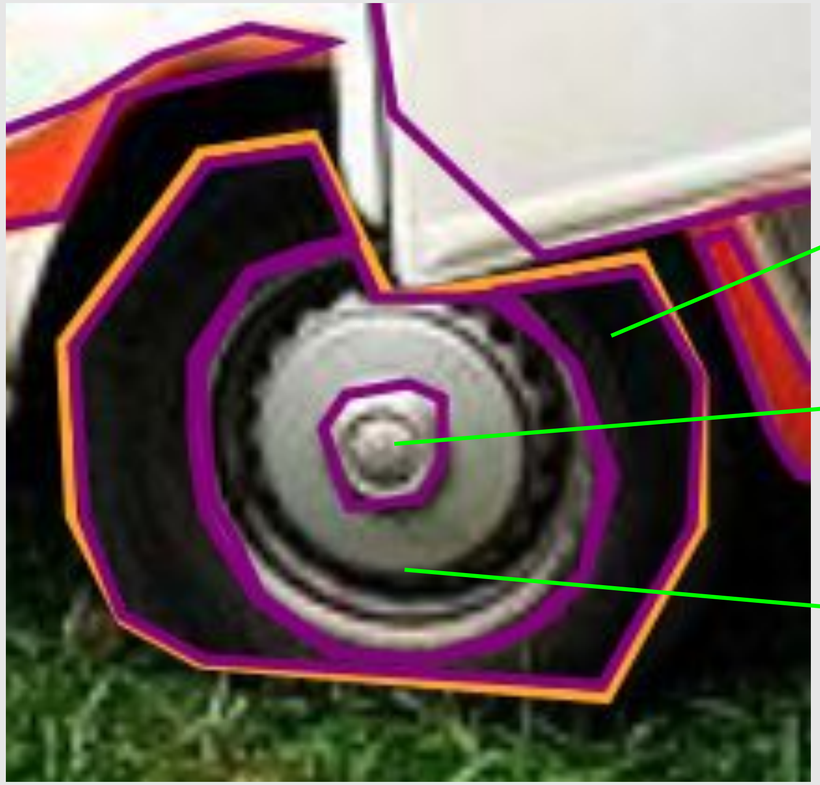
Plow

Spoiler



Roof

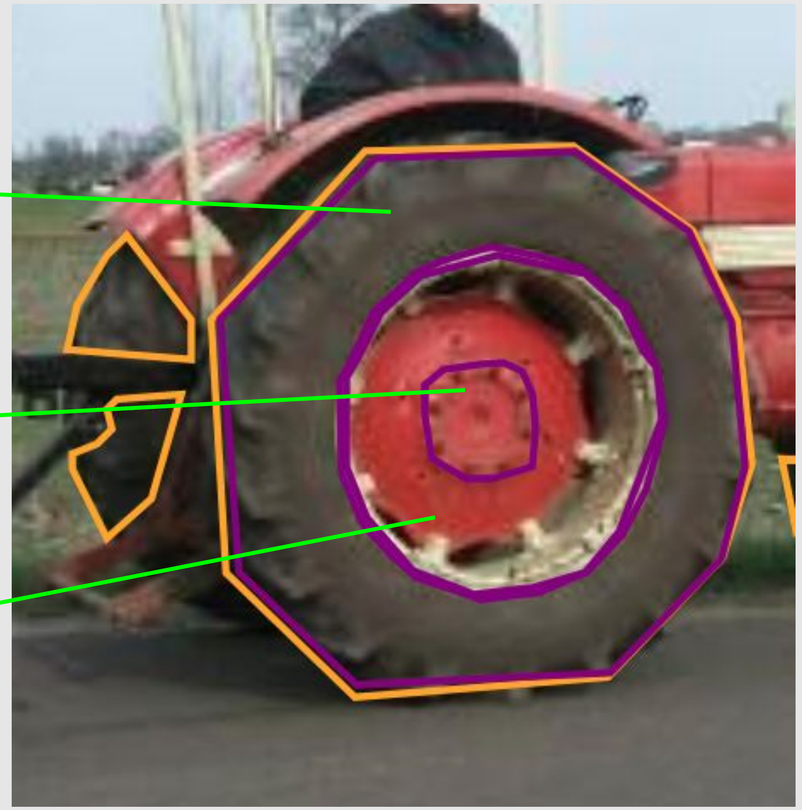
Car Tire



Tire

Hub Cap

Rim



Car Side Mirror

Housing

Mount

Mirror

Examples – Snake

- Link to document describing each subpart
- Next we provide examples of subparts for
  - Snake-Head
  - Snake-Torso

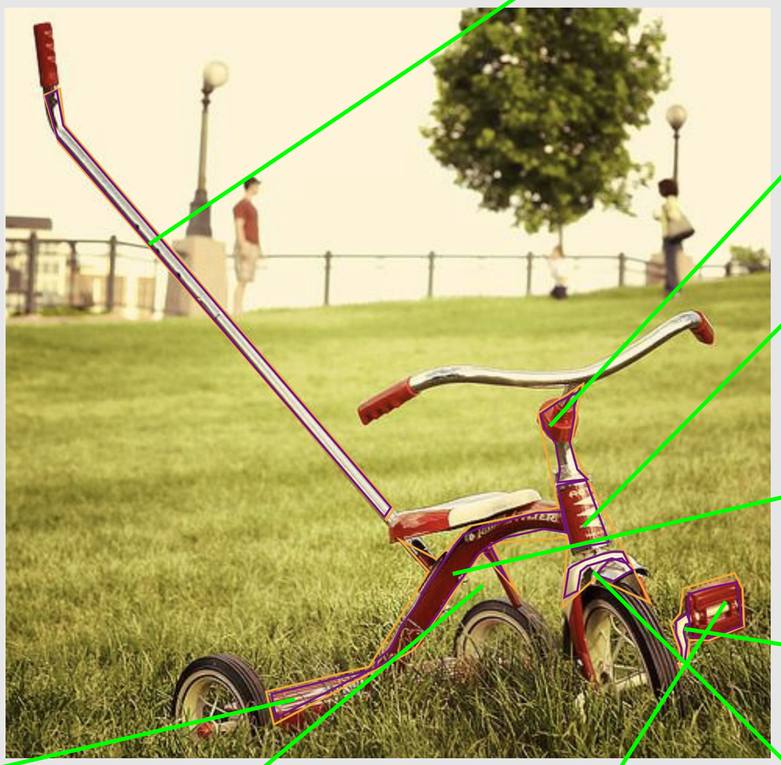
Examples – Bicycle

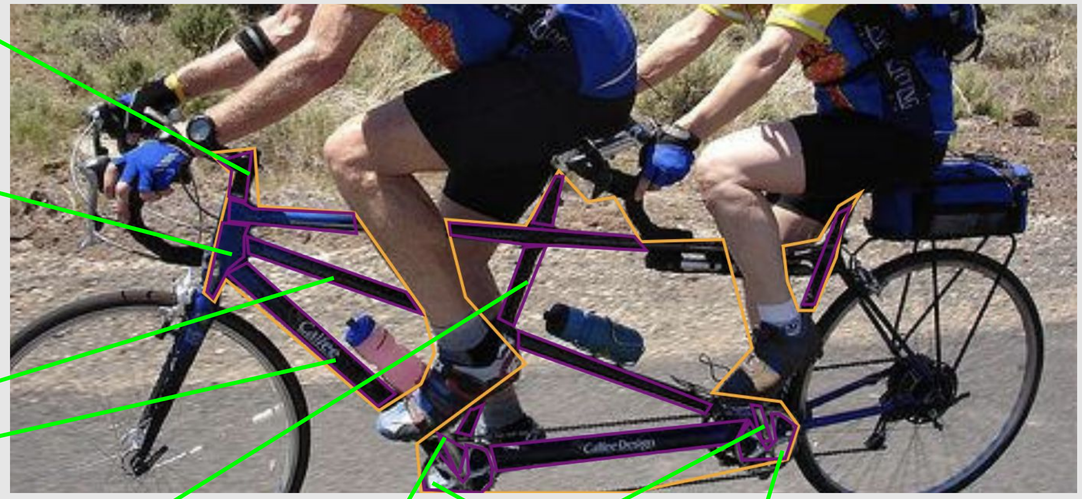
- Link to document describing each subpart
- Bicycle Body
- Bicycle Head
- Bicycle Tire

Note: some of my annotations for tire are sloppy – I will update these with more precise annotations, which is what we expect.

Bicycle Body

Bicycle Body





Parental Control Handle

Stem

Head Tube

Down Tube

Crank

Axle

Seat Tube

Pedal

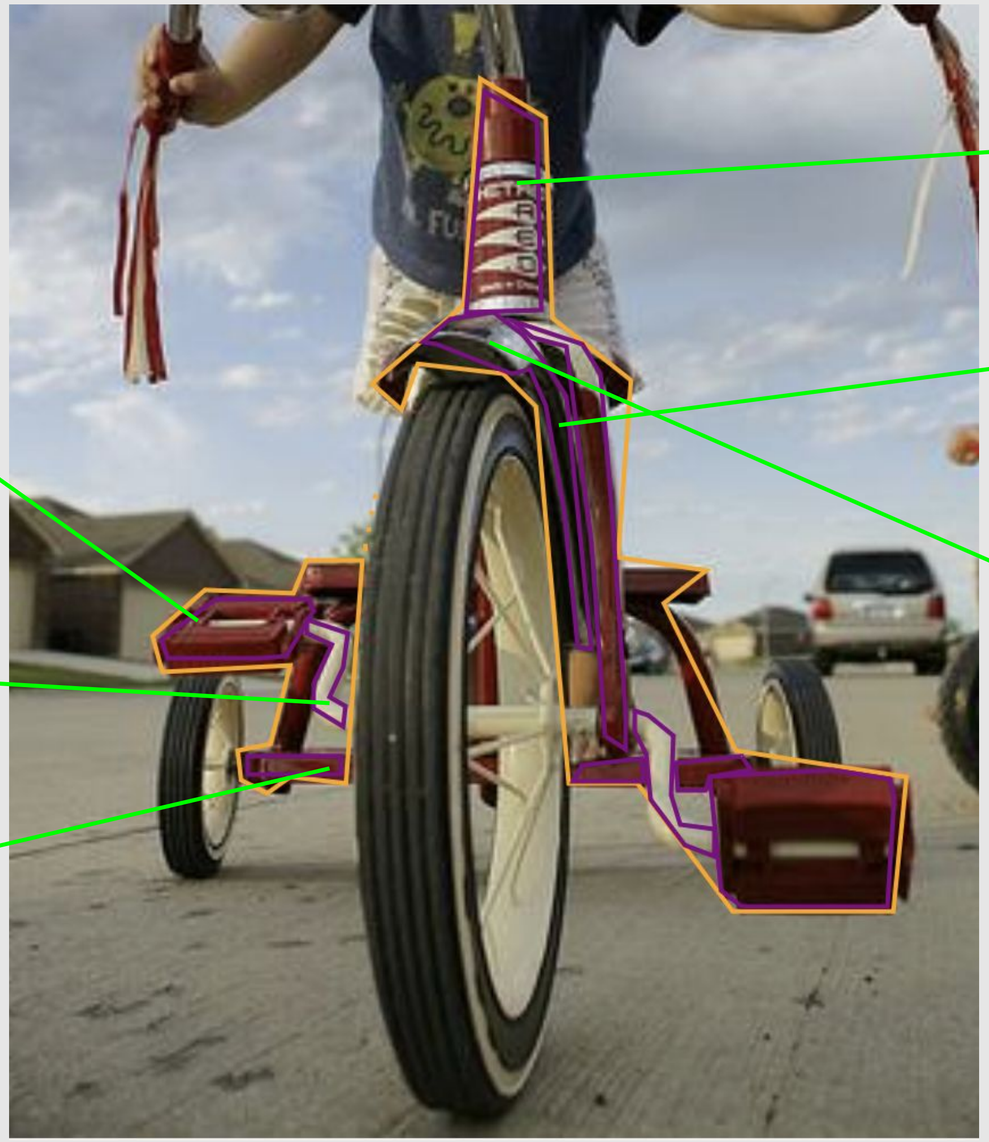
Fender

Seat Tube

Crank

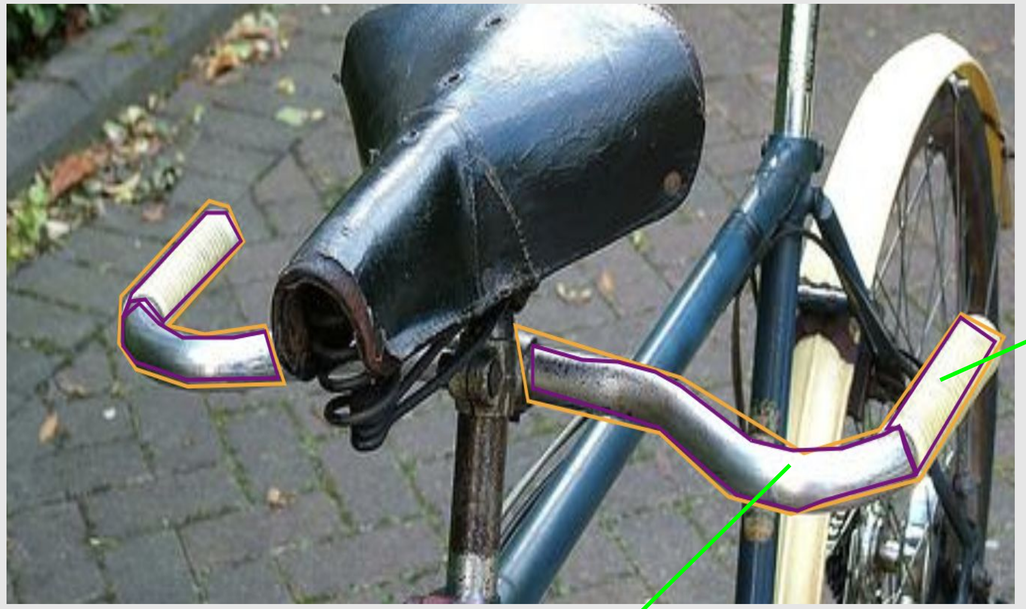
Chain Ring

Bicycle Body



Bicycle Body

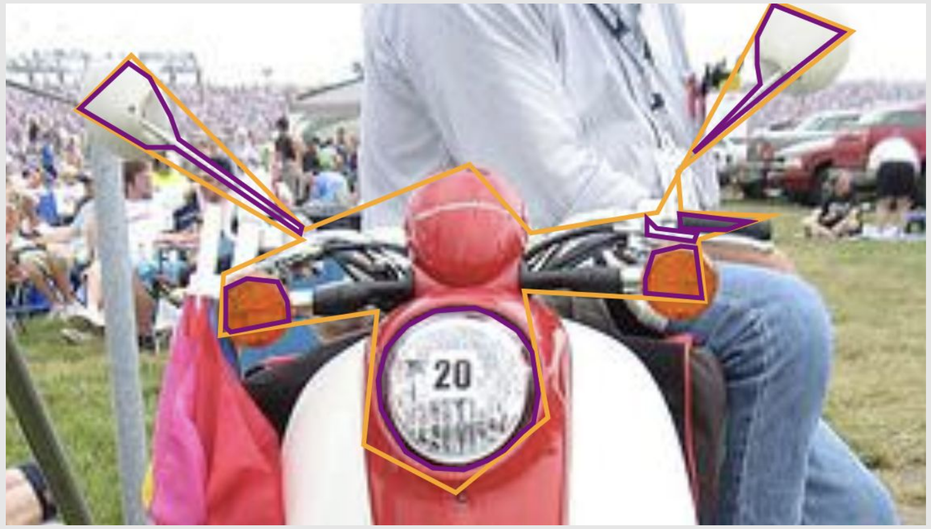
Bicycle Head



Handlebar

Grip

Brake lever



Bicycle Head

Bicycle Head

Grip

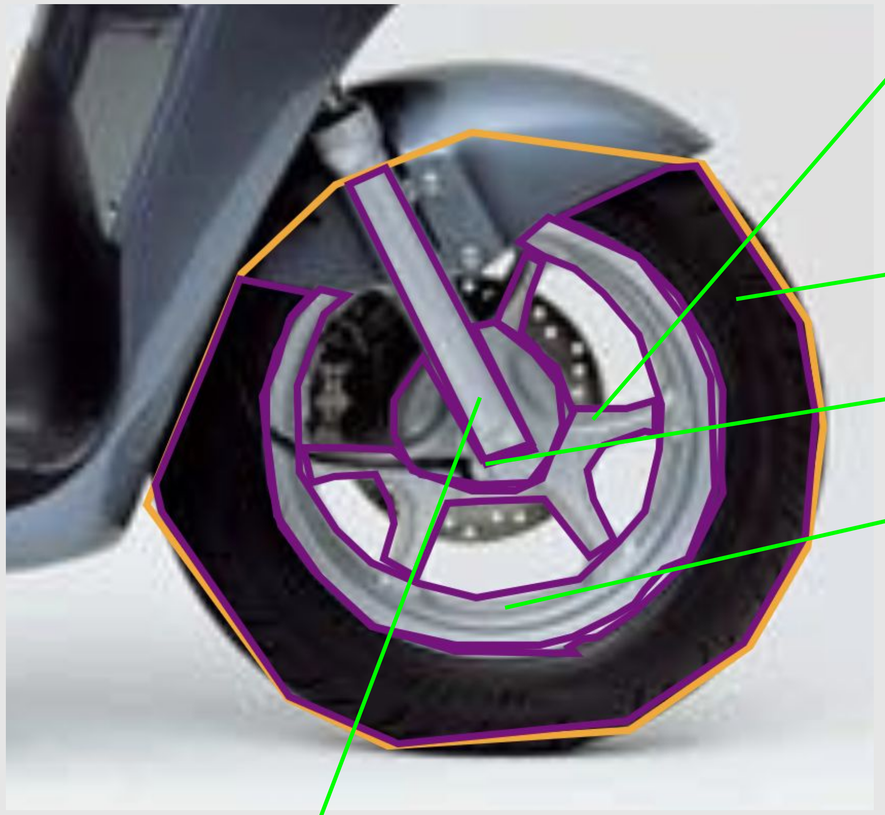
Handlebar

Tassle

Grip

Bell

Bike Tire



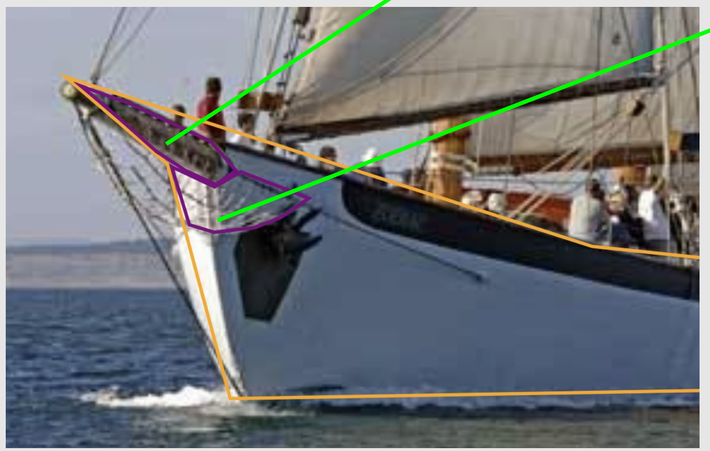
Bicycle Tire

Examples – Boat

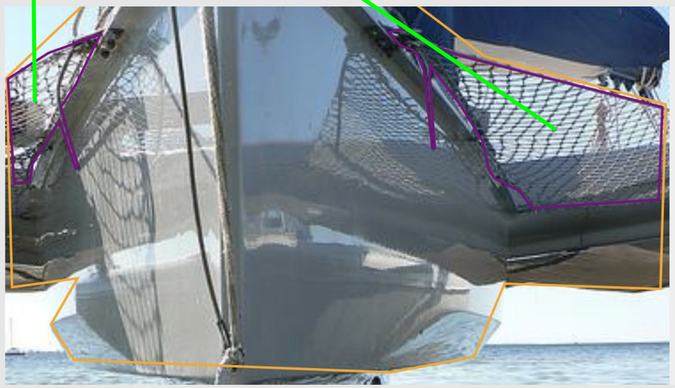
- Link to document describing each subpart
- Boat Body
- Boat Sail

Examples – Boat Body

Bowsprit

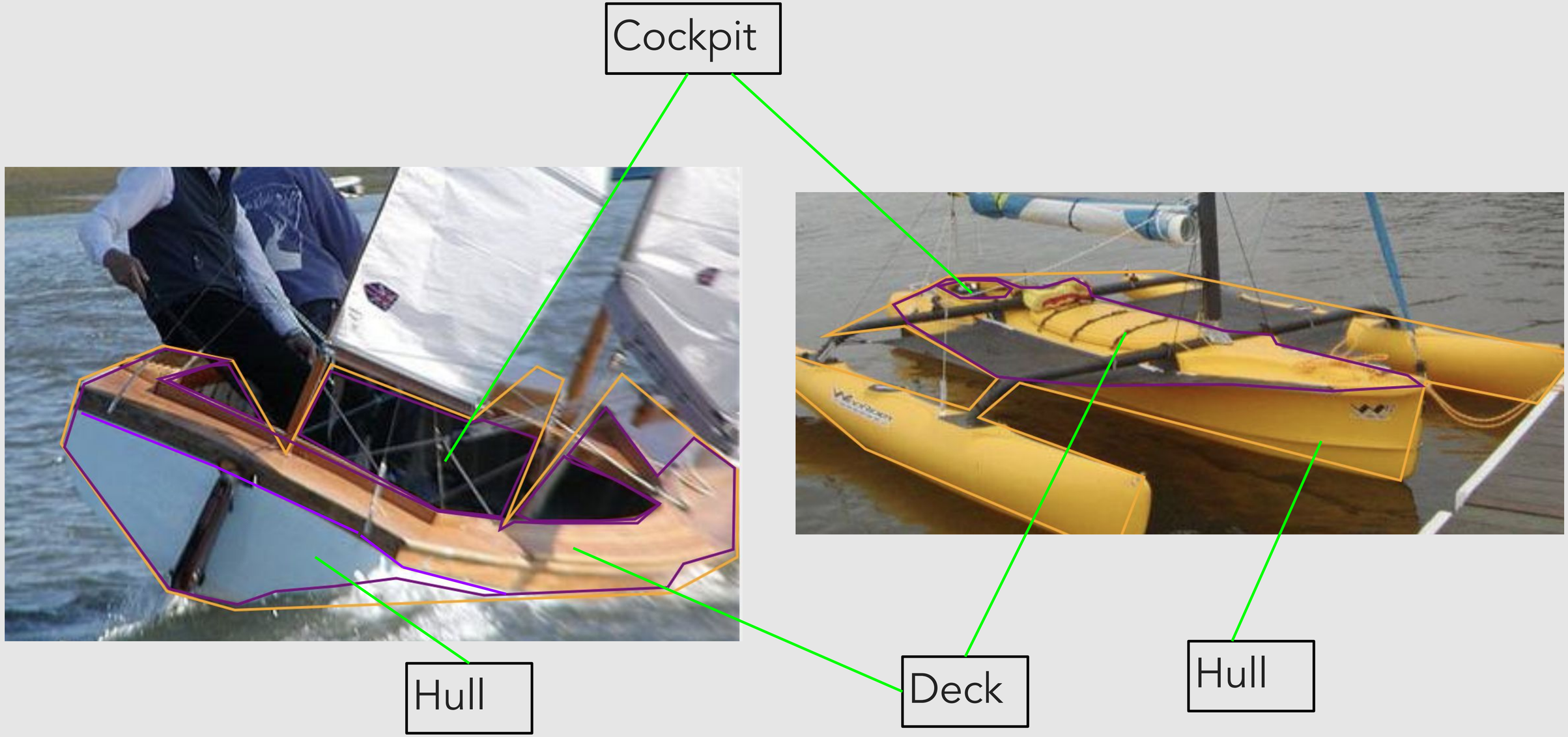


Net

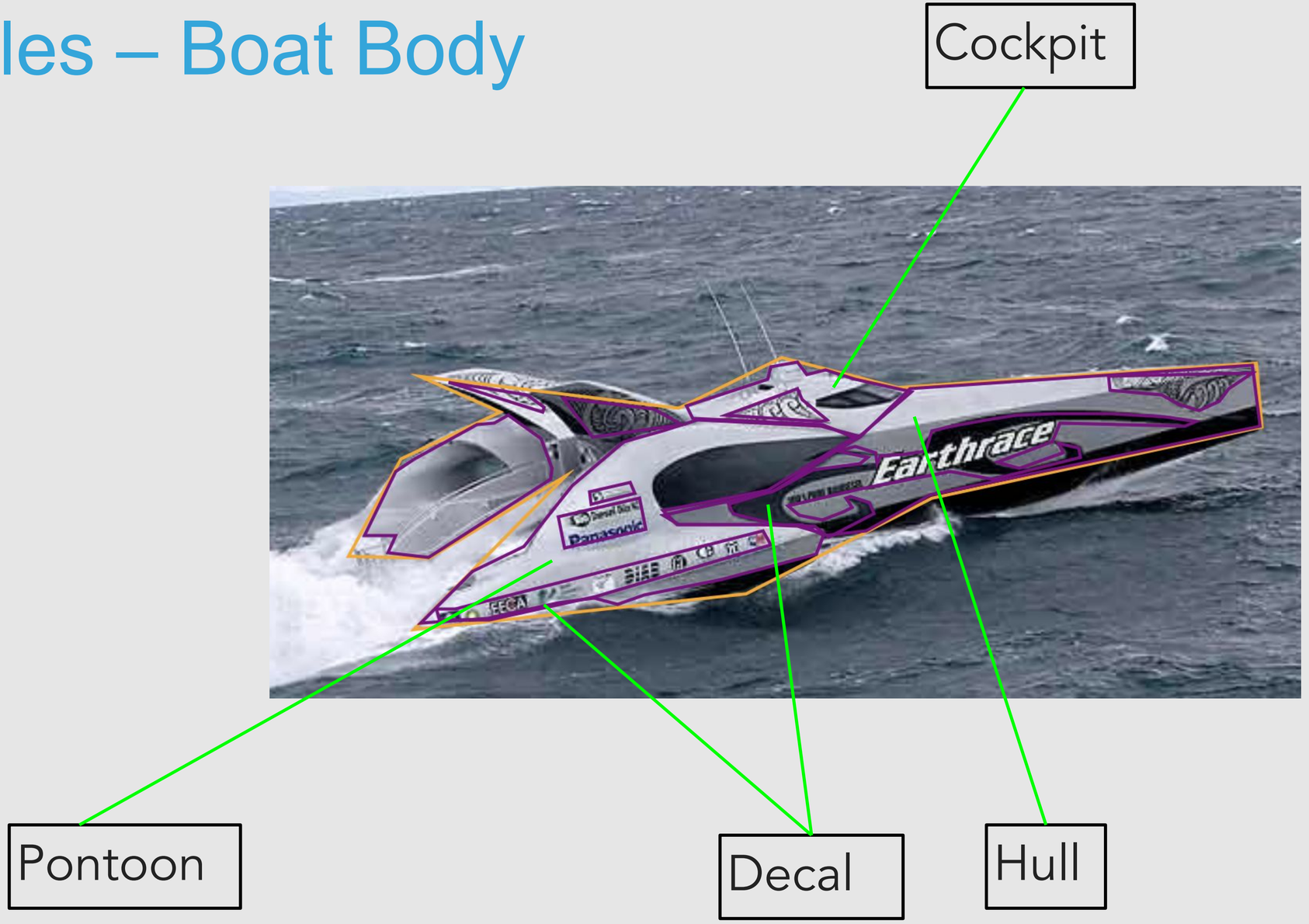


Window

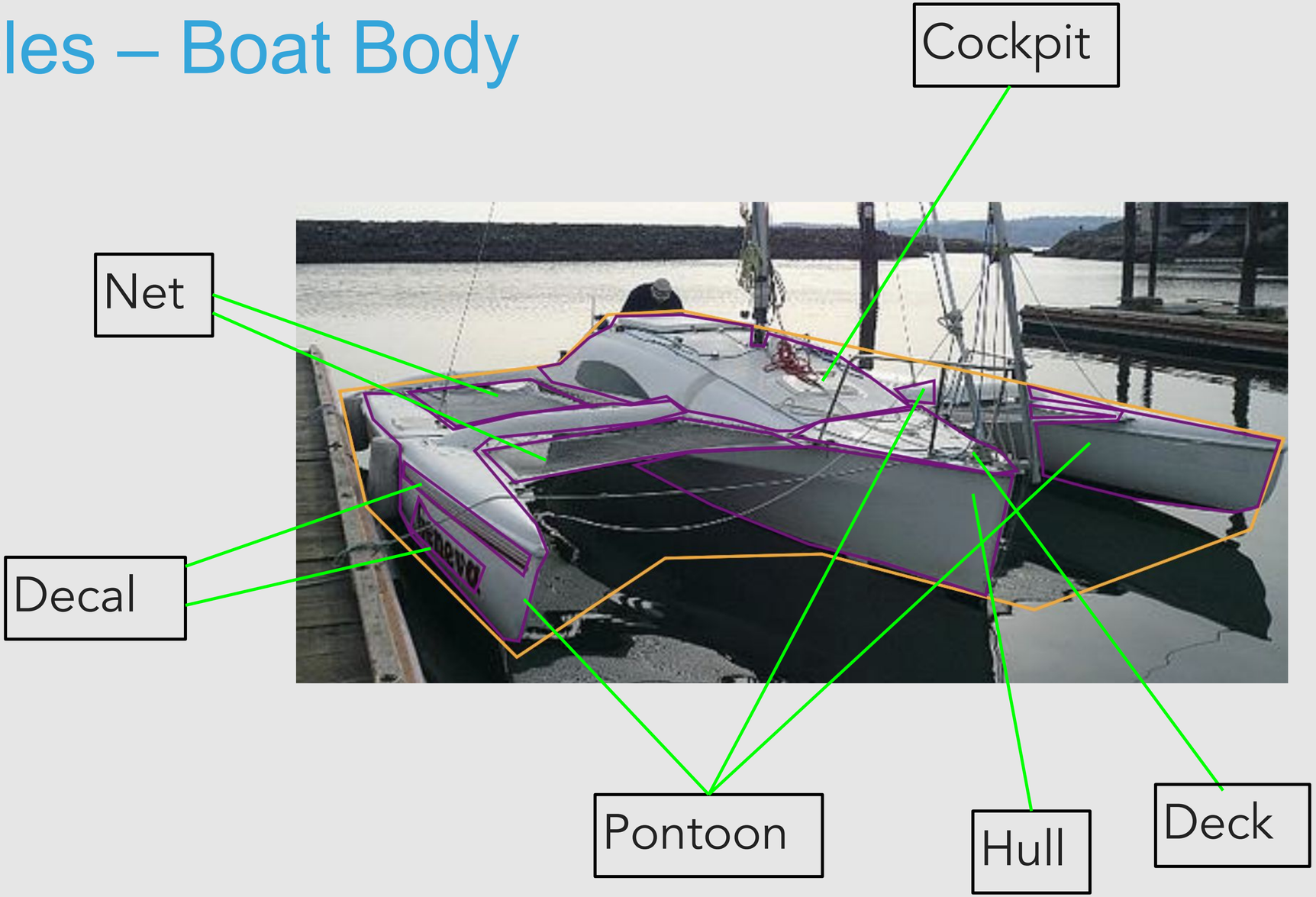
Examples – Boat Body



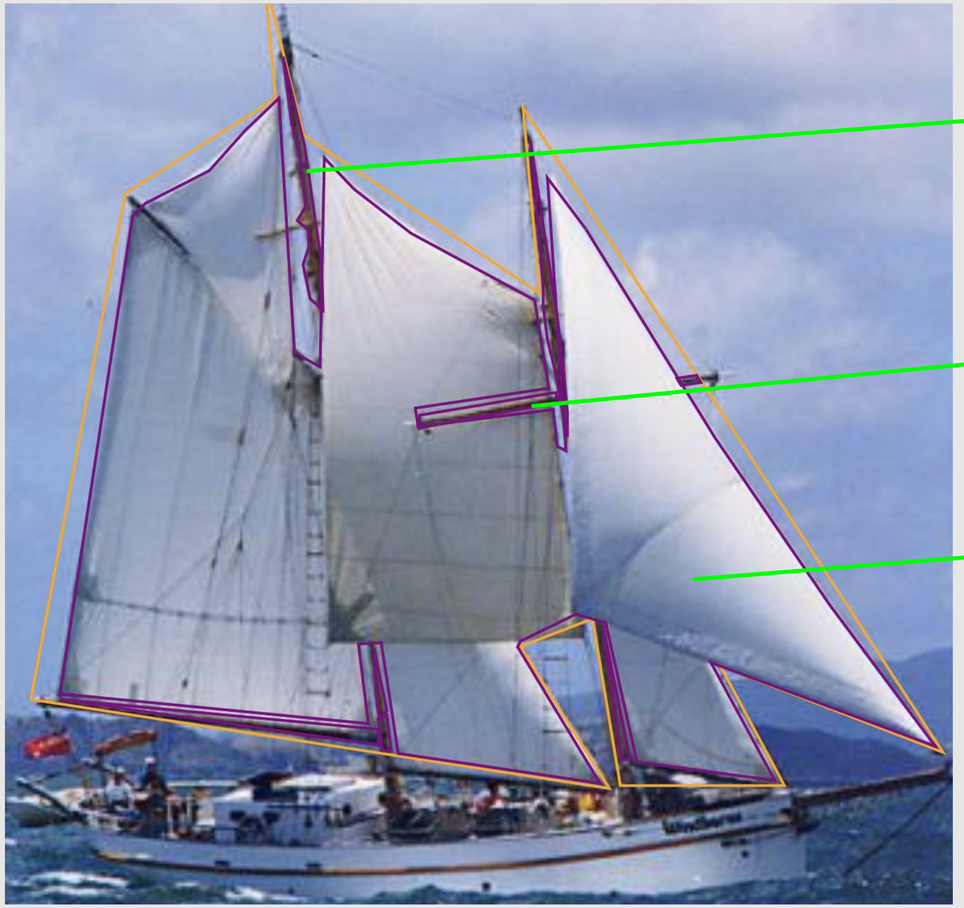
Examples – Boat Body



Examples – Boat Body



Examples – Boat Sail

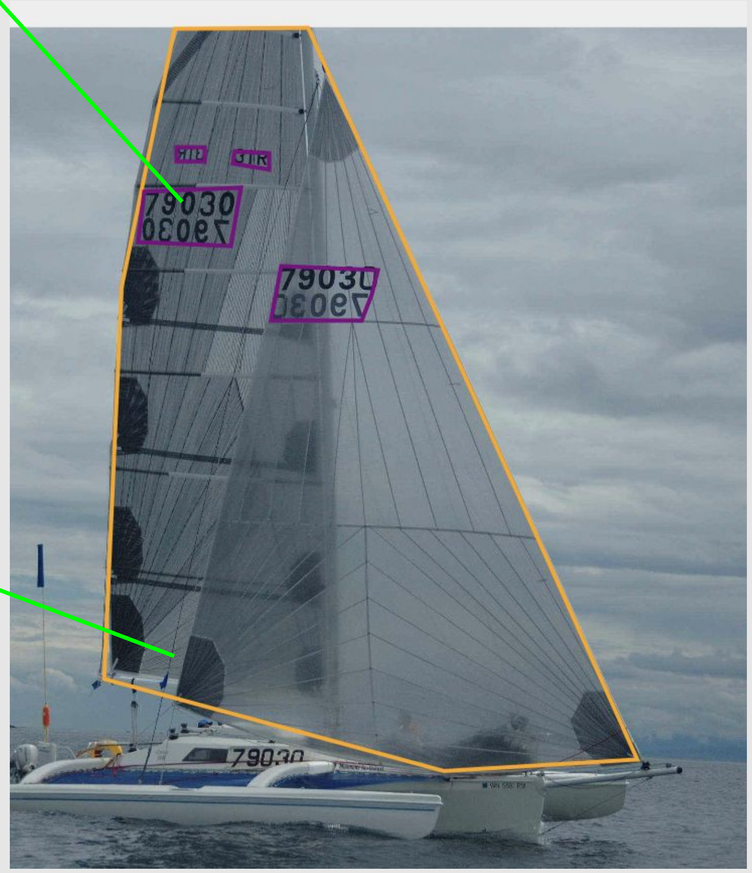


Vertical Beam

Horizontal Beam

Sail

Decal



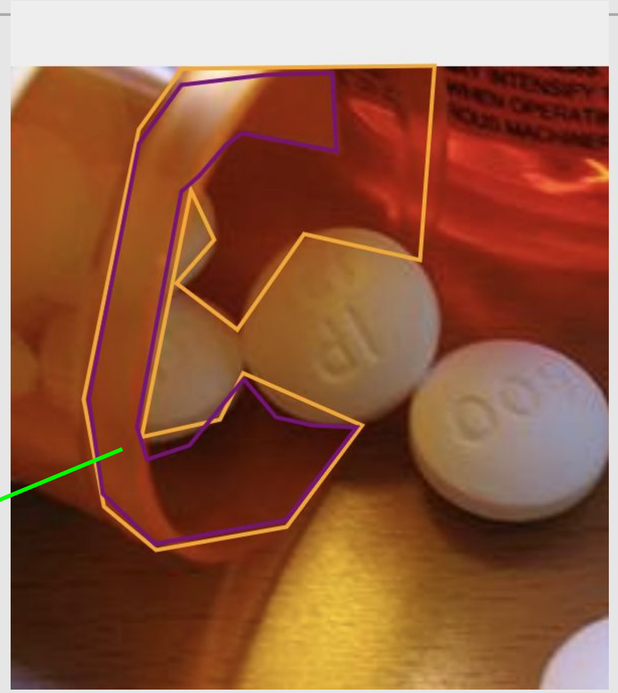
Examples – Bottle

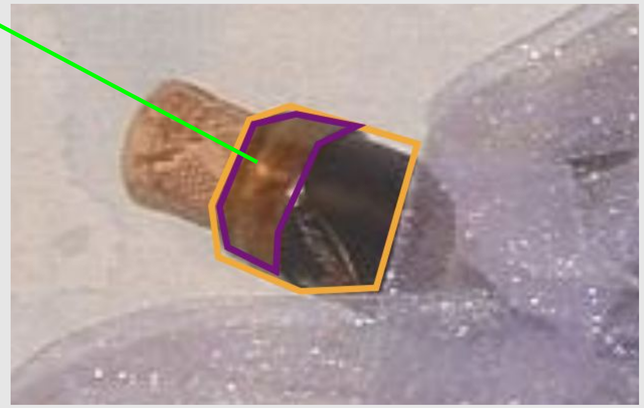
- Link to document describing each subpart
- Bottle Mouth
- Bottle Body

Bottle Mouth

Cap

Rim





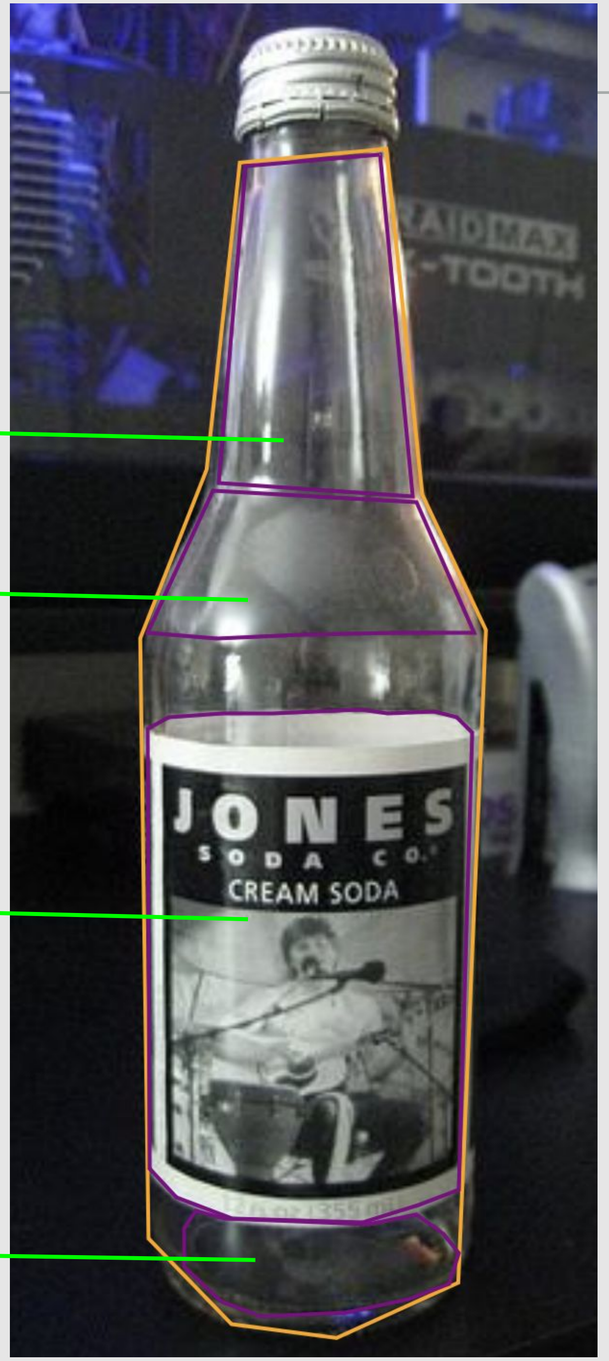
Bottle Body

Neck

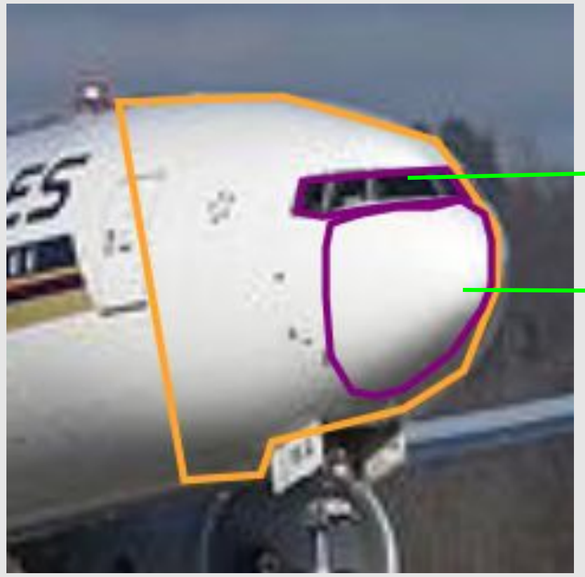
Shoulder

Label

Base

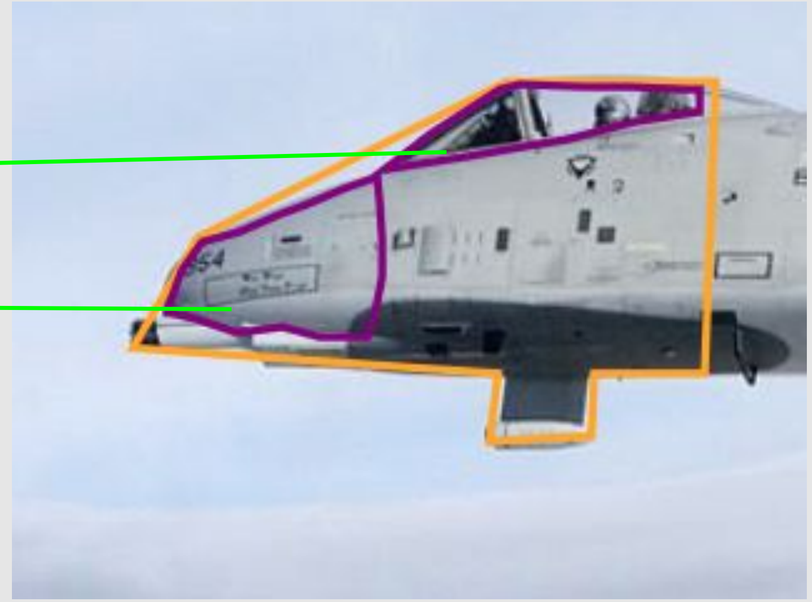


Aeroplane Head

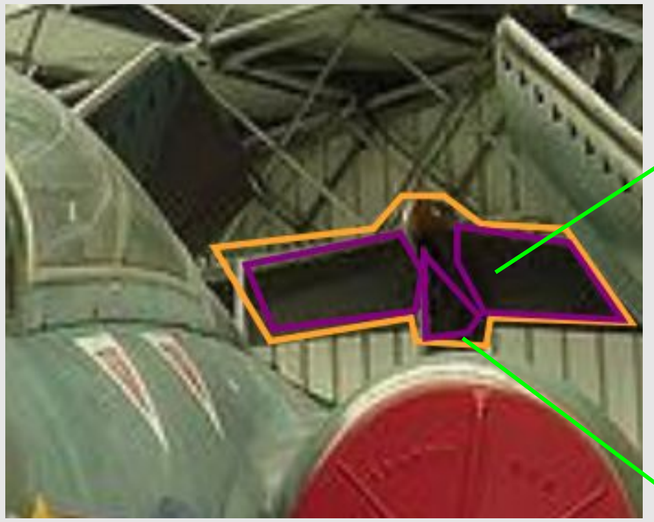


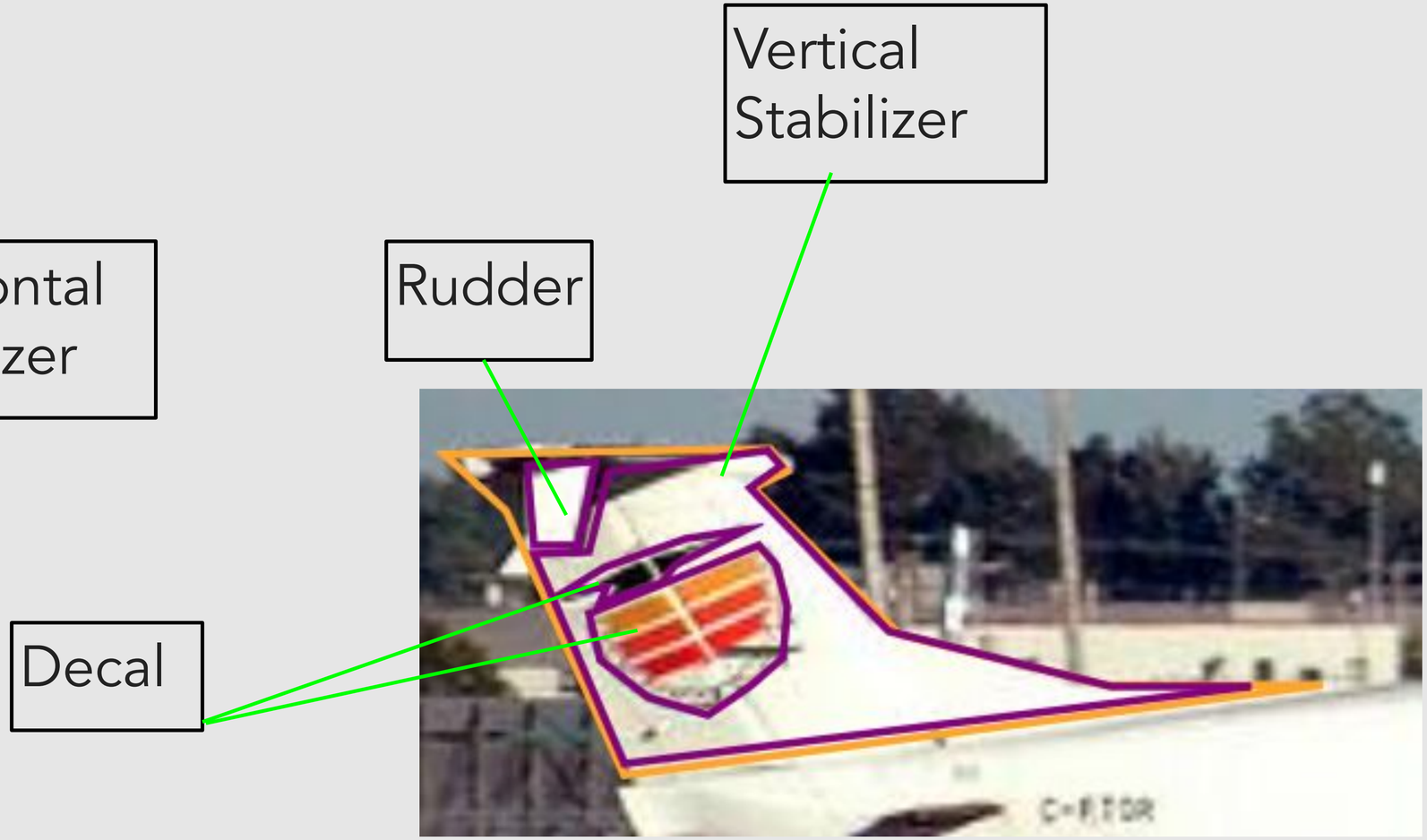
Windshield

Nose Cone

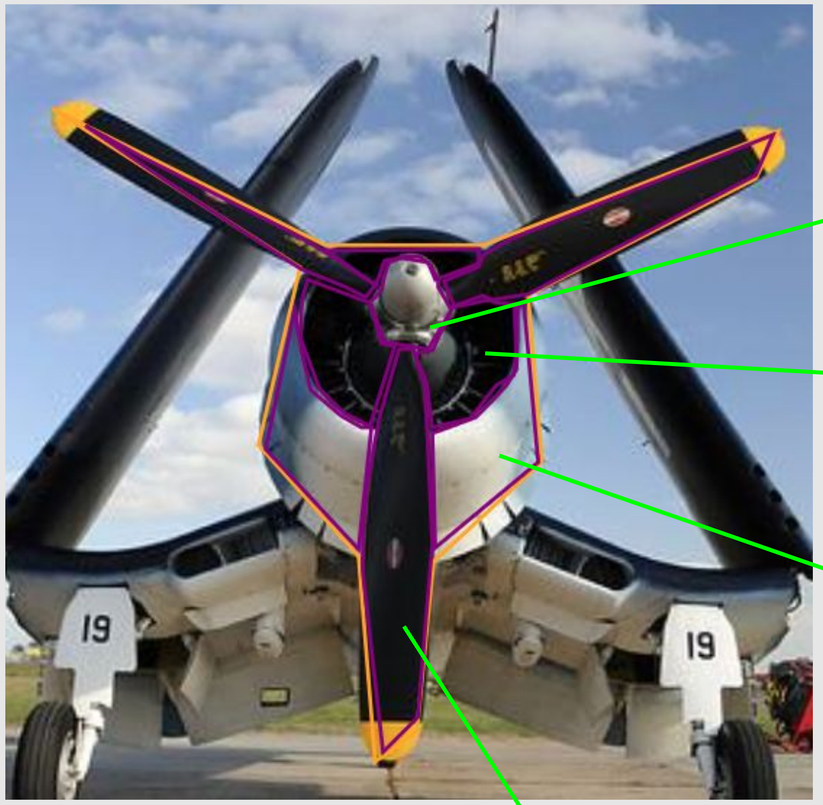


Aeroplane Tail





Aeroplane Engine



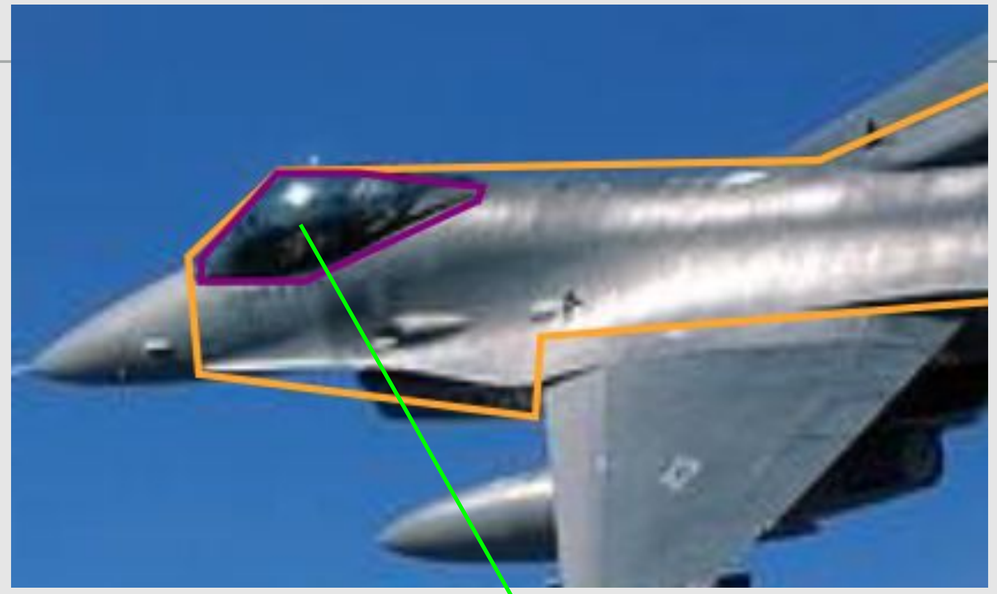
Cap

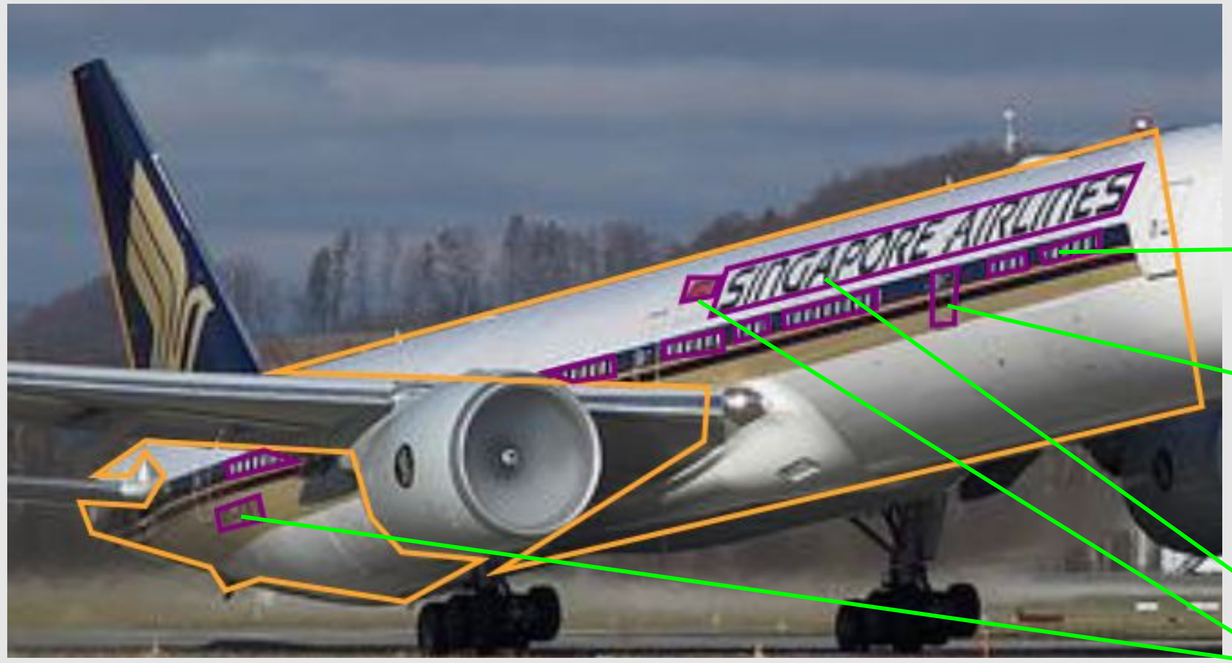
Intake

Outer Casing

Blade

Aeroplane Body





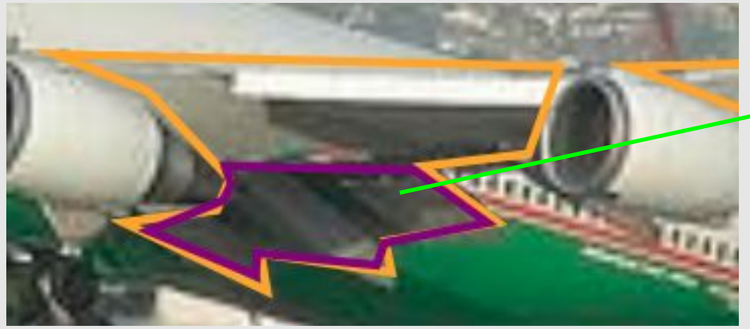
Windshield

Window

Door

Decal

Aeroplane Wing



Body

Flap