

2024

GUIDELINE FOR ANNOTATION

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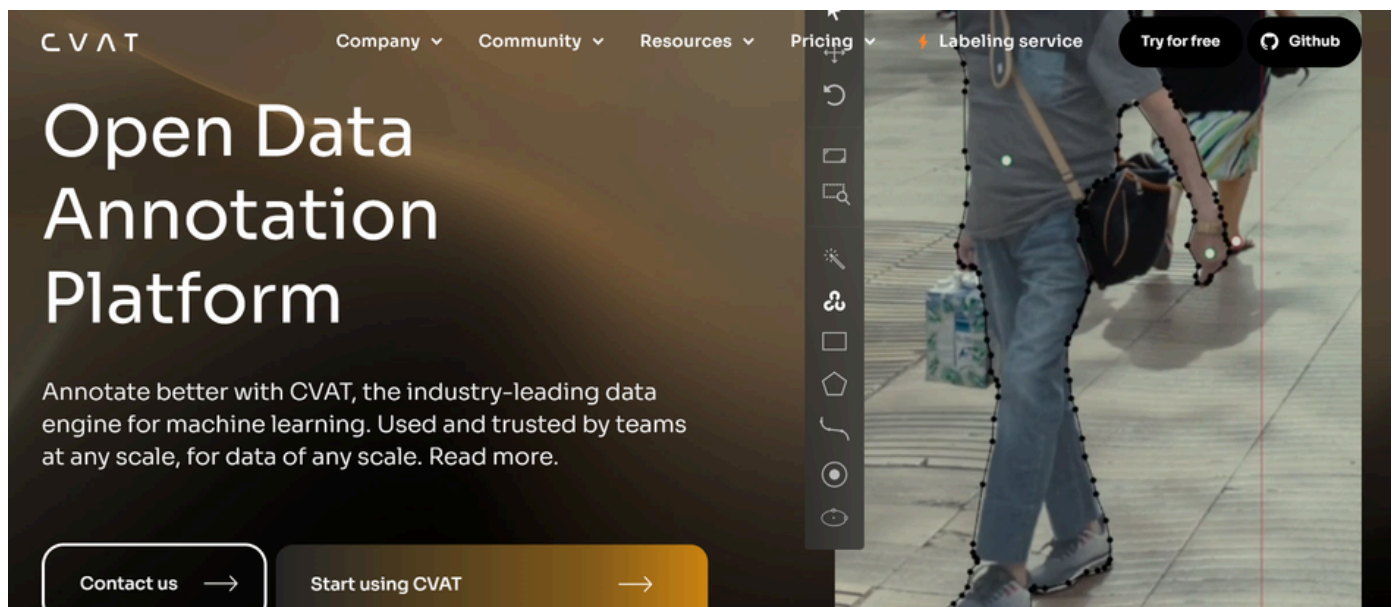
INTRODUCTION

In the field of computer vision, skeleton annotation is a specialized task that involves marking key points on objects or bodies to map out skeletal structures. This process is essential for applications such as pose estimation, motion tracking, and activity recognition. We can train machine learning models to interpret and predict poses from visual data by accurately labeling key points like joints and landmarks.

01

INTRODUCTION

This guideline aims to provide a comprehensive overview of the importance of skeleton annotation, outline the essential steps involved, and offer a detailed procedure for setting up and managing a skeleton annotation project using the Computer Vision Annotation Tool (CVAT). These instructions are designed to ensure consistency, accuracy, and efficiency, enabling our team to produce high-quality annotated datasets for our projects.



TOOL PRESENTATION

02



CVAT

- User-Friendly Interface
- Collaboration and Workflow Management
- Support for Various Annotation Types

A free computer Vision Annotation Tool, an open source, web-based image and video annotation tool used for labeling data for computer vision algorithms. Originally developed by Intel, CVAT is designed for use by a professional data annotation team, with a user interface optimized for computer vision annotation tasks.

CVAT is one of the most used annotation tools in Computer vision

CVAT is a comprehensive and versatile tool that simplifies the annotation process for computer vision projects. Its robust features and ease of use make it an ideal choice for teams working on tasks such as skeleton annotation, ensuring high-quality data labeling and efficient project management. Whether used for academic research or commercial applications, CVAT provides the necessary infrastructure to support the development of advanced computer vision models.

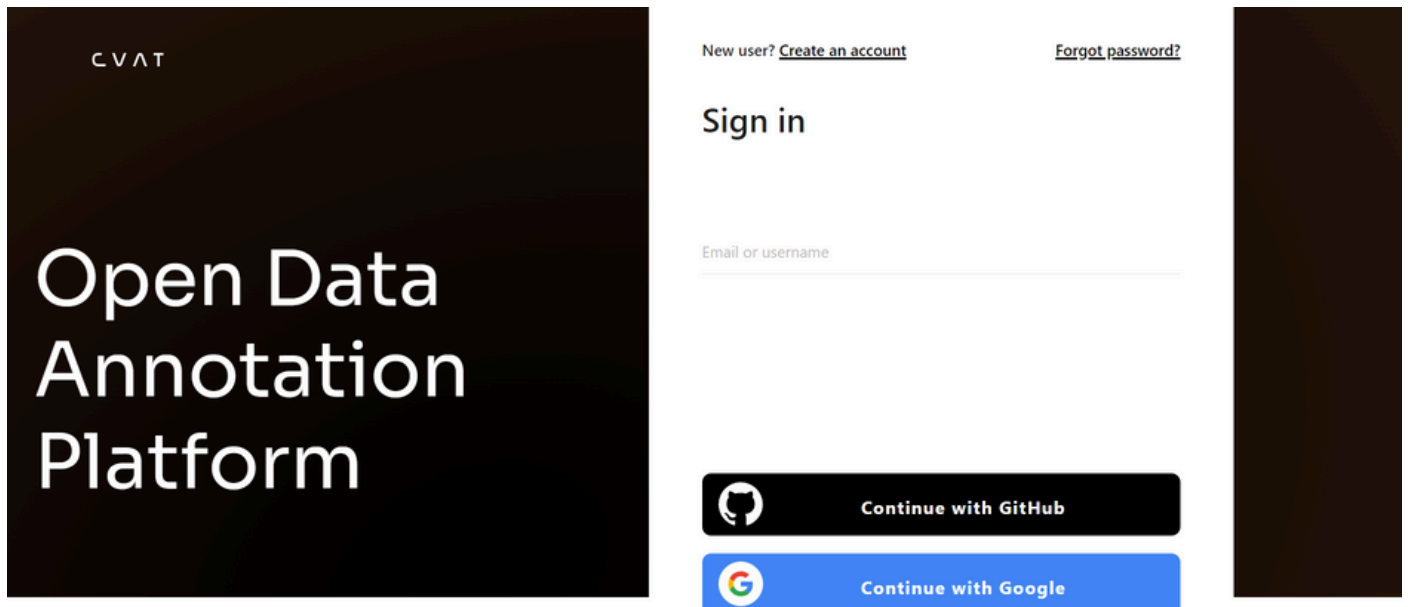
STEPS

03

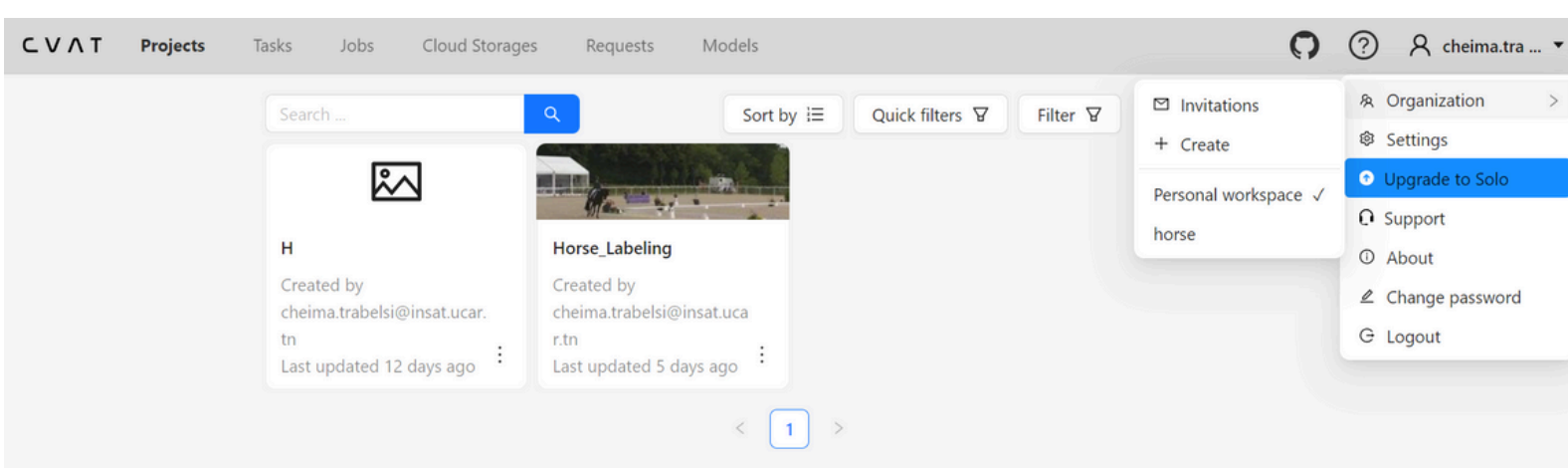
STEPS

01. SIGN IN

The first thing to do is to sign in or create an account to be capable to use CVAT online

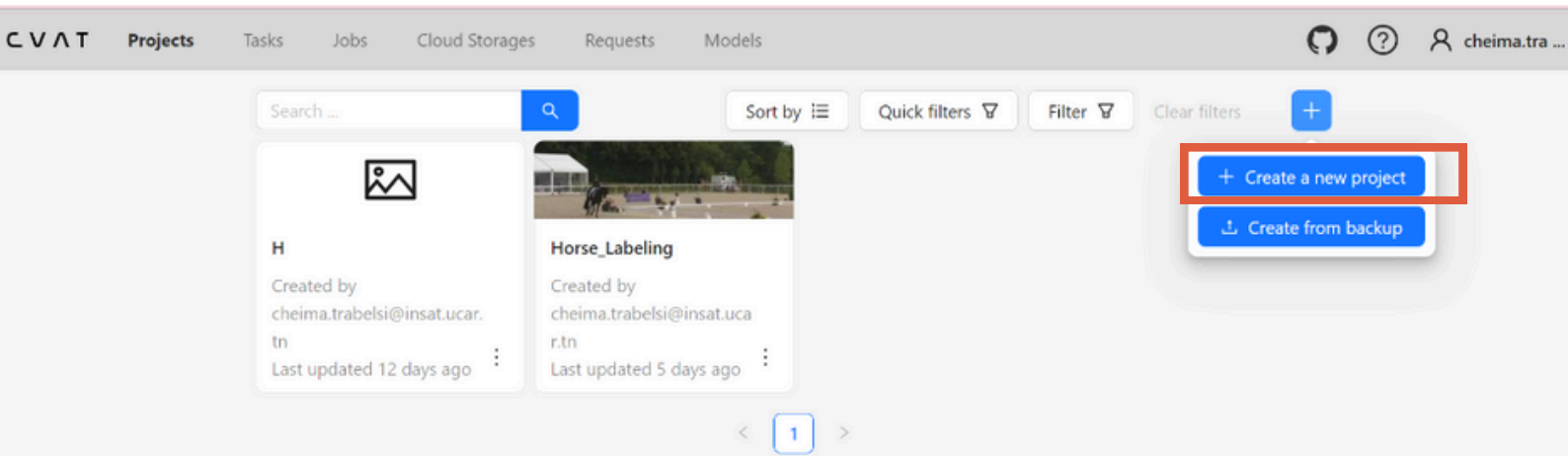


Choose to work within the Personal workspace or in an organizational workspace and share it with your annotators



02. CREATE A PROJECT

- create a project with the specific skeleton that we will annotate in which we'll create tasks



Create a new project

* Name

Horse Annotation ✓

Labels:

Raw **Constructor**

Add label ⊕ Setup skeleton ⊕ From model ⊕

> Advanced configuration

Submit & Open Submit & Continue

02. CREATE A PROJECT

2.1 SETUP SKELETON

We will create a project with the specific skeleton that we will annotate:

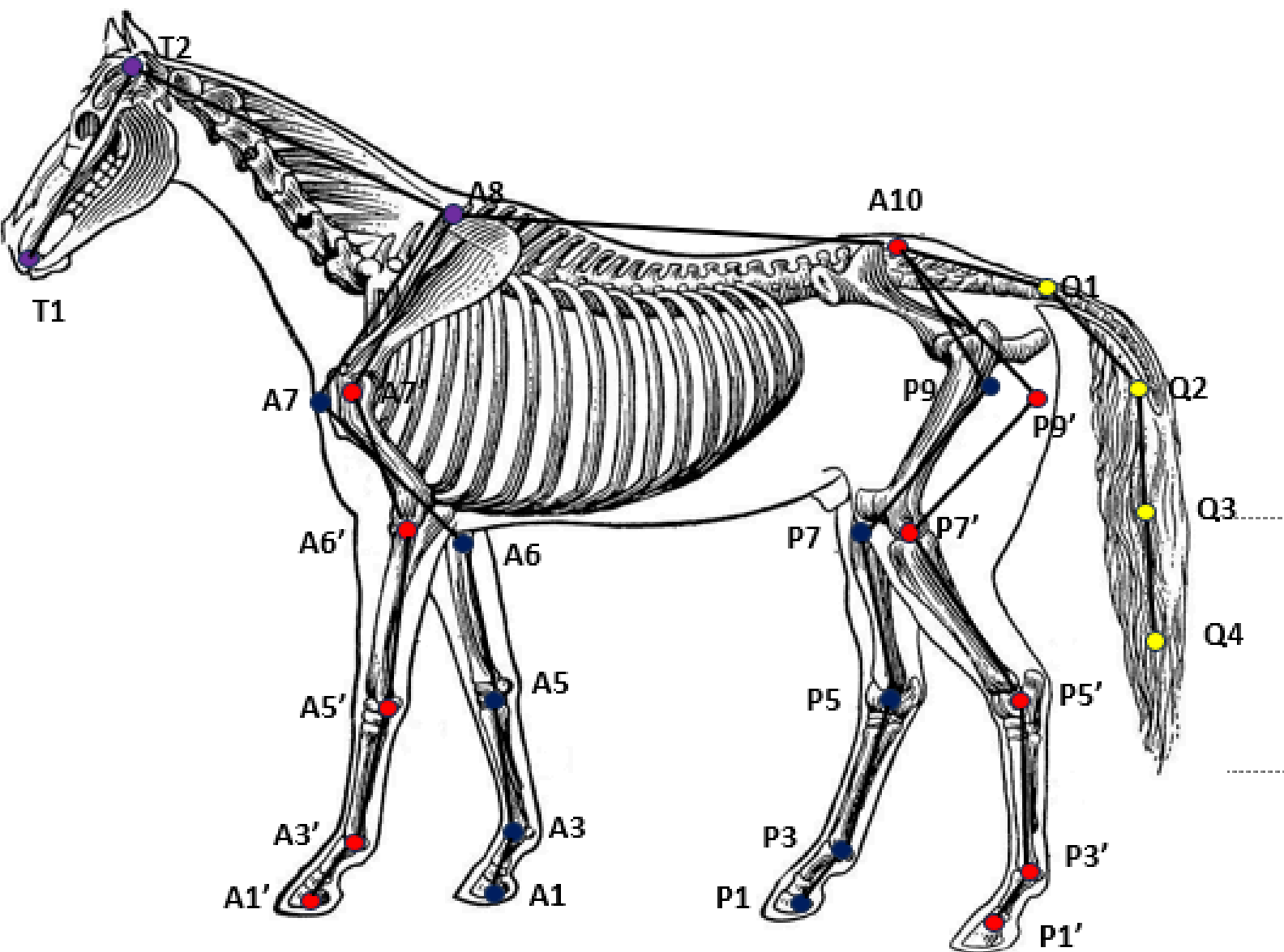
1. Choose the **Setup Skeleton** and click it
2. Name it **horse** so it matches the annotation files that we will upload later

The screenshot shows the 'Horse Annotation' project setup page. At the top, the project name 'Horse Annotation' is displayed with an edit icon. Below it, the project details state 'Project #165072 created by cheima.trabelsi@insat.ucar.tn on July 29th 2024'. To the right, there is an 'Assigned to' dropdown menu with the text 'Select a user'. Under the 'Project description' section, there is an 'Edit' button. Below that, the 'Issue Tracker' section is visible. In the 'Issue Tracker' section, there are two tabs: 'Raw' and 'Constructor'. The 'Constructor' tab is active. Below the tabs, there is a row of buttons: 'Add label +', 'Setup skeleton +', 'From model +', and a green button labeled 'horse' with an edit icon and a trash icon. The 'Setup skeleton +' button is highlighted with a red rectangular box. At the bottom of the page, there is a search bar with the text 'Search ...', a blue search button, and a row of filter buttons: 'Sort by' with a menu icon, 'Quick filters' with a dropdown icon, 'Filter' with a dropdown icon, and 'Clear filters'. A blue plus button is located at the far right of the bottom bar.

02. CREATE A PROJECT

2.1 SETUP SKELETON

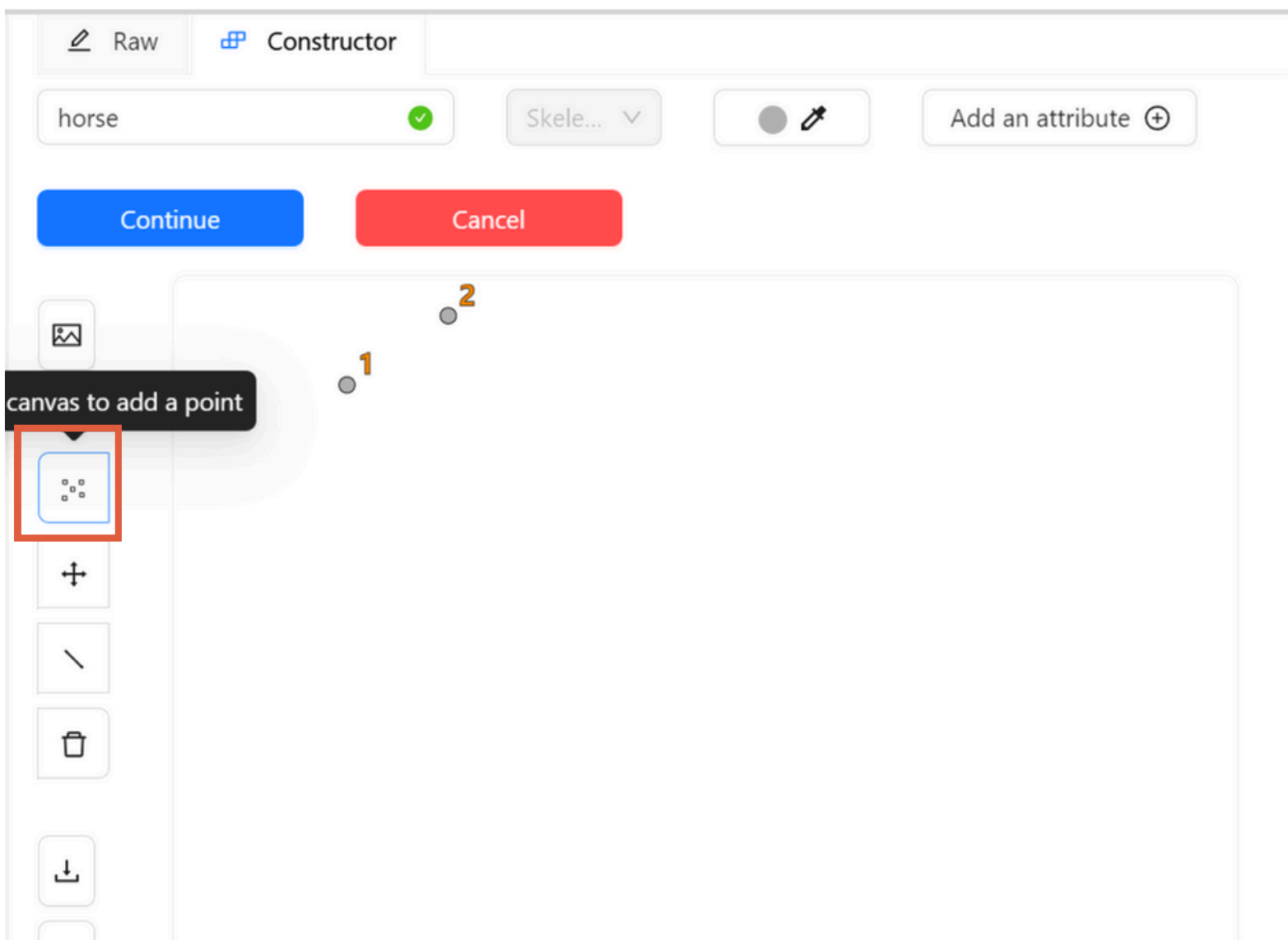
1. Now we will set the skeleton :
we will put **28 points** to match the skeleton used in our annotations(in the figure below)



02. CREATE A PROJECT

2.1 SETUP SKELETON

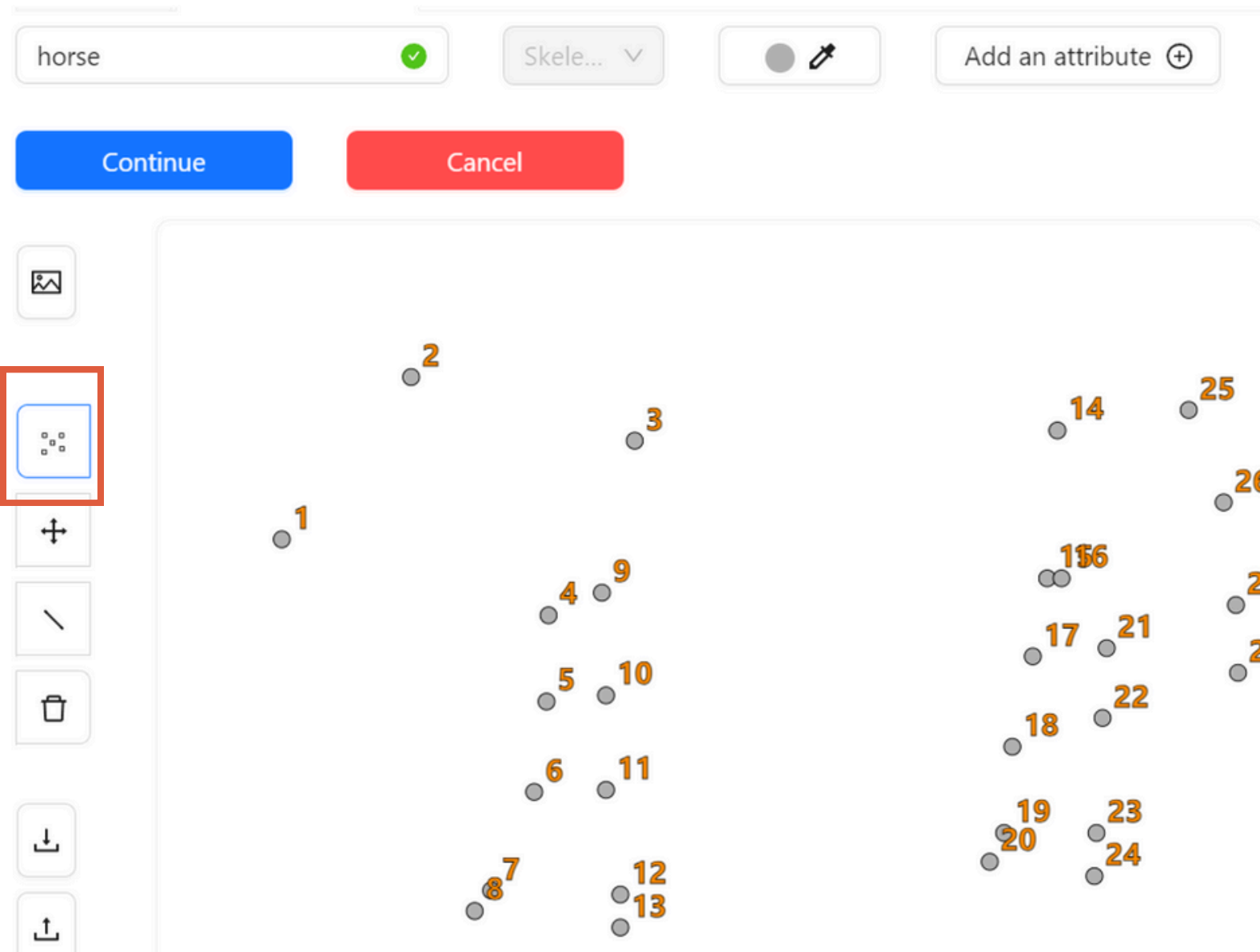
So we will just click on the scattered point symbol then we will put 28 points preferably following the skeleton positions



02. CREATE A PROJECT

2.1 SETUP SKELETON

Here is the needed skelton with 28 points

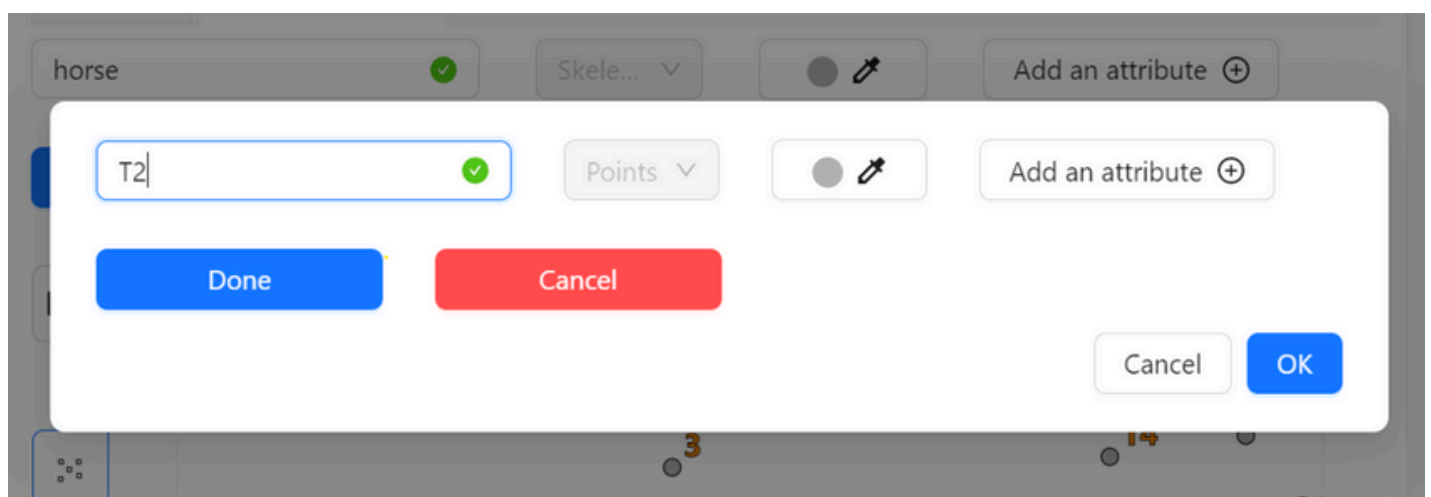
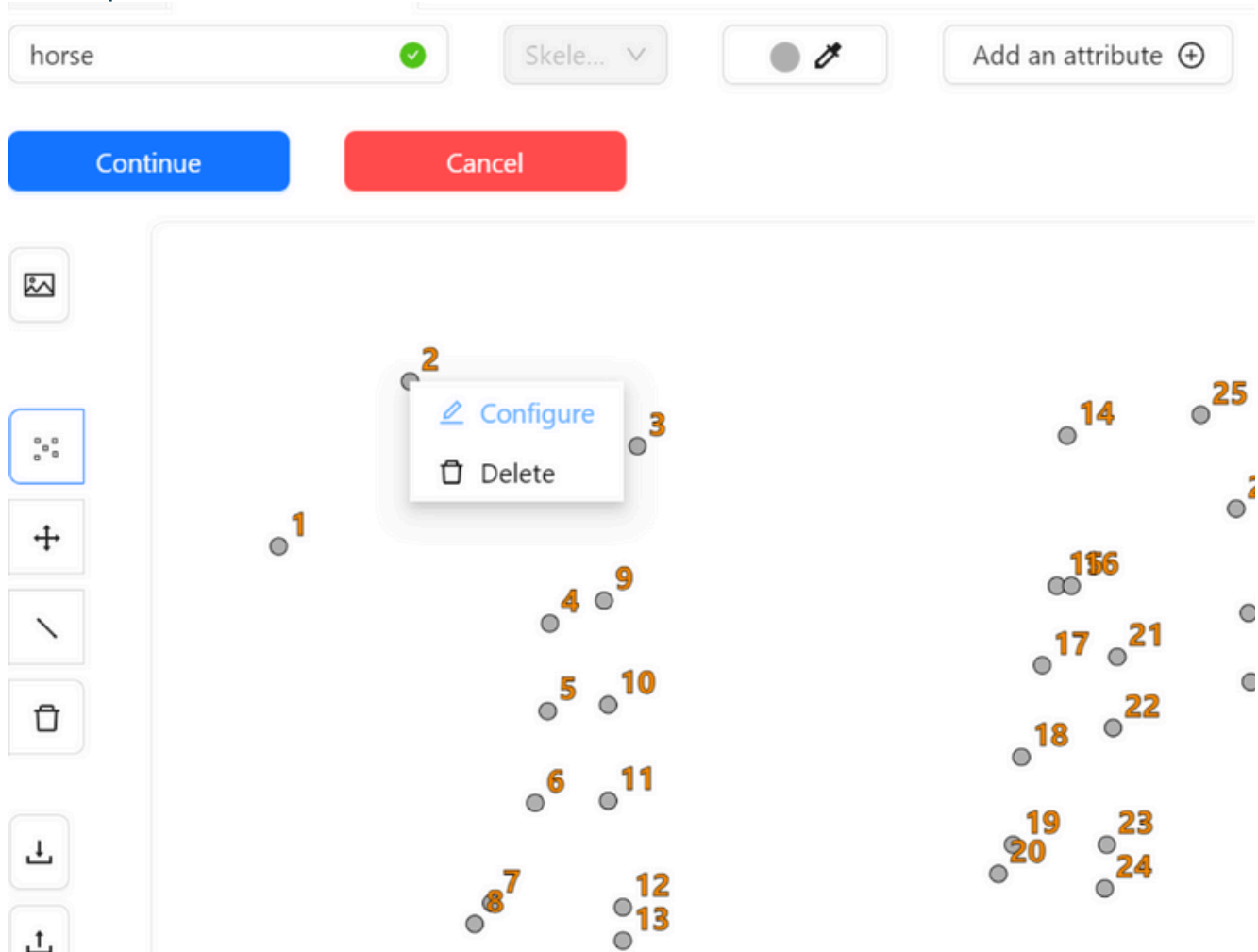


02. CREATE A PROJECT

2.1 SETUP SKELETON

We will now alter the keypoint names to correspond with the skeleton; to do this, right-click on each keypoint and update its name to match the annotations.

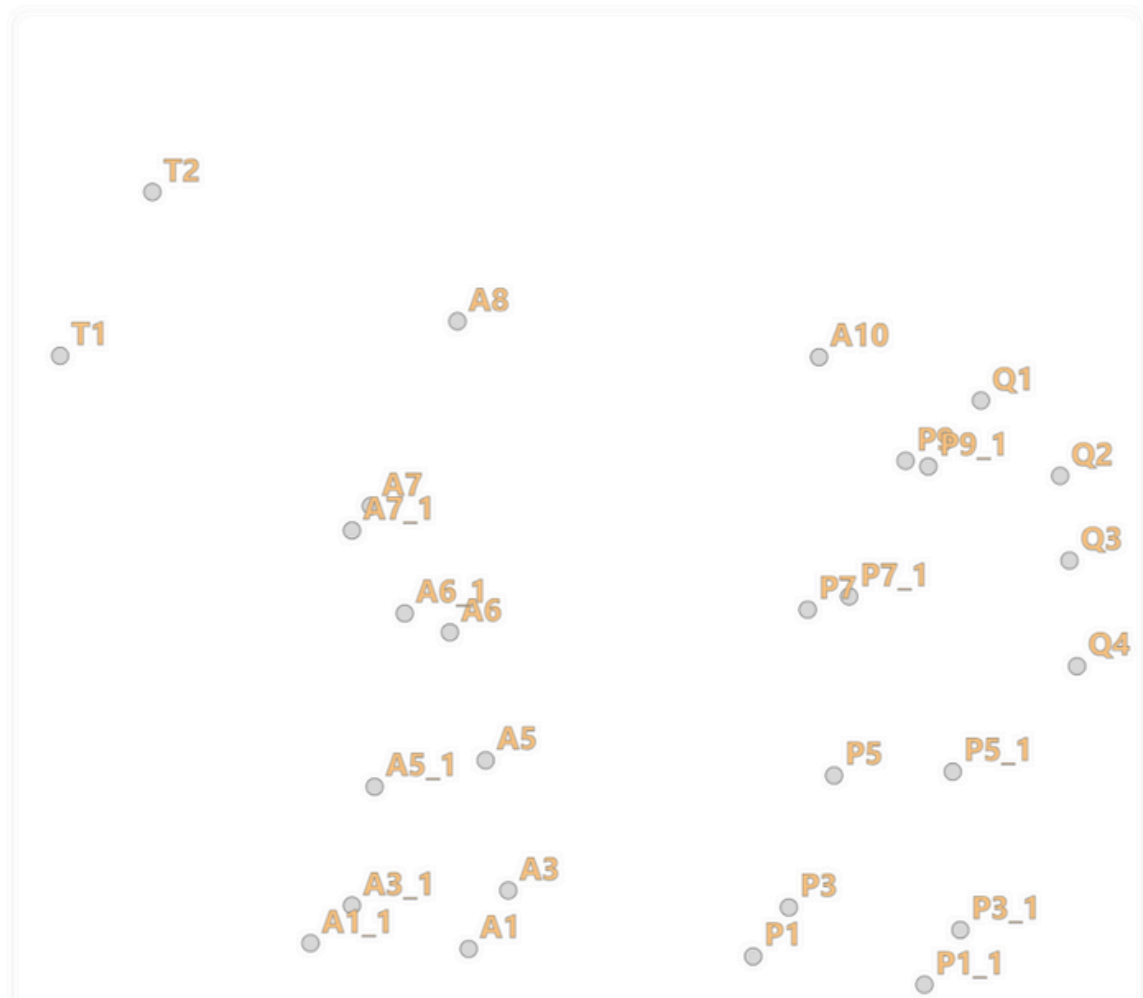
Exemple : 2-> T2



02. CREATE A PROJECT

2.1 SETUP SKELETON

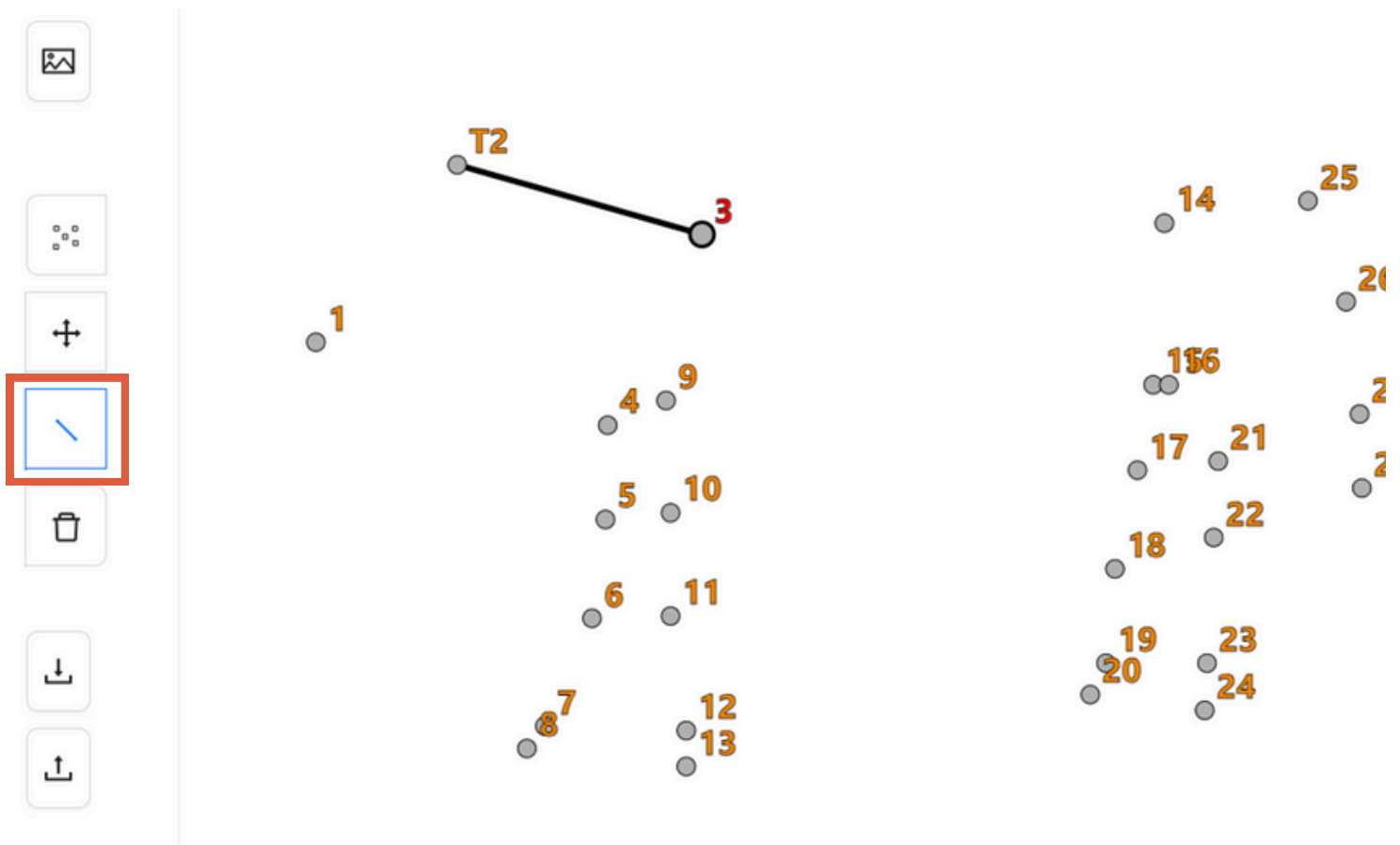
And here is the needed result after renaming all the keypoints



02. CREATE A PROJECT

2.1 SETUP SKELETON

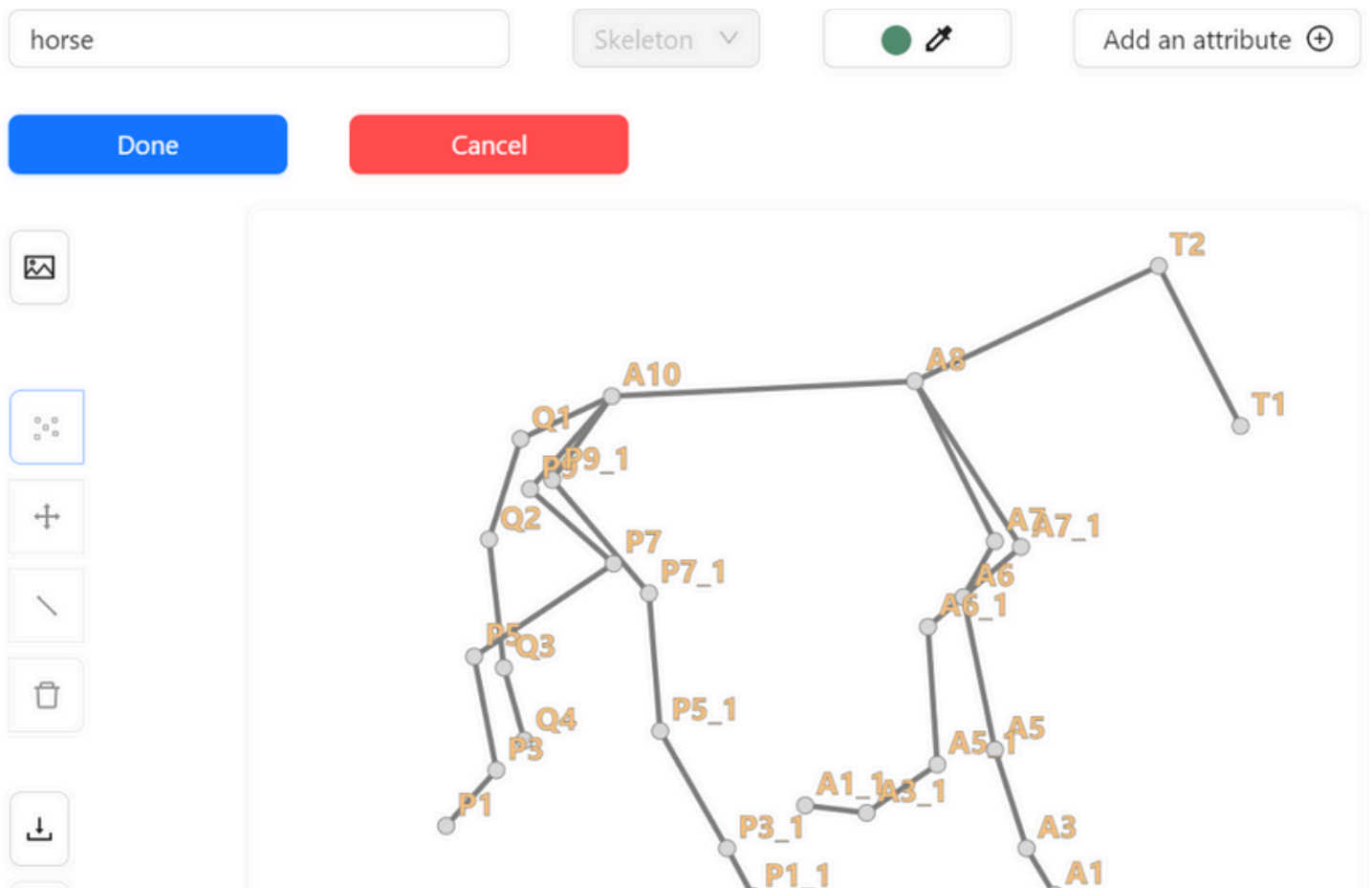
We shall now establish the connections among the main points:
Just click on the key points and draw a line to where it meets the other key points to create the link.



02. CREATE A PROJECT

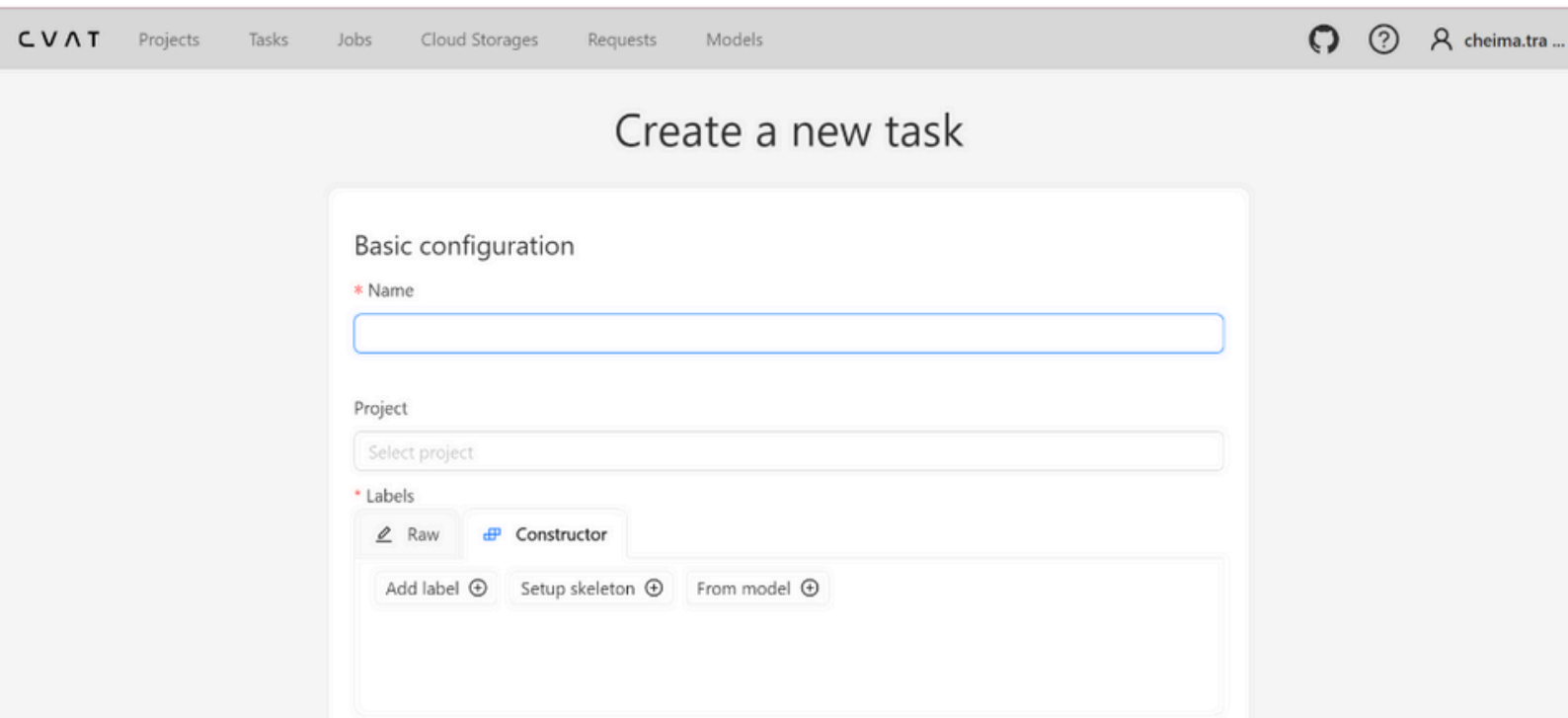
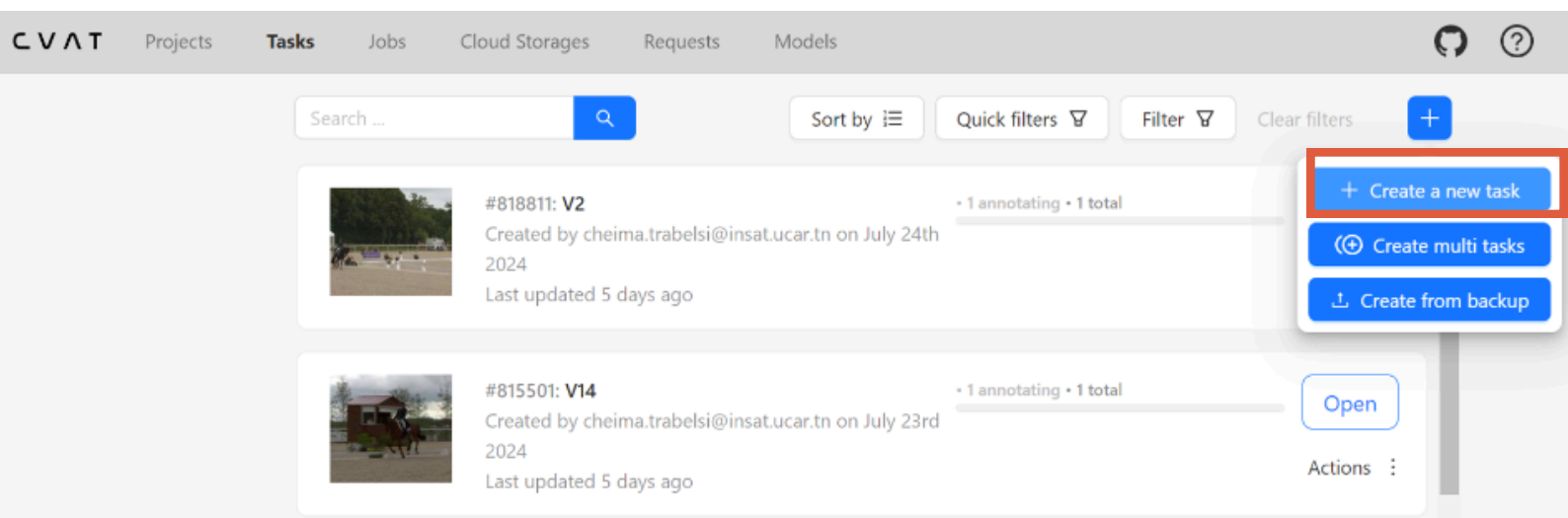
2.1 SETUP SKELETON

untill we have a similar result



03. CREATE A TASK

Once the project is created , we can create tasks




03. CREATE A TASK

we will name the task according to the video we will be annotating, select the project, and then upload the frames to be annotated

Basic configuration

* Name

Project


Subset

Labels

Project labels will be used

* Select files

My computer Connected file share Remote sources Cloud Storage



Click or drag files to this area

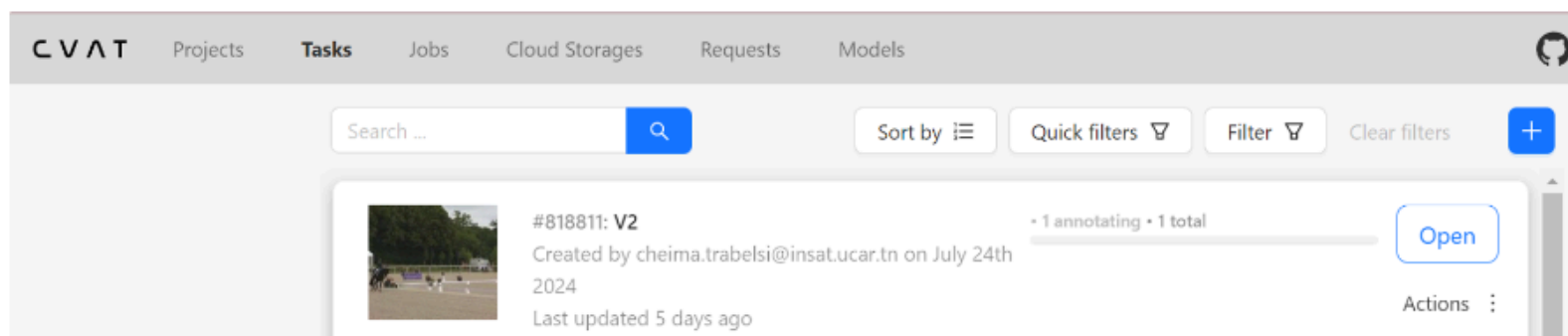
32 files selected

> Advanced configuration

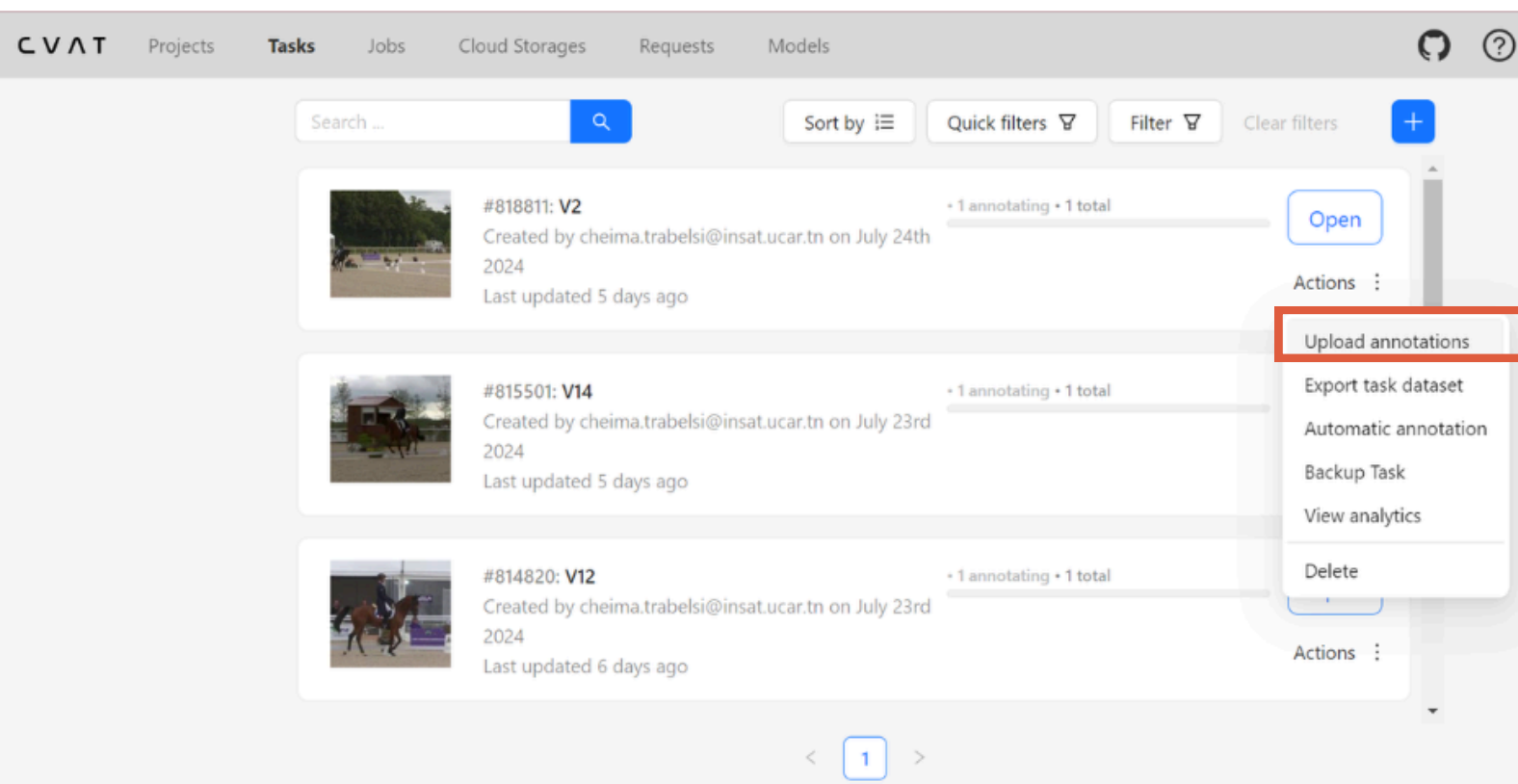
Submit & Open Submit & Continue

03. CREATE A TASK

Here is the task created if we will create the annotation from scratch just we will open the task

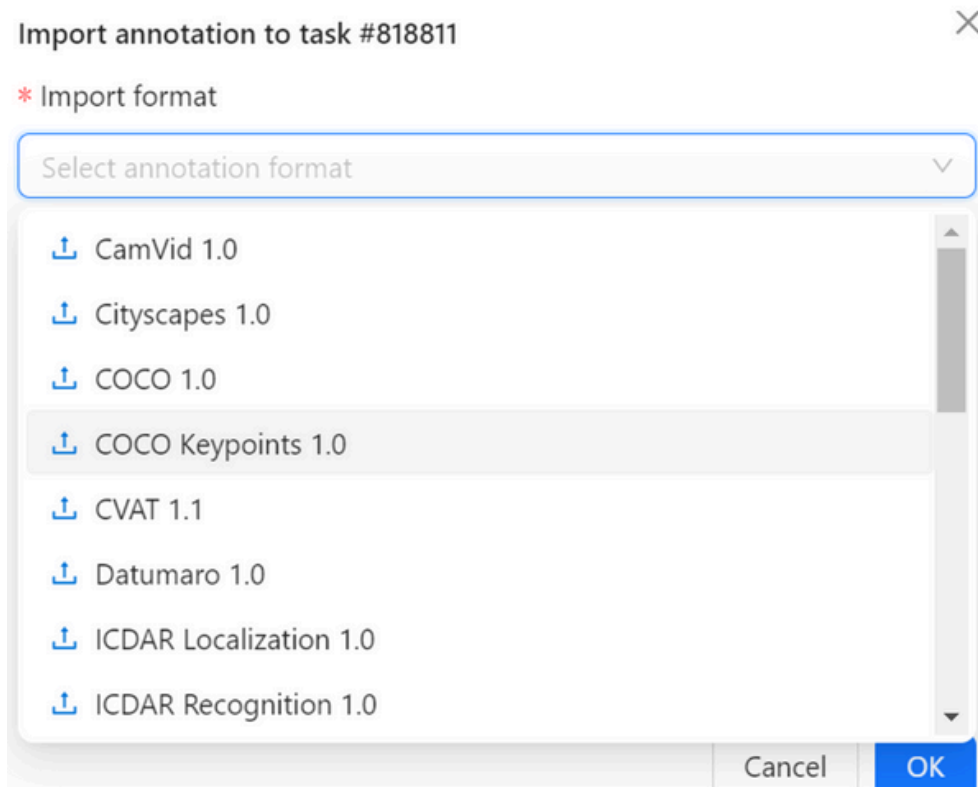


If we want to rectify an exiting annotation we will need to upload the annotation file as below



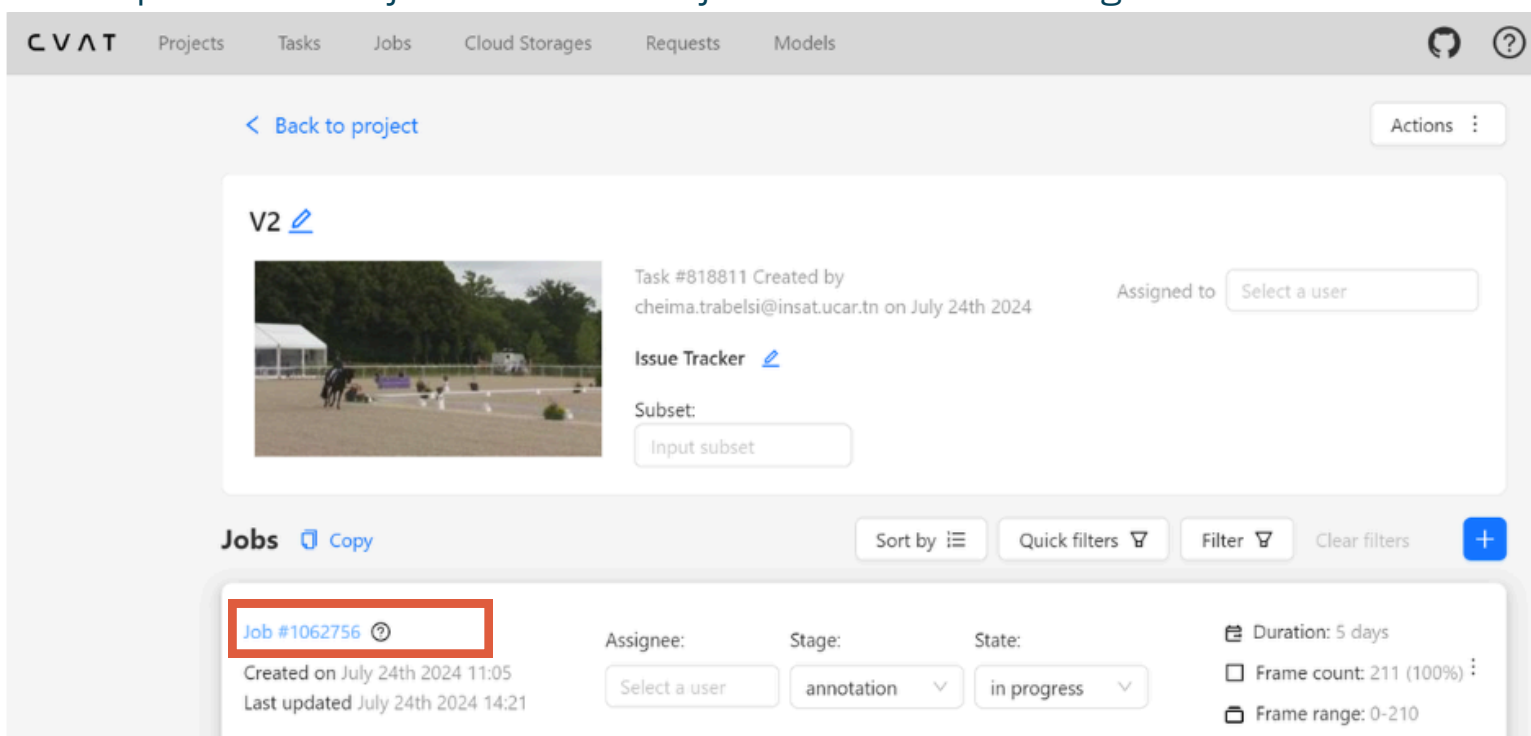
03. CREATE A TASK

In our case, the format of the annotation file is **COCO keypoints 1.0**



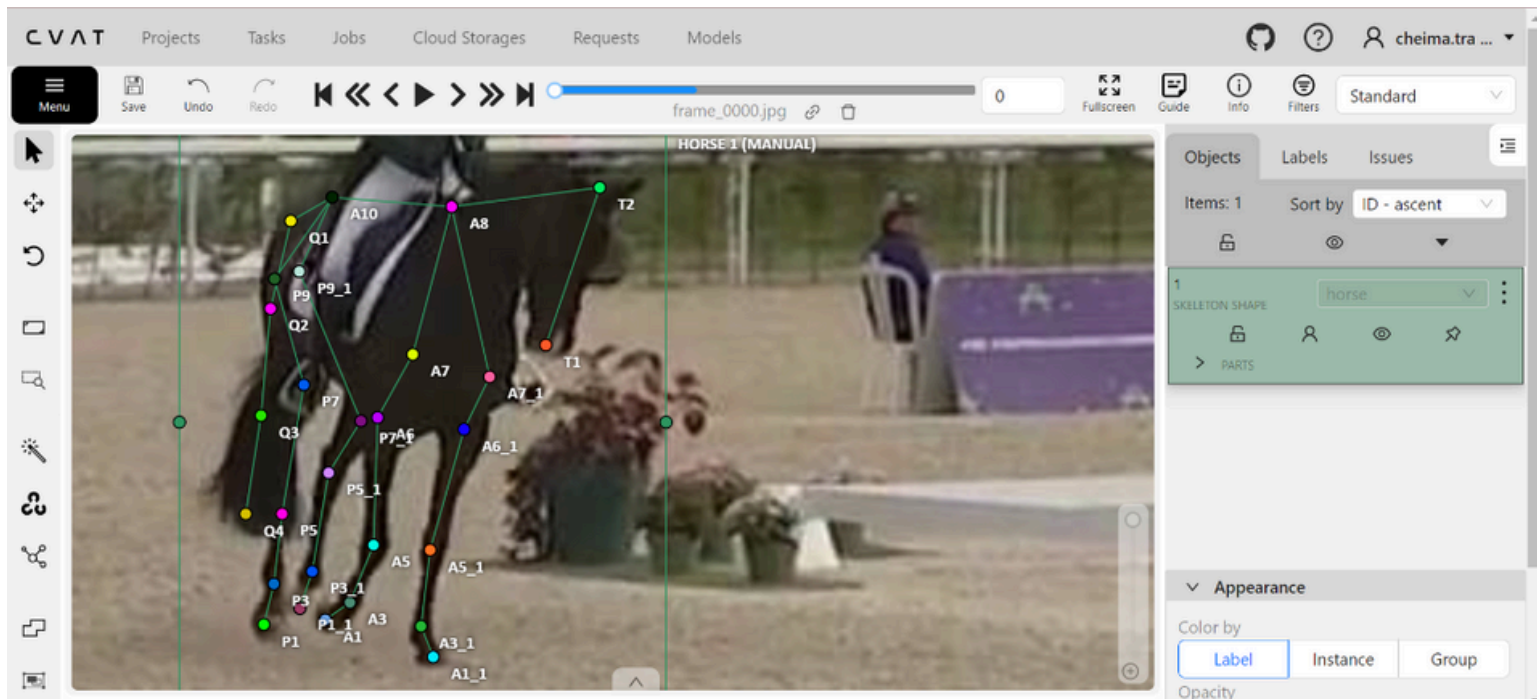
Make sure that the number of frames already uploaded and the annotation are the same and the keypoints names as well otherwise the annotation won't be uploaded

To open the task just click on the job number like the figure below

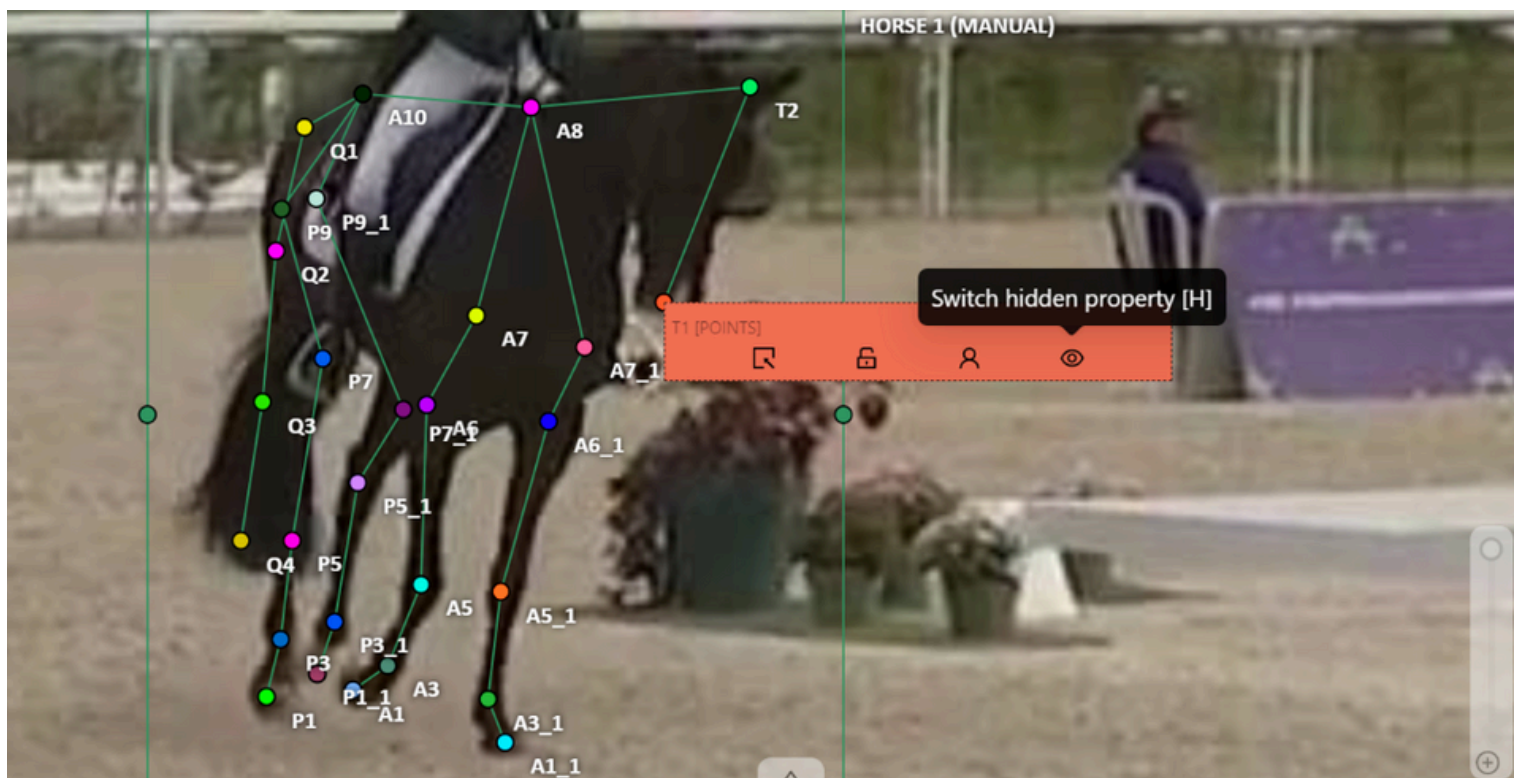


03. CREATE A TASK

Here is the overview of the task with the annotation uploaded

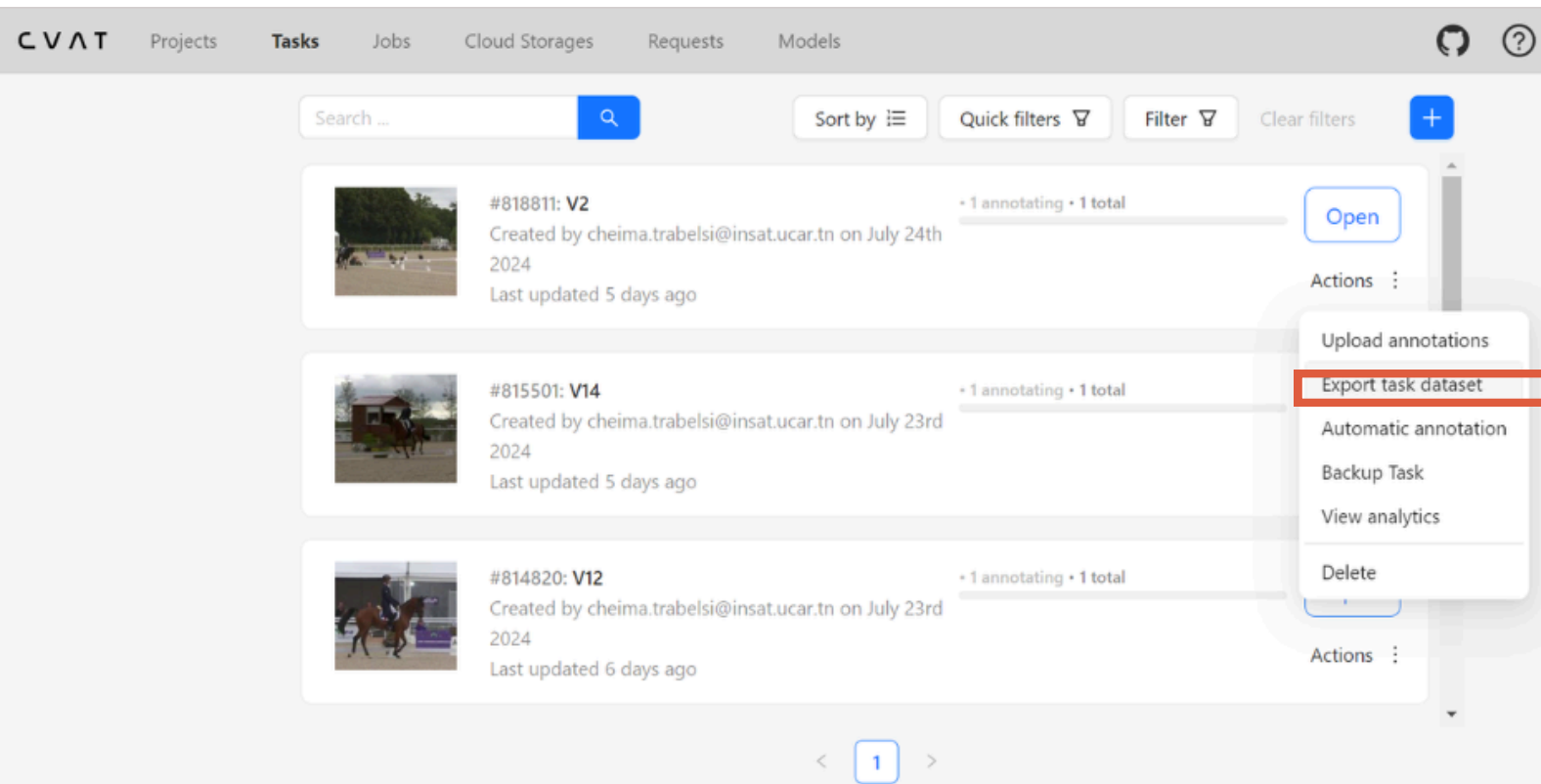


We can move any points and rectify their location if the points should not be seen as they should be occluded you can simply eliminate it

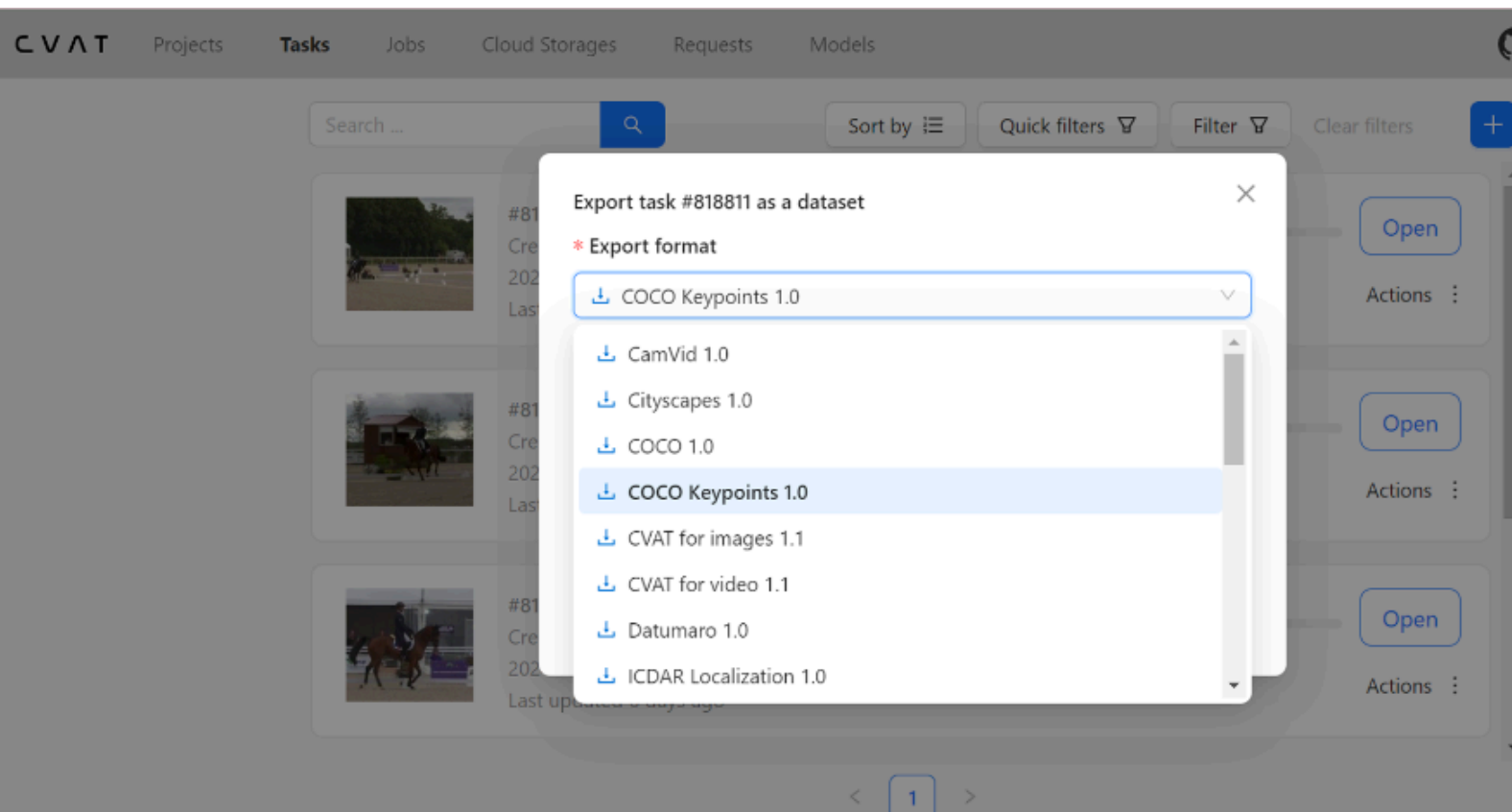


03. CREATE A TASK

once all is saved we can now export the correcetd annotations



We can choose the export format as for us we use the same as the previous annotation file which is **COCO keypoints 1.0**



RECOMMENDATIONS

- When uploading the annotation we need to make sure that the annotation was done for the same resolution of the images we uploaded to the tasks otherwise the annotation won't be aligned.
- For the tasks, we create a task per video and annotate each one separately.
- The server may occasionally crash when working online, so we must often save our updates so we don't lose them.

2024

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**THANK
YOU**
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Cheima TRABELSI

