

# A summary of computer vision 2D/3D annotation tools, super easy to use!



Original link: [Too complete! A summary of computer vision 2D/3D annotation tools, super easy to use!](#)

Labeling tools are the first step in processing raw data. Whether it is detection tasks, segmentation tasks, 3D perception, point clouds, etc., it is necessary to produce ground-truth values to supervise network learning. Enterprise-level labeling solutions are generally completed through internal self-developed tools or professional labeling teams. For individuals or small teams, an open-source and easy-to-use labeling tool is crucial. The Heart of Autopilot summarizes the fields for everyone. Commonly used annotation tools involve 2D detection segmentation/3D detection segmentation and multi-sensor calibration synchronization.

## detection segmentation calibration

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### 1.Labelme

**Project address :** <https://github.com/wkentaro/labelme>

Main support:

- Polygon segmentation, semantic segmentation, 2D box, line annotation, point annotation (can be used for object detection, image segmentation and other tasks)
- video annotation

## 2. LabelImg

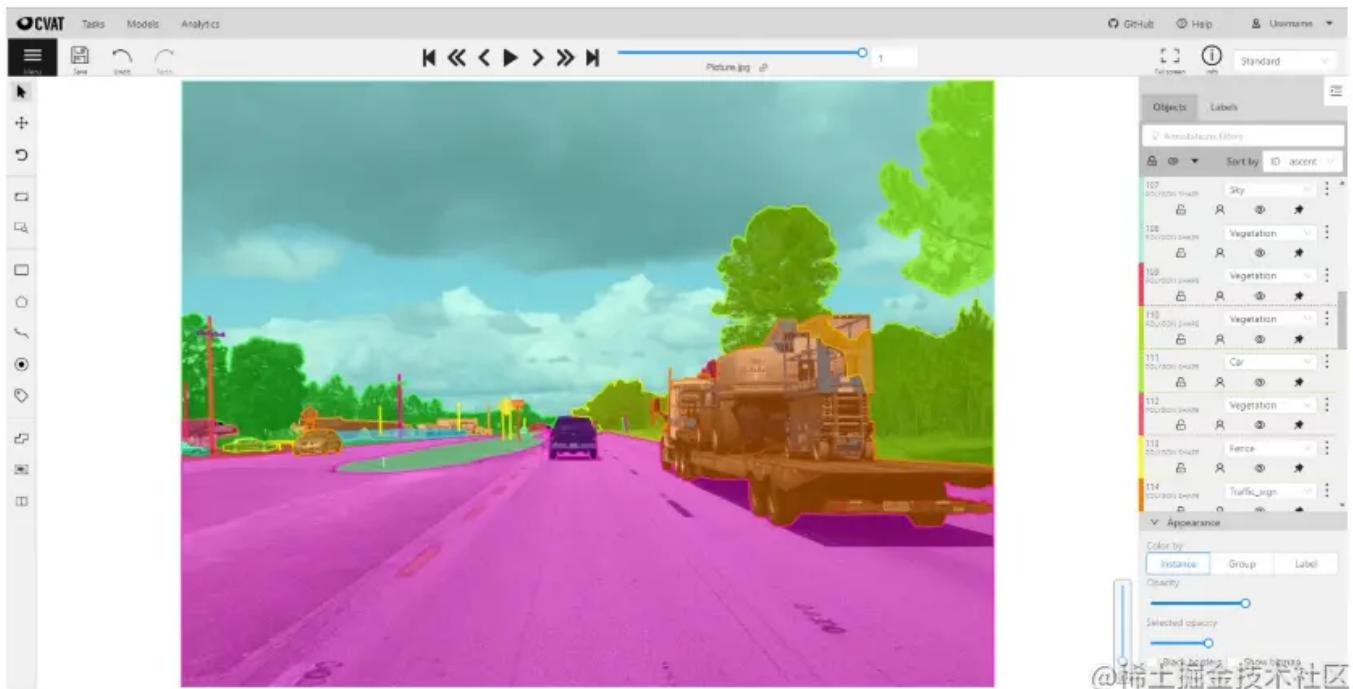
**Project address :** <https://github.com/heartexlabs/labelImg>

There are three options for labeling save files: PASCAL VOC, YOLO, and CreateML, which only support data labeling for target detection tasks.

## 3. CVAT

**Project address :** <https://github.com/openvinotoolkit/cvat>

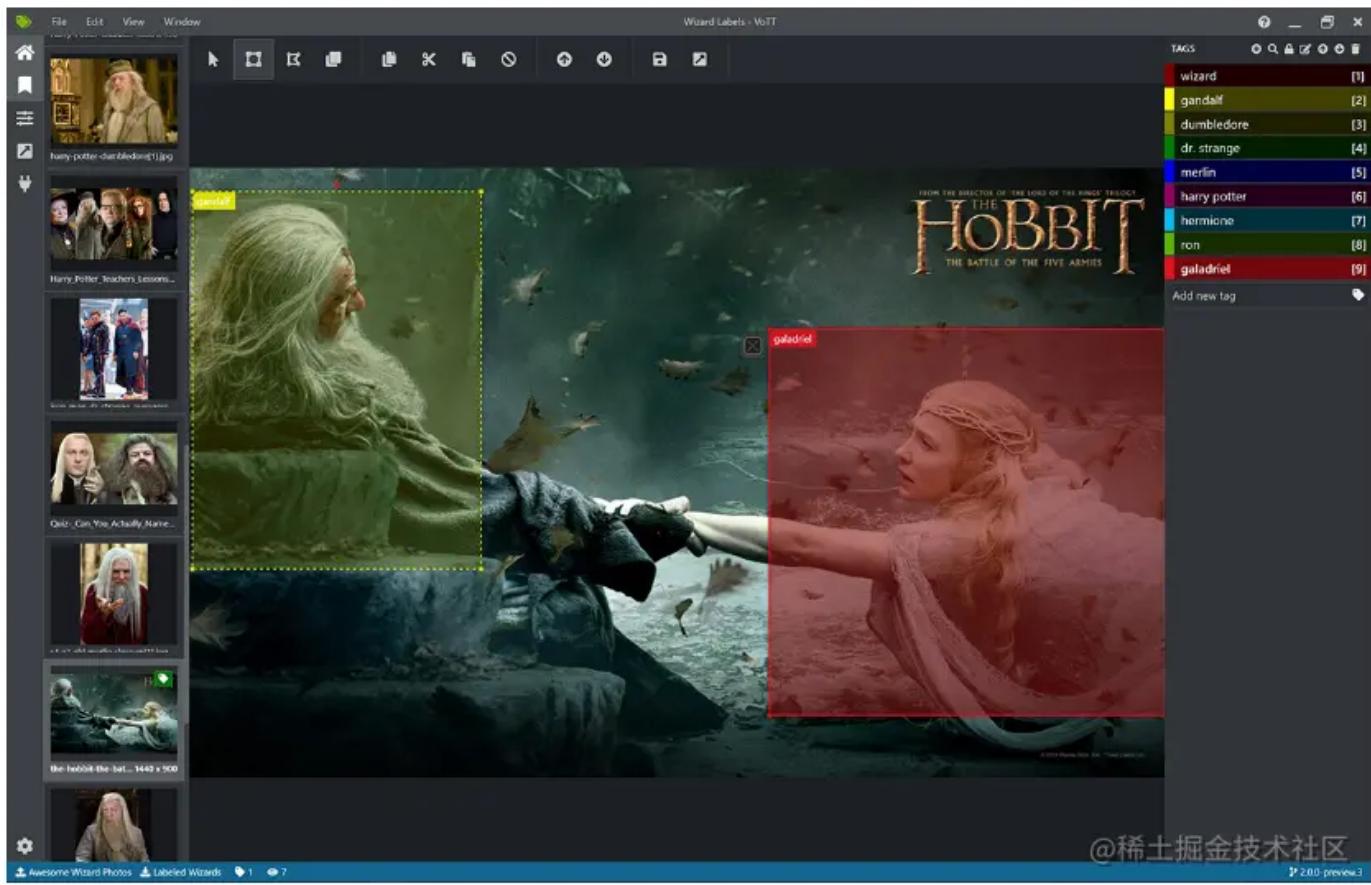
Free online interactive video and image segmentation annotation tool;



## 4.VoTT

**Project address :** <https://github.com/microsoft/VoTT>

A JavaScript-based annotation tool for image target detection released by Microsoft, developed with React+Redux, and supports Windows and Linux platforms. The software also provides a way to automatically label and then manually correct the faster-rcnn model based on CNTK training,



## 5. EISeg

EISeg (Efficient Interactive Segmentation) is an efficient and intelligent interactive segmentation and annotation software developed based on flying paddles. It covers high-quality interactive segmentation models in different directions such as general, portrait, remote sensing, medical, video, etc. In addition, by applying the annotations obtained by EISeg to other segmentation models provided by PaddleSeg for training, high-precision models for customized scenarios can be obtained, and the whole process of segmentation tasks from data annotation to model training and prediction can be completed.

**Old version :**

<https://github.com/PaddleCV-SIG/EISeg>

**New version :** <https://github.com/PaddlePaddle/PaddleSeg/tree/release/2.6/EISeg>

**main feature:**

- Efficient semi-automatic labeling tool, has been launched on multiple Top labeling platforms
- Covering many vertical scenarios such as remote sensing, medical treatment, video, 3D medical treatment, etc.
- Multi-platform compatible, easy to use, support multi-category label management

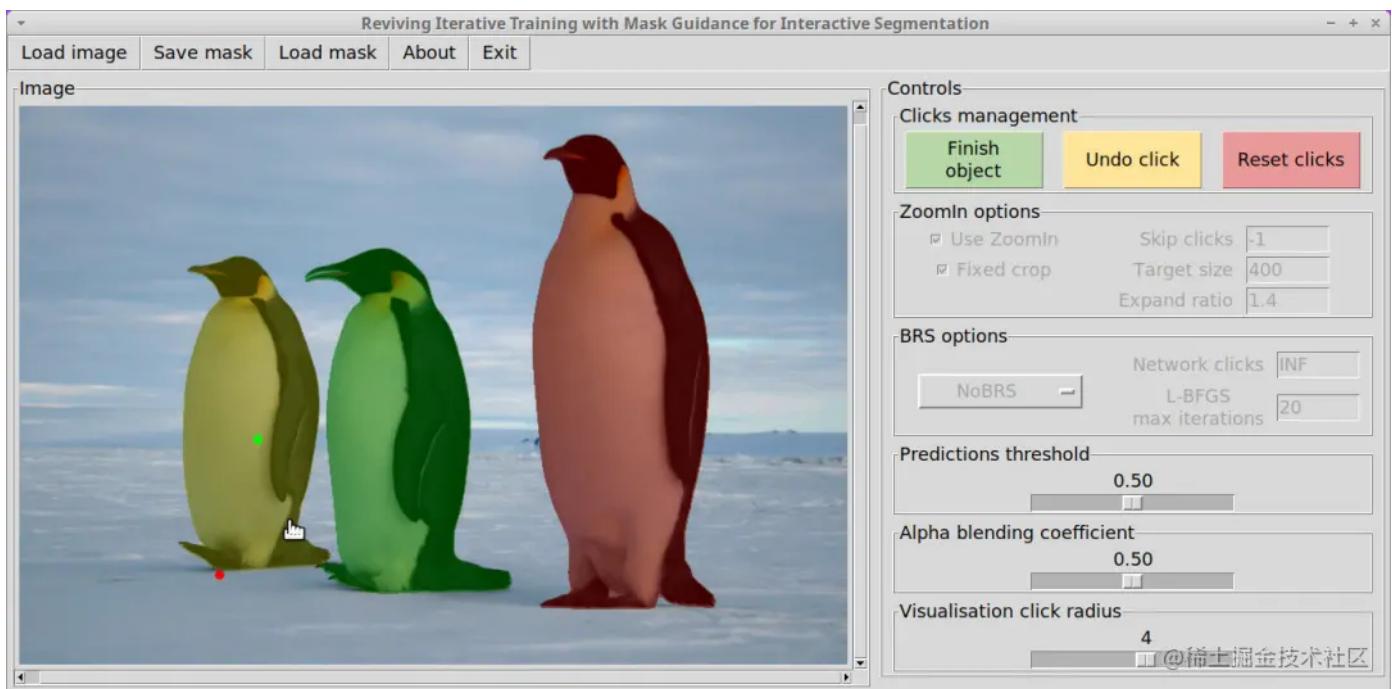


img

## 6. RITM

**Samsung open source interactive calibration tool RITM** : [https://github.com/saic-vul/ritm\\_interactive\\_segmentation](https://github.com/saic-vul/ritm_interactive_segmentation)

For click-based interactive segmentation, the model uses the segmentation mask output by the pretrained inference model, which not only segments a completely new object, but also starts from the outer mask and corrects it;



## Multi-sensor calibration

### 1. OpenCalib

**Project address :** <https://github.com/PJLab-ADG/SensorsCalibration>

SenseTime's open-source toolkit supports calibration between camera, lidar, imu, and radar:

calibration param	calibration type	calibration method	mannual calibration	auto calibration	usage documentation
camera intrinsics	intrinsic	target-based		✓	<a href="#">camera intrinsic</a>
imu heading	extrinsic	target-less		✓	<a href="#">imu heading</a>
lidar2imu	extrinsic	target-less	✓	✓	<a href="#">lidar2imu</a>
lidar2camera	extrinsic	target-less	✓	✓	<a href="#">lidar2camera</a>
lidar2lidar	extrinsic	target-less	✓	✓	<a href="#">lidar2lidar</a>
radar2camera	extrinsic	target-less	✓		<a href="#">radar2camera</a>
radar2lidar	extrinsic	target-less	✓		<a href="#">radar2lidar</a>

calibration board type	calibration sensor	calibration board pattern	remove opencv	auto calibration	usage documentation
chessboard	Camera	chessboard	✓	✓	factory calib
circle board	Camera	circle_board	✓	✓	factory calib
vertical board	Camera	vertical board	✓	✓	factory calib
apriltag board	Camera	apriltag board	✓	✓	factory calib
aruco marker board	Camera	aruco marker board	✓	✓	factory calib
round hole board	Camera and LiDAR	round hole board	✓	✓	factory calib @稀土掘金技术社区

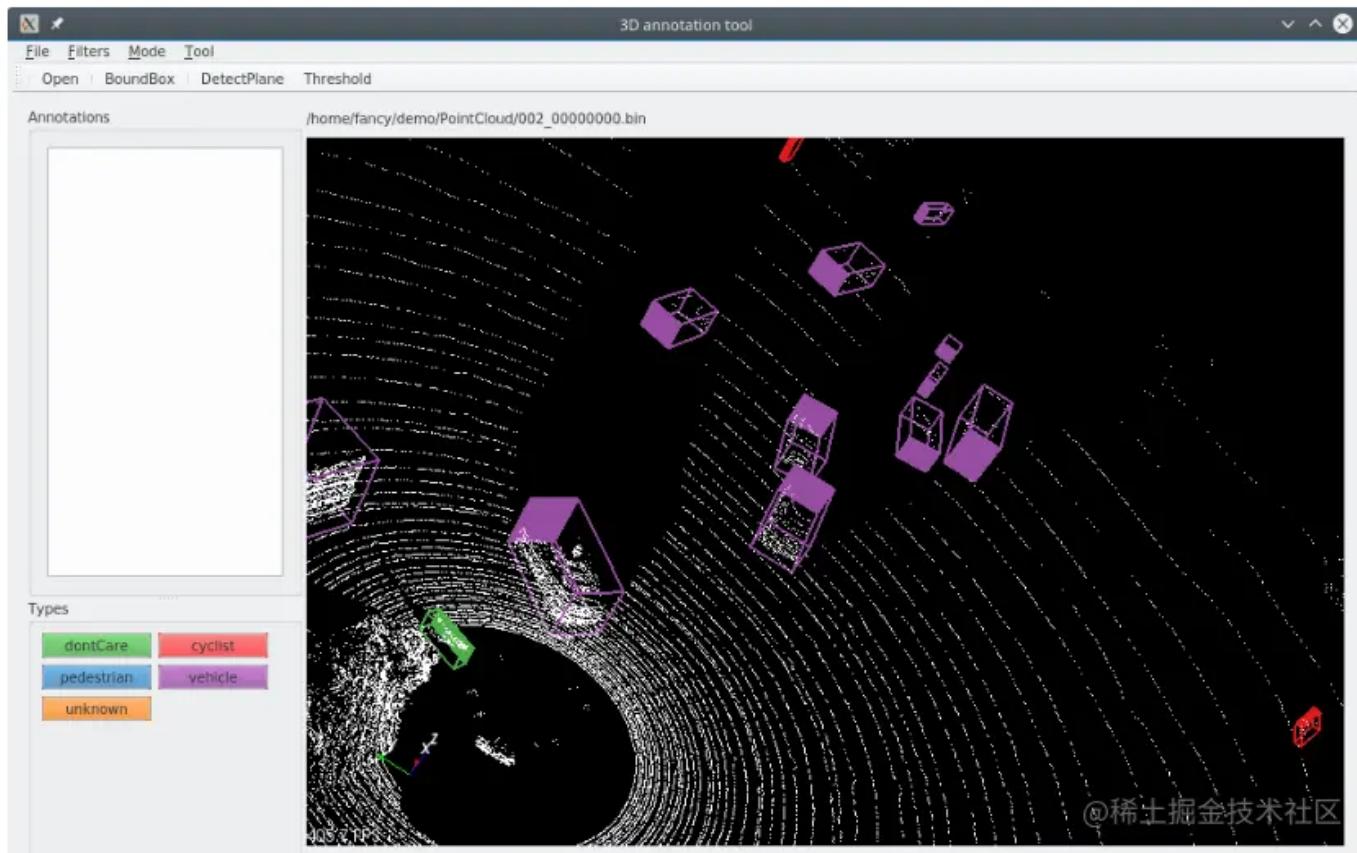
## 3D detection and calibration

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### 1. point-cloud-annotation-tool

Project address : <https://github.com/springzfx/point-cloud-annotation-tool>

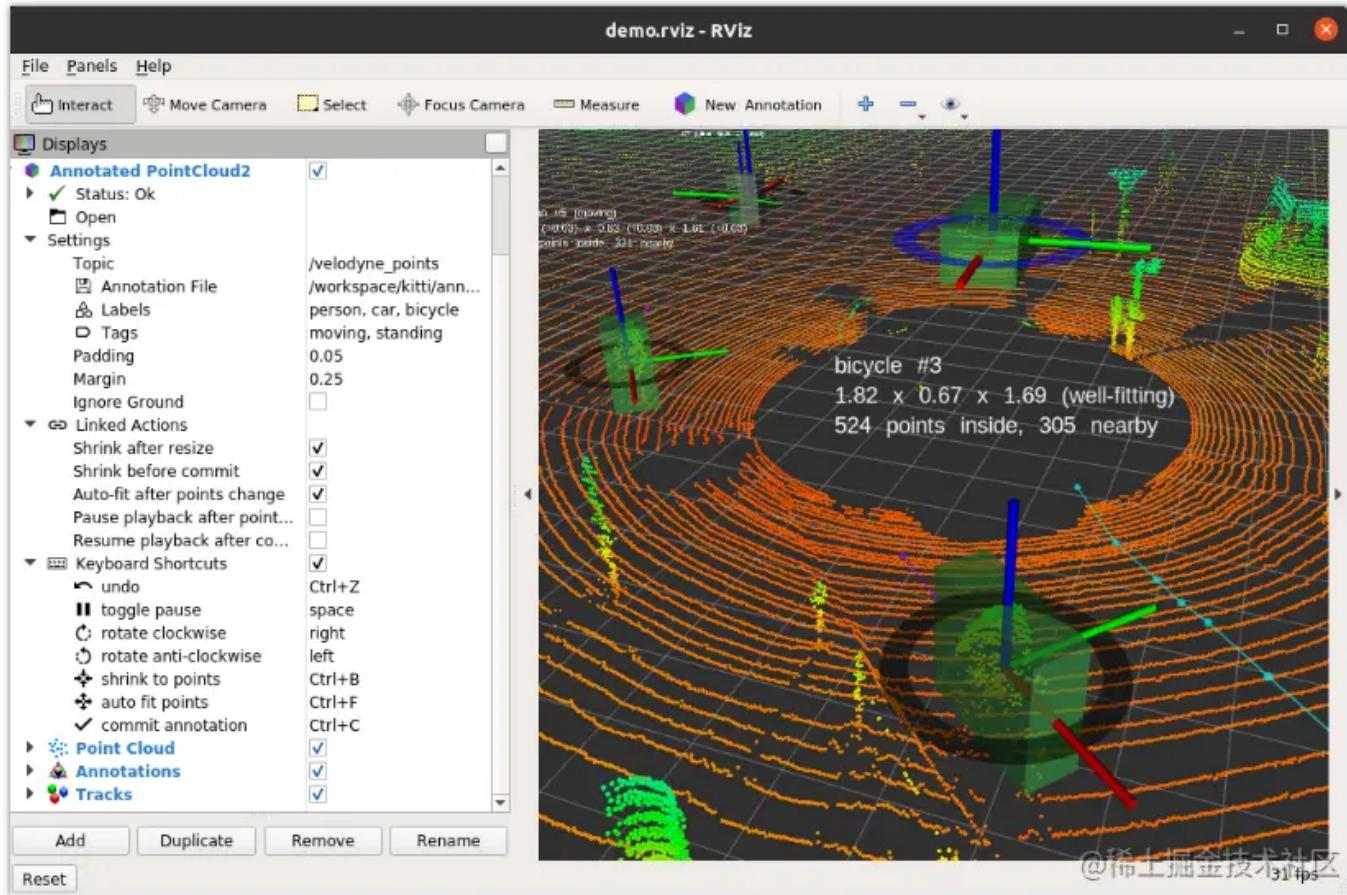
It is mainly used to calibrate the box information of the target in the 3D point cloud, and supports exporting KITTI format and Apollo 3D format!



## 2.annotate

**Project address :** <https://github.com/Earthwings/annotate>

Based on ROS framework calibration, generate 3D detection frame, xyz and whl information;



### 3. 3D BAT

**Project address :** <https://github.com/walzimmer/3d-bat>

It can be used to calibrate 3D targets such as cars, trucks, motorcycles, self-driving cars, pedestrians, etc., and supports any target labeling with more than 10 points!



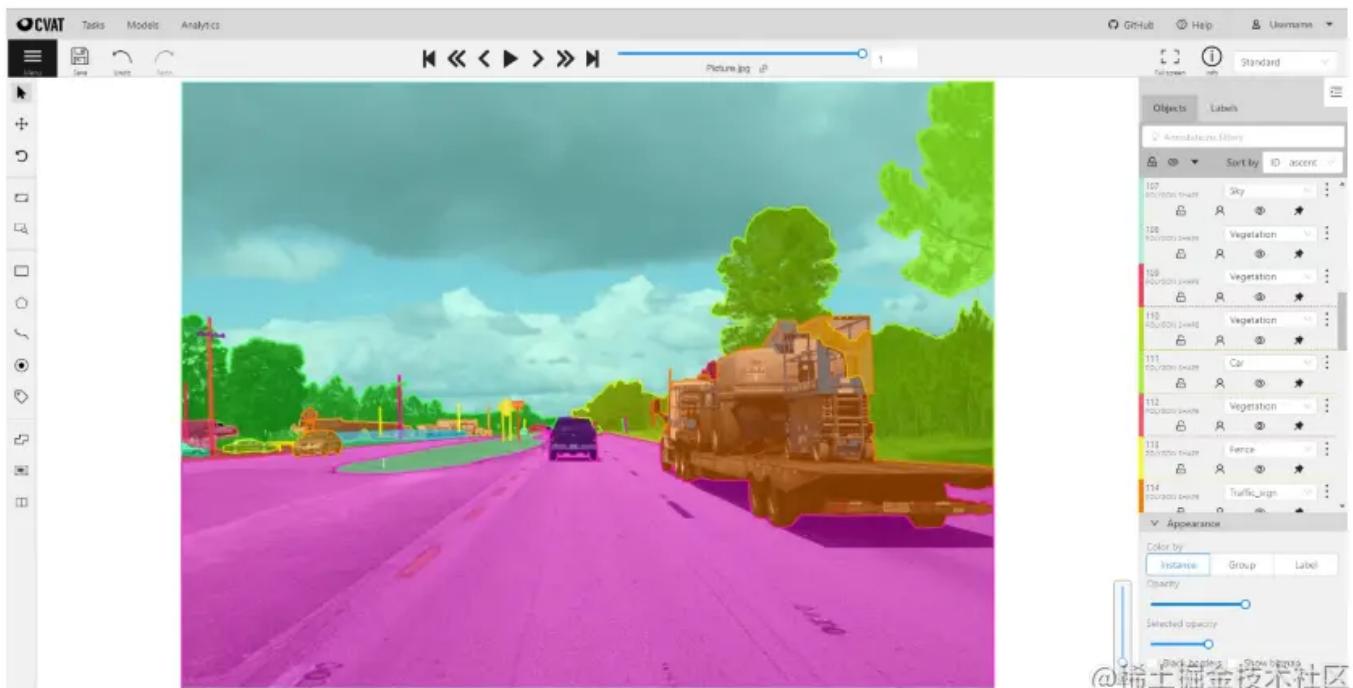
## 4. SUSTechPOINTS

**Project address :** <https://github.com/naurril/SUSTechPOINTS>

Main support:

- 9DOF BoxEdit
- Object Type/ID/Attribute Editing
- Interactive/Automatic Cuboid Fitting
- batch mode editing
- Perspective/Projected ViewEdit
- Multiple camera images with automatic camera switching

- Jpg/png image file
- Object/Box/Point Shading
- Focus mode, hide background, easy to see details
- Stream play/stop
- Object ID generation



## 3D point cloud segmentation and calibration

### 1.semantic-segmentation-editor

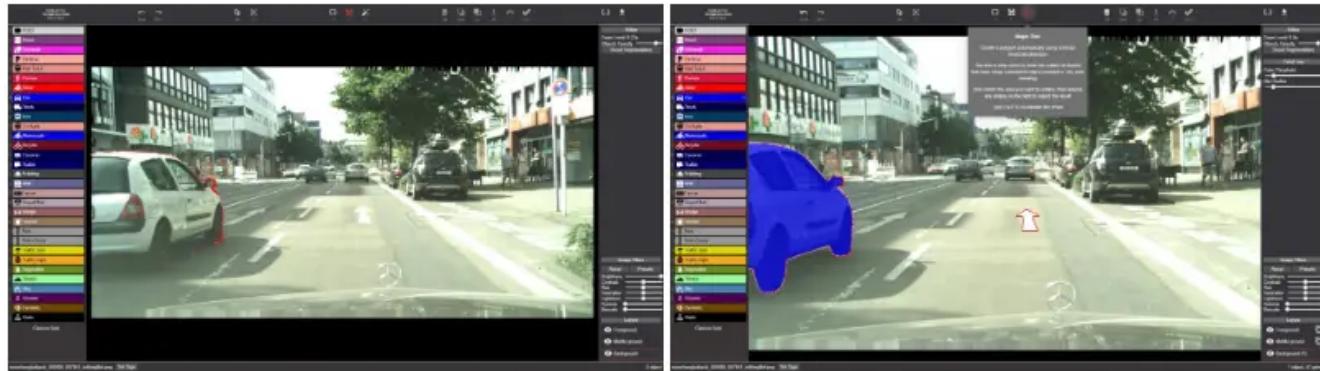
**Project address :** <https://github.com/Hitachi-Automotive-And-Industry-Lab/semantic-segmentation-editor>

A web-based tool that supports image and point cloud formats for segmentation and annotation of 2D and 3D data!

## Bitmap Image Editor

 [VIDEO: Bitmap labeling overview](#)

 [DEMO: Bitmap editor](#)



## PCD Point Cloud Editor

 [VIDEO: Point cloud labeling overview](#)

 [DEMO: Point cloud editor](#)

