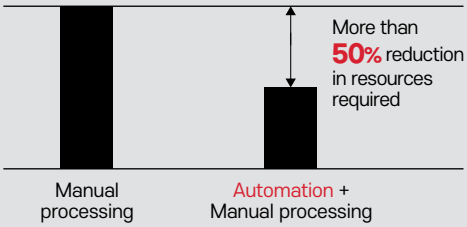
# blackolive

## blackolive for high-quality training data of AI

Faster, more convenient, and more accurate

## blackolive can process and manage AI training datasets required for AI development

**By 50% +**




### Large-scale

Creating and managing large-scale data tasks more efficiently

- Uploading data, creating and assigning tasks, etc.

### Automation

Auto-labeling with the latest object detection technology

- Careful manual calibration and review after automatic labeling

### High-quality

Improvement of review process by automating simple repetitive tasks

- A dedicated communication space to enhance collaboration between annotators and reviewers

### Upgraded

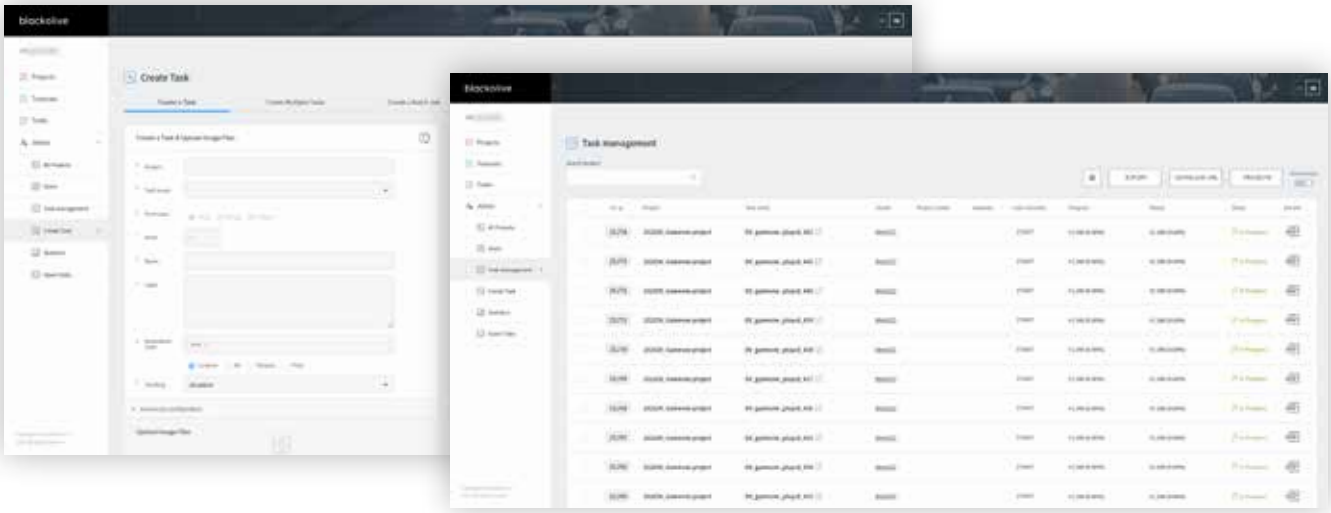
User-friendly and convenient features

- Auto-labeling, shortcut keys, task settings, etc.

## Large-scale

Easily creating tasks by uploading large amounts of images, videos, etc. with a click or drag-and-drop (secure with Azure Storage)

- Creating projects easily
- Creating single, multiple, or batch tasks  according to the size of the project
- Efficient management of datasets and projects



## Automation

Performing the preliminary processing of large-scale data faster through automation

- Containing automation models that can recognize about 260 objects in 20 categories in 7 fields, including sidewalk walking, autonomous driving, healthcare, and security
- With semi-auto feature, even objects that have not been learned in advance can be manually calibrated after auto-labeling
- Semi-auto-labeled datasets can be used to train an object recognition model to do auto-labeling

[ Select target ]

[ A sample result from the semi-auto labeling feature ]

A semi-auto labeling example

When the user draws a rectangle around the target object, it is automatically separated from the background and its bounding polygons are labeled

## High-quality

Improvement of quality through manual calibration and review for auto-labeled data

- **Improving accuracy of auto-labeling with the latest object detection technology and personal datasets**
- **A communication space for labelling and review within the work screen to boost productivity**

### Object card

- Data labeling followed by object card creation
- Labeling Information and miscellaneous settings through the object card

### Task review

- Checking and exploring all edits on one page
- When editing is complete, click <Done>

### Labeling management

- Checking entire groups of labeling
- 'Select by label' and 'Locked' mode for ease of access

## Upgraded

Improvement productivity through user-friendly features including labeling, user menus, and work screens

- **Trendy UI and optimized UX**

1. Enhancing visual ergonomics with Dark Mode
2. Improving efficiency and usability of shortcut keys
3. Additional features available for advanced users
4. Easy and intuitive icons and functions

**Top Navigation**

Providing basic information on tasks, page navigation, shortcut keys, statistics, and setting pop-ups

**Left Tool Bar**

Controls for creating and labeling objects

**Right Tool Bar**

Controls for label attributes. Review tab for correction requests.

### Advanced settings

- Ordering of labels
- Dataset configuration for Openpose
- Setting overlap and segment size
- Setting image quality
- Setting video frames per second for upload

### Statistics Screen for manager

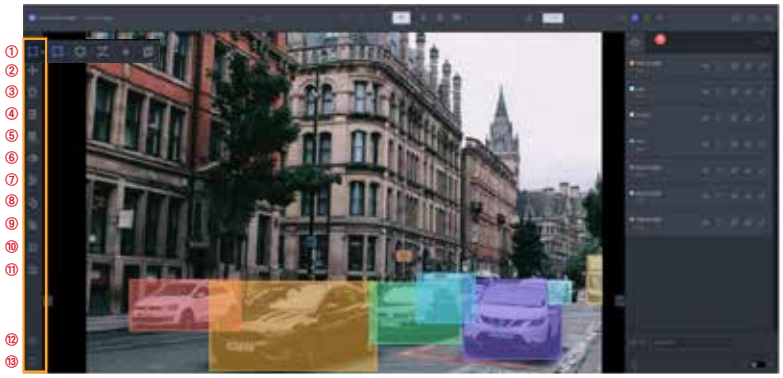
- Providing visualized information for the project such as the number of total tasks, the number of total labels, the number of total errors, the number of total frames, the number of label reviews, etc.

# blackolive work screen for processing data

## ≫ Left Tool Bar

**Main menu**

① Select Labeling
② Move object/image
③ Adjust brightness
④ Opacity
⑤ View grid
⑥ Show label order
⑦ Sort priority
⑧ Merge
⑨ Group
⑩ Rotate right
⑪ Rotate left
⑫ Save
⑬ Exit

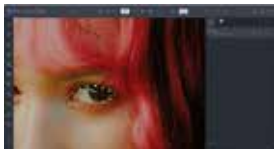



## ≫ blackolive's labeling functions

| Types | Labeling functions | Use cases |
|---|---|---|
| Box | Labeling the target object with a rectangular box | Most commonly used to detect the target object |
| Polygon | Labeling the target object with multiple continuous points and line segments, following its outline | Used to minimize errors caused by empty spaces around the target object depending on the AI modeling method |
| Polyline | Labeling the target object with one connected line | Mostly used to define sidewalks, lane lines, etc. |
| Points | Labeling a certain area with points (However, a polygon cannot be generated even when multiple points are drawn in a continuous space.) | Mostly used for facial recognition |
| Cuboid | Labeling the target object with a cuboid | Mostly used to recognize 3D objects such as cars and buildings |
| Body | Labeling a human body with a skeleton model | Mostly used to detect the movement of a human body, such as general motion capture or abnormal behavior |
| Face | Labeling each part of a human face | Used to detect distinctive features of a human face, such as for facial recognition technology |
| Hand | Labeling a hand as the target object | Used to recognize the movement of hands such as in sign language |
| Animal | Labeling animals with a skeleton model | Used to detect the movement of an animal such as cattle, pigs, etc. |

**Example of using the labeling function**


• Box


• Point


• Body


• Polyline


• Cuboid

# blackolive pricing policy for corporate clients

Offering the best solution for AI data processing and management, blackolive's user-friendliness and scalability are the result of constructing autonomous driving datasets for severe years.

## ≫ Software service types of blackolive

### On-premise

- Cost of using blackolive processing management solution
  - Calculating annual license cost

  + Technical support expenses
  + Education expenses

### Cloud (SaaS)

- Cost of using blackolive processing management solution
  - Calculating cost based on the number of processed data objects, workload, and storage capacity
  + Maintenance expenses (technical support)
  + Education expenses

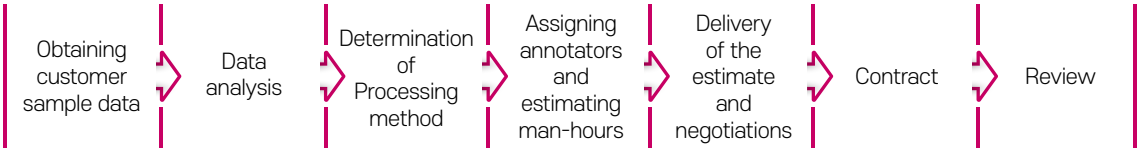
## ≫ Training data processing service

- Costs are applied for each work method and unit according to the type of processing data.

| Data | Procedure | Unit |
|---|---|---|
| Image | Box, Polygon, Polyline, Points, Cuboid, Body, Hands, Face | Object, Point |
| Video | Box, Polygon, Polyline, Points, Cuboid, Body, Hands, Face | Object, Point |
| Text | Context, Subtext, Question & Answer sets | Sentence |
| Sound | Transcription, Sentence segmentation, Recording, Answering questions | Segment, Question, Sentence length |

## ≫ PoC (Proof of Concept) process for processing training data

- After reviewing the customer's sample data to accurately estimate the processing cost, a quotation is provided by calculating the processing method, worker selection, and man-hours according to the characteristics of the customer's requirements.




* For cost details, please contact us separately

# blackolive use cases

Constructing large-scale datasets

## ≫ SideGuide

**A large-scale dataset for disabled people**

- Led NIA 'Sidewalk AI Data Project' in 2019

| Category | Output | | | Planned | Result |
|---|---|---|---|---|---|
| Processing | Dataset | Object detection | Bounding Box | 350,000 cut | 352,810 cut |
| | | | Polygon | 100,000 cut | 100,712 cut |
| | | | Surface Masking | 50,000 cut | 51,318 cut |
| | | Depth estimation | Depth Prediction | 150,000 set | 174,080 set |

## ≫ Sign Language Dataset

**Sign language video dataset for developing sign language recognition models**

- Led NIA 'Sign Language Video AI Data Project' in 2020

| Process | Output | Details | Quantity | Result |
|---|---|---|---|---|
| Collection | Sign language video | Number of sign language sentences & words (Recorded inhouse) | 500,000 clips | Data construction complete with 536,000 clips |
| | | Number of fingerspellings & numbers (Crowd-sourced) | 21,000 clips | |
| | | Number of sentences using animated characters (Synthetic data) | 15,000 clips | |
| Processing | Training dataset | Annotation fileset | 536,000 files | |

## ≫ Traffic Safety Dataset

**Highway CCTV traffic dataset to solve traffic problems**

- Participated in NIA 'Traffic Safety CCTV AI Data Project' in 2020

[Highway Bounding Box data]

| Number of images | Number of objects (Class) | | | |
|---|---|---|---|---|
| | Car | Bus | Truck | Sum |
| 301,329 | 1,413,751 | 55,028 | 637,579 | 2,106,358 |

[Highway Polygon Segmentation data]

| Number of images | Number of objects (Class) | | | |
|---|---|---|---|---|
| | Car | Bus | Truck | Sum |
| 265,618 | 1,053,640 | 47,370 | 509,846 | 1,610,856 |

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