Computer Vision Annotation Tool (CVAT)

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Computer Vision Annotation Tool (CVAT)

- Open Source (MIT License)
- Growing community
- Auto annotation using trained DL models
- Collaborative
- Easy to deploy and maintain
- Client-server architecture
  - Web-based UI
  - Django server (REST)
- Optimized for primary annotation workflows

GitHub: [Link](https://github.com/opencv/cvat)

Gitter: [Link](https://gitter.im/opencv/cvat)
Use case: object detection

- **Shapes**
  - Bounding boxes
  - Polylines
  - Points
  - Polygons

- **Interpolation of bounding boxes between key frames**

- **Any labels** (e.g. car, person, ignore)

- **Any attributes** (e.g. parked, color, model, etc)
Use case: classification

- Keyboard shortcuts
- Flexible filtration of objects
- Optimized for efficiency (>1000 tags/hour)
- Type of attributes: boolean, choice, number, text
- Concentrate on one attribute at a time
- Use undefined attribute by default
- Annotate the same attribute several times to raise quality
Use case: semantic segmentation

- Layers to avoid re-drawing
- Flexible filtration of objects
- Easy way to draw, resize, edit polygons
- Highlight of unannotated regions
- UI and UX tricks
  - Transparency
  - Emphasized boundaries
  - Class view
- Semi-automatic methods (e.g. Deep Extreme Cut)
Semi-automatic method: Deep Extreme Cut
Use case: auto annotation

Trained DL models

auto annotation = annotate data using DL models
Data in the loop concept

1. Extract useful data
2. Annotate by DL model
3. Verify data
4. Build a dataset
5. Train DL model
6. Deploy DL model

Data
Management of the data annotation workflow

- Available information
  - Activity
  - Actions
  - Working hours
  - Statistics
  - Exceptions

- Data annotation flow reconstruction
- Choose any time period
- Triage annotation problems
- Flexible filtration (e.g. user, event)
- Custom visualizations
Architecture
Plans

CVAT

REST API
cvat.js
UI

amazone mechanical.turk

TF
PyTorch

MXNet
Caffe2
OpenVINO

CVAT

MS COCO
Pascal VOC
TF records

JSON

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Conclusion

- CVAT is an open source and free solution to annotate vision data
- Primary annotation scenarios are supported out of the box
- Semi-automatic and automatic annotation for polygons and bounding boxes
- One step toward “data in the loop” platform
- Built-in capabilities to manage your data annotation resources
- Internal and private usage and cloud deployment are supported

Use, star, fork us and contribute!
Resources

Computer Vision Annotation Tool
GitHub
https://github.com/opencv/cvat

Gitter
https://gitter.im/opencv-cvat

Intel AI blog
https://www.intel.ai/introducing-cvat

Intel Developer Zone
Computer Vision Annotation Tool: A Universal Approach to Data Annotation

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