A GUIDE TO VIDEO ANNOTATION

Video annotation helps AI models to operate in dynamically moving real-world environments. This essential process can also be an expensive and time-consuming challenge. Video annotation often means human workers combing through thousands of frames of footage and locating and labeling objects in each one.

VIDEO ANNOTATION FOR AI PROJECTS:

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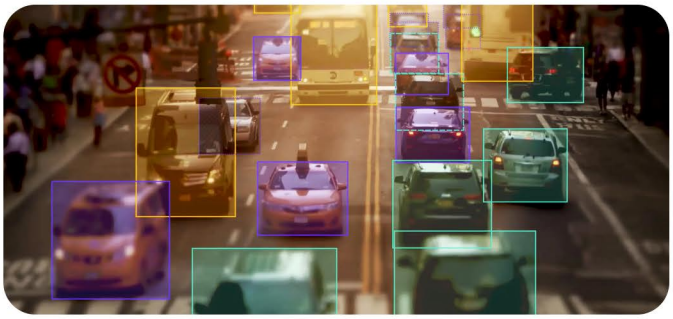
Video annotation types:

In order to create annotated video training data each frame of video is labeled according to the needs of the computer vision project. There are a variety of annotation types that can be deployed in order to achieve developer's desired goals:

Bounding boxes:

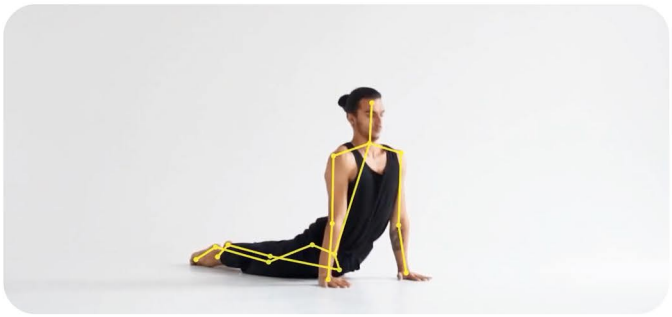


Polygon annotation:

This is the most common annotation type. Using an annotation platform, a box is dragged around a targeted object in a video frame. This technique is fast and easy to perform, but it does not fully capture the shape of complex objects at the pixel level.

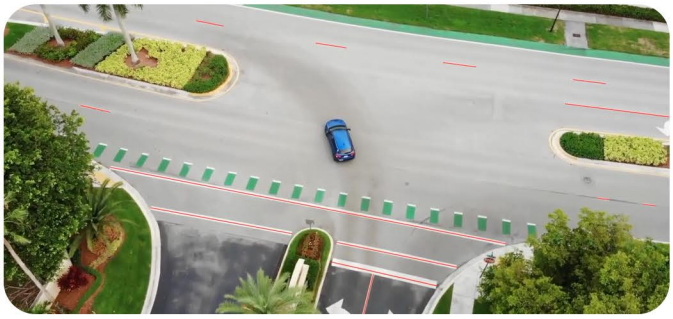
In order to precisely delineate the shape of objects it is necessary to use this annotation type. Annotators connect small lines around the pixel outline of target objects, allowing each frame of video to be segmented more precisely.

Skeletal annotation:



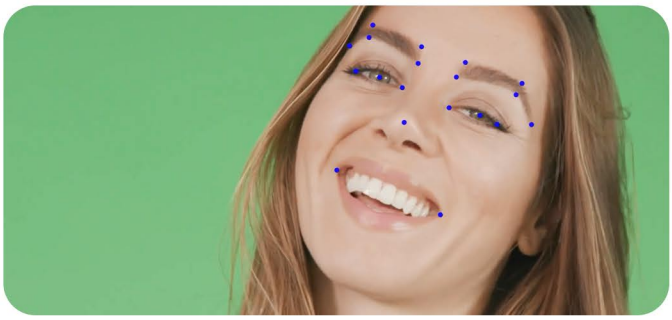
There are a number of AI use cases that require machine learning models to interpret the movement of the human body. Sports analytics systems and home fitness products are trained with video data featuring skeletal annotation.

Line annotation:



This annotation type makes it possible to label linear and parallel structures in video frames, this could mean roads, power lines, train lines or pipelines. Automated vehicles rely on video data annotated in this manner because it allows models to recognize road markings and stay within them.

Key point annotation:

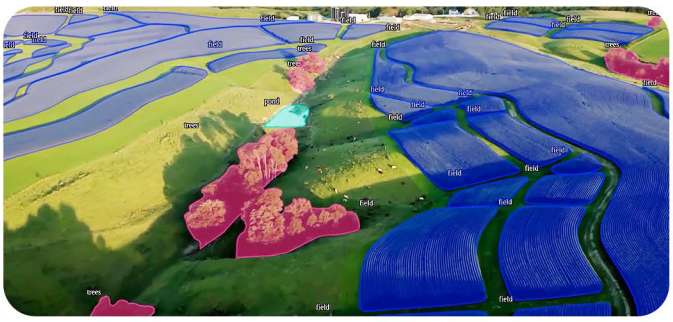


Video training data can be used to make facial recognition models for security or retail applications. This technology is enabled by key point annotation. This technique involves annotators marking key facial features (mouth, nose, eyes) as they appear in each frame of video.

Semantic segmentation:

Environmental perception is crucial for many AI use cases. In the case of autonomous vehicles this means providing models with important information about the road environment, such as road markings, obstacle locations and vehicle velocities. Semantic segmentation of video data can create this information for AI training by assigning each pixel in an image to a particular class.

Instance segmentation:



This method adds granularity to semantic segmentation by labeling each instance of a class of object.

VIDEO ANNOTATION SERVICES AND TOOLS:

AI companies looking for video annotation can make use of automated annotation tools to accelerate this process. Alternatively companies can collaborate with annotation service providers, like Keymakr, and access high-quality, scalable video annotation.

VIDEO ANNOTATION SERVICES:

Annotation services, like Keymakr, provide video labeling support to computer vision based AI pioneers. Keymakr maintains a large team of skilled annotators that work with proprietary technology to label significant volumes of video training data. The work of these annotators is led by experienced managers and verified by robust quality control procedures.

AUTOMATED ANNOTATION TOOLS:

AI assisted tools are often used to make annotation faster and easier for workers. This support can be extended to include the automated annotation of whole datasets. Objects of similar shapes can be auto-labeled over thousands of frames, significantly accelerating the video labeling process.

VIDEO ANNOTATION SERVICES VS AUTOMATED VIDEO ANNOTATION:

Automated video annotation tools have the capacity to create large video datasets quickly and affordably. Despite these strengths automated video annotation can leave AI companies with a lack of support and lower quality video data. Annotation service providers like Keymakr can leverage experience across many projects, as well as proprietary annotation software, to ensure that video annotation tasks are completed to schedule. Outsourcing video annotation also

change. Keymakr's annotation teams work together, on-site, and are led by experienced team leaders and managers. This allows for far greater communication and troubleshooting capabilities, and ensures that video annotation quality remains at a high level.

AUTOMATED ANNOTATION

PROS

- Speed
- Quality

CONS

- Affordability
- No customer support

SERVICE PROVIDER

PROS

- Speed
- High quality
- Customer support
- Communication
- Tasks completed on schedule
- Experience

CONS

- Affordability

SMART TASK DISTRIBUTION SYSTEM

24\7 MONITORING AND ALERTS:

VECTOR OR BITMASK:

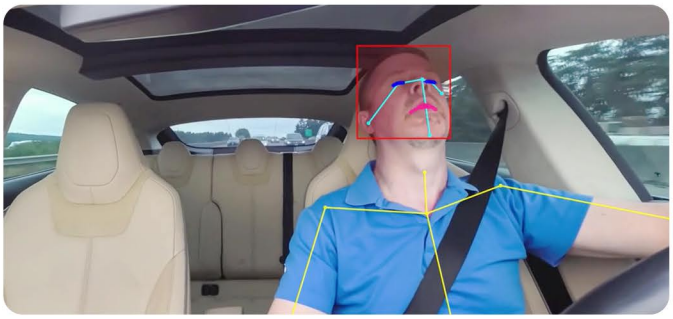
This includes an innovative smart task distribution system that assigns tasks to annotators based on performance metrics and suitability. This helps to ensure that annotation quality remains high across video datasets.

The Keymakr platform also allows managers to access real time information about the project status. Alerts can be sent when there are recurring issues with data quality or if a particular task is behind schedule.

Keymakr offers both bitmasks and vector graphics for video annotation projects. If necessary both image types can easily be converted into one another.

VIDEO ANNOTATION USE CASES:

A wide variety of AI applications are supported by Keymakr's effective and affordable video annotation services:



IN-CABIN DRIVER MONITORING:

Keymakr annotated over 500 hours of in-car video footage, featuring a variety of drivers and in-car scenarios. In each video body and facial feature movements were tracked and labeled. This video data allows AI models to interpret human behaviour, and give warnings if, for example, a driver is falling asleep.

SECURITY AI:

Skeletal annotation of video data allows AI to interpret movement. By annotating CCTV footage so that it includes lines showing limb positions in each frame it is possible to create video data that reflects a variety of human behaviours. This data is then used to train security AI models, allowing them to identify when an individual is moving erratically or behaving in a potentially threatening manner.

DISASTER MANAGEMENT:

Disaster management: Video annotation services, like Keymakr, support pioneers in the field of disaster management. Automated drones can search large areas to find missing people or to identify flooding and damaged buildings. Polygon annotation is used to create video training data for these applications.

LINE ANNOTATION:

Keymakr produces line annotation for automated vehicle training. By locating markings and boundaries in each frame of video annotators help AI models to operate within the safe limits of the road system.

Professional Video Annotation Services:

Machine learning models are only as good as the data that is used to train them. Keymakr has the skills, equipment, and expertise necessary to deliver pixel-perfect results that align with your timeframe and budget.

https://keymakr.com