

WP 1.2
WP 1.4

Use-Case in Delta Learning

A properly selected data set of real driving data is the essential foundation for all machine-learning and artificial intelligence purposes in the automotive research. In order of testing newly developed methods in the respective deltas suitable data including ground truth labels is necessary. Public data sets can not offer these special use-cases which requires the creation of a project specific data set. Additionally the requirements of data privacy need to be met and the high demands for quality of the data set need to be fulfilled to enable the research community in the project to use the data for the project specific deltas.

Technical Problem

A well balanced data set resulting data for the specified use cases in many variations is needed. Therefore the buildup of a recording vehicle is necessary. The integrated sensors must be calibrated and synchronized to a common spatial resp. Temporal frame. This is crucial to generate usable ground truth data.

The vast amount of recorded data has to be evaluated to define upcoming recording campaigns.

Since not all data can be labeled manually, a strategy is required to select the data for labeling, to label semi-automated the remaining data and evaluate the resulting ground truth labels.

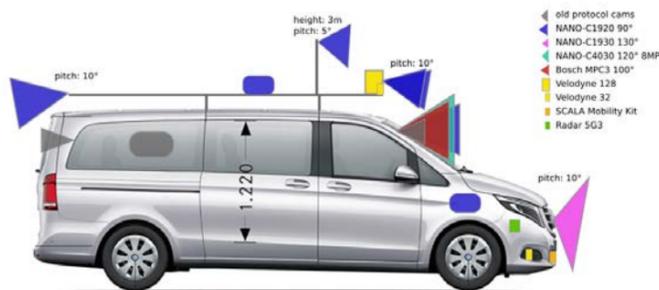


Figure 2: Sensor Position of different pinhole (blue, red) and fisheye (pink) cameras, lidar (yellow) and radar (green).

Technical Solution

Valeo supervises the build up of the car. The sensor setup and the architecture of the recording car were specified in the WG Sensor Specification. For synchronization PTP and trigger signals are used. The 128L lidar will be the lead sensor and the cameras are triggered accordingly.

For evaluating different annotation strategies, an evaluation pipeline has been developed. The evaluation is based on the proposed labels generated by the annotation strategies to avoid problems with different programming languages, execution environments etc.

The (semi-) automatic creation of labels uses an ensemble of annotation strategies, which shows a high evaluated quality, to fuse and select the predicted labels to pseudo-labels.

Evaluation

The recording and generation of data sets is still ongoing. As a consequence, the evaluation of the data and annotation strategies is still pending.

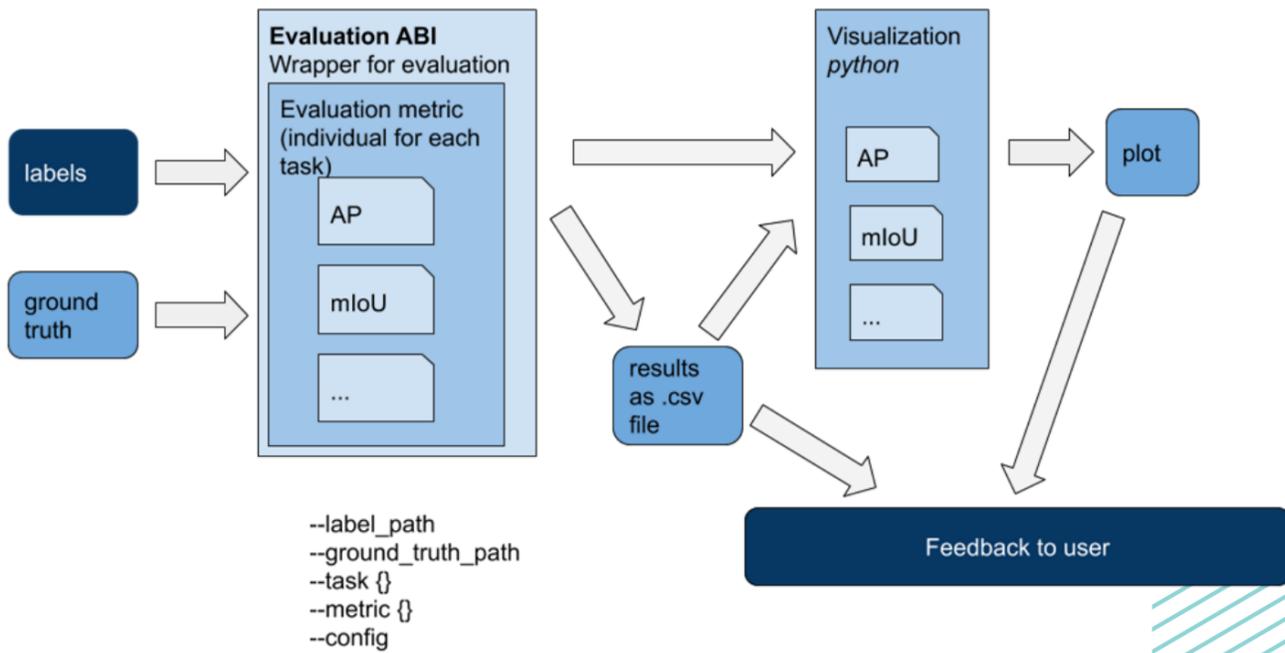


Figure 1: Proposed pipeline to evaluate different annotation strategies with different metrics and provide feedback to users.



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Partners



External partners



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