

# Autoware Sensing Perception Working Group Meeting 2024-05-29 #4792

drwnz started this conversation in **Working group meetings**



drwnz on May 29

Collaborator

edited ▾

## Administrative

- [Previous meeting](#)
- **Meeting time:** Every second Wednesday, 10am UTC (alternating with Mapping WG)
- [WG Google Drive](#)
- [Wiki page for this Working Group](#)
- [Shared issue list](#)

## Attendees

▼ Chaired by David

Ryohsuke  
Taekjin  
Koji  
Shunsuke  
Kaan  
Fatih  
Dai  
Armagan  
Leonardo

## Agenda

- Introduction of new attendees
  - Welcome Leonardo Rossetti from Red Hat
- Review of [Issue List](#) and assignment
- Review of [Project Board](#) and assignment
- Nebula update: <https://github.com/tier4/nebula/tree/develop>

## Discussion topics

- Armagan: Issue related to team orientation and priority setting
- In Autoware labs there are some items to be achieved
  - <https://github.com/orgs/autowarefoundation/discussions/4550>

### Category



Working group meetings

### Labels

meeting:sensing-p...

1 participant



- Some issues related to datasets and improving data, and also performance of sensing-perception
- Want to see performance of current systems
- Less focus on new features, more on current performance
- Therefore evaluation is necessary - how can we evaluate Autoware?
- Needs more than just checking videos
- Minoda: Autoware perception evaluator:
  - [https://github.com/tier4/autoware\\_perception\\_evaluation](https://github.com/tier4/autoware_perception_evaluation)
  - Driving log replayer:
    - [https://github.com/tier4/driving\\_log\\_replayer](https://github.com/tier4/driving_log_replayer)
    - Also have evaluator within TIER IV's product, Web.Auto
- Armagan: is Perception Evaluator mandatory for development? Any value in testing in AWSIM for evaluation?
  - Minoda: not mandatory. Only works with collected data, not simulation.
  - Takejin: Probably more in tracking, AWSIM would be useful (currently pass/fail tests but not metric performance)
- Armagan: what about testing against a leaderboard?
  - Minoda: We internally evaluate on ML dataset metrics when integrating new dataset, and Autoware Evaluation pipeline.
  - Armagan: results should be repeatable and universal
- David: what about multiple reference designs?
  - Armagan: you can choose, as long as it is common
- David: Universal dataset conversation has come up multiple times: perhaps dataset from Co-MLops?
- Fatih: Autoware Perception Evaluator or other Autoware Evaluation methods: even if we don't see the datasets, we still want to know the test date, sensor configuration, size of dataset. Nuscenes also gave Autoware permission to evaluate against their dataset.
  - Minoda: do you want evaluation results in PR for example?
  - Fatih: not every PR, but results could be shared with existing algos (in documentation for example)
- David: Let's introduce the Autoware Evaluator as used by TIER IV at next WG. Maybe also have a report on evaluation progress every WG. Does LeoDrive have any evaluator work?
  - Currently no, but Kaan did some work on Waymo dataset:
    - [https://github.com/autowarefoundation/perception\\_benchmark\\_tool](https://github.com/autowarefoundation/perception_benchmark_tool)
    - Pending task assigned to LeoDrive member: [🕒 Evaluate prediction accuracy with nuScenes](#) [autoware.universe#6806](https://autoware.universe#6806)
- Fatih: do you have speed benchmarks, or just accuracy?
  - Minoda: we were working on it but not sure of latest status
  - Taekjin: messages to monitor processing times, but not direct measurement
  - Fatih: could set up an AWS instance to run specific parts of Autoware and monitor CPU/GPU usage automatically
- David: Nebula update [🔗 refactor\(hesai\)!: combine Hesai ROS wrappers into a single node](#) [tier4/nebula#127](https://tier4.nebula#127)

- Mehmet's update should be reviewed and merged
- Robosense PR also needs a review from Mehmet
- Armagan: currently testing and having issues with trees
  - The tree filter based on height does not work
  - Two issues: trees and hanging branches, z-filter is not enough, and bushes on the side of the road
  - Minoda: have initiative for unknown object detection, trying to add algorithms with an architecture modification. Attempting to use semantic segmentation in camera to remove false positives.
  - Dai: Currently still working on semantic segmentation based pointcloud filtering, currently dealing with bugs in semantic segmentation causing performance to not be sufficient
    - [🔗 feat\(tensorrt yolox\): inference and publish mask image from yolox model with semantic segmentation header](#) autoware.universe#5553
    - [🔗 feat\(image\\_projection\\_based\\_fusion\): add image segmentation\\_pointcloud\\_fusion for pointcloud filter](#) autoware.universe#5562
  - Also merged intensity filter: [👍 Add intensity for pointcloud processing in perception and an intensity\\_based\\_unknown\\_validator](#) autoware.universe#6785

## Action items

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- ☐ Prepare presentation for TIER IV's evaluation for next WG meeting

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0 comments