Weekly Progress Report

Nov 01 - 04th, 2021

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Noah's Ark | Autonomous Driving Lab
LiDAR Domain Adaptation
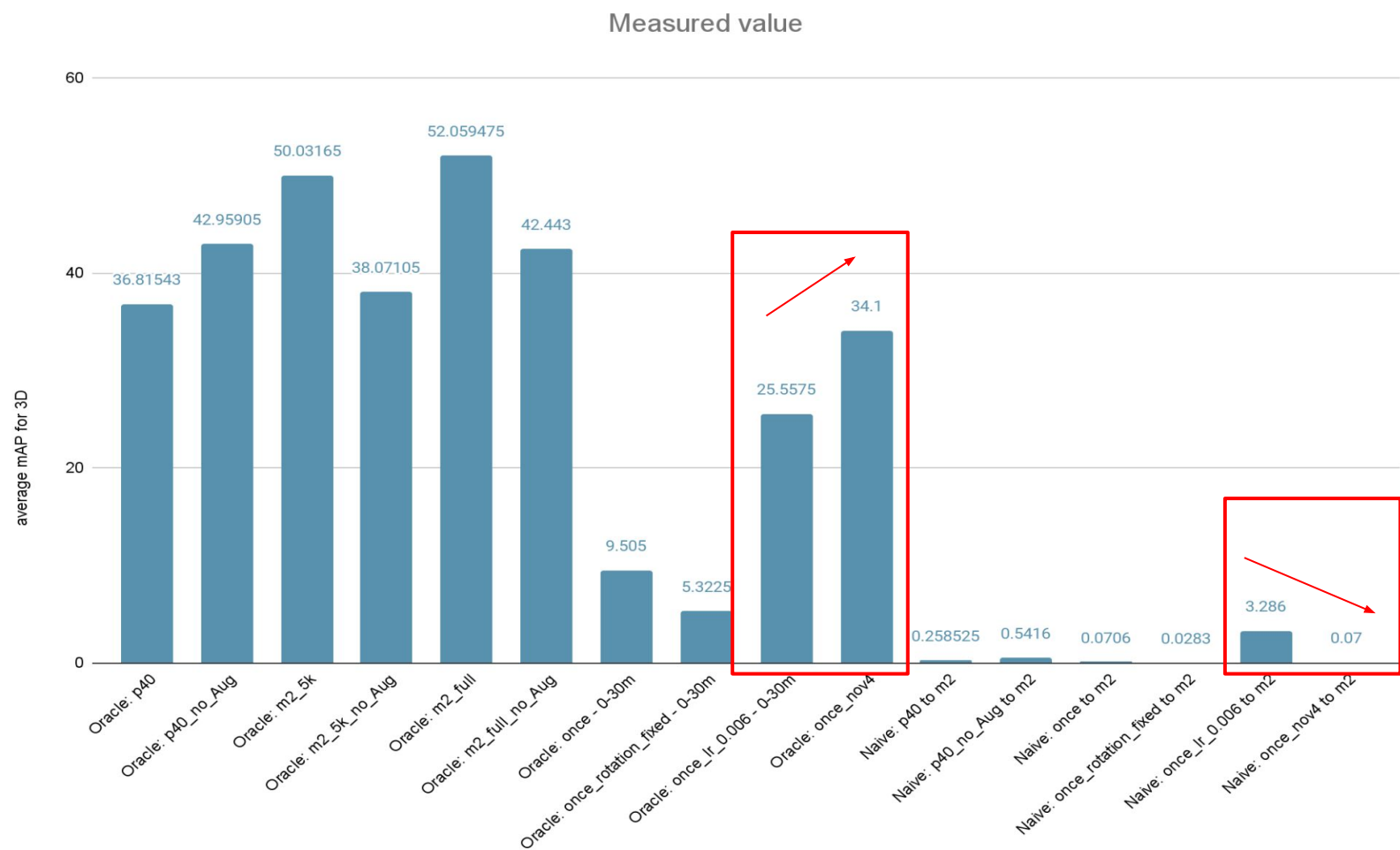
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HUAWEI

Weekly Summary

- **Done:**
    - Experiment on effect after ONCE_rotation_fixed (Oracle & naive DA on m2)
        - Drop in performance.
        - Investigation on configuration: learning rate is making a great difference
        - With lr: $0.072 \rightarrow 0.006$
            - Oracle improved ~5 times ($5.32 \rightarrow 25.6$)
            - Naive DA on m2 improved ($0.03 \rightarrow 3.3$)
    - Experiment on Xingxin's code base (Oracle & naive DA on m2)
        - Current best performance on ONCE oracle, BUT got ~0 for naive DA to m2
        - Investigation on configuration: learning rate is making a great difference
            - Oracle: $25.6 \rightarrow 34.1$
            - Naive DA on m2: $3.3 \rightarrow 0.07$
- **In Progress:**
    - Investigate why the inverse performance (oracle vs naive) occurred
        - Code, configuration, etc.
    - Region of Interest (ROI):
        - Evaluate P40 with ROI_x_flip_prob = 0.5 on M2 dataset
    - Visualization every frame BEV
        - to understand the false positive/negative
- **Recent Goals:**
    - Development: Plot mAP for all checkpoint for each class
- **TODO**:
    - Understanding: once_metric vs kitti metric
        - Prepare a decision diagram & flowchart for testing pipeline
    - Visualize frames having good and bad performances
        - Investigate correlation between performance & bbox (in progress)
        - Run entire pipeline with each frame individually (TODO)
        - Rank frames by AP (TODO)
        - Visualize frame with high & low AP (TODO)

Work Logs

Measured value

Work Logs

- Nov 01 (Monday)
    - Investigation on training:
        - P40 new vs old code base:
            - Unstable training
            - Bug:
                - "Cannot perform reduction function max on tensor with no elements because the operation does not have an identity at …"
            - Worse performance
        - ONCE before vs after rotation fixed:
            - Worse performance, not on the same scale with what Xingxin got
        - ROI:
            - dimension unmatch
    - Development: Plot mAP for all checkpoint for each class

Work Logs

➡ Nov 02 (Tuesday)
- Investigation on training:
    - P40 new vs old code base:
        - Unstable training
        - Bug:
            - "Cannot perform reduction function max on tensor with no elements because the operation does not have an identity at …"
        - Worse performance
- Experiment on effect after ONCE_rotation_fixed (Oracle & naive DA on m2)
    - Got worse performance.
    - Investigation on configuration: learning rate is making a great difference
    - With lr: $0.072 \rightarrow 0.006$
        - Oracle improved ~5 times ($5.32 \rightarrow 25.6$)
        - Naive DA on m2 improved ($0.03 \rightarrow 3.3$)
    - ROI:
        - dimension unmatch
- Development: Plot mAP for all checkpoint for each class

End of November 04th, Weekly Report