Master-Praktikum - Learning for self-driving cars and intelligent systems - Winter 2019/20
Weekly Report: Sensor Modality Fusion

Chenguang Huang, Nikhitha Radhakrishna Naik
Supervisor: Patrick Wenzel

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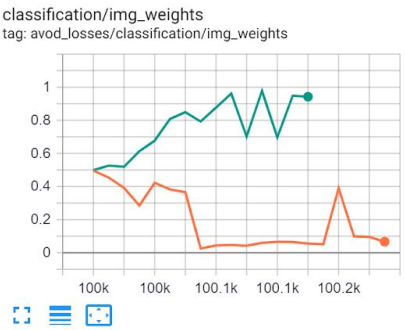
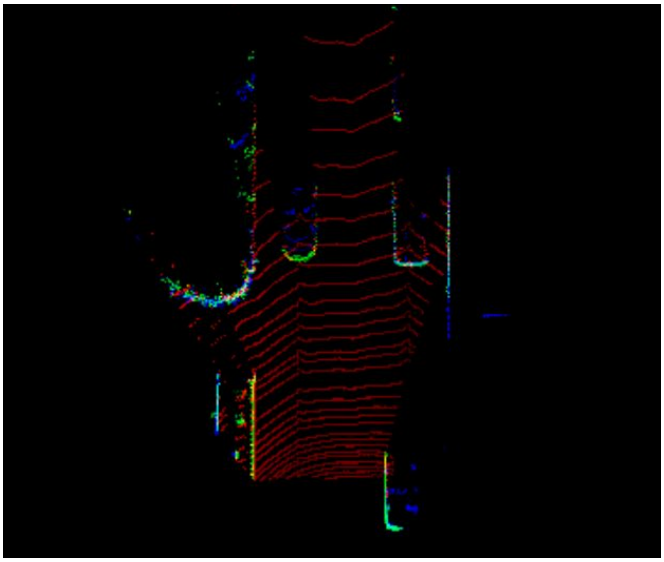
Accomplished tasks:

- Started working on a Mixture of Experts methodology.
    - Looked deeper into the different hyperparameters of the MoE network
- Trials:
    - Overall, similar results as the AVOD were observed with the MoE
    - Trained the MoE model starting with a higher learning rate and then decaying for every 3k iterations. The results look similar
    - Trained the MoE with larger dropout rate (0.5). Observed similar results.
    - Trained the MoE with larger input size to the Moe model. Observed the same trend as the original avod model.
    - Tried combinations of learning rate and drop outs. That didn't help either.
    - Trained the Moe on the augmented AVOD model . Observed similar results as the original one.
    - Make the bev input as 0, keep the image feature as it is and verify if the MoE output weights are almost close to 0 for bev. This was observed.
    - Make the image input as 0, keep the bev feature as it is and verify if the MoE output weights are almost close to 0 for image. This was observed.



- Visualization of the features:

Augmented image



Bev 0~2 channels

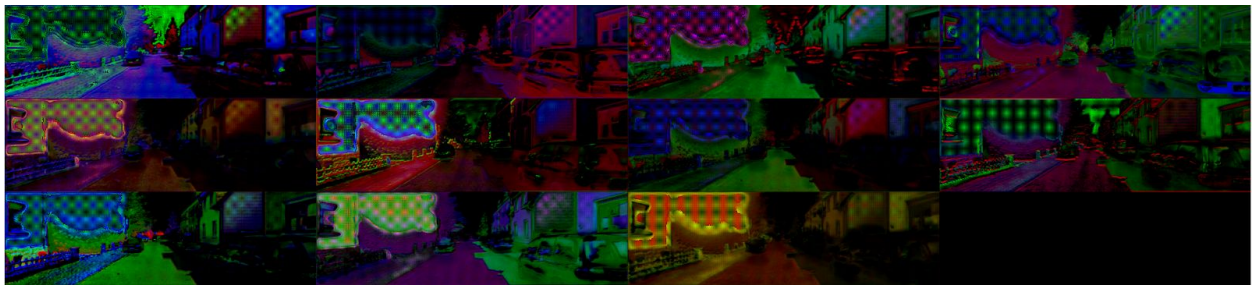
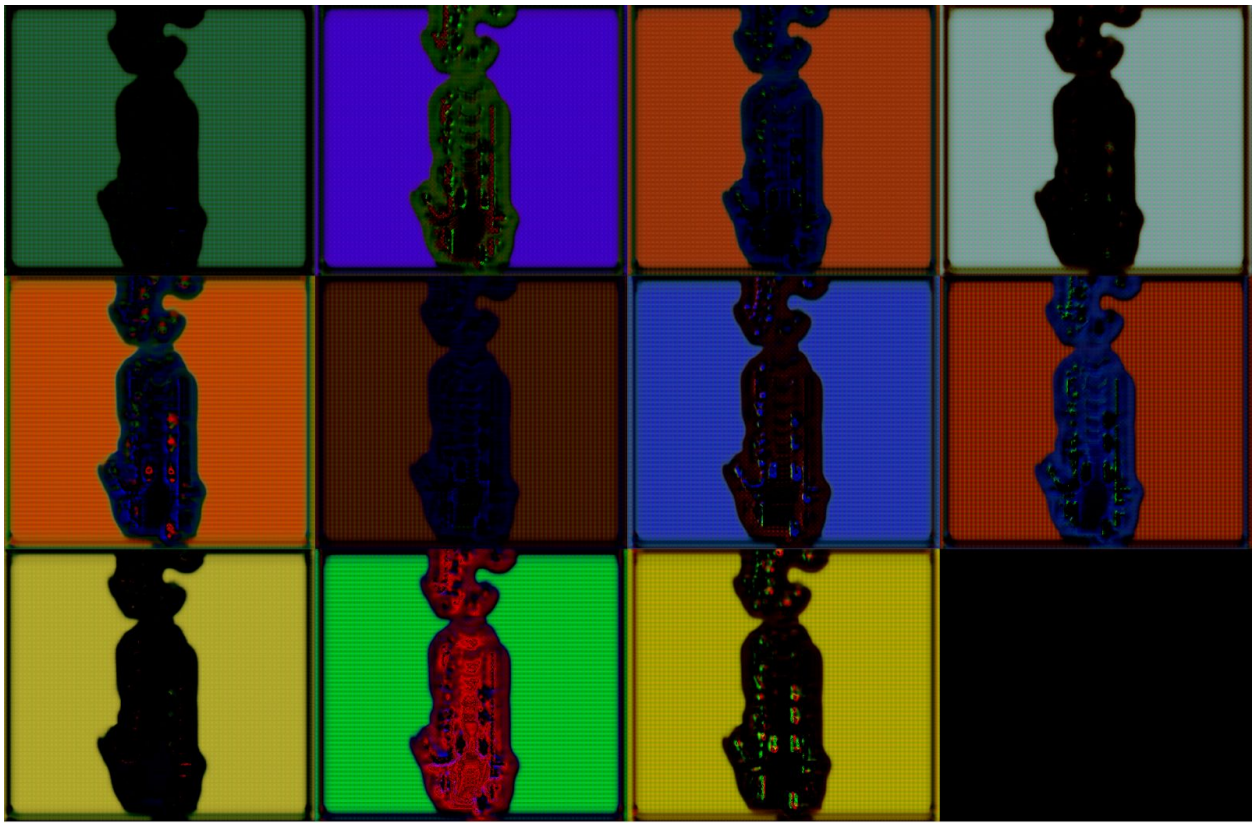


Image features 0~31 channels



Bev features 0~31 channels

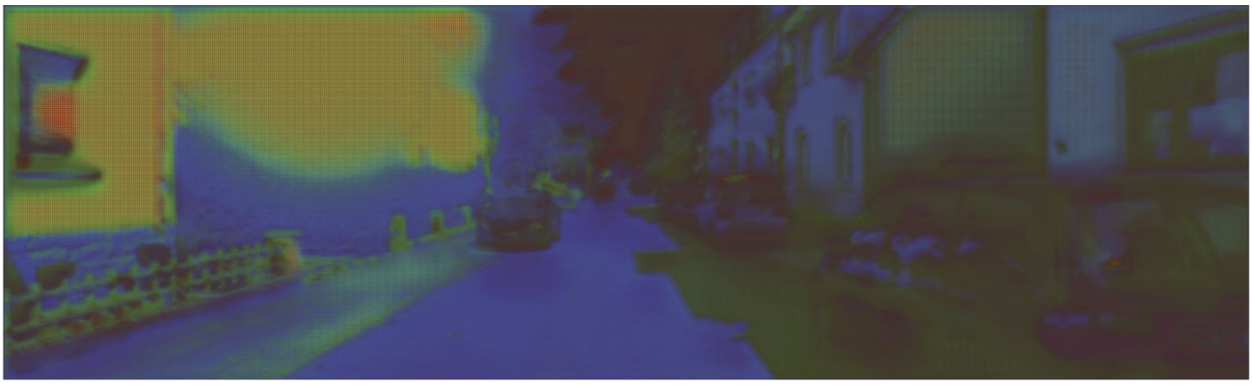
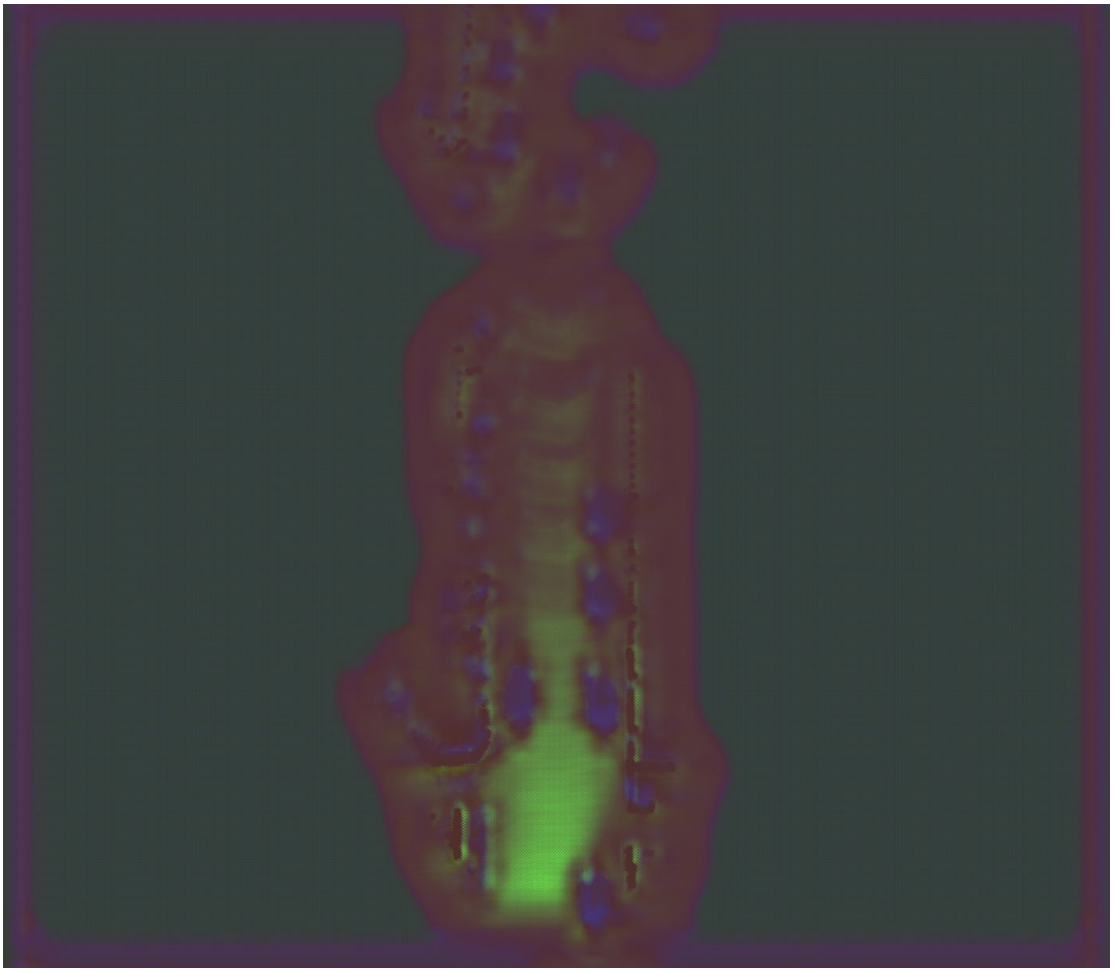
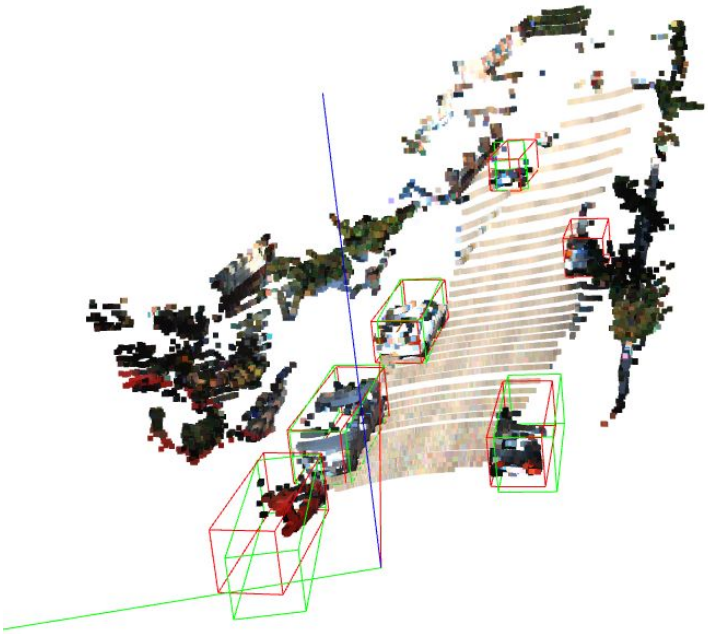


Image pca features

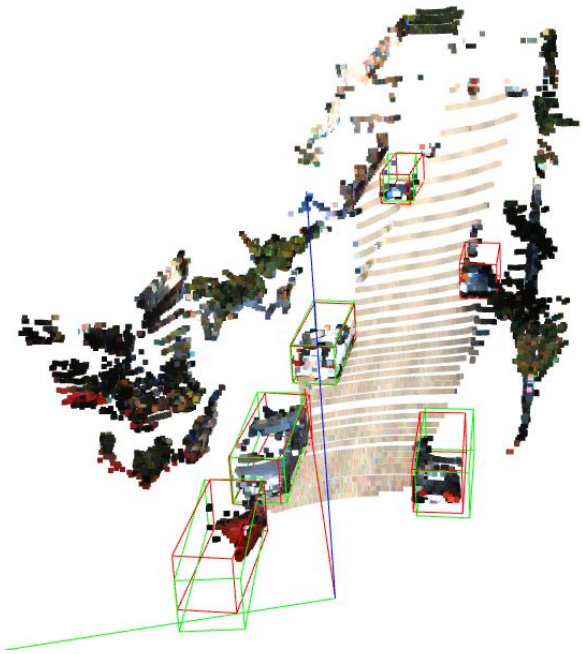


Bev pca features

- Visualization of the predictions



Moe best iteration



Avod best iteration

Image for the scene

Tasks planned for next week:

- Continue to work on Mixture of Experts for better results

Issues / Roadblocks: