Video Object Segmentation using Deep Learning

Update Presentation, Week 5

Zack While

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Youngstown State University

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Previous Work

Converting to `.tfrecords`

- Contained in `davis-train_to_records.py`
- As of now, the training, validation, & test sets are separate files.
- Not all clips are the same resolution.
- Folders are set up differently from the JHMDB video set.
- DAVIS masks are a folder of `.png` files instead of a single `.mat` file (per clip).

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Checking the `.tfrecords` Conversion (1)

- Need to calculate the **mean_frame** using `davis_480p_compute_mean_frame.py`.
  - Requires all the input frames to be the exact same resolution.
  - Now all images are converted to 240×320 in the beginning.
- Making sure `dataset_input.py` is correctly formatted for the new `.tfrecords` file.
- Setting up `davis_480p_test_input.py` to run correctly.

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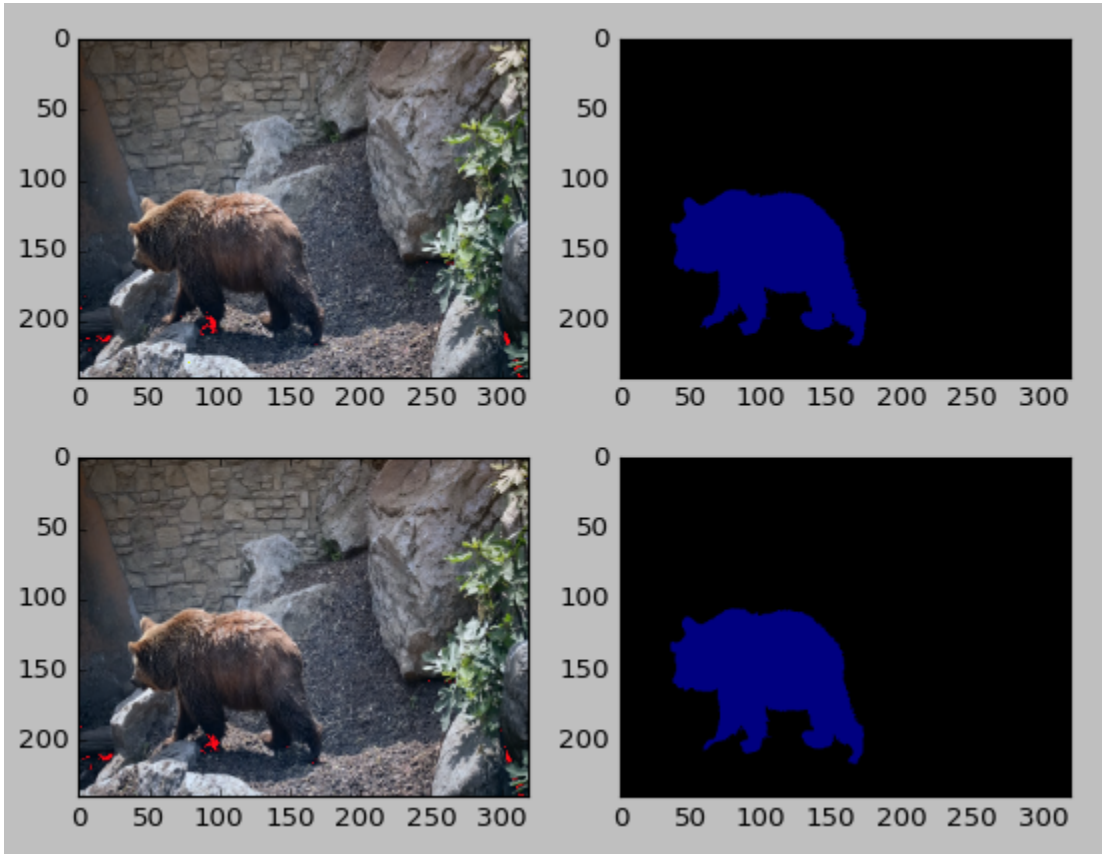
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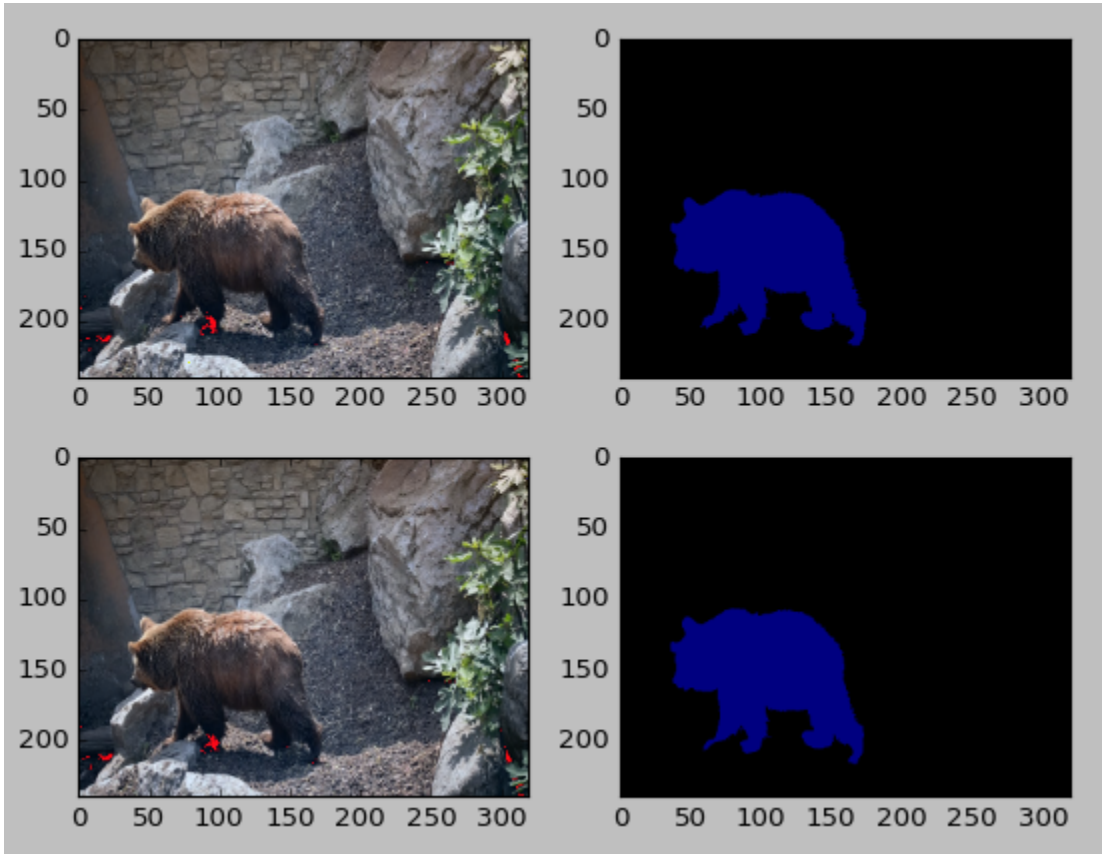
Checking the `.tfrecords` Conversion (2)



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- Can be further extended to check other photos.

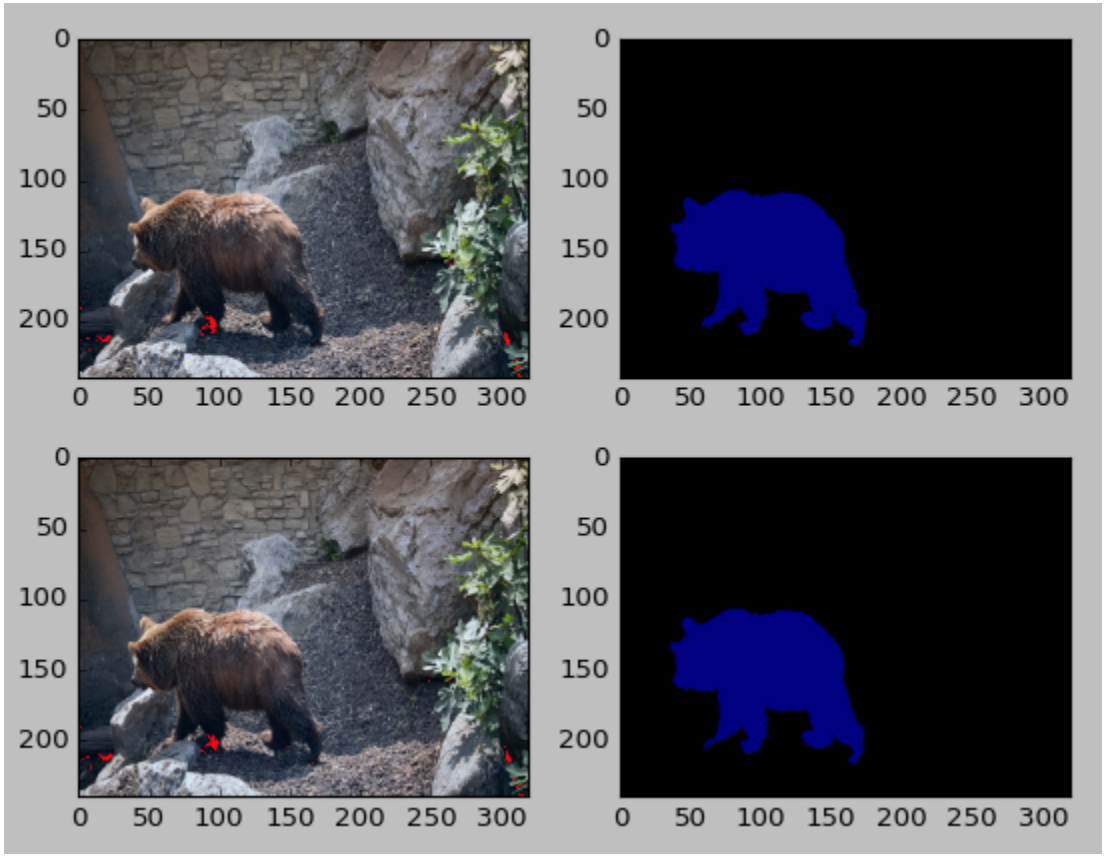
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Current Work

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- Running a model with the DAVIS 2017 dataset.
- Reading related material and doing tutorials as needed.

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DAVIS 2017 Issues (1)

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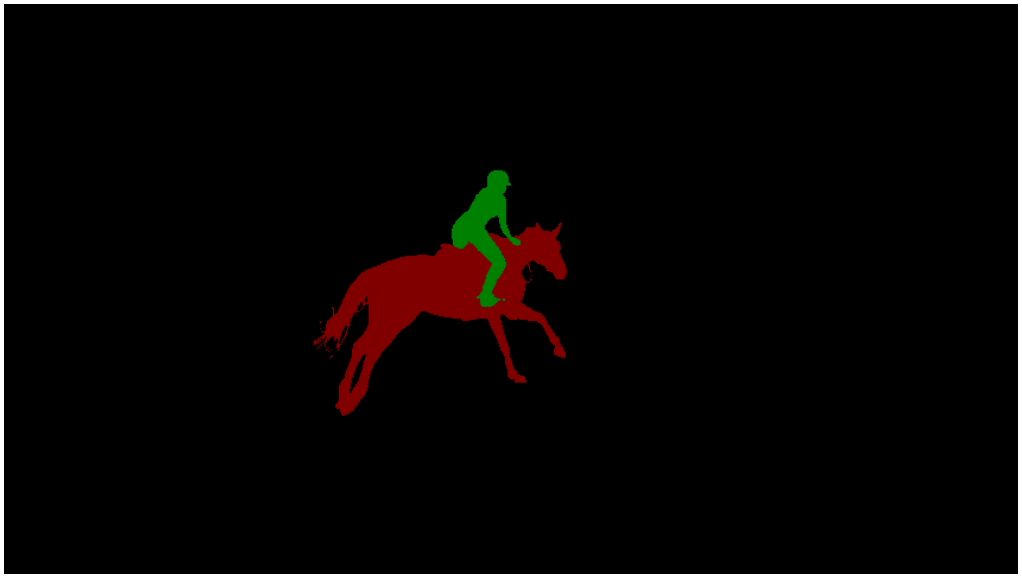


DAVIS 2017 Issues (3)





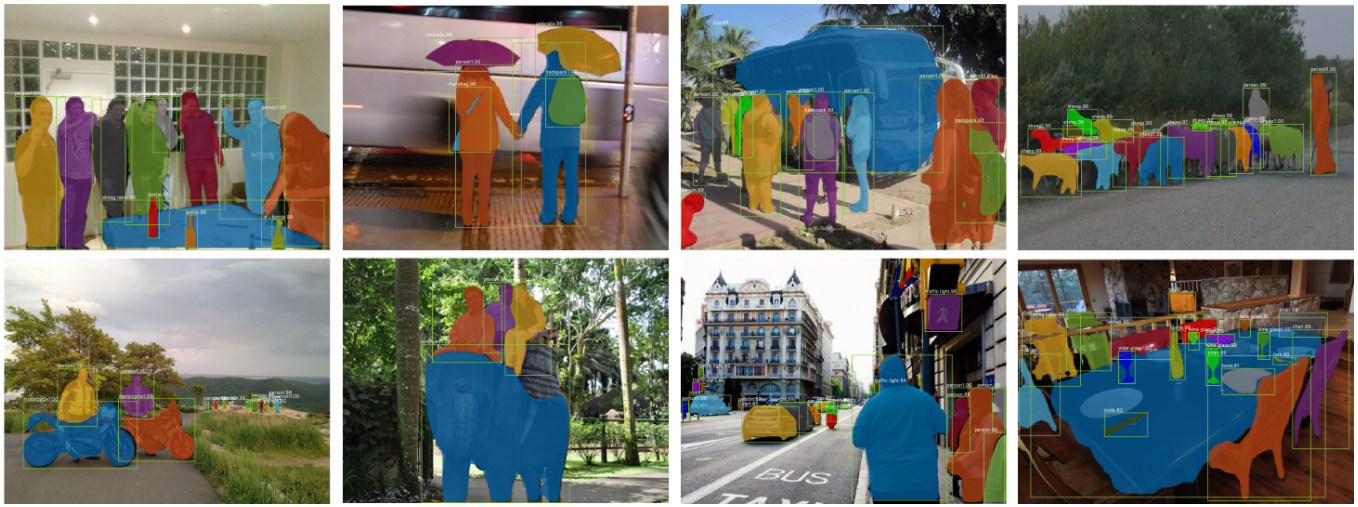
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Literature Review

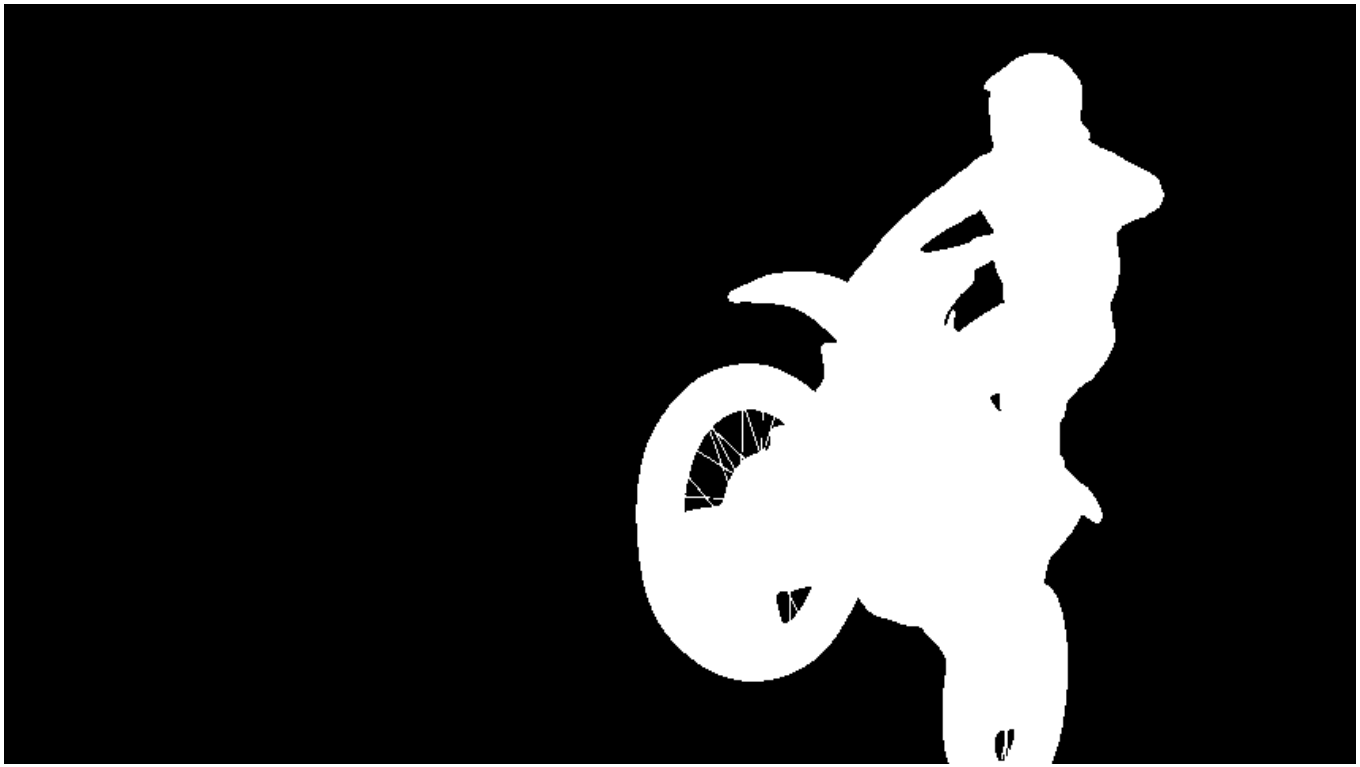
- ***Mask CNN*** by He et al. (arXiv, April 2017)



- Still gaining a full understanding of the paper.

DAVIS 2016 Pre-Results (1)

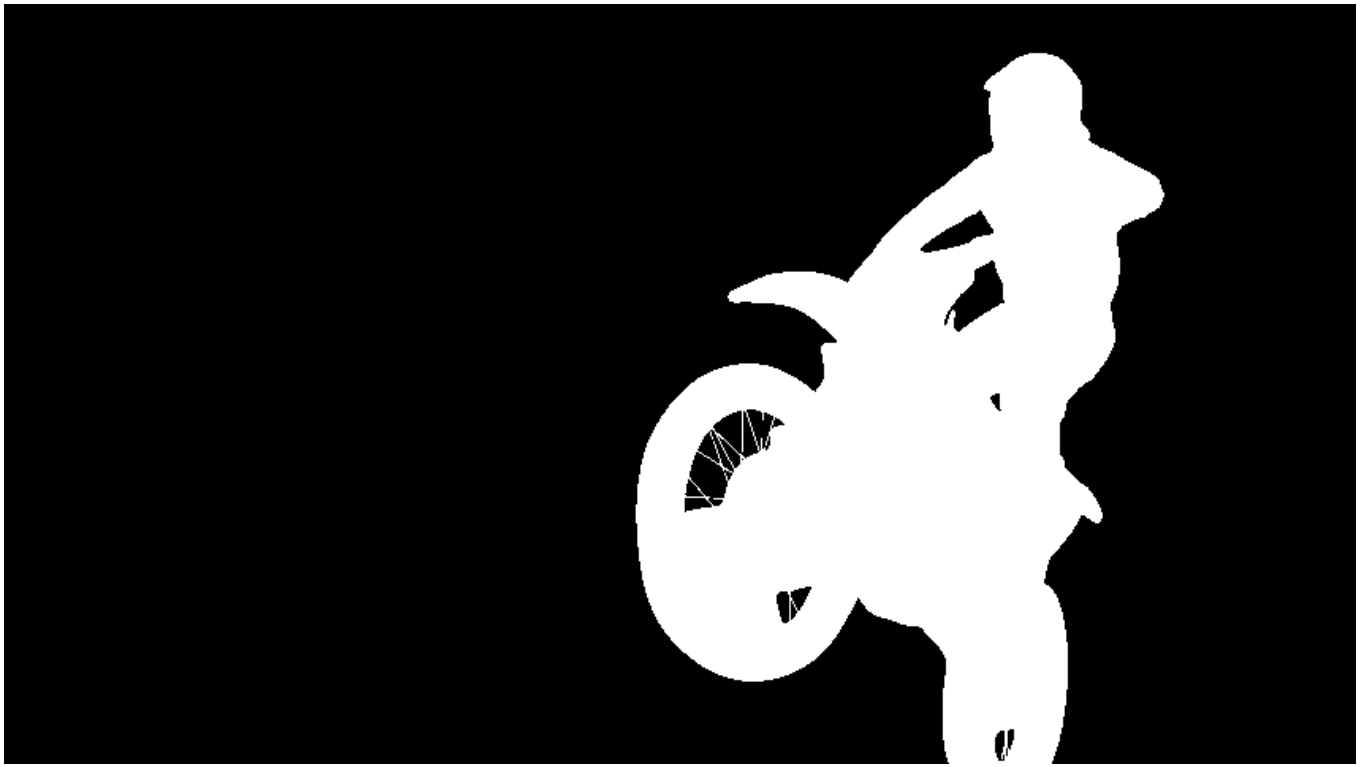
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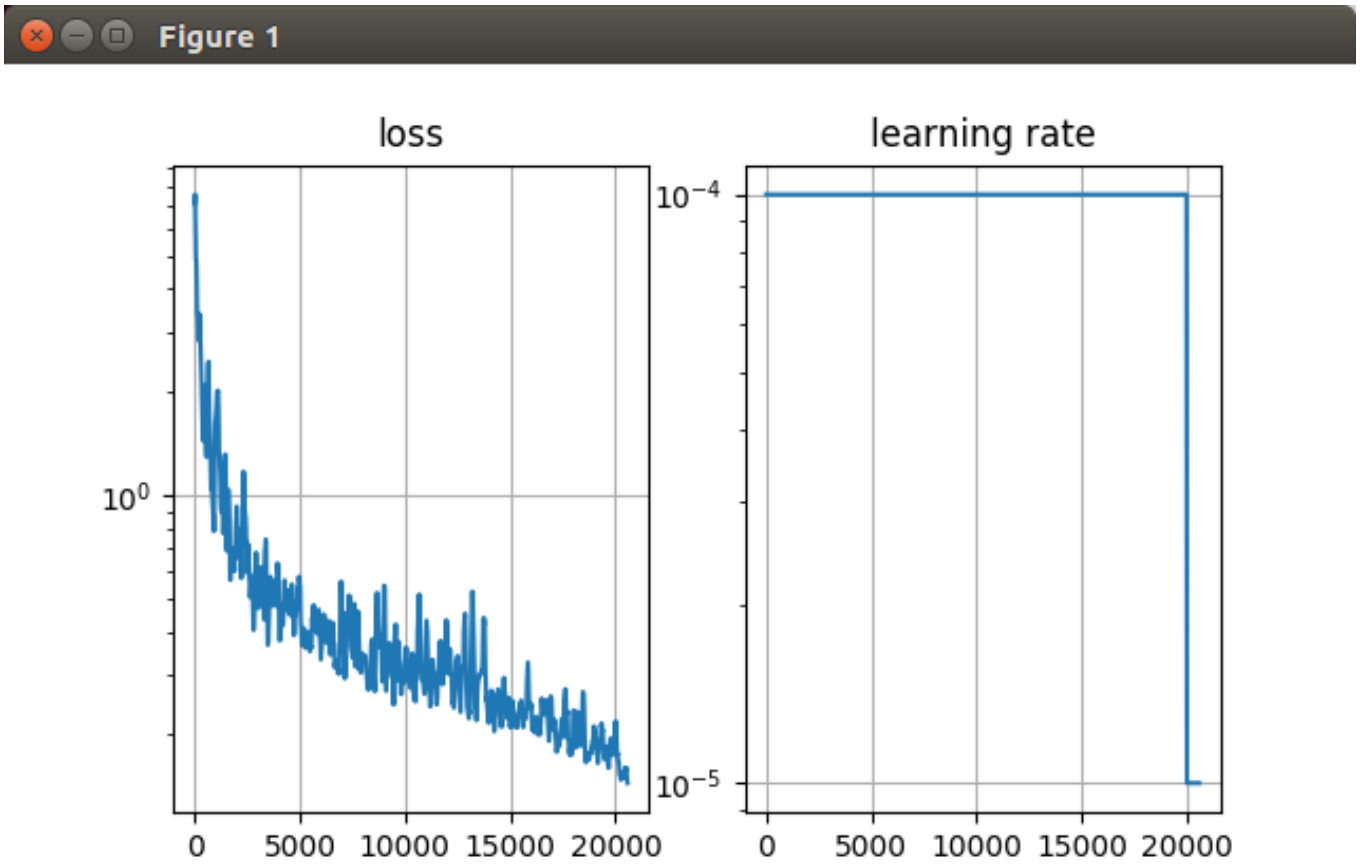
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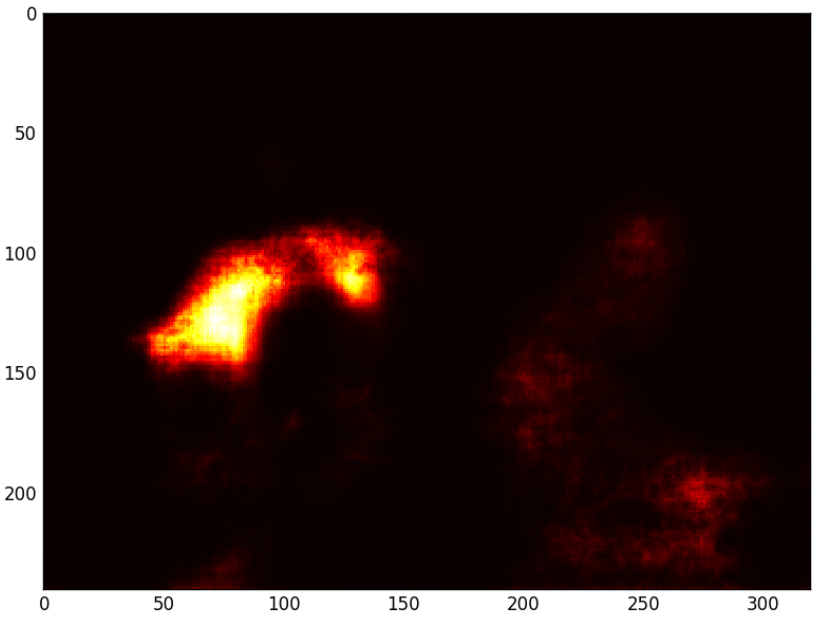
DAVIS Pre-Results (2)



- Loss curve for pretrained model.

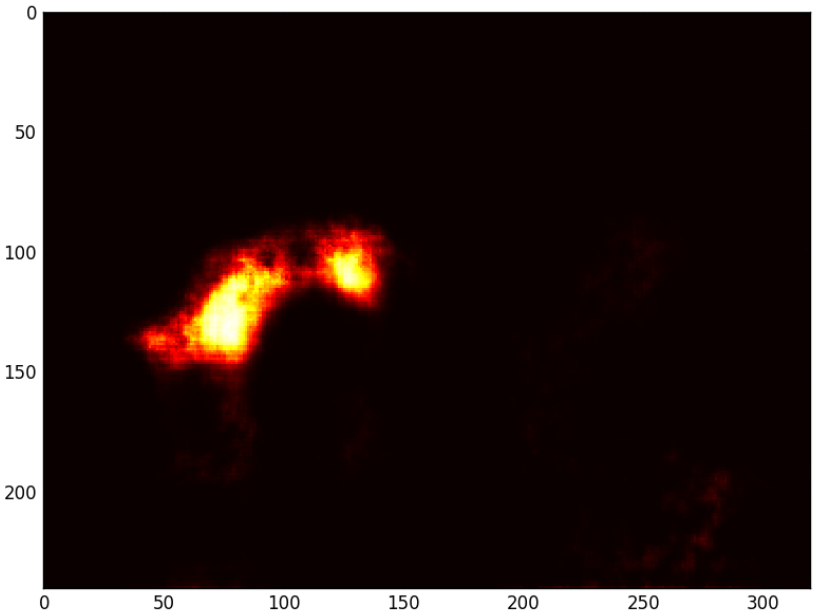
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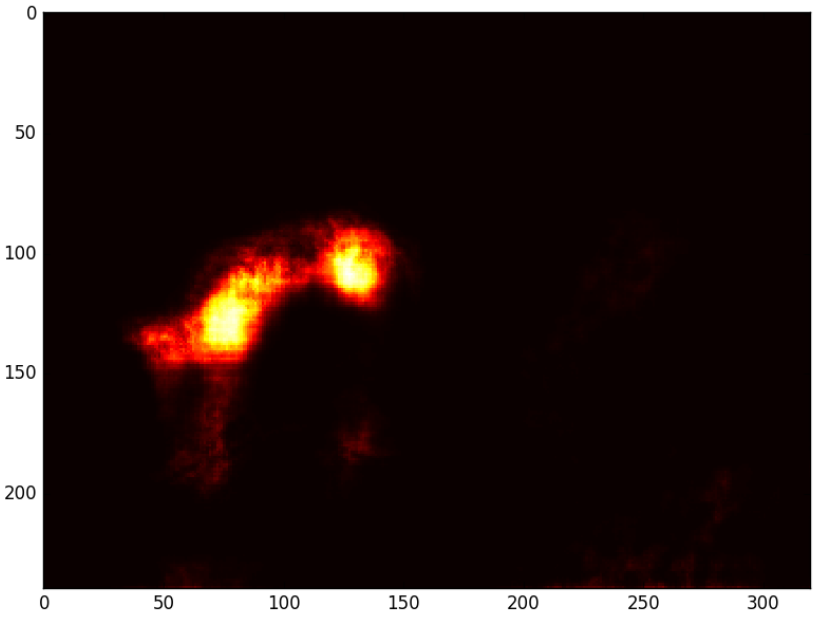
DAVIS Pre-Results (4)





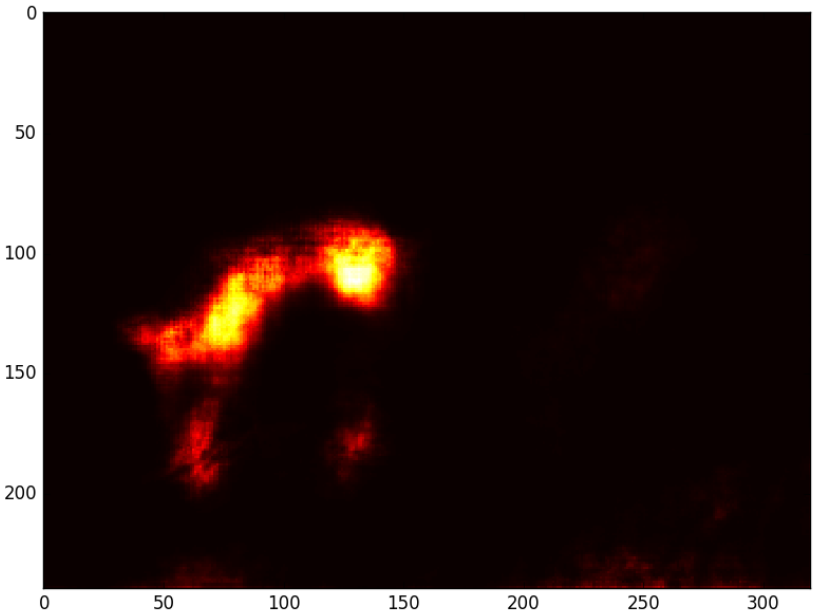
DAVIS Pre-Results (5)





DAVIS Pre-Results (6)





Upcoming Work

Plan for Next Week

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Questions?