Video Object Segmentation using Deep Learning

Update Presentation, Week 5

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1. Previous Work

2. Current Work

3. Upcoming Work
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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- DAVIS masks are a folder of `.png` files instead of a single `.mat` file (per clip).
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 $240 \times 320$ 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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Checking the `.tfrecords` Conversion (2)

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Current Work
Goals

- Running a model with the DAVIS 2017 dataset.

- Reading related material and doing tutorials as needed.
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Reading related material and doing tutorials as needed.
- Annotations have different colors for more than one instance of an object.
- Goal with this dataset becomes instance segmentation.
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Goal with this dataset becomes instance segmentation.
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.
Masks are binary, which works better with the pretrained model.

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Model is not finished training.
- Loss curve for pretrained model.
DAVIS Pre-Results (3)
DAVIS Pre-Results (5)
DAVIS Pre-Results (6)
Upcoming Work
Plan for Next Week

- Fine-tuning and further working on the model for the DAVIS 2016 dataset.

- Reading related material as needed.
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Questions?