Video Object Segmentation using Deep Learning

Update Presentation, Week 11

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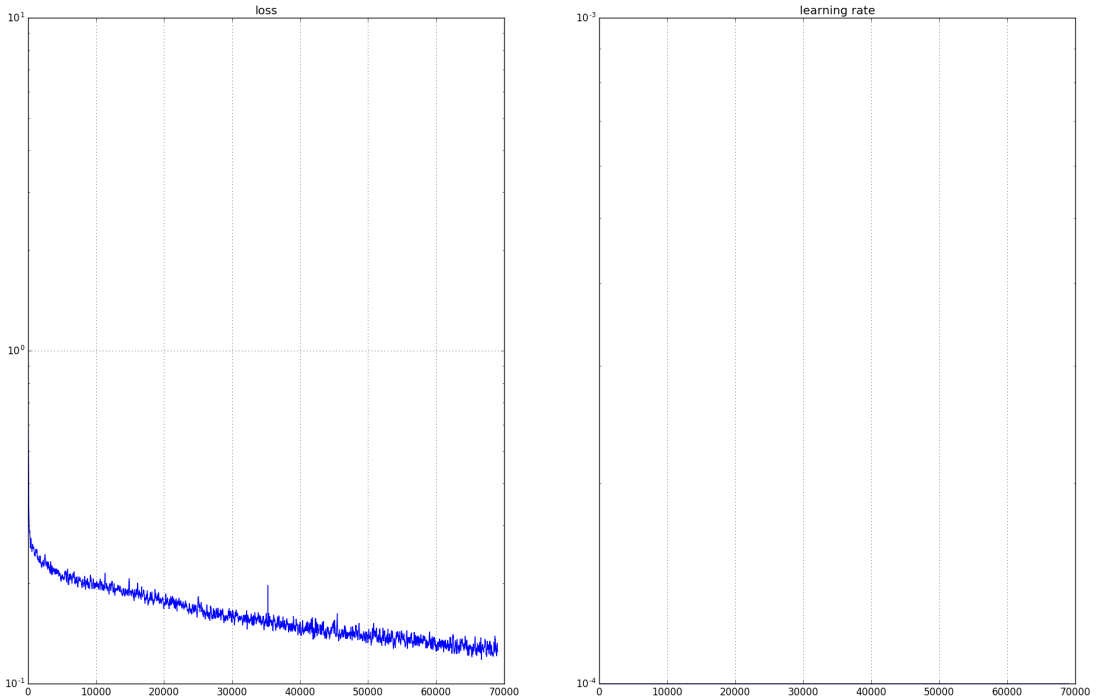
2. Current Work

3. Upcoming Work

Previous Work

Training Loss Curve

Figure 1: Training Loss Curve after 69,000 Iterations



Quantitative Results

Table 1: DAVIS 2016 mIoU Comparison

Method	FST	CUT	NLC	MSG	KEY	CVOS	TRC	SAL	UCF-C3D
mIoU	0.558	0.552	0.551	0.533	0.498	0.482	0.473	0.393	0.306

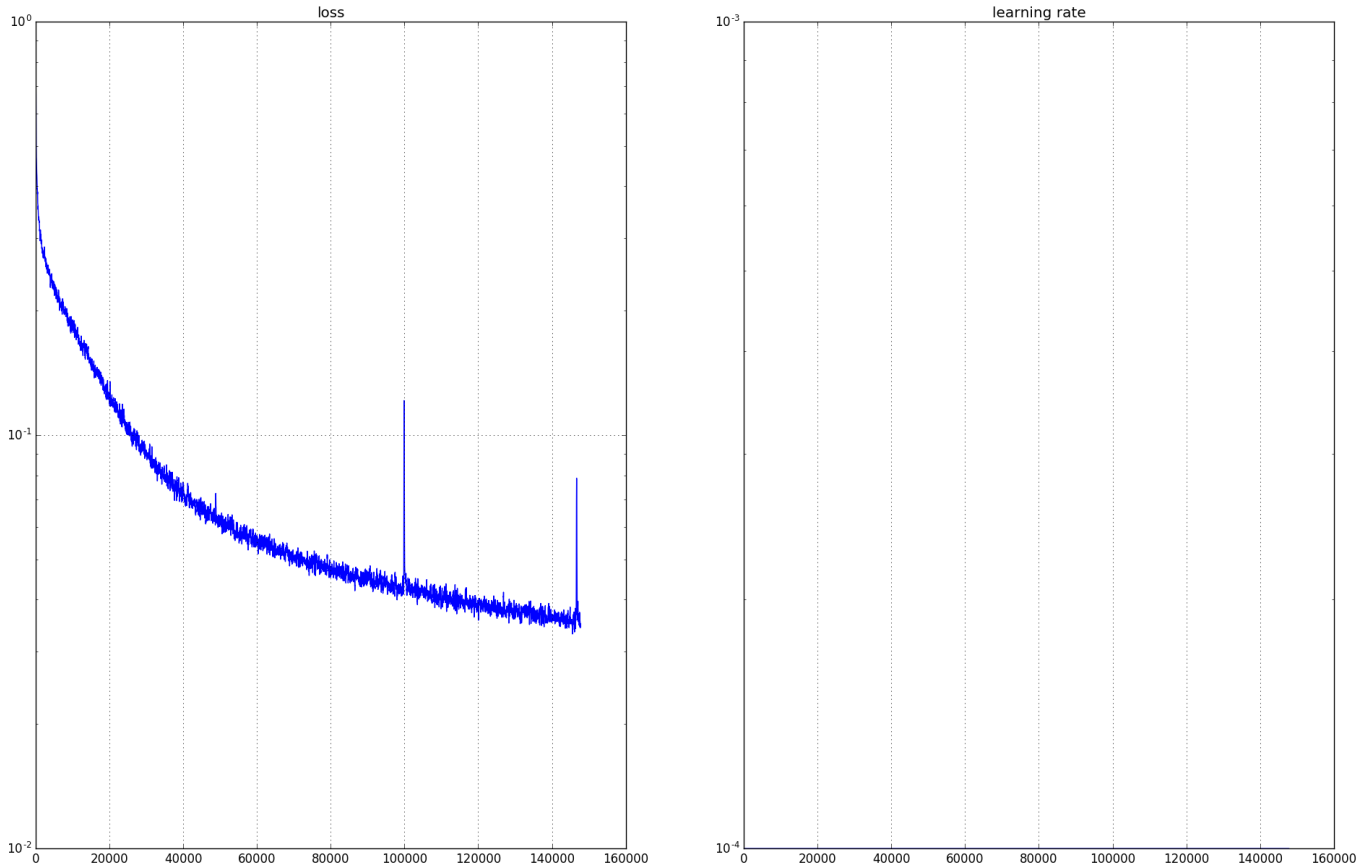
Current Work

Updated Dataset

- Includes JumpCut and DAVIS 2017 training subset
  - DAVIS 2017 training subset converted to binary-segmented annotations
- 82 Total clips
- Over $10,000$ total frames

Training Loss Curve

Figure 2: Training Loss Curve after 147,000 Iterations



Quantitative Results

Table 2: DAVIS 2016 mIoU Comparison

Method	FST	CUT	NLC	MSG	UCF-C3D	KEY	CVOS	TRC	SAL
mIoU	0.558	0.552	0.551	0.533	0.526	0.498	0.482	0.473	0.393

Comparison data provided by **One-Shot Video Object Segmentation** by Caelles et al. (arXiv, April 2017).

Quantitative Results

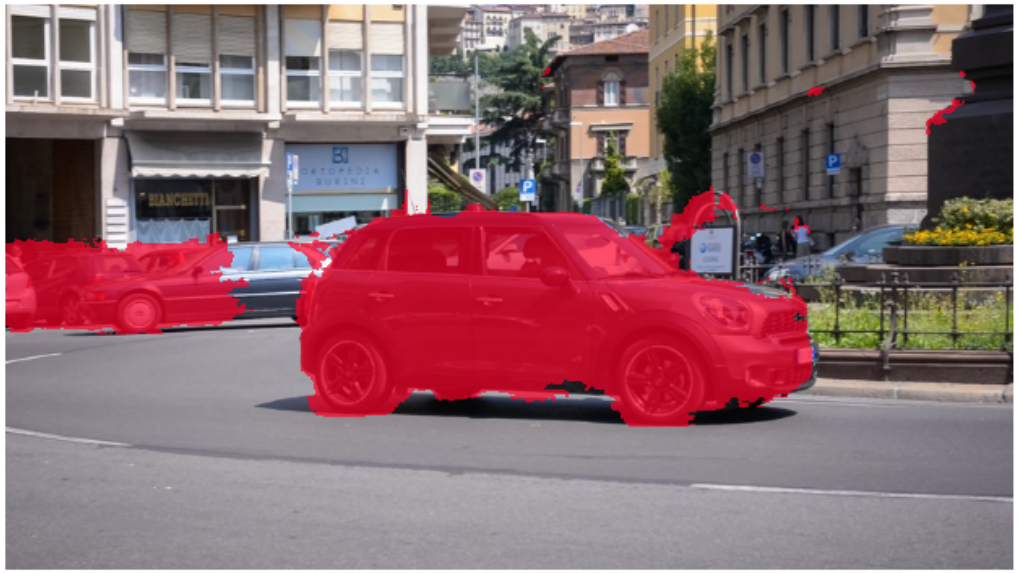
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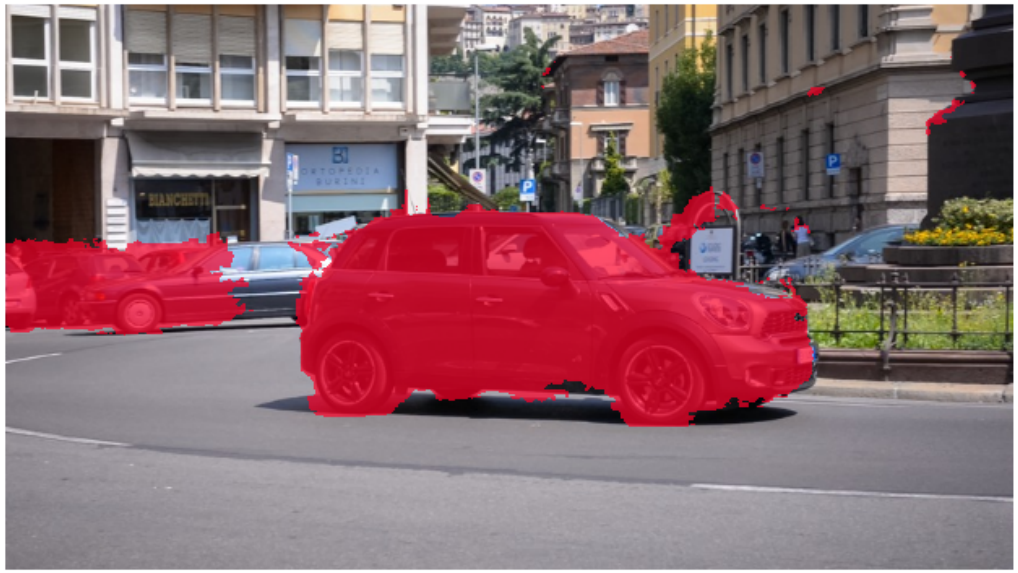
Results (1)

Figure 3: CAR-ROUNDABOUT



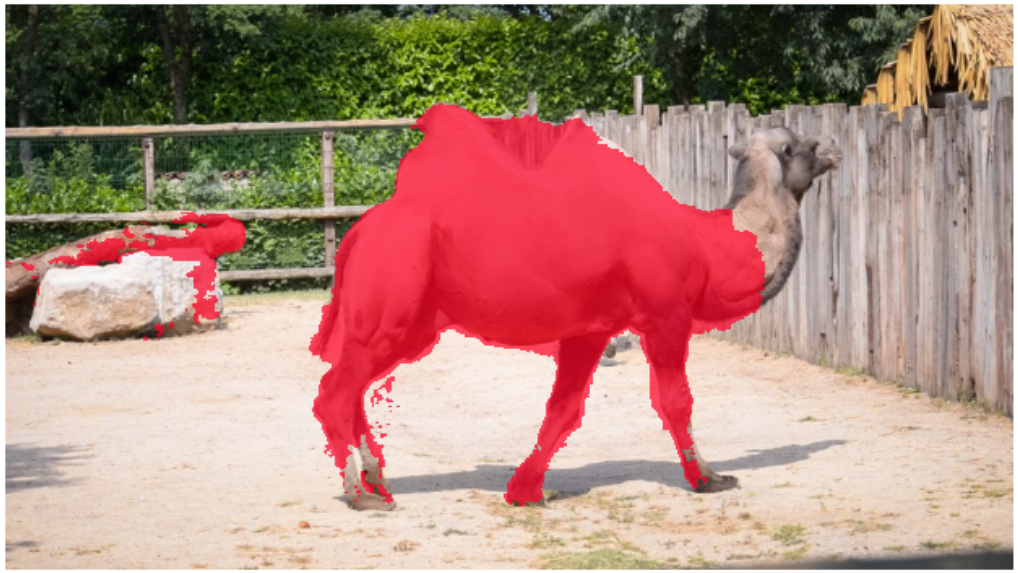
Results (1)

Figure 3: CAR-ROUNDABOUT



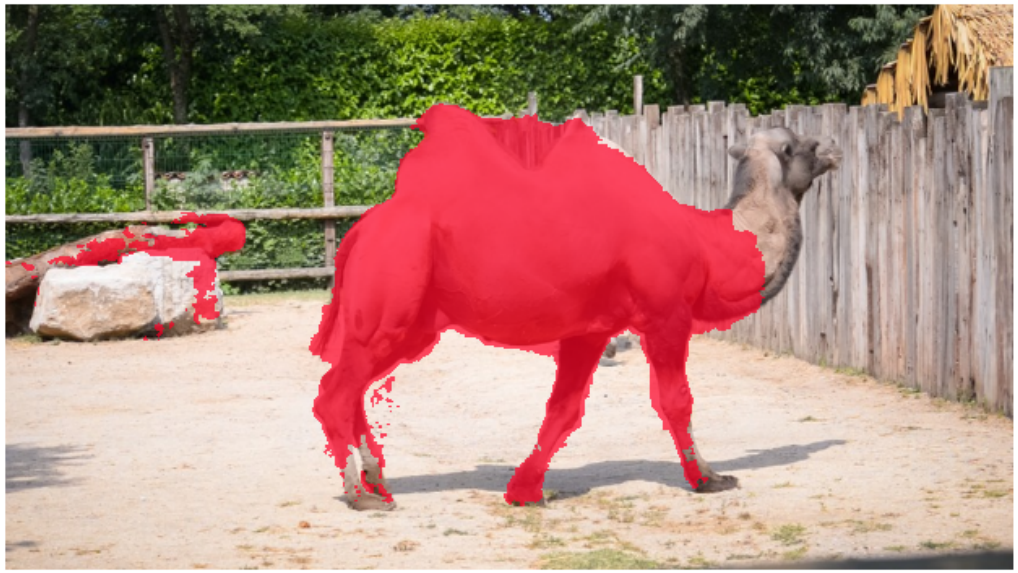
Results (2)

Figure 4: CAMEL



Results (2)

Figure 4: CAMEL



Results (3)

Figure 5: CAR-SHADOW



Results (3)

Figure 5: CAR-SHADOW



Upcoming Work

Upcoming Work

- Using the extended dataset with Rui's updated architecture implementation and comparing results
- Training on SegTrack-v2 and YouTube-Objects Mask Subset and evaluating on DAVIS 2016 evaluation subset, binary-converted DAVIS 2017 evaluation subset
- Looking into adjusting our approach for the DAVIS 2017 multi-class problem

Questions?