Brief reading notes about Meta-Tracker and OSVOS

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1 Brief understanding of OSVOS

I will simply talk about my understanding of OSVOS working mechanism in this section. OSVOS is an algorithm designed for addressing particular object segmentation problem. At the first,they use VGG-FCN as the feature extractor and then use DAVIS dataset and weighted pixel-wise cross-entropy as the loss function to train a so-called parent network,which is simply a segmentation network.And then the most important part comes,they use a annotated frame at the beginning of the sequence to fine-tune the network to track and segment the target in following frames. And additionally they train a contour detecting network and combine the contour and the segmentation together using UCM to generate the final segmentation.The method have got a lethal drawback of the overlong fine-tuning time.My mission is to use meta learning to shorten the fine-tuning time.

2 Brief understanding of Meta-Tracker

In this section I will simply illustrate the principle and detail of meta-tracker algorithm. In each batch they extract two frames and their ground truth segmentation at random.And then use the fframe at the fore in to train a θ_t. After some training iterations,they evaluate θ_t and the per parameter learning rate coefficients α by predicting the segmentation of target in the following frame.At last they get an accumulated gradient of θ and α and optimize α and θ to get a best initialization and training rate.In the paper, the author indicates that they have shorten the training time and improve the performance of some state-of-the-art tracking algorithms by using meta-tracking remarkably.

3 Questions

1.What is Wrap Canonical Size Initialization?
2.What is the mechanism of label shuffling? I didn't get the point of both method by reading author's explaination in the paper

4 Plan for this week

Read and understand their codes.