Bidirectinal Learning for Domain Adaptation of Semantic Segmentation

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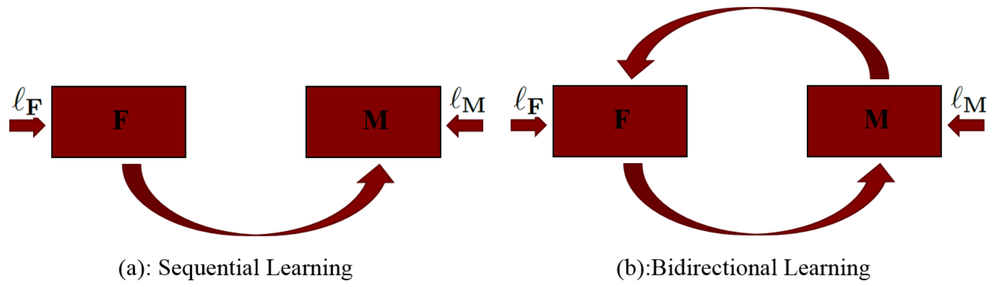
https://github.com/liyunsheng13/BDL

Motivation: We introduce a method to develop a model trained with labeled synthetic data and unlabeled real data for real data segmentation task to save human efforts to labelling. The big domain gap between synthetic data and real data is the main issue that prevents the segmentation model learned with synthetic to have a good performance on the real data.

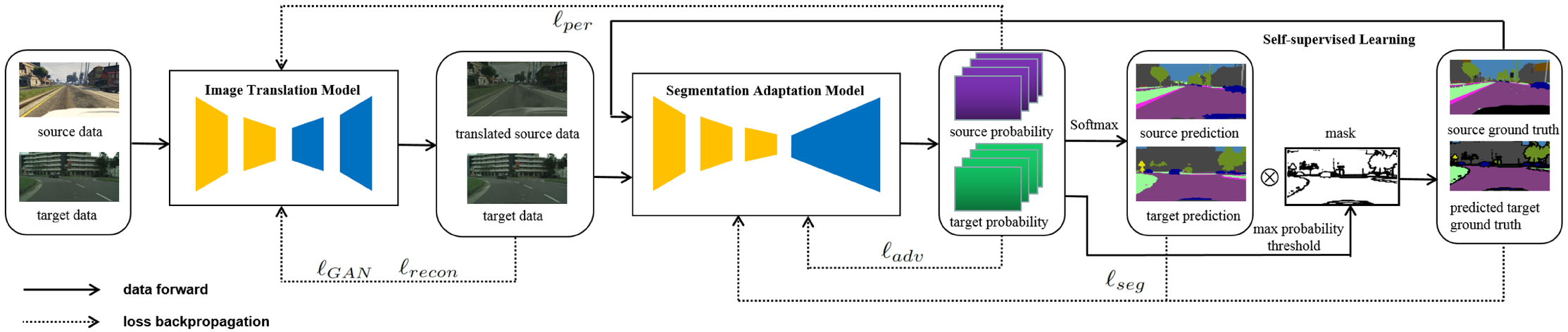
Contribution:

Design Bidirectional Learning system to build feedback between image translation model (CycleGAN) and Adaptative segmentation model

Self-supervised Learning is adopted to further improve performance



Network Architecture:



Results & Influence:

The state-of-the-art segmentation model was learned by a large performance margin. The model that was learned with only labeled synthetic data achieves a closed performance compared to the model that is only trained with real images. It can save both time and human efforts to label pixels for segmentation task.

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