

CS 6476 Project 6

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Parts 4 & 5: mIoU of different models

Add each of the following (keeping the changes as you move to the next row):

	Training mIoU	Validation mIoU
Simple Segmentation Net (no pretrained weights)	0.4833	0.3736
+ ImageNet-Pretrained backbone	0.5823	0.5502
+ Data augmentation	0.4783	0.4833
ImageNet-Pretrained PSPNet w/ Data Aug. without PPM	0.5680	0.5786
+ PSPNet with PPM	0.5785	0.5951
+ PSPNet with auxiliary loss	0.5808	0.5921

Parts 4 & 5: Per class IoUs

Report your model's IoU for the 11 Camvid classes (you can find the order they are listed in at [dataset_lists/camvid-11/camvid-11_names.txt](#)):

Class Index	Class name	Simple Segmentation Net Class IoU	PSPNet Class IoU
0	Building	0.7079	0.8807
1	Tree	0.7318	0.9084
2	Sky	0.8019	0.8953
3	Car	0.2990	0.7726
4	SignSymbol	0.0000	0.0000
5	Road	0.8663	0.9246
6	Pedestrian	0.0000	0.2963
7	Fence	0.0772	0.7916
8	Column_Pole	0.0000	0.0002
9	Sidewalk	0.5305	0.8085
10	Bicyclist	0.0000	0.5125

Parts 4 & 5: Most difficult classes

[Which classes have the lowest mIoU? Why might they be the most difficult?
Provide an example RGB image from Camvid that illustrates your point

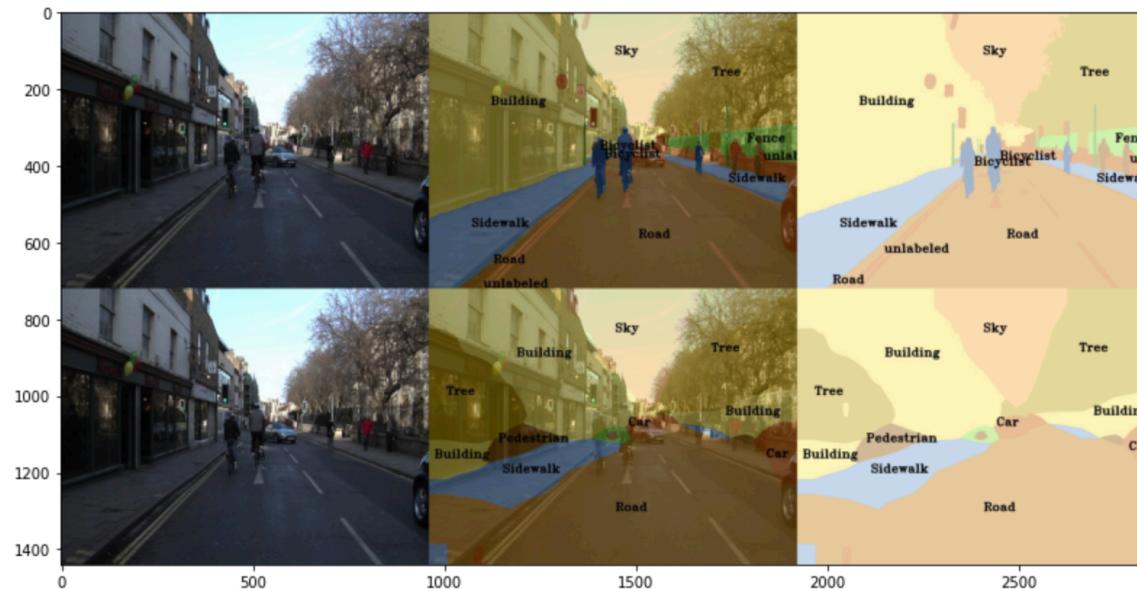
SignSymbol and ColumnPole



In this picture, the column poles are aligned with the vertical edges of the building and the windows, so it will be difficult for the model to distinguish them from the building.

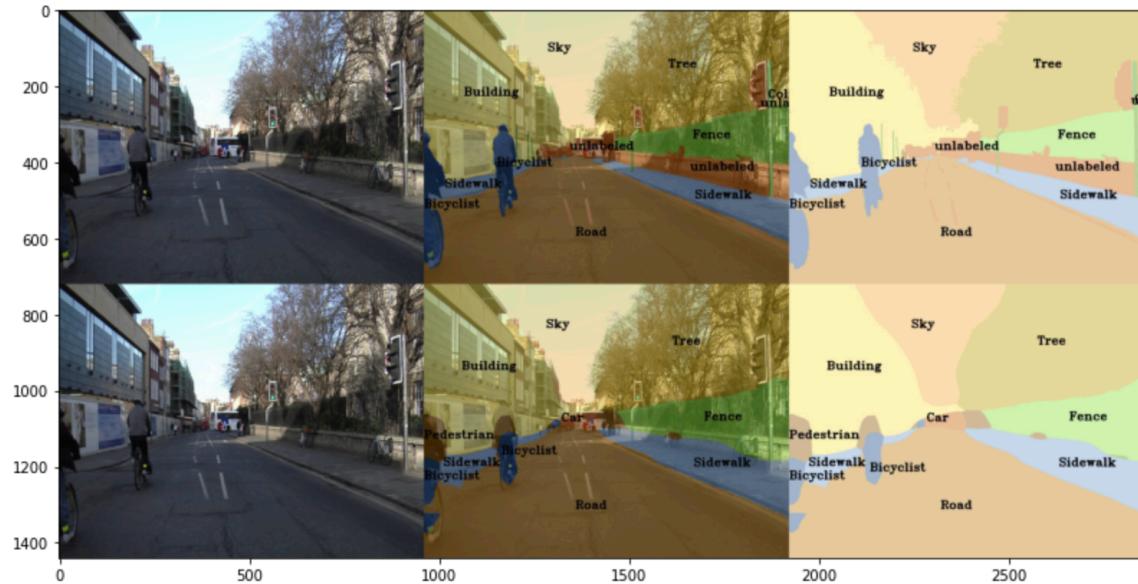
Part 4: Simple segmentation net qualitative results

[Paste a figure of the generated semantic segmentation from Colab. It should be a 2x3 grid, with ground truth on the top row, and your predictions on the bottom row.]



Part 5: PSPNet qualitative results

[Paste a figure of the generated semantic segmentation from Colab. It should be a 2x3 grid, with ground truth on the top row, and your predictions on the bottom row.]



Part 6: Transfer Learning

Report your model's IoU for the Kitti Dataset.

	mIoU	mAcc/	allAcc
Train result	0.8711	0.9255	0.9583
Val result	0.8772	0.9241	0.9611

Class Index	Class name	iou	accuracy
0	Road	0.8004	0.8663
1	Not_Road	0.9540	0.9819

Part 6: Transfer Learning

Compare the training loss generated when training on Kitti dataset and Camvid dataset. Which decreases at a faster rate? If Camvid or Kitti training loss decreases at a faster rate than the other, why do you think this happened? Or, if the loss decreases at a similar rate, why do you think that is so?

If we look at mean loss, training on Kitti was much faster. This makes sense because training on Kitti was done with the pre-trained model that was trained on Camvid and the number of classes for Kitti was 2 while it was 11 for Camvid. But note that if we only look at road vs non-road, training on Camvid was also very fast and comparable to the training speed on Kitti.