Fully Convolutional Network for Semantic Segmentation

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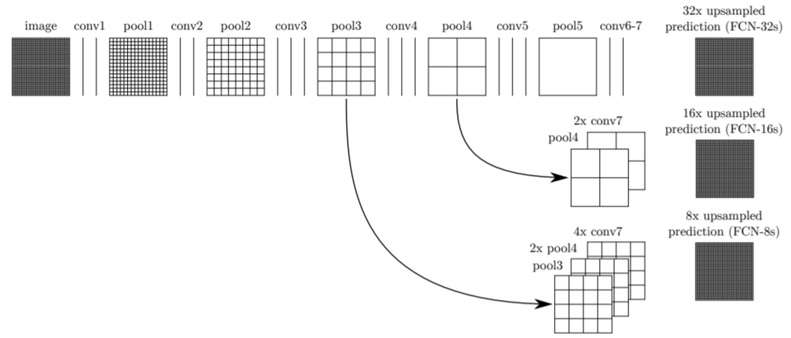
Abstract

Fully convolutional networks have been shown to exceed state-of-the-art models in the task of semantic segmentation. Fully convolutional networks, trained end-to-end and pixel-to-pixel, have been shown to produce outputs with efficient inference and learning. [1][2]In this project, we define and introduce our fully convolutional network for semantic segmentation on the canonical PASCAL VOC Dataset and present the pixel accuracy of our models as our results.

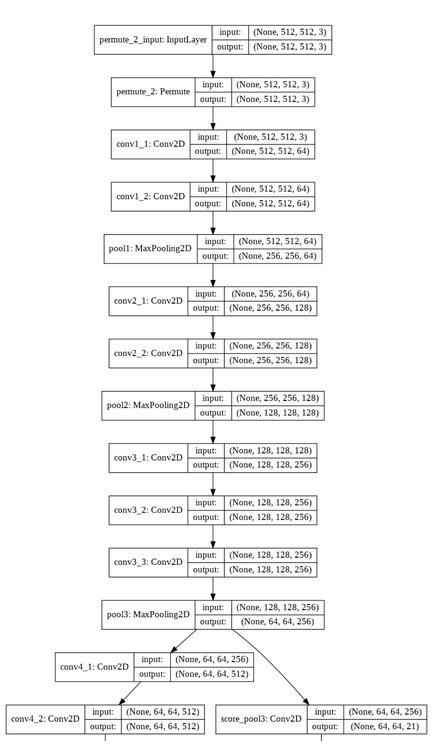
Our Motivation

Semantic segmentation is a pixel-to-pixel classification problem. Our model, trained using images and their corresponding ground truth segmentations, seeks to label each pixel of an image as one of the twenty classes in PASCAL VOC Dataset.

A General Look on our Proposed Model



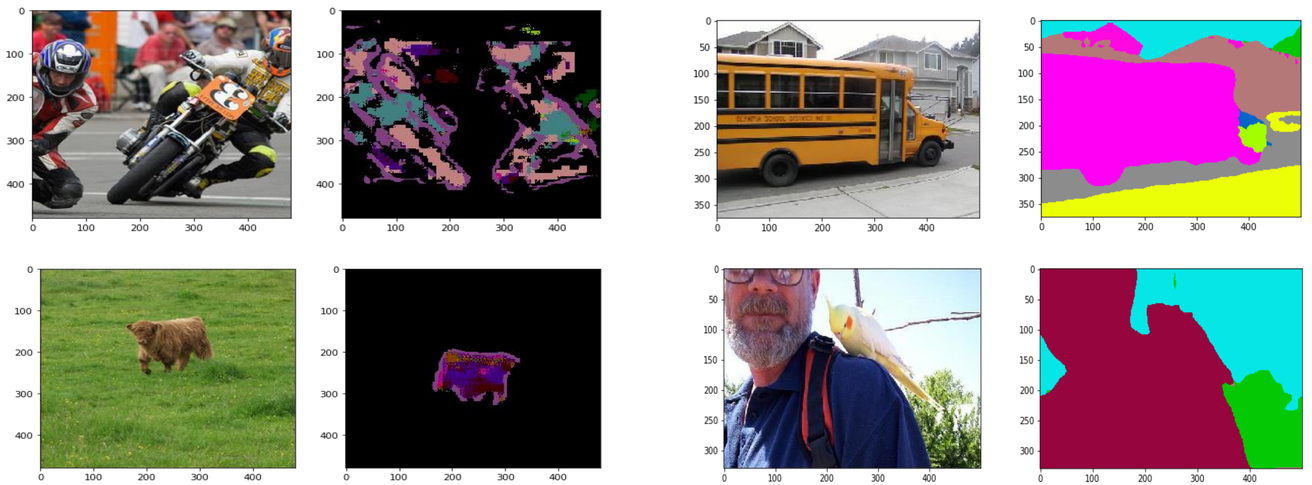
A Closer Look at our Proposed Model



Our model achieved our 75% pixel accuracy on PASCAL VOC 2012 dataset.

Example Segmentations

Original Image *Segmented Image* *Original Image* *Segmented Image*



References

[1] Long, J., Shelhamer, E., & Darrell, T. (2015). Fully convolutional networks for semantic segmentation. In *Proceedings of the IEEE conference on computer vision and pattern recognition* (pp. 3431-3440).

[2] Girshick, R., Donahue, J., Darrell, T., & Malik, J. (2014). Rich feature hierarchies for accurate object detection and semantic segmentation. In *Proceedings of the IEEE conference on computer vision and pattern recognition* (pp. 580-587).