Laplacian Pyramid Reconstruction and Refinement for Semantic Segmentation G. Ghiasi and C. C. Fowlkes (ECCV 2016)



- A multi-resolution reconstruction (from low to full resolution) architecture for semantic segmentation
- Significant sub-pixel localization information in high-dimensional features
 - Sub-pixel up-sampling using a class-specific reconstruction basis
 - Substantially improves over common up-sampling schemes
- Laplacian pyramid using skip connections from higher resolution feature maps
- Reducing the effect of shallow, high-resolution layers by using them only to correct residual errors in the low-resolution prediction (like ResNets)
- Multiplicative gating to avoid integrating noisy high-resolution outputs
- State-of-the-art results on the PASCAL VOC and Cityscapes benchmarks