DeepMask - Predicts masks using only upper-layer CNN features, resulting in m x 1 x 1 outputs.

Prior Work

DeepMask

- Generate Object Proposals as efficiently as possible
- Outputs the likelihood of the patch being centered on an object
- Outputs a class-agnostic segmentation mask
- DeepMask Trained jointly with Two Object Detection Systems

SharpMask

- Refinement Module
  - Given object-level information, segmentation should proceed in a top-down fashion, successively integrating information from earlier layers
  - The resulting bottom-up/top-down architecture is capable of efficiently generating high-fidelity object masks.

DUALMask

- Motivation
  - Features learned in Refinement Module can be useful in a Feed-forward Network at first place

DUALMask Architecture

- Two Sharp Mask Units are employed with an addition of a New Refinement Module

Refinement Module

- Merges the information in top-down pass of Sharp Mask #1 with bottom-up pass of Sharp Mask #2
- Both SharpMask Units are given same original image as the input

Our Idea: Joint learning of Two Sharp Masks + “New Refinement Module”

Evaluation Results

- DUALMask produces better Accuracy for Centered Image Patches than SharpMask

Future Work

- Give Segmentation produced by SharpMask #1 as input to SharpMask #2
- Concatenate More Units of SharpMask in a RNN manner

References