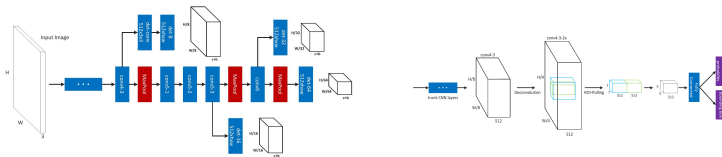# A Unified Multi-scale Deep Convolutional Neural Network for Fast Object Detection

Z. Cai, Q. Fan, R. S. Feris and N. Vasconcelos (ECCV 2016)

- ▶ Multi-scale CNN for fast multi-scale object detection
- ▶ Proposal sub-network performs detection at multiple output layers to match objects at different scales
- ▶ Complementary scale-specific detectors are combined to produce a strong multi-scale object detector
- ▶ Unified network is learned end-to-end by optimizing a multi-task loss
- ▶ Feature upsampling by deconvolution reduces the memory and computation costs in contrast to input upsampling
- ▶ Evaluation on KITTI and Caltech