# object-detection

This is a list of awesome articles about object detection.

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* OSD（One-Shot object Detection）
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Based on handong1587’s github（[https://handong1587.github.io/deep\_learning/2015/10/09/object-detection.html）](https://handong1587.github.io/deep_learning/2015/10/09/object-detection.html%EF%BC%89)

# Papers&Codes

## R-CNN

****Rich feature hierarchies for accurate object detection and semantic segmentation****

* intro: R-CNN
* arxiv: <http://arxiv.org/abs/1311.2524>
* supp: <http://people.eecs.berkeley.edu/~rbg/papers/r-cnn-cvpr-supp.pdf>
* slides: <http://www.image-net.org/challenges/LSVRC/2013/slides/r-cnn-ilsvrc2013-workshop.pdf>
* slides: <http://www.cs.berkeley.edu/~rbg/slides/rcnn-cvpr14-slides.pdf>
* github: <https://github.com/rbgirshick/rcnn>
* notes: <http://zhangliliang.com/2014/07/23/paper-note-rcnn/>
* caffe-pr(“Make R-CNN the Caffe detection example”): <https://github.com/BVLC/caffe/pull/482>

## Fast R-CNN

****Fast R-CNN****

* arxiv: <http://arxiv.org/abs/1504.08083>
* slides: <http://tutorial.caffe.berkeleyvision.org/caffe-cvpr15-detection.pdf>
* github: <https://github.com/rbgirshick/fast-rcnn>
* github(COCO-branch): <https://github.com/rbgirshick/fast-rcnn/tree/coco>
* webcam demo: <https://github.com/rbgirshick/fast-rcnn/pull/29>
* notes: <http://zhangliliang.com/2015/05/17/paper-note-fast-rcnn/>
* notes: <http://blog.csdn.net/linj_m/article/details/48930179>
* github(“Fast R-CNN in MXNet”): <https://github.com/precedenceguo/mx-rcnn>
* github: <https://github.com/mahyarnajibi/fast-rcnn-torch>
* github: <https://github.com/apple2373/chainer-simple-fast-rnn>
* github: <https://github.com/zplizzi/tensorflow-fast-rcnn>

****A-Fast-RCNN: Hard Positive Generation via Adversary for Object Detection****

* intro: CVPR 2017
* arxiv: <https://arxiv.org/abs/1704.03414>
* paper: <http://abhinavsh.info/papers/pdfs/adversarial_object_detection.pdf>
* github(Caffe): <https://github.com/xiaolonw/adversarial-frcnn>

## Faster R-CNN

****Faster R-CNN: Towards Real-Time Object Detection with Region Proposal Networks****

* intro: NIPS 2015
* arxiv: <http://arxiv.org/abs/1506.01497>
* gitxiv: <http://www.gitxiv.com/posts/8pfpcvefDYn2gSgXk/faster-r-cnn-towards-real-time-object-detection-with-region>
* slides: <http://web.cs.hacettepe.edu.tr/~aykut/classes/spring2016/bil722/slides/w05-FasterR-CNN.pdf>
* github(official, Matlab): <https://github.com/ShaoqingRen/faster_rcnn>
* github(Caffe): <https://github.com/rbgirshick/py-faster-rcnn>
* github(MXNet): <https://github.com/msracver/Deformable-ConvNets/tree/master/faster_rcnn>
* github(PyTorch–recommend): <https://github.com//jwyang/faster-rcnn.pytorch>
* github: <https://github.com/mitmul/chainer-faster-rcnn>
* github(Torch):: <https://github.com/andreaskoepf/faster-rcnn.torch>
* github(Torch):: <https://github.com/ruotianluo/Faster-RCNN-Densecap-torch>
* github(TensorFlow): <https://github.com/smallcorgi/Faster-RCNN_TF>
* github(TensorFlow): <https://github.com/CharlesShang/TFFRCNN>
* github(C++ demo): <https://github.com/YihangLou/FasterRCNN-Encapsulation-Cplusplus>
* github(Keras): <https://github.com/yhenon/keras-frcnn>
* github: <https://github.com/Eniac-Xie/faster-rcnn-resnet>
* github(C++): <https://github.com/D-X-Y/caffe-faster-rcnn/tree/dev>

****R-CNN minus R****

* intro: BMVC 2015
* arxiv: <http://arxiv.org/abs/1506.06981>

****Faster R-CNN in MXNet with distributed implementation and data parallelization****

* github: <https://github.com/dmlc/mxnet/tree/master/example/rcnn>

****Contextual Priming and Feedback for Faster R-CNN****

* intro: ECCV 2016. Carnegie Mellon University
* paper: <http://abhinavsh.info/context_priming_feedback.pdf>
* poster: <http://www.eccv2016.org/files/posters/P-1A-20.pdf>

****An Implementation of Faster RCNN with Study for Region Sampling****

* intro: Technical Report, 3 pages. CMU
* arxiv: <https://arxiv.org/abs/1702.02138>
* github: <https://github.com/endernewton/tf-faster-rcnn>

****Interpretable R-CNN****

* intro: North Carolina State University & Alibaba
* keywords: AND-OR Graph (AOG)
* arxiv: <https://arxiv.org/abs/1711.05226>

## Light-Head R-CNN

****Light-Head R-CNN: In Defense of Two-Stage Object Detector****

* intro: Tsinghua University & Megvii Inc
* arxiv: <https://arxiv.org/abs/1711.07264>
* github(offical): <https://github.com/zengarden/light_head_rcnn>
* github: [https://github.com/terrychenism/Deformable-ConvNets/blob/master/rfcn/symbols/resnet\_v1\_101\_rfcn\_light.py#L784](https://github.com/terrychenism/Deformable-ConvNets/blob/master/rfcn/symbols/resnet_v1_101_rfcn_light.py" \l "L784)

## Cascade R-CNN

****Cascade R-CNN: Delving into High Quality Object Detection****

* arxiv: <https://arxiv.org/abs/1712.00726>
* github: <https://github.com/zhaoweicai/cascade-rcnn>

## SPP-Net

****Spatial Pyramid Pooling in Deep Convolutional Networks for Visual Recognition****

* intro: ECCV 2014 / TPAMI 2015
* arxiv: <http://arxiv.org/abs/1406.4729>
* github: <https://github.com/ShaoqingRen/SPP_net>
* notes: <http://zhangliliang.com/2014/09/13/paper-note-sppnet/>

****DeepID-Net: Deformable Deep Convolutional Neural Networks for Object Detection****

* intro: PAMI 2016
* intro: an extension of R-CNN. box pre-training, cascade on region proposals, deformation layers and context representations
* project page: <http://www.ee.cuhk.edu.hk/%CB%9Cwlouyang/projects/imagenetDeepId/index.html>
* arxiv: <http://arxiv.org/abs/1412.5661>

****Object Detectors Emerge in Deep Scene CNNs****

* intro: ICLR 2015
* arxiv: <http://arxiv.org/abs/1412.6856>
* paper: <https://www.robots.ox.ac.uk/~vgg/rg/papers/zhou_iclr15.pdf>
* paper: <https://people.csail.mit.edu/khosla/papers/iclr2015_zhou.pdf>
* slides: <http://places.csail.mit.edu/slide_iclr2015.pdf>

****segDeepM: Exploiting Segmentation and Context in Deep Neural Networks for Object Detection****

* intro: CVPR 2015
* project(code+data): <https://www.cs.toronto.edu/~yukun/segdeepm.html>
* arxiv: <https://arxiv.org/abs/1502.04275>
* github: <https://github.com/YknZhu/segDeepM>

****Object Detection Networks on Convolutional Feature Maps****

* intro: TPAMI 2015
* keywords: NoC
* arxiv: <http://arxiv.org/abs/1504.06066>

****Improving Object Detection with Deep Convolutional Networks via Bayesian Optimization and Structured Prediction****

* arxiv: <http://arxiv.org/abs/1504.03293>
* slides: <http://www.ytzhang.net/files/publications/2015-cvpr-det-slides.pdf>
* github: <https://github.com/YutingZhang/fgs-obj>

****DeepBox: Learning Objectness with Convolutional Networks****

* keywords: DeepBox
* arxiv: <http://arxiv.org/abs/1505.02146>
* github: <https://github.com/weichengkuo/DeepBox>

## YOLO

****You Only Look Once: Unified, Real-Time Object Detection****

[](https://camo.githubusercontent.com/e69d4118b20a42de4e23b9549f9a6ec6dbbb0814/687474703a2f2f706a7265646469652e636f6d2f6d656469612f66696c65732f6461726b6e65742d626c61636b2d736d616c6c2e706e67)

* arxiv: <http://arxiv.org/abs/1506.02640>
* code: <https://pjreddie.com/darknet/yolov1/>
* github: <https://github.com/pjreddie/darknet>
* blog: <https://pjreddie.com/darknet/yolov1/>
* slides: <https://docs.google.com/presentation/d/1aeRvtKG21KHdD5lg6Hgyhx5rPq_ZOsGjG5rJ1HP7BbA/pub?start=false&loop=false&delayms=3000&slide=id.p>
* reddit: <https://www.reddit.com/r/MachineLearning/comments/3a3m0o/realtime_object_detection_with_yolo/>
* github: <https://github.com/gliese581gg/YOLO_tensorflow>
* github: <https://github.com/xingwangsfu/caffe-yolo>
* github: <https://github.com/frankzhangrui/Darknet-Yolo>
* github: <https://github.com/BriSkyHekun/py-darknet-yolo>
* github: <https://github.com/tommy-qichang/yolo.torch>
* github: <https://github.com/frischzenger/yolo-windows>
* github: <https://github.com/AlexeyAB/yolo-windows>
* github: <https://github.com/nilboy/tensorflow-yolo>

****darkflow – translate darknet to tensorflow. Load trained weights, retrain/fine-tune them using tensorflow, export constant graph def to C++****

* blog: <https://thtrieu.github.io/notes/yolo-tensorflow-graph-buffer-cpp>
* github: <https://github.com/thtrieu/darkflow>

****Start Training YOLO with Our Own Data****

[](https://camo.githubusercontent.com/2f99b692dd7ce47d7832385f3e8a6654e680d92a/687474703a2f2f6775616e6768616e2e696e666f2f626c6f672f656e2f77702d636f6e74656e742f75706c6f6164732f323031352f31322f696d616765732d34302e6a7067)

* intro: train with customized data and class numbers/labels. Linux / Windows version for darknet.
* blog: <http://guanghan.info/blog/en/my-works/train-yolo/>
* github: <https://github.com/Guanghan/darknet>

****YOLO: Core ML versus MPSNNGraph****

* intro: Tiny YOLO for iOS implemented using CoreML but also using the new MPS graph API.
* blog: <http://machinethink.net/blog/yolo-coreml-versus-mps-graph/>
* github: <https://github.com/hollance/YOLO-CoreML-MPSNNGraph>

****TensorFlow YOLO object detection on Android****

* intro: Real-time object detection on Android using the YOLO network with TensorFlow
* github: <https://github.com/natanielruiz/android-yolo>

****Computer Vision in iOS – Object Detection****

* blog: <https://sriraghu.com/2017/07/12/computer-vision-in-ios-object-detection/>
* github:<https://github.com/r4ghu/iOS-CoreML-Yolo>

## YOLOv2

****YOLO9000: Better, Faster, Stronger****

* arxiv: <https://arxiv.org/abs/1612.08242>
* code: <http://pjreddie.com/yolo9000/> <https://pjreddie.com/darknet/yolov2/>
* github(Chainer): <https://github.com/leetenki/YOLOv2>
* github(Keras): <https://github.com/allanzelener/YAD2K>
* github(PyTorch): <https://github.com/longcw/yolo2-pytorch>
* github(Tensorflow): <https://github.com/hizhangp/yolo_tensorflow>
* github(Windows): <https://github.com/AlexeyAB/darknet>
* github: <https://github.com/choasUp/caffe-yolo9000>
* github: <https://github.com/philipperemy/yolo-9000>
* github(TensorFlow): <https://github.com/KOD-Chen/YOLOv2-Tensorflow>
* github(Keras): <https://github.com/yhcc/yolo2>
* github(Keras): <https://github.com/experiencor/keras-yolo2>
* github(TensorFlow): <https://github.com/WojciechMormul/yolo2>

****darknet\_scripts****

* intro: Auxilary scripts to work with (YOLO) darknet deep learning famework. AKA -> How to generate YOLO anchors?
* github: <https://github.com/Jumabek/darknet_scripts>

****Yolo\_mark: GUI for marking bounded boxes of objects in images for training Yolo v2****

* github: <https://github.com/AlexeyAB/Yolo_mark>

****LightNet: Bringing pjreddie’s DarkNet out of the shadows****

<https://github.com//explosion/lightnet>

****YOLO v2 Bounding Box Tool****

* intro: Bounding box labeler tool to generate the training data in the format YOLO v2 requires.
* github: <https://github.com/Cartucho/yolo-boundingbox-labeler-GUI>

****Loss Rank Mining: A General Hard Example Mining Method for Real-time Detectors****

* intro: ****LRM**** is the first hard example mining strategy which could fit YOLOv2 perfectly and make it better applied in series of real scenarios where both real-time rates and accurate detection are strongly demanded.
* arxiv: <https://arxiv.org/abs/1804.04606>

****Object detection at 200 Frames Per Second****

* intro: faster than Tiny-Yolo-v2
* arxiv: <https://arxiv.org/abs/1805.06361>

****Event-based Convolutional Networks for Object Detection in Neuromorphic Cameras****

* intro: YOLE–Object Detection in Neuromorphic Cameras
* arxiv:<https://arxiv.org/abs/1805.07931>

****OmniDetector: With Neural Networks to Bounding Boxes****

* intro: a person detector on n fish-eye images of indoor scenes（NIPS 2018）
* arxiv:<https://arxiv.org/abs/1805.08503>
* datasets:<https://gitlab.com/omnidetector/omnidetector>

## YOLOv3

****YOLOv3: An Incremental Improvement****

* arxiv:<https://arxiv.org/abs/1804.02767>
* paper:<https://pjreddie.com/media/files/papers/YOLOv3.pdf>
* code: <https://pjreddie.com/darknet/yolo/>
* github(Official):<https://github.com/pjreddie/darknet>
* github:<https://github.com/experiencor/keras-yolo3>
* github:<https://github.com/qqwweee/keras-yolo3>
* github:<https://github.com/marvis/pytorch-yolo3>
* github:<https://github.com/ayooshkathuria/pytorch-yolo-v3>
* github:<https://github.com/ayooshkathuria/YOLO_v3_tutorial_from_scratch>
* github:<https://github.com/eriklindernoren/PyTorch-YOLOv3>

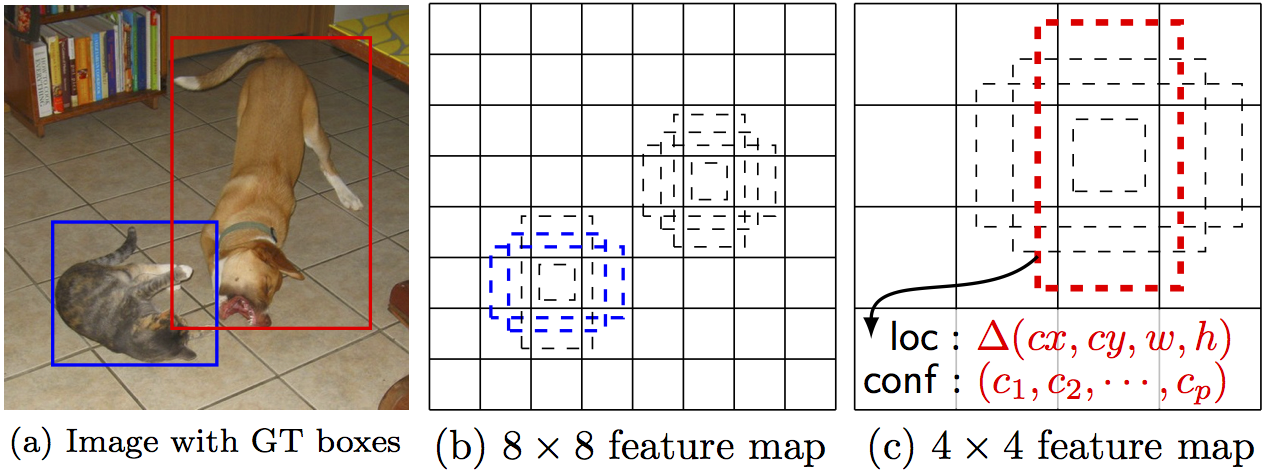
## YOLT

****You Only Look Twice: Rapid Multi-Scale Object Detection In Satellite Imagery****

* intro: Small Object Detection
* arxiv:<https://arxiv.org/abs/1805.09512>
* github:<https://github.com/avanetten/yolt>

## SSD

****SSD: Single Shot MultiBox Detector****

[](https://camo.githubusercontent.com/ad9b147ed3a5f48ffb7c3540711c15aa04ce49c6/687474703a2f2f7777772e63732e756e632e6564752f7e776c69752f7061706572732f7373642e706e67)

* intro: ECCV 2016 Oral
* arxiv: <http://arxiv.org/abs/1512.02325>
* paper: <http://www.cs.unc.edu/~wliu/papers/ssd.pdf>
* slides: [http://www.cs.unc.edu/%7Ewliu/papers/ssd\_eccv2016\_slide.pdf](http://www.cs.unc.edu/~wliu/papers/ssd_eccv2016_slide.pdf)
* github(Official): <https://github.com/weiliu89/caffe/tree/ssd>
* video: <http://weibo.com/p/2304447a2326da963254c963c97fb05dd3a973>
* github: <https://github.com/zhreshold/mxnet-ssd>
* github: <https://github.com/zhreshold/mxnet-ssd.cpp>
* github: <https://github.com/rykov8/ssd_keras>
* github: <https://github.com/balancap/SSD-Tensorflow>
* github: <https://github.com/amdegroot/ssd.pytorch>
* github(Caffe): <https://github.com/chuanqi305/MobileNet-SSD>

****What’s the diffience in performance between this new code you pushed and the previous code? #327****

<https://github.com/weiliu89/caffe/issues/327>

## DSSD

****DSSD : Deconvolutional Single Shot Detector****

* intro: UNC Chapel Hill & Amazon Inc
* arxiv: <https://arxiv.org/abs/1701.06659>
* github: <https://github.com/chengyangfu/caffe/tree/dssd>
* github: <https://github.com/MTCloudVision/mxnet-dssd>
* demo: <http://120.52.72.53/www.cs.unc.edu/c3pr90ntc0td/~cyfu/dssd_lalaland.mp4>

****Enhancement of SSD by concatenating feature maps for object detection****

* intro: rainbow SSD (R-SSD)
* arxiv: <https://arxiv.org/abs/1705.09587>

****Context-aware Single-Shot Detector****

* keywords: CSSD, DiCSSD, DeCSSD, effective receptive fields (ERFs), theoretical receptive fields (TRFs)
* arxiv: <https://arxiv.org/abs/1707.08682>

****Feature-Fused SSD: Fast Detection for Small Objects****

<https://arxiv.org/abs/1709.05054>

## FSSD

****FSSD: Feature Fusion Single Shot Multibox Detector****

<https://arxiv.org/abs/1712.00960>

****Weaving Multi-scale Context for Single Shot Detector****

* intro: WeaveNet
* keywords: fuse multi-scale information
* arxiv: <https://arxiv.org/abs/1712.03149>

## ESSD

****Extend the shallow part of Single Shot MultiBox Detector via Convolutional Neural Network****

<https://arxiv.org/abs/1801.05918>

****Tiny SSD: A Tiny Single-shot Detection Deep Convolutional Neural Network for Real-time Embedded Object Detection****

<https://arxiv.org/abs/1802.06488>

## MDSSD

****MDSSD: Multi-scale Deconvolutional Single Shot Detector for small objects****

* arxiv: <https://arxiv.org/abs/1805.07009>

## Pelee

****Pelee: A Real-Time Object Detection System on Mobile Devices****

<https://github.com/Robert-JunWang/Pelee>

* intro: (ICLR 2018 workshop track)
* arxiv: <https://arxiv.org/abs/1804.06882>
* github: <https://github.com/Robert-JunWang/Pelee>

## Fire SSD

****Fire SSD: Wide Fire Modules based Single Shot Detector on Edge Device****

* intro:low cost, fast speed and high mAP on factor edge computing devices
* arxiv:<https://arxiv.org/abs/1806.05363>

## R-FCN

****R-FCN: Object Detection via Region-based Fully Convolutional Networks****

* arxiv: <http://arxiv.org/abs/1605.06409>
* github: <https://github.com/daijifeng001/R-FCN>
* github(MXNet): <https://github.com/msracver/Deformable-ConvNets/tree/master/rfcn>
* github: <https://github.com/Orpine/py-R-FCN>
* github: <https://github.com/PureDiors/pytorch_RFCN>
* github: <https://github.com/bharatsingh430/py-R-FCN-multiGPU>
* github: <https://github.com/xdever/RFCN-tensorflow>

****R-FCN-3000 at 30fps: Decoupling Detection and Classification****

<https://arxiv.org/abs/1712.01802>

****Recycle deep features for better object detection****

* arxiv: <http://arxiv.org/abs/1607.05066>

## FPN

****Feature Pyramid Networks for Object Detection****

* intro: Facebook AI Research
* arxiv: <https://arxiv.org/abs/1612.03144>

****Action-Driven Object Detection with Top-Down Visual Attentions****

* arxiv: <https://arxiv.org/abs/1612.06704>

****Beyond Skip Connections: Top-Down Modulation for Object Detection****

* intro: CMU & UC Berkeley & Google Research
* arxiv: <https://arxiv.org/abs/1612.06851>

****Wide-Residual-Inception Networks for Real-time Object Detection****

* intro: Inha University
* arxiv: <https://arxiv.org/abs/1702.01243>

****Attentional Network for Visual Object Detection****

* intro: University of Maryland & Mitsubishi Electric Research Laboratories
* arxiv: <https://arxiv.org/abs/1702.01478>

****Learning Chained Deep Features and Classifiers for Cascade in Object Detection****

* keykwords: CC-Net
* intro: chained cascade network (CC-Net). 81.1% mAP on PASCAL VOC 2007
* arxiv: <https://arxiv.org/abs/1702.07054>

****DeNet: Scalable Real-time Object Detection with Directed Sparse Sampling****

* intro: ICCV 2017 (poster)
* arxiv: <https://arxiv.org/abs/1703.10295>

****Discriminative Bimodal Networks for Visual Localization and Detection with Natural Language Queries****

* intro: CVPR 2017
* arxiv: <https://arxiv.org/abs/1704.03944>

****Spatial Memory for Context Reasoning in Object Detection****

* arxiv: <https://arxiv.org/abs/1704.04224>

****Accurate Single Stage Detector Using Recurrent Rolling Convolution****

* intro: CVPR 2017. SenseTime
* keywords: Recurrent Rolling Convolution (RRC)
* arxiv: <https://arxiv.org/abs/1704.05776>
* github: <https://github.com/xiaohaoChen/rrc_detection>

****Deep Occlusion Reasoning for Multi-Camera Multi-Target Detection****

<https://arxiv.org/abs/1704.05775>

****LCDet: Low-Complexity Fully-Convolutional Neural Networks for Object Detection in Embedded Systems****

* intro: Embedded Vision Workshop in CVPR. UC San Diego & Qualcomm Inc
* arxiv: <https://arxiv.org/abs/1705.05922>

****Point Linking Network for Object Detection****

* intro: Point Linking Network (PLN)
* arxiv: <https://arxiv.org/abs/1706.03646>

****Perceptual Generative Adversarial Networks for Small Object Detection****

<https://arxiv.org/abs/1706.05274>

****Few-shot Object Detection****

<https://arxiv.org/abs/1706.08249>

****Yes-Net: An effective Detector Based on Global Information****

<https://arxiv.org/abs/1706.09180>

****SMC Faster R-CNN: Toward a scene-specialized multi-object detector****

<https://arxiv.org/abs/1706.10217>

****Towards lightweight convolutional neural networks for object detection****

<https://arxiv.org/abs/1707.01395>

****RON: Reverse Connection with Objectness Prior Networks for Object Detection****

* intro: CVPR 2017
* arxiv: <https://arxiv.org/abs/1707.01691>
* github: <https://github.com/taokong/RON>

****Mimicking Very Efficient Network for Object Detection****

* intro: CVPR 2017. SenseTime & Beihang University
* paper: <http://openaccess.thecvf.com/content_cvpr_2017/papers/Li_Mimicking_Very_Efficient_CVPR_2017_paper.pdf>

****Residual Features and Unified Prediction Network for Single Stage Detection****

<https://arxiv.org/abs/1707.05031>

****Deformable Part-based Fully Convolutional Network for Object Detection****

* intro: BMVC 2017 (oral). Sorbonne Universités & CEDRIC
* arxiv: <https://arxiv.org/abs/1707.06175>

****Adaptive Feeding: Achieving Fast and Accurate Detections by Adaptively Combining Object Detectors****

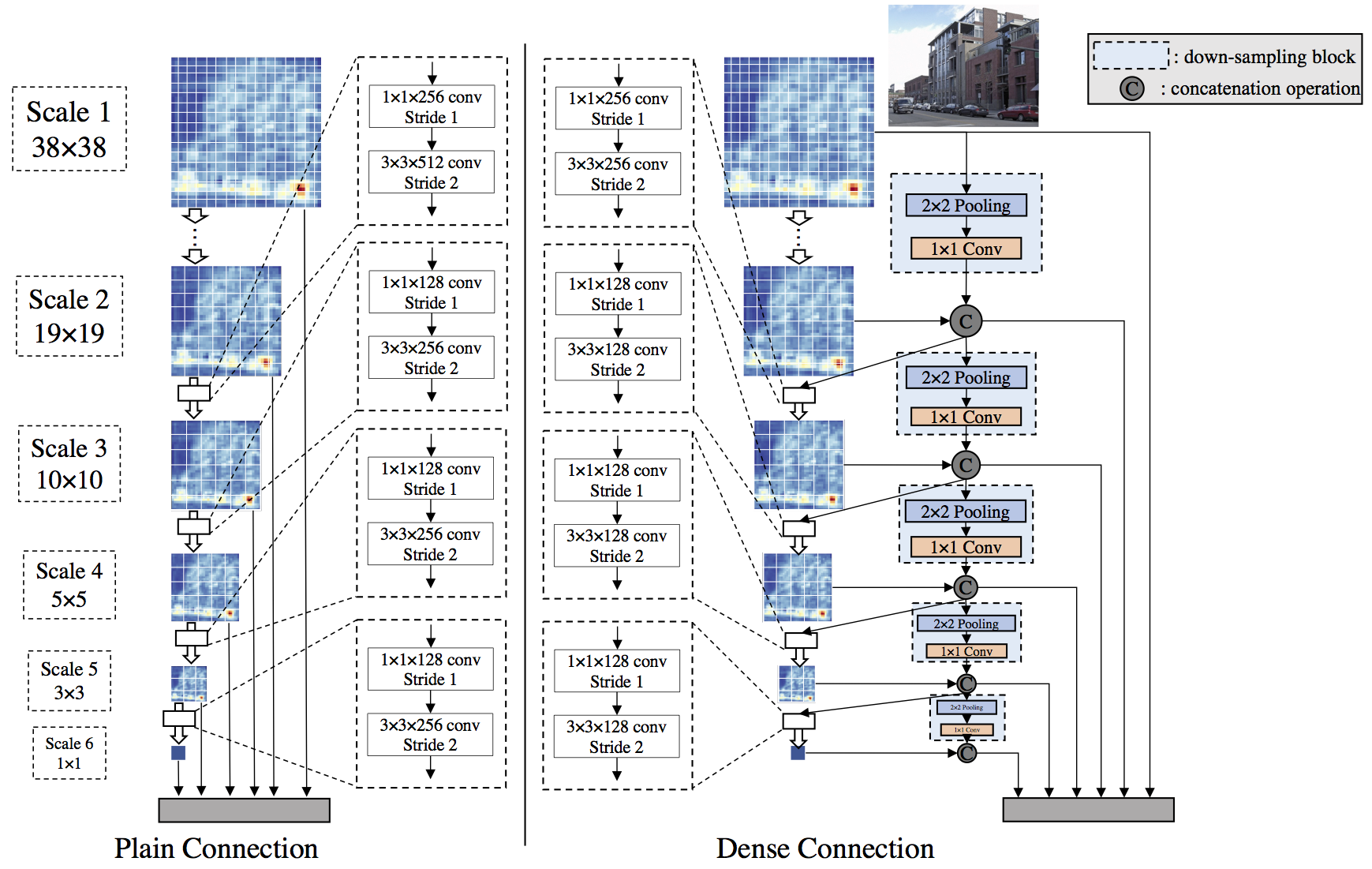
* intro: ICCV 2017
* arxiv: <https://arxiv.org/abs/1707.06399>

****Recurrent Scale Approximation for Object Detection in CNN****

* intro: ICCV 2017
* keywords: Recurrent Scale Approximation (RSA)
* arxiv: <https://arxiv.org/abs/1707.09531>
* github: <https://github.com/sciencefans/RSA-for-object-detection>

## DSOD

****DSOD: Learning Deeply Supervised Object Detectors from Scratch****

[](https://user-images.githubusercontent.com/3794909/28934967-718c9302-78b5-11e7-89ee-8b514e53e23c.png)

* intro: ICCV 2017. Fudan University & Tsinghua University & Intel Labs China
* arxiv: <https://arxiv.org/abs/1708.01241>
* github: <https://github.com/szq0214/DSOD>
* github:<https://github.com/Windaway/DSOD-Tensorflow>
* github:<https://github.com/chenyuntc/dsod.pytorch>

****Learning Object Detectors from Scratch with Gated Recurrent Feature Pyramids****

* arxiv:<https://arxiv.org/abs/1712.00886>
* github:<https://github.com/szq0214/GRP-DSOD>

## RetinaNet

****Focal Loss for Dense Object Detection****

* intro: ICCV 2017 Best student paper award. Facebook AI Research
* keywords: RetinaNet
* arxiv: <https://arxiv.org/abs/1708.02002>

****CoupleNet: Coupling Global Structure with Local Parts for Object Detection****

* intro: ICCV 2017
* arxiv: <https://arxiv.org/abs/1708.02863>

****Incremental Learning of Object Detectors without Catastrophic Forgetting****

* intro: ICCV 2017. Inria
* arxiv: <https://arxiv.org/abs/1708.06977>

****Zoom Out-and-In Network with Map Attention Decision for Region Proposal and Object Detection****

<https://arxiv.org/abs/1709.04347>

****StairNet: Top-Down Semantic Aggregation for Accurate One Shot Detection****

<https://arxiv.org/abs/1709.05788>

****Dynamic Zoom-in Network for Fast Object Detection in Large Images****

<https://arxiv.org/abs/1711.05187>

****Zero-Annotation Object Detection with Web Knowledge Transfer****

* intro: NTU, Singapore & Amazon
* keywords: multi-instance multi-label domain adaption learning framework
* arxiv: <https://arxiv.org/abs/1711.05954>

## MegDet

****MegDet: A Large Mini-Batch Object Detector****

* intro: Peking University & Tsinghua University & Megvii Inc
* arxiv: <https://arxiv.org/abs/1711.07240>

****Single-Shot Refinement Neural Network for Object Detection****

* arxiv: <https://arxiv.org/abs/1711.06897>
* github: <https://github.com/sfzhang15/RefineDet>

****Receptive Field Block Net for Accurate and Fast Object Detection****

* intro: RFBNet
* arxiv: <https://arxiv.org/abs/1711.07767>
* github: <https://github.com//ruinmessi/RFBNet>

****An Analysis of Scale Invariance in Object Detection – SNIP****

* arxiv: <https://arxiv.org/abs/1711.08189>
* github: <https://github.com/bharatsingh430/snip>

****Feature Selective Networks for Object Detection****

<https://arxiv.org/abs/1711.08879>

****Learning a Rotation Invariant Detector with Rotatable Bounding Box****

* arxiv: <https://arxiv.org/abs/1711.09405>
* github: <https://github.com/liulei01/DRBox>

****Scalable Object Detection for Stylized Objects****

* intro: Microsoft AI & Research Munich
* arxiv: <https://arxiv.org/abs/1711.09822>

****Learning Object Detectors from Scratch with Gated Recurrent Feature Pyramids****

* arxiv: <https://arxiv.org/abs/1712.00886>
* github: <https://github.com/szq0214/GRP-DSOD>

****Deep Regionlets for Object Detection****

* keywords: region selection network, gating network
* arxiv: <https://arxiv.org/abs/1712.02408>

****Training and Testing Object Detectors with Virtual Images****

* intro: IEEE/CAA Journal of Automatica Sinica
* arxiv: <https://arxiv.org/abs/1712.08470>

****Large-Scale Object Discovery and Detector Adaptation from Unlabeled Video****

* keywords: object mining, object tracking, unsupervised object discovery by appearance-based clustering, self-supervised detector adaptation
* arxiv: <https://arxiv.org/abs/1712.08832>

****Spot the Difference by Object Detection****

* intro: Tsinghua University & JD Group
* arxiv: <https://arxiv.org/abs/1801.01051>

****Localization-Aware Active Learning for Object Detection****

* arxiv: <https://arxiv.org/abs/1801.05124>

****Object Detection with Mask-based Feature Encoding****

<https://arxiv.org/abs/1802.03934>

****LSTD: A Low-Shot Transfer Detector for Object Detection****

* intro: AAAI 2018
* arxiv: <https://arxiv.org/abs/1803.01529>

****Domain Adaptive Faster R-CNN for Object Detection in the Wild****

* intro: CVPR 2018. ETH Zurich & ESAT/PSI
* arxiv: <https://arxiv.org/abs/1803.03243>

****Pseudo Mask Augmented Object Detection****

<https://arxiv.org/abs/1803.05858>

****Revisiting RCNN: On Awakening the Classification Power of Faster RCNN****

<https://arxiv.org/abs/1803.06799>

****Learning Region Features for Object Detection****

* intro: Peking University & MSRA
* arxiv: <https://arxiv.org/abs/1803.07066>

****Single-Shot Bidirectional Pyramid Networks for High-Quality Object Detection****

* intro: Singapore Management University & Zhejiang University
* arxiv: <https://arxiv.org/abs/1803.08208>

****Object Detection for Comics using Manga109 Annotations****

* intro: University of Tokyo & National Institute of Informatics, Japan
* arxiv: <https://arxiv.org/abs/1803.08670>

****Task-Driven Super Resolution: Object Detection in Low-resolution Images****

<https://arxiv.org/abs/1803.11316>

****Transferring Common-Sense Knowledge for Object Detection****

<https://arxiv.org/abs/1804.01077>

****Multi-scale Location-aware Kernel Representation for Object Detection****

* intro: CVPR 2018
* arxiv: <https://arxiv.org/abs/1804.00428>
* github: <https://github.com/Hwang64/MLKP>

****Loss Rank Mining: A General Hard Example Mining Method for Real-time Detectors****

* intro: National University of Defense Technology
* arxiv: <https://arxiv.org/abs/1804.04606>

****Robust Physical Adversarial Attack on Faster R-CNN Object Detector****

<https://arxiv.org/abs/1804.05810>

## DetNet

****DetNet: A Backbone network for Object Detection****

* intro: Tsinghua University & Face++
* arxiv: <https://arxiv.org/abs/1804.06215>

## SSOD

****Self-supervisory Signals for Object Discovery and Detection****

* Google Brain
* arxiv:<https://arxiv.org/abs/1806.03370>

## 3D Object Detection

****LMNet: Real-time Multiclass Object Detection on CPU using 3D LiDARs****

* arxiv: <https://arxiv.org/abs/1805.04902>
* github: <https://github.com/CPFL/Autoware/tree/feature/cnn_lidar_detection>

## ZSD

****Zero-Shot Detection****

* intro: Australian National University
* keywords: YOLO
* arxiv: <https://arxiv.org/abs/1803.07113>

****Zero-Shot Object Detection****

* arxiv: <https://arxiv.org/abs/1804.04340>

****Zero-Shot Object Detection: Learning to Simultaneously Recognize and Localize Novel Concepts****

* arxiv: <https://arxiv.org/abs/1803.06049>

****Zero-Shot Object Detection by Hybrid Region Embedding****

* arxiv: <https://arxiv.org/abs/1805.06157>

## OSD

****One-Shot Object Detection****

RepMet: Representative-based metric learning for classification and one-shot object detection

* intro: IBM Research AI
* arxiv:<https://arxiv.org/abs/1806.04728>
* github: TODO

## Other

****Relation Network for Object Detection****

* intro: CVPR 2018
* arxiv: <https://arxiv.org/abs/1711.11575>
* github:<https://github.com/msracver/Relation-Networks-for-Object-Detection>

****Quantization Mimic: Towards Very Tiny CNN for Object Detection****

* Tsinghua University1 & The Chinese University of Hong Kong2 &SenseTime3
* arxiv: <https://arxiv.org/abs/1805.02152>

****Learning Rich Features for Image Manipulation Detection****

* intro: CVPR 2018 Camera Ready
* arxiv: <https://arxiv.org/abs/1805.04953>

****SNIPER: Efficient Multi-Scale Training****

* arxiv:<https://arxiv.org/abs/1805.09300>
* github:<https://github.com/mahyarnajibi/SNIPER>

****Soft Sampling for Robust Object Detection****

* intro: the robustness of object detection under the presence of missing annotations
* arxiv:<https://arxiv.org/abs/1806.06986>