3D检测系列文档教程

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主要针对3D object相关算法进行了汇总，分为基于RGB图像、立体视觉、点云、融合四种方式，欢迎补充~

基于单目图像的3D检测

1. Task-Aware Monocular Depth Estimation for 3D Object Detection
2. M3D-RPN: Monocular 3D Region Proposal Network for Object Detection
3. Monocular 3D Object Detection and Box Fitting Trained End-to-End Using Intersection-over-Union Loss
4. Disentangling Monocular 3D Object Detection
5. Shift R-CNN: Deep Monocular 3D Object Detection with Closed-Form Geometric Constraints
6. Monocular 3D Object Detection via Geometric Reasoning on Keypoints
7. Monocular 3D Object Detection Leveraging Accurate Proposals and Shape Reconstruction
8. GS3D: An Efficient 3D Object Detection Framework for Autonomous Driving
9. Accurate Monocular Object Detection via Color-Embedded 3D Reconstruction for Autonomous Driving
10. Task-Aware Monocular Depth Estimation for 3D Object Detection
11. M3D-RPN: Monocular 3D Region Proposal Network for Object Detection
12. Deconvolutional Networks for Point-Cloud Vehicle Detection and Tracking in Driving Scenarios
13. Learning Depth-Guided Convolutions for Monocular 3D Object Detection（CVPR2020
14. End-to-End Pseudo-LiDAR for Image-Based 3D Object Detection（CVPR2020

基于立体视觉的3D检测

1. Object-Centric Stereo Matching for 3D Object Detection
2. Triangulation Learning Network: from Monocular to Stereo 3D Object Detection
3. Pseudo-LiDAR from Visual Depth Estimation: Bridging the Gap in 3D Object Detection for Autonomous Driving
4. Stereo R-CNN based 3D Object Detection for Autonomous Driving
5. IDA-3D: Instance-Depth-Aware 3D Object Detection from Stereo Vision for Autonomous Driving（CVPR2020） 源代码
6. Disp R-CNN: Stereo 3D Object Detection via Shape Prior Guided Instance Disparity Estimation（CVPR2020) 源代码
7. DSGN: Deep Stereo Geometry Network for 3D Object Detection(CVPR2020) 源代码

基于激光雷达点云的3D检测

1. End-to-End Multi-View Fusion for 3D Object Detection in LiDAR Point Clouds
2. Vehicle Detection from 3D Lidar Using Fully Convolutional Network(百度早期工作)
3. VoxelNet: End-to-End Learning for Point Cloud Based 3D Object Detection
4. Object Detection and Classification in Occupancy Grid Maps using Deep Convolutional Networks
5. RT3D: Real-Time 3-D Vehicle Detection in LiDAR Point Cloud for Autonomous Driving
6. BirdNet: a 3D Object Detection Framework from LiDAR information

7. LMNet: Real-time Multiclass Object Detection on CPU using 3D LiDAR
8. HDNET: Exploit HD Maps for 3D Object Detection
9. PointNet: Deep Learning on Point Sets for 3D Classification and Segmentation
10. PointNet++: Deep Hierarchical Feature Learning on Point Sets in a Metric Space
11. IPOD: Intensive Point-based Object Detector for Point Cloud
12. PIXOR: Real-time 3D Object Detection from Point Clouds
13. DepthCN: Vehicle Detection Using 3D-LIDAR and ConvNet
14. Voxel-FPN: multi-scale voxel feature aggregation in 3D object detection from point clouds
15. STD: Sparse-to-Dense 3D Object Detector for Point Cloud
16. Fast Point R-CNN
17. StarNet: Targeted Computation for Object Detection in Point Clouds
18. Class-balanced Grouping and Sampling for Point Cloud 3D Object Detection
19. LaserNet: An Efficient Probabilistic 3D Object Detector for Autonomous Driving
20. FVNet: 3D Front-View Proposal Generation for Real-Time Object Detection from Point Clouds
21. Part-A^2 Net: 3D Part-Aware and Aggregation Neural Network for Object Detection from Point Cloud
22. PointRCNN: 3D Object Proposal Generation and Detection from Point Cloud
23. Complex-YOLO: Real-time 3D Object Detection on Point Clouds
24. YOLO4D: A ST Approach for RT Multi-object Detection and Classification from LiDAR Point Clouds
25. YOLO3D: End-to-end real-time 3D Oriented Object Bounding Box Detection from LiDAR Point Cloud
26. Monocular 3D Object Detection with Pseudo-LiDAR Point Cloud
27. Structure Aware Single-stage 3D Object Detection from Point Cloud（CVPR2020) 源代码
28. MLCVNet: Multi-Level Context VoteNet for 3D Object Detection（CVPR2020) 源代码
29. 3DSSD: Point-based 3D Single Stage Object Detector（CVPR2020） 源代码
30. LiDAR-based Online 3D Video Object Detection with Graph-based Message Passing and Spatiotemporal Transformer Attention（CVPR2020） 源代码
31. PV-RCNN: Point-Voxel Feature Set Abstraction for 3D Object Detection(CVPR2020) 源代码
32. Point-GNN: Graph Neural Network for 3D Object Detection in a Point Cloud（CVPR2020） 源代码
33. MLCVNet: Multi-Level Context VoteNet for 3D Object Detection（CVPR2020）
34. Density Based Clustering for 3D Object Detection in Point Clouds（CVPR2020）
35. What You See is What You Get: Exploiting Visibility for 3D Object Detection（CVPR2020)
36. PointPainting: Sequential Fusion for 3D Object Detection(CVPR2020)
37. HVNet: Hybrid Voxel Network for LiDAR Based 3D Object Detection（CVPR2020)

基于摄像头和激光雷达融合的3D目标检测

1. MLOD: A multi-view 3D object detection based on robust feature fusion method
2. Multi-Sensor 3D Object Box Refinement for Autonomous Driving
3. Pseudo-LiDAR++: Accurate Depth for 3D Object Detection in Autonomous Driving
4. Improving 3D Object Detection for Pedestrians with Virtual Multi-View Synthesis Orientation Estimation
5. Class-specific Anchoring Proposal for 3D Object Recognition in LIDAR and RGB Images
6. MVX-Net: Multimodal VoxelNet for 3D Object Detection
7. Sensor Fusion for Joint 3D Object Detection and Semantic Segmentation
8. 3D Object Detection Using Scale Invariant and Feature Reweighting Networks
9. End-to-End Pseudo-LiDAR for Image-Based 3D Object Detection（CVPR2020） 源代码

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