

Visual Perception using OpenCV

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Abstract: *Visual Perception is related with detecting objects. Detection of the object is done by using YOLO network. There are multiple object detection algorithms like Fast- Convolutional Neural Network (Fast-CNN), Faster-Convolutional Neural Network(Faster- CNN), Regional- Convolutional Neural Network (R-CNN) that does not process the whole image at a time, but when compared to these, YOLO looks at the image completely and then passes it to the single network, which then predicts the bounding boxes using convolutional network and class probabilities for these bounding box and detects the image faster and accurately.*

Keywords: Fast-CNN, R-CNN

REFERENCES

- [1]. Joseph Redmon, Santosh Divvala, Ross Girshick, "You Only Look Once: Unified, Real-Time Object Detection", The IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2016, pp. 779-788.
- [2]. YOLO Juan Du1,"Understanding of Object Detection Based on CNN Family", New Research, and Development Center of Hisense, Qingdao 266071, China.
- [3]. Matthew B. Blaschko Christoph H. Lampert, "Learning to Localize Objects with Structured Output Regression", Published in Computer Vision – ECCV 2008 pp 2-15.
- [4]. Wei Liu, Dragomir Anguelov, Dumitru Erhan, "SSD: Single Shot MultiBox Detector", Published in Computer Vision – ECCV 2016 pp 21- 37.
- [5]. Chandan G,Ayush Jain, Harsh Jain,Mohana" Real Time Object detection using DL and OpenCV".
- [6]. Chengli Liu, Yufan Tao, Jiawei Liang, Kai Li, Yihang Chen, "Object Detection Based On YOLO Network", ITOEC 2018.
- [7]. Geethapriya S N, Duraimurugan S P, Chokkalingam, "Real-Time Object Detection With YOLO", International Journal of Engineering and Advanced Technology(IJEAT), ISSN:2249-8958, Volume-8, Issue-3S, Feb 2019
- [8]. Ross Girshick, Jeff Donahue, Trevor Darrell, and Jitendra Malik. "Rich feature
- [9]. Ross Girshick, Fast R-CNN. In international Conference on Computer Vision(ICCV), 2015.
- [10]. Shaoqing Ren, Kaiming He, Ross Girshick, and Jian Sun. "Faster RCNN:Towards real-time object detection with region proposal networks".In Advances in Neural Information Processing Systems(NIPS), 2015.
- [11]. Karen Simonyan and Andrew Zisserman."Very deep convolutional networks for large-scale image recognition".arXiv preprint arXiv:1409.1556,2014
- [12]. Lichao Huang, Yi Yang, Yafeng Deng, Yinan Yu DenseBox, "Unifying Landmark Localization with End to End Object Detection", Published in Computer Vision and Pattern Recognition (cs.CV).
- [13]. Dumitru Erhan, Christian Szegedy, Alexander Toshev, "Scalable Object Detection using Deep Neural Networks", The IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2014, pp. 2147-2154.
- [14]. Joseph Redmon ,Ali Farhadi, "YOLO9000: Better, Faster, Stronger", The IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2017, pp. 7263-7271.
- [15]. Jifeng Dai, Yi Li, Kaiming He, Jian Sun, "R-FCN: Object Detection via Region-based Fully Convolutional Networks", published in: Advances in Neural Information Processing Systems 29 (NIPS 2016).