

Lightweight CNNs-Based Object Detection for Embedded Systems implementation

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Abstract : Deep Learning algorithms, based on the implementation of Convolutional Neural Networks (CNN), are more and more used in Artificial Intelligence (AI) applications, especially in the image recognition field, like image classification, object detection, segmentation. These algorithms learn from training data a set of parameters to create a model, which is capable of performing a classification task with high accuracy. The most recent models consist of millions of parameters, which make it computationally very exhausting, especially in the field of embedded systems where resources are very limited. Recently, deep learning and computer vision are highly used to realize a fully-autonomous drone and self-driving cars, which does not need human intervention. Computer vision is a field focused on enabling drones to interpret and understand the content of an image or a video using CNNs. This paper focuses on reviewing recent lightweight CNNs architectures used that can be implemented on embedded targets.

Keywords : Computer vision, Deep Learning, Object Detection, Convolutional Neural Network, lightweight CNN