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Optimization of Object Detection Module

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ABSTRACT

Real-time object detection within long video sequences in Artificial Intelligence based embedded machines (TX2 or Xavier) is challenging due to power consumption and memory constraints. Object Detection algorithms are also biased towards classes having more samples compared to classes with few samples and thus not learning an effective decision boundary under-represented classes.

The problem is approached by optimizing or pruning the CNN models that can detect objects. Investigation recent proposed end-to end system that are able to solve these issues.

A novel data augmentation is proposed to eradicate the issue of class imbalance for Computer Vision and Natural Language Processing classification tasks, and provide deeper insight into the hyper-parameter choices made. The merits of our proposed methodology is contended using extensive quantitative experiments.

[Computing methodologies]: Artificial intelligence - Object Detection, Optimization, Pruning, Class Imbalance, Natural language processing