# BANDWIDTH LIMITED OBJECT RECOGNITION IN HIGH RESOLUTION IMAGERY

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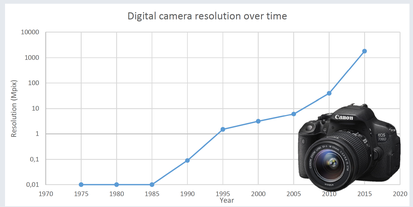
## MOTIVATION

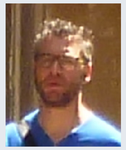



Better precision on details

Hard to process Bandwidth limitations

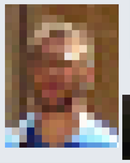
Conventional solution: image downsampling

Original resolution

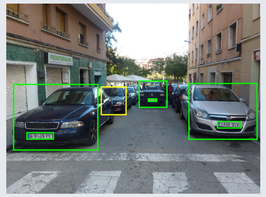


When downsampling images precision in important details is lost

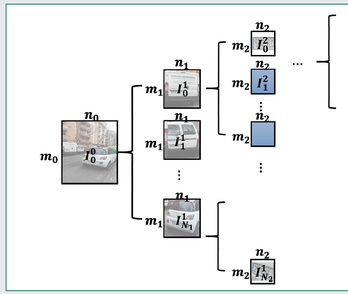
Downsampled image: Biggest image resolution handled by most CNN



## DATASET



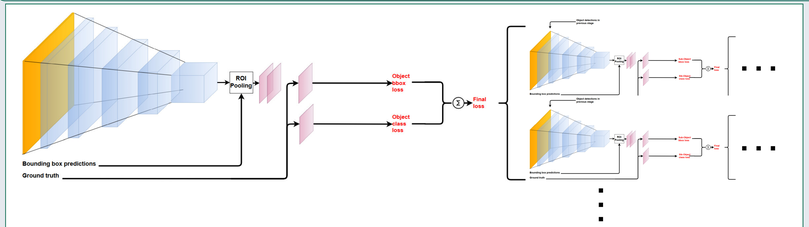
## FRAMEWORK



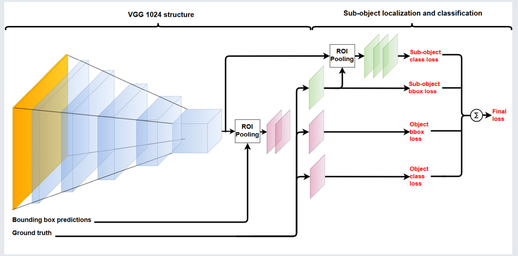
Active selection of the regions to inspect depending on the task at hand, saving:

- bandwidth and
- computation complexity.

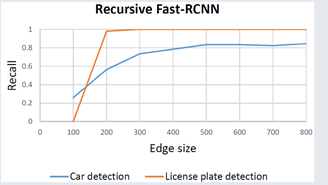
## RECURSIVE FAST-RCNN

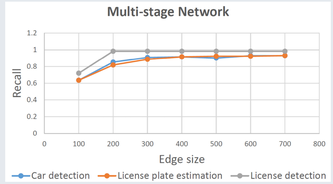


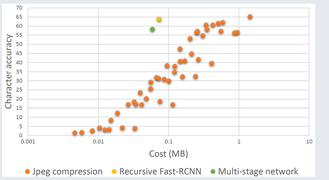

## MULTI-STAGE NETWORK



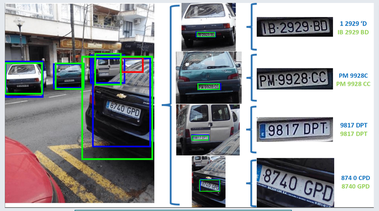

## EXPERIMENTAL RESULTS



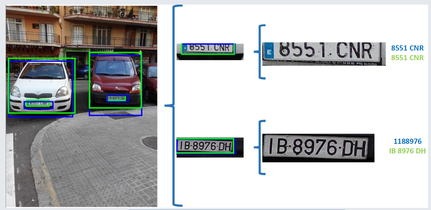




The Recursive Fast-RCNN performs slightly better in terms of license plate detection and therefore character accuracy but the Multi-stage Network obtains higher gains in bandwidth (less pixels inspected).



Recursive Fast-RCNN



Multi-stage Network

## CONCLUSIONS

Experimental results on both implementations show that the proposed framework yields significant savings in terms of bandwidth (80.4% less pixels inspected with 1% loss in character accuracy for the Recursive Fast-RCNN and 82.4% less pixels inspected with 6% loss in character accuracy for the Multi-stage Network.

Find out more!

Check our dataset!

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