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Faculty of Computers and Artificial Intelligence

Computer Science Department

2022/2023

**CS 496 Selected Topics in CS-4**

**Research Project**

Report Submitted for Fulfillment of the Requirements for Selected Topics in CS-4 course

|  |  |  |  |
| --- | --- | --- | --- |
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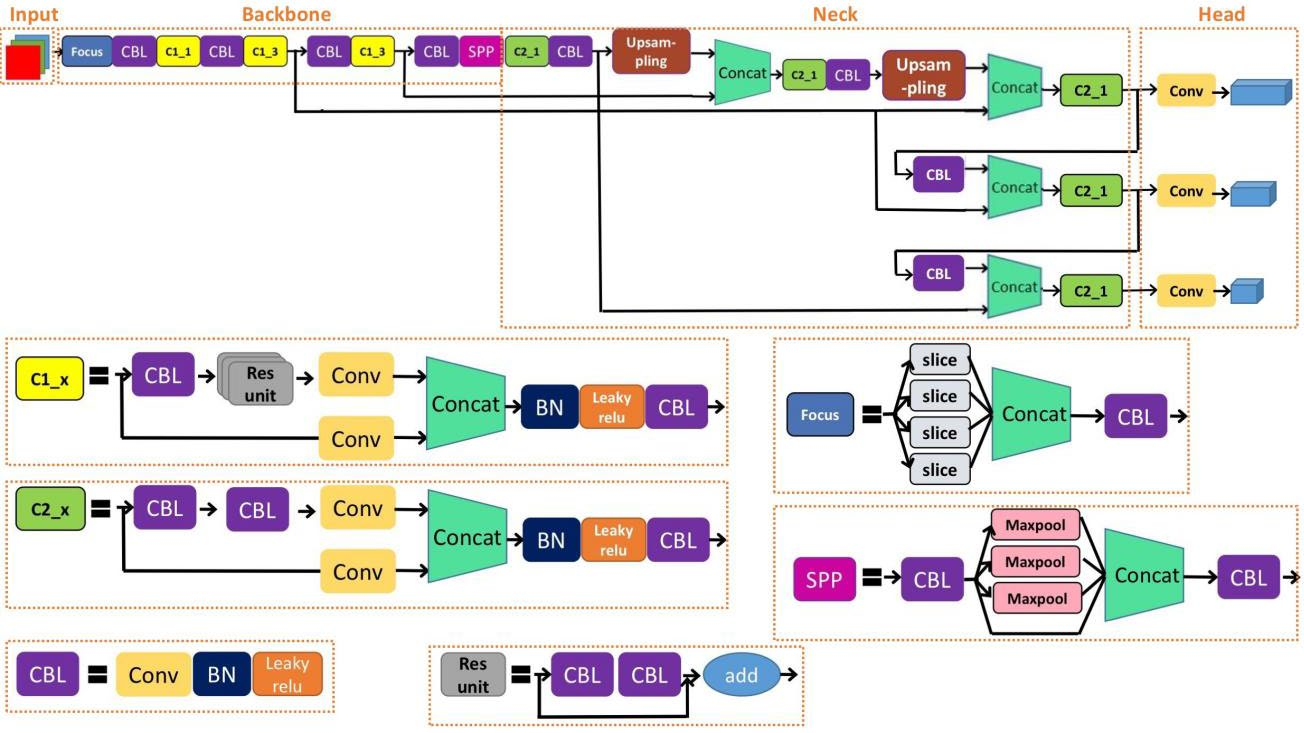
Delivered to: **Dr. Wessam El-Behaid**

**Paper details**:

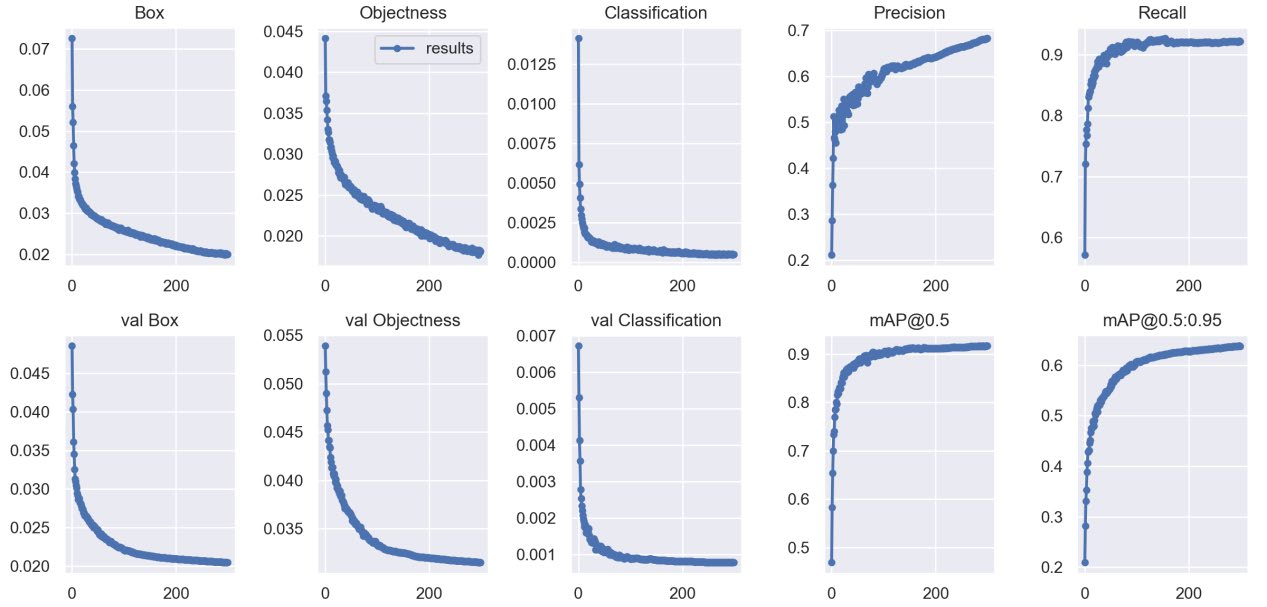
* **Authors**: Yuwei Xiang, Qianxiao Fei
* **Paper name**: Car, Cyclist, and Pedestrian Object Detection Based on YOLOv5
* **Publisher name:** [Francis Press, UK](https://francis-press.com/)
* **Publication in 2022**

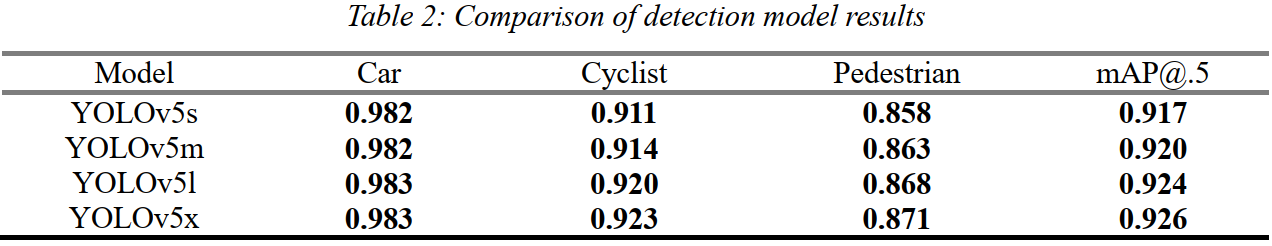
**The paper used the KITTI** **dataset, which contains 7481 road images.**

* Implementation algorithm:



* Results:





Project Description Document:

* General Information:
* We used the [**Cyclist dataset**](https://www.kaggle.com/datasets/semiemptyglass/cyclist-dataset), the data contains **13.7 K**, and the dimension of whole images is **2048\*1024**.
* Implementation details:
  + **Training: 9571 (70%)**
  + **Validation: 1368 (10%)**
  + **Testing: 2735 (20%)**
* Block diagram:
* **Hyper-parameters: -**

**Epoch: 10**

**Batch-size: 32**

**Image-size: 640\*640**

**number of GPU workers: 24**

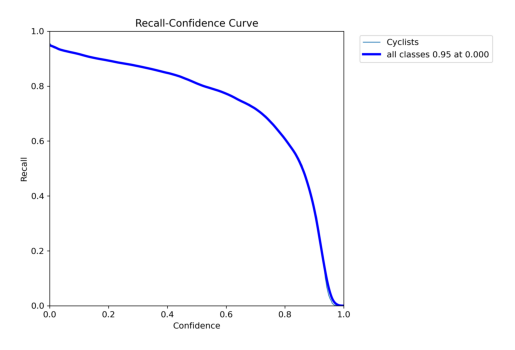
**confidence threshold: 25%**

Models Results:

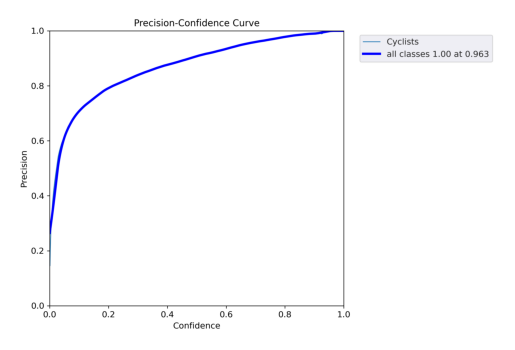
* Recall: 0.846
* Precision: 0.895
* mean average precision in confidence threshold 50 (map50): 0.911
* average mean average precision in confidence thresholds from 50 to 95 (map50-95): 0.714



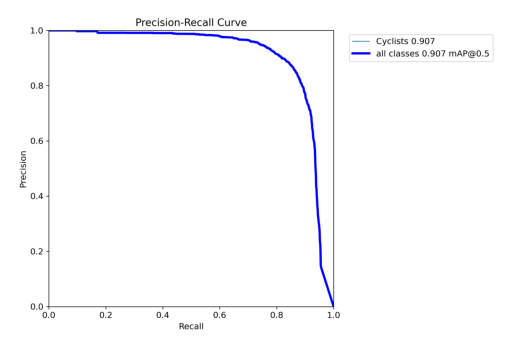
* Recall confidence curve:



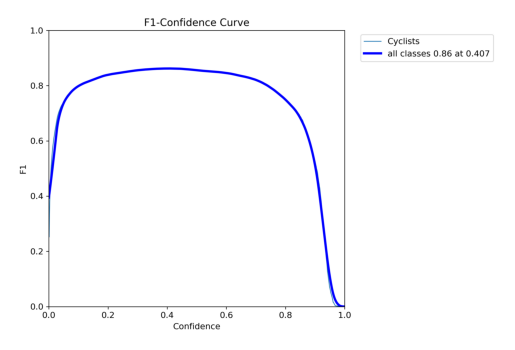
* Precision confidence curve:



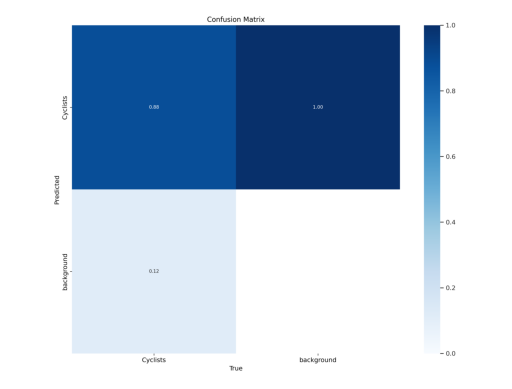
* Precision-Recall curve:



* F1-Score confidence curve:



* Confusion matrix:



* Result Vs Epochs

