AIRE Master
Digital Sciences

Computer Vision

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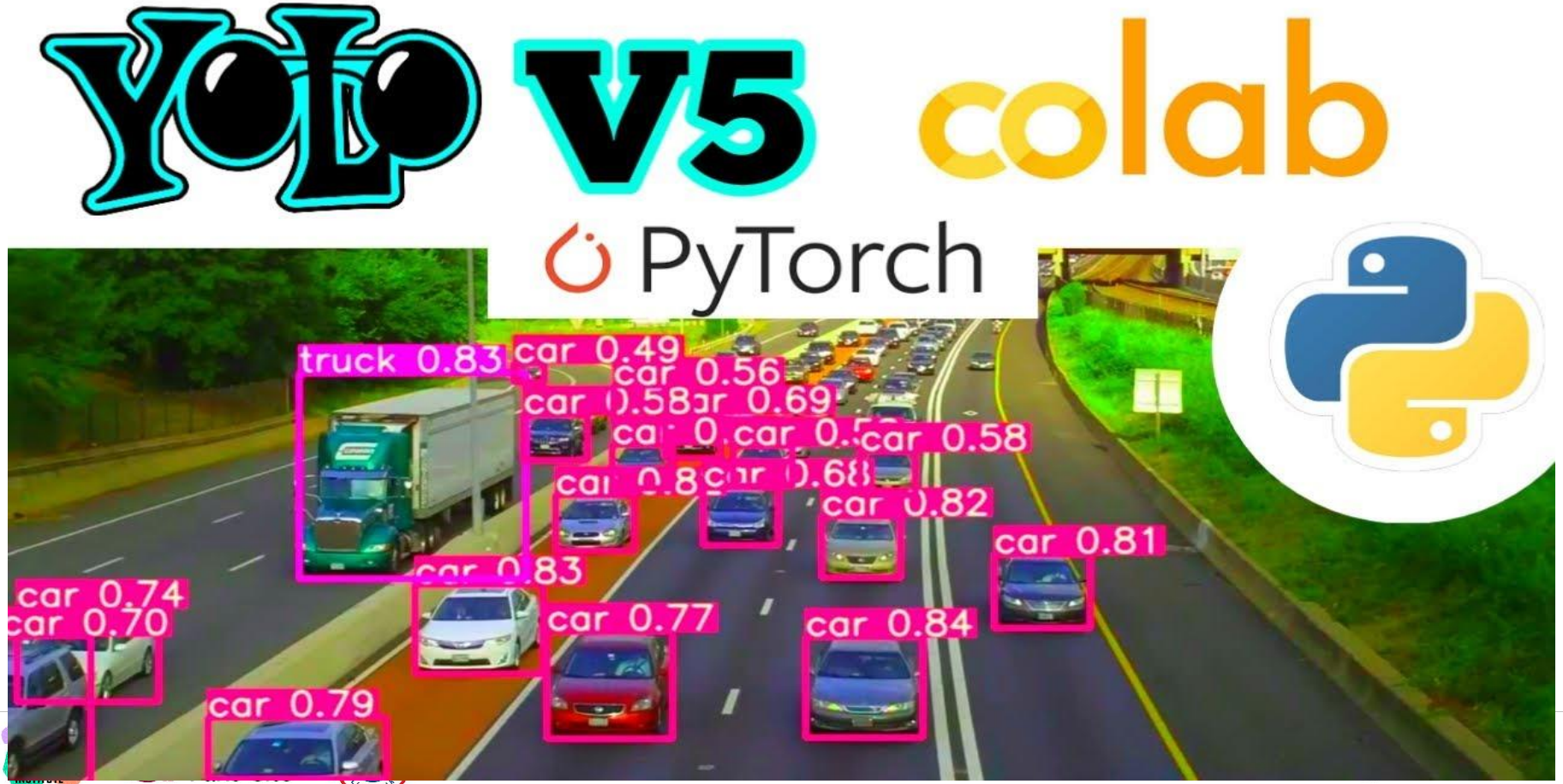
Model YOLO v5:



YOLOv4 vs YOLOv5

YOLO was created by Joseph Redmon and is based on the darknet neural network.
After the third version, Joseph Redmon stopped supporting the repository and tweeted:

Joseph Redmon @pjreddie · 20 févr. 2020
"We shouldn't have to think about the societal impact of our work because it's hard and other people can do it for us" is a really bad argument.

Roger Grosse @RogerGrosse · 20 févr. 2020
En réponse à @kevin_zakka et @hardmaru
To be clear, I don't think this is a positive step. Societal impacts of AI is a tough field, and there are researchers and organizations that study it professionally. Most authors do not have expertise in the area and won't do good enough scholarship to say something meaningful.

13 404 1 509

Joseph Redmon
@pjreddie

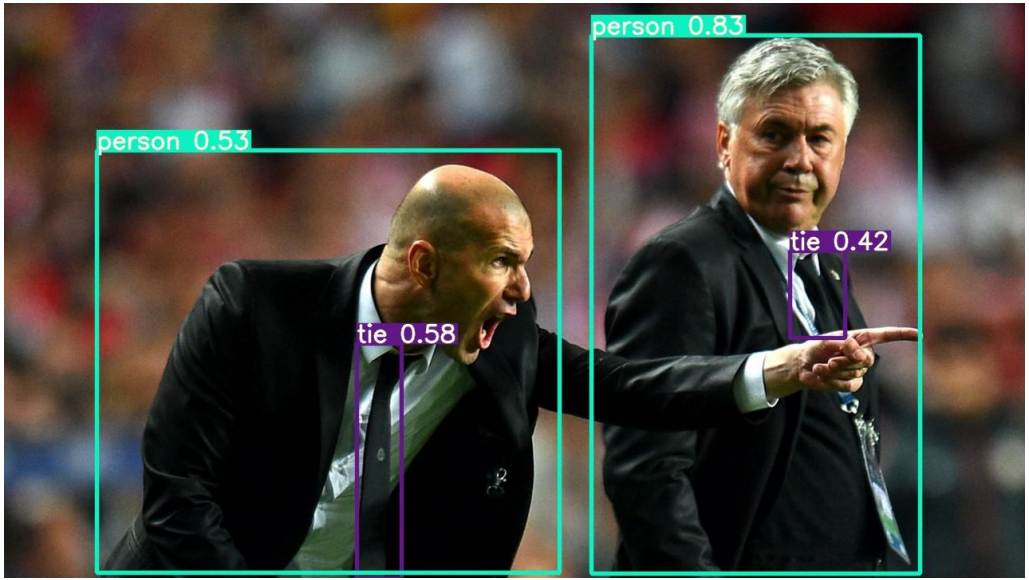
I stopped doing CV research because I saw the impact my work was having. I loved the work but the military applications and privacy concerns eventually became impossible to ignore.

Traduire le Tweet

Source: Twitter

At april 23, 2020

YOLOv4 were published by the group Alexey Bochkovskiy, Chien-Yao Wang, Hong-Yuan Mark Liao

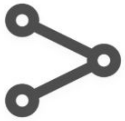


YOLOv5 created 18th of May 2020 by Glenn Jocher

Nano

YOLOv5n

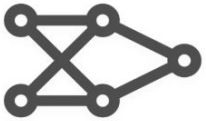
4 MB_{FP16}
6.3 ms_{V100}
28.4 mAP_{COCO}



Small

YOLOv5s

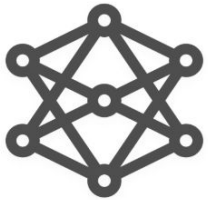
14 MB_{FP16}
6.4 ms_{V100}
37.2 mAP_{COCO}



Medium

YOLOv5m

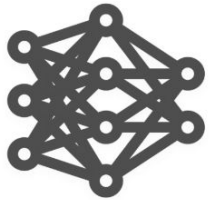
41 MB_{FP16}
8.2 ms_{V100}
45.2 mAP_{COCO}



Large

YOLOv5l

89 MB_{FP16}
10.1 ms_{V100}
48.8 mAP_{COCO}



XLarge

YOLOv5x

166 MB_{FP16}
12.1 ms_{V100}
50.7 mAP_{COCO}

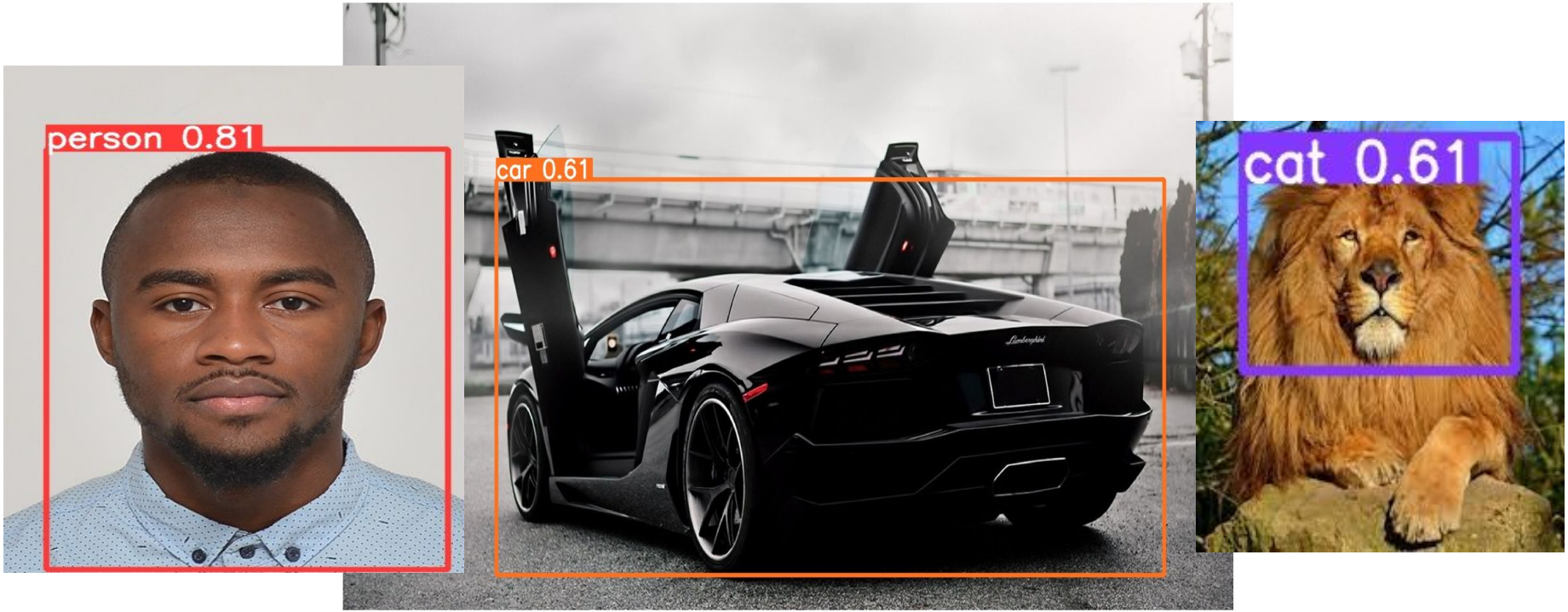
Comparison of versions on DOTA dataset:

Table A1. Performance of YOLOv3, YOLOv4, and YOLOv5l.

Label	YOLOv3 Average Precision	YOLOv4 Average Precision	YOLOv5l Average Precision
Small-Vehicle	29.25	39.62	44.8
Large-Vehicle	55.84	73.43	70.1
Plane	83.06	90.39	91.3
Storage-tank	44.69	61.52	63
Ship	71.19	82.67	78.6
Harbor	67.94	80.35	82.7
Ground-track-field	36.12	67.32	65.7
Soccer-ballfield	36.82	54.24	59.8
Tennis-court	87.30	92.57	92.7
Swimming-pool	39.76	57.57	65.4
baseball	61.35	76.62	75.8
roundabout	44.14	55.98	55.9
Basketball-court	37.79	63.04	64.5
bridge	26.65	42.41	50.1
helicopter	15.84	34.54	48.2

Source:Upesh Nepal and Hossein Eslamiat

Examples:



Real time recognition

Thank you for your attention