Twitter Thread by AI Fast Track (37/45)

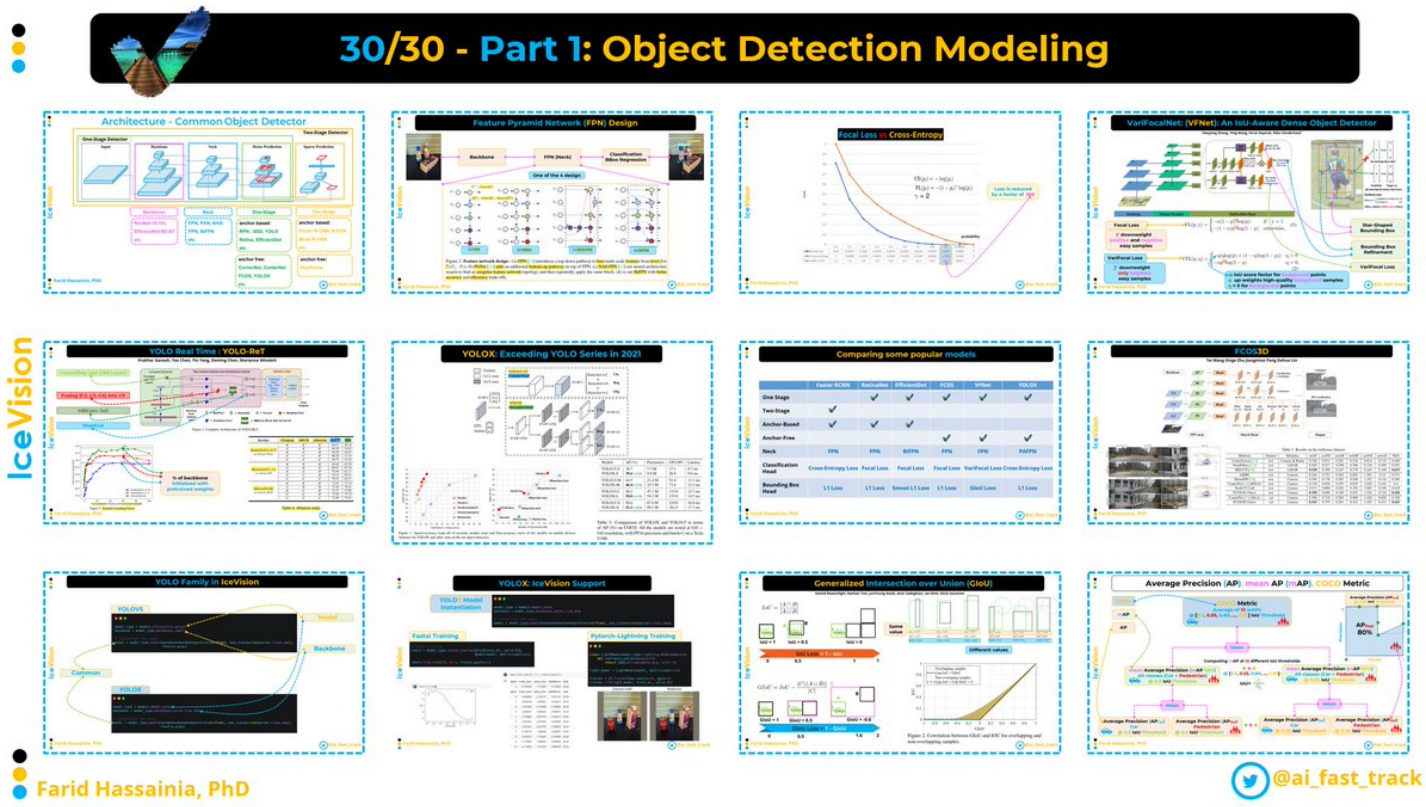
AI Fast Track (37/45)
@ai_fast_track

I'm at Day 23 of my 30 posts (on Object Detection) in 30 days challenge

I gathered 12 visual summaries on OD Modeling ■

A lot of people find those posts helpful, follow @ai_fast_track to catch the upcoming posts, and give this tweet a quick retweet ■

Summary of summaries■



1- Common Object Detector Architecture you should be familiar with:

https://t.co/qrJ2ii5npT

\u2728Common Object Detector Architecture you should be familiar with:

\U0001f4cc Common object detectors are divided into One-Stage Detectors (OSD), and Two-Stage Detectors (TSD)

\U0001f4cc Both OSD and TSD can be either anchor-based (relying on anchor boxes) or anchor-free pic.twitter.com/TGxS0IbE8g

— AI Fast Track (37/45) (@ai_fast_track) October 27, 2021

2- Four Feature Pyramid Network (FPN) Designs you should know:

https://t.co/gqdf45R81q

4 Feature Pyramid Network (FPN) Design you should know:

FPN, PANet, NAS-FPN, and BiFPN

\U0001f4cc (a) FPN uses a top-down pathway to fuse multi-scale features from level 3 to 7 (P3 - P7);

\U0001f4cc (b) PANet adds an additional bottom-up pathway on top of FPN; pic.twitter.com/k22vo6Df4L

— AI Fast Track (37/45) (@ai_fast_track) November 15, 2021

3- Seven things you should know about the Focal Loss

https://t.co/3vrM7TSmts

\U0001f9d07 things you should know about the Focal Loss:

\U0001f4cc It was introduced in the RetinaNet paper to address the foreground-background class imbalance encountered during training of dense detectors (one-stage detectors)
... pic.twitter.com/NaXzh80Etd

— AI Fast Track (37/45) (@ai_fast_track) October 25, 2021

4- FCOS is the first anchor-free object detector that beat two-stage detectors

https://t.co/Qakx6JjQQw

FCOS is an an anchor-free object detector.

It was one of first competitors of anchor-based single/two stage object detectors.

Understanding FCOS will help understanding other model inspired by FCOS.

Summary ...\U0001f447 pic.twitter.com/aPFJ0h1olz

— AI Fast Track (37/45) (@ai_fast_track) November 20, 2021

5- YOLOX beat YOLOv5!

https://t.co/UNEHuAfl3E

\U0001f947YOLOX beat YOLOv5. They won the 1st Place on Streaming Perception Challenge (Workshop on Autonomous Driving at CVPR 2021).

I briefly explain how they created it, here below\U0001f447

YOLOX will be soon supported in our IceVision Framework (Repo: https://t.co/wNQen4X65M) pic.twitter.com/CBGE1QbCNT

— AI Fast Track (37/45) (@ai_fast_track) October 21, 2021

6- How easy creating YOLOV5 and YOLOX models in IceVision

https://t.co/2Io3NA8147

Let's see how many lines of code you need to create a YOLOV5 or YOLOX model in IceVision?

Dozens? Hundreds? Your Guess

2 lines!\U0001f92f

and swapping models is as easy as changing a few words pic.twitter.com/4YZFc210X3

— AI Fast Track (37/45) (@ai_fast_track) November 3, 2021

7- VFNet: A very interesting model that isn’t under the radar

https://t.co/4nH5t9nuam

\u2747VFNet: A very interesting model that isn\u2019t under the radar. You should give it a try :)

VariFocalNet: An IoU-aware Dense Object Detector

\U0001f9ca Background:
\U0001f4cc Accurately ranking candidate detections is crucial for dense object detectors to achieve high performance ... pic.twitter.com/MugxaA9Cxf

— AI Fast Track (37/45) (@ai_fast_track) November 17, 2021

8- YOLO Real-Time (YOLO-ReT) architecture targets edge devices.

It achieves 68.75 mAP on Pascal VOC and 34.91 mAP on COCO

https://t.co/svk3BeSbek

> YOLO Real-Time (YOLO-ReT) architecture targets edge devices.
>
> It achieves 68.75 mAP on Pascal VOC and 34.91 mAP on COCO using MobileNetV2\xd70.75 backbone.
>
> Here is a brief description of the YOLO-ReT \U0001f447 pic.twitter.com/md8DjWinjO
>
> — AI Fast Track (37/45) (@ai_fast_track) November 2, 2021

9- Similarities and the differences between some popular Object Detection models.

https://t.co/s9Jt8eLYIY

> This illustration shows you both the similarities and the differences between some popular Object Detection models.
>
> I shared more detailed information about some of those models here. Checkout out my threads.
>
> All those models are supported in IceVision. pic.twitter.com/Yhp00v3upJ
>
> — AI Fast Track (37/45) (@ai_fast_track) November 12, 2021

10- FCOS3D won the 1st place out of all the vision-only methods in the nuScenes 3D Detection Challenge of NeurIPS 2020.

https://t.co/JmY30x57S2

> \U0001f947 FCOS3D won the 1st place out of all the vision-only methods in the nuScenes 3D Detection Challenge of NeurIPS 2020.
>
> Here is a brief description:
>
> \U0001f4cc FCOS3D is a monocular 3D object detector
>
> \U0001f4cc It\u2019s an anchor-free model based on FCOS (2D) counterpart pic.twitter.com/Muzah3YIXw
>
> — AI Fast Track (37/45) (@ai_fast_track) November 4, 2021

11- The Generalized Intersection over Union (GIoU) can be used as a metric as well as a loss function

https://t.co/UZIcpPJN9N

> The Generalized Intersection over Union (GIoU) can be used both as a metric and a loss function
>
> Try it out and see how your model performance will improve

... \U0001f447 pic.twitter.com/Ee982mvkbB

— AI Fast Track (37/45) (@ai_fast_track) November 11, 2021

12- What is the Average Precision (AP), mean AP (mAP), and COCO Metric?

https://t.co/HceU2w44v4

What is the Average Precision (AP), mean AP (mAP), and COCO Metric?

The COCO metric is widely used in evaluating and comparing model performances. pic.twitter.com/QiVUjlh2uJ

— AI Fast Track (37/45) (@ai_fast_track) November 9, 2021

■■ If you find those summaries helpful, feel free to follow @ai_fast_track for more OD / CV demystified content in your feed

■■ If you could give the thread a quick retweet, it would help others discover this content. Thanks!

https://t.co/3EVP8yBDk8

I\u2019m at Day 23 of my 30 posts (on Object Detection) in 30 days challenge

I gathered 12 visual summaries on OD Modeling \U0001f381

A lot of people find those posts helpful, follow @ai_fast_track to catch the upcoming posts, and give this tweet a quick retweet \U0001f64f

Summary of summaries\U0001f447 pic.twitter.com/DMD0owByhS

— AI Fast Track (37/45) (@ai_fast_track) November 23, 2021