YOLOv5 预训练 Model 在 SFD 数据集中的训练结果对比

官网预训练数据如下：

Model	size (pixels)	mAP^{val} 0.5:0.95	mAP^{val} 0.5	Speed CPU b1 (ms)	Speed V100 b1 (ms)	Speed V100 b32 (ms)	params (M)	FLOPs @640 (B)
YOLOv5n	640	28.4	46.0	**45**	**6.3**	**0.6**	**1.9**	**4.5**
YOLOv5s	640	37.2	56.0	98	6.4	0.9	7.2	16.5
YOLOv5m	640	45.2	63.9	224	8.2	1.7	21.2	49.0
YOLOv5l	640	48.8	67.2	430	10.1	2.7	46.5	109.1
YOLOv5x	640	50.7	68.9	766	12.1	4.8	86.7	205.7

Result 解释：

Box：GIoU 损失函数均值，越小方框越准

Objectness：推测为目标检测 loss 均值，越小目标检测越准；

Classification：推测为分类 loss 均值，越小分类越准；

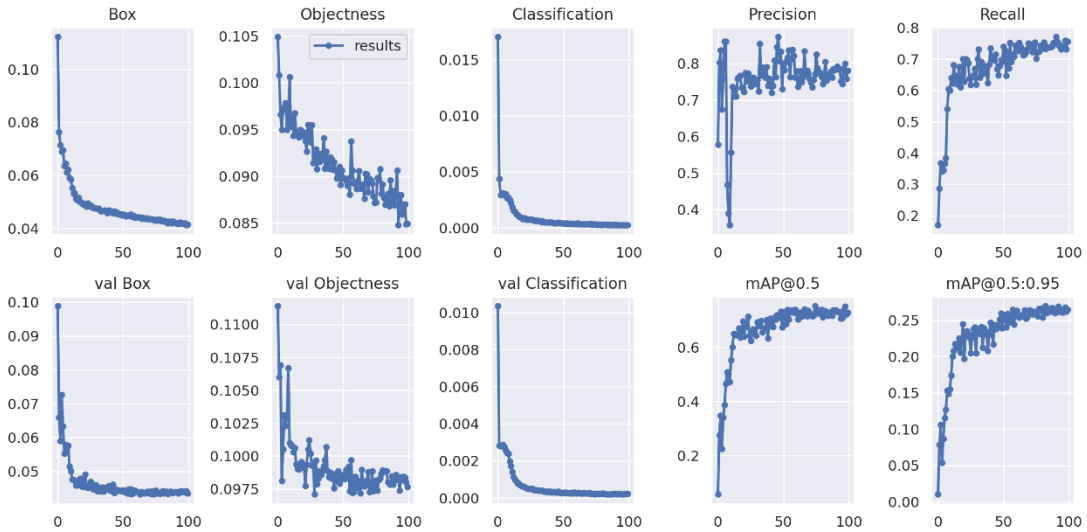
Precision：精度（找对的正类/所有找到的正类）；

Recall：召回率（找对的正类/所有本应该被找对的正类）；

mAP@0.5：Precision 和 Recall 作为两轴作图后围成的面积；

mAP@0.5:0.95：@0.5:0.95 表示阈值取 0.5:0.05:0.95 后取均值；

YOLOv5s 640 @0.5:



Precision:较为震荡，稳定在 0.77

Recall：较为震荡，稳定在 0.75

mAP@0.5 :0.75

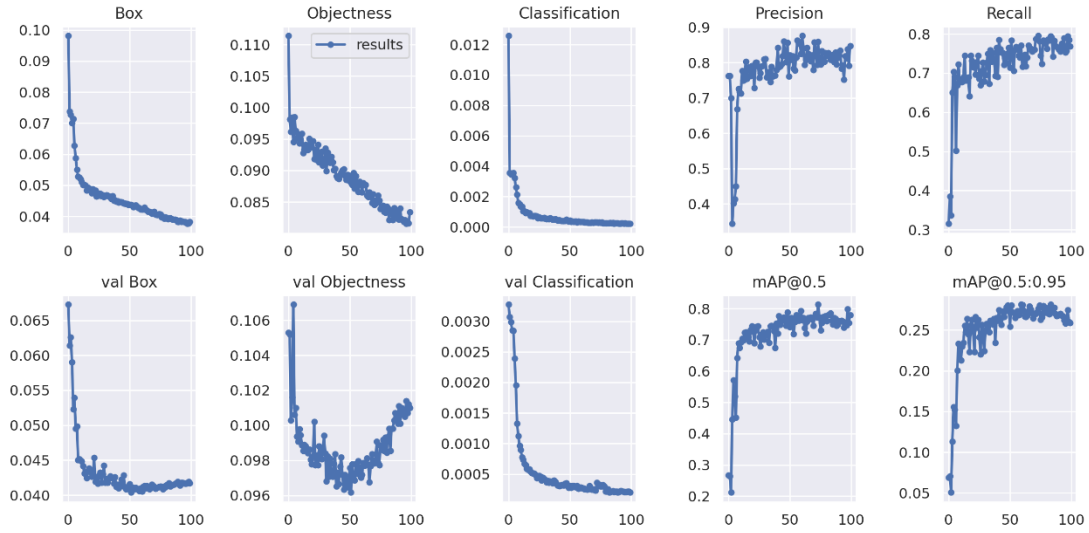
mAP@0.5:0.95 :0.28

Box:0.04 - val Box:0.04

Objectness:0.088 - val Objectness:0.0978

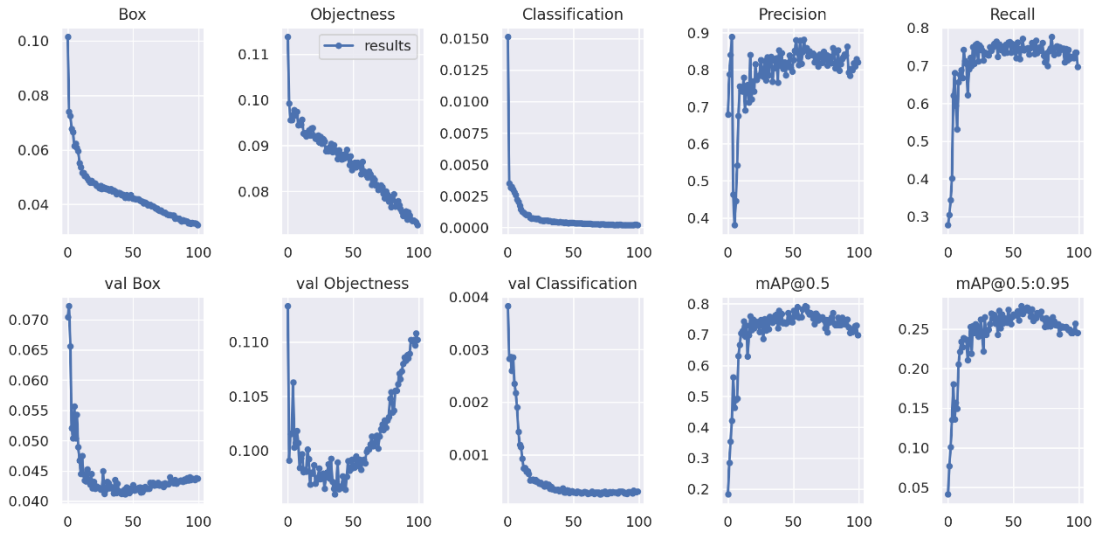
Classification:0 – val Classification:0

YOLOv5m 640 @0.5:



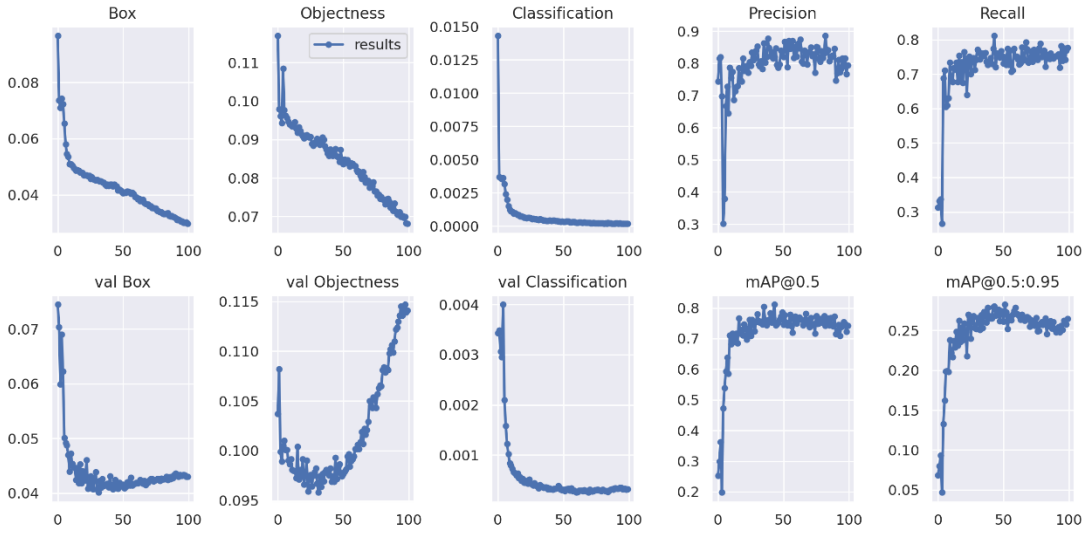
Precision:较为震荡，稳定在 0.83
Recall：较为震荡，稳定在 0.77
mAP@0.5　:0.78
mAP@0.5:0.95　:0.27
Box:0.038 - val Box:0.042
Objectness:0.082 - val Objectness: 0.101 U 异常
Classification:0 – val Classification:0.0001

YOLOv5l 640 @0.5:



Precision:较为震荡，稳定在 0.83
Recall：较为震荡，稳定在 0.71
mAP@0.5　:0.71↓
mAP@0.5:0.95　:0.25↓
Box:0.032 - val Box:0.044
Objectness:0.082 - val Objectness: 0.110 U 异常
Classification:0 – val Classification:0.0003

YOLOv5x 640 @0.5:



Precision:较为震荡，稳定在 0.78
Recall：较为震荡，稳定在 0.78
mAP@0.5　:0.75
mAP@0.5:0.95　:0.26
Box:0.032 - val Box:0.043
Objectness:0.07 - val Objectness: 0.115 U 异常
Classification:0 – val Classification:0.0003

All-result：

	Precision	Recall	mAP@0.5	mAP@0.5:0.95
YOLOv5s	0.77	0.75	0.75	0.28
YOLOv5m	0.83	0.75	0.78	0.27
YOLOv5l	0.83	0.71	0.71↓	0.25↓
YOLOv5x	0.78	0.78	0.75	0.26

附页：SFD 数据集
Train：1113
Val：123
分辨率：1280×720