

## # YOLO系列模型参数配置教程

### 标签： 模型参数配置

以`ppyolo\_r50vd\_dcn\_1x\_coco.yaml`为例，这个模型由五个子配置文件组成：

- 数据配置文件 `coco\_detection.yaml`

```yaml

# 数据评估类型

**metric:** COCO

# 数据集的类别数

**num\_classes:** 80

# TrainDataset

**TrainDataset:**

!COCODataset

# 图像数据路径，相对 dataset\_dir 路径，os.path.join(dataset\_dir, image\_dir)

**image\_dir:** train2017

# 标注文件路径，相对 dataset\_dir 路径，os.path.join(dataset\_dir, anno\_path)

**anno\_path:** annotations/instances\_train2017.json

# 数据文件夹

**dataset\_dir:** dataset/coco

# data\_fields

**data\_fields:** ['image', 'gt\_bbox', 'gt\_class', 'is\_crowd']

**EvalDataset:**

!COCODataset

# 图像数据路径，相对 dataset\_dir 路径，os.path.join(dataset\_dir, image\_dir)

**image\_dir:** val2017

# 标注文件路径，相对 dataset\_dir 路径，os.path.join(dataset\_dir, anno\_path)

**anno\_path:** annotations/instances\_val2017.json

# 数据文件夹，os.path.join(dataset\_dir, anno\_path)

**dataset\_dir:** dataset/coco

**TestDataset:**

!ImageFolder

# 标注文件路径，相对 dataset\_dir 路径

**anno\_path:** annotations/instances\_val2017.json

```

- 优化器配置文件 `optimizer\_1x.yaml`

```yaml

# 总训练轮数

**epoch:** 405

# 学习率设置

**LearningRate:**

# 默认为8卡训学习率

**base\_lr:** 0.01

# 学习率调整策略

**schedulers:**

- !PiecewiseDecay

**gamma:** 0.1

# 学习率变化位置 (轮数)

**milestones:**

- 243

- 324

# Warmup

- !LinearWarmup

**start\_factor:** 0.

**steps:** 4000

# 优化器

**OptimizerBuilder:**

# 优化器

**optimizer:**

**momentum:** 0.9

**type:** Momentum

# 正则化

**regularizer:**

**factor:** 0.0005

```

74     type: L2
75     ...
76
77 - 数据读取配置文件 `ppyolo_reader.yml`
78
79 ```yaml
80 # 每张GPU reader进程个数
81 worker_num: 2
82 # 训练数据
83 TrainReader:
84     inputs_def:
85         num_max_boxes: 50
86     # 训练数据transforms
87     sample_transforms:
88         - Decode: {}
89         - Mixup: {alpha: 1.5, beta: 1.5}
90         - RandomDistort: {}
91         - RandomExpand: {fill_value: [123.675, 116.28, 103.53]}
92         - RandomCrop: {}
93         - RandomFlip: {}
94     # batch_transforms
95     batch_transforms:
96         - BatchRandomResize: {target_size: [320, 352, 384, 416, 448, 480, 512, 544, 576,
97           608], random_size: True, random_interp: True, keep_ratio: False}
98         - NormalizeBox: {}
99         - PadBox: {num_max_boxes: 50}
100         - BboxXYXY2XYWH: {}
101         - NormalizeImage: {mean: [0.485, 0.456, 0.406], std: [0.229, 0.224, 0.225],
102           is_scale: True}
103         - Permute: {}
104         - Gt2YoloTarget: {anchor_masks: [[6, 7, 8], [3, 4, 5], [0, 1, 2]], anchors:
105           [[10, 13], [16, 30], [33, 23], [30, 61], [62, 45], [59, 119], [116, 90], [156,
106           198], [373, 326]], downsample_ratios: [32, 16, 8]}
107     # 训练时batch_size
108     batch_size: 24
109     # 读取数据是否乱序
110     shuffle: true
111     # 是否丢弃最后不能完整组成batch的数据
112     drop_last: true
113     # mixup_epoch, 大于最大epoch, 表示训练过程一直使用mixup数据增广
114     mixup_epoch: 25000
115     # 是否通过共享内存进行数据读取加速, 需要保证共享内存大小(如/dev/shm)满足大于1G
116     use_shared_memory: true
117
118 # 评估数据
119 EvalReader:
120     # 评估数据transforms
121     sample_transforms:
122         - Decode: {}
123         - Resize: {target_size: [608, 608], keep_ratio: False, interp: 2}
124         - NormalizeImage: {mean: [0.485, 0.456, 0.406], std: [0.229, 0.224, 0.225],
125           is_scale: True}
126         - Permute: {}
127     # 评估时batch_size
128     batch_size: 8
129
130 # 测试数据
131 TestReader:
132     inputs_def:
133         image_shape: [3, 608, 608]
134     # 测试数据transforms
135     sample_transforms:
136         - Decode: {}
137         - Resize: {target_size: [608, 608], keep_ratio: False, interp: 2}
138         - NormalizeImage: {mean: [0.485, 0.456, 0.406], std: [0.229, 0.224, 0.225],
139           is_scale: True}
140         - Permute: {}
141     # 测试时batch_size
142     batch_size: 1
143     ...
144
145 - 模型配置文件 `ppyolo_r50vd_dcn.yml`

```

```

141 ```yaml
142 # 模型结构类型
143 architecture: YOLOv3
144 # 预训练模型地址
145 pretrain_weights:
146 https://paddledet.bj.bcebos.com/models/pretrained/ResNet50_vd_ssld_pretrained.pdparams
147 # norm_type
148 norm_type: sync_bn
149 # 是否使用ema
150 use_ema: true
151 # ema_decay
152 ema_decay: 0.9998
153
154 # YOLOv3
155 YOLOv3:
156 # backbone
157 backbone: ResNet
158 # neck
159 neck: PPYOLOFPN
160 # yolo_head
161 yolo_head: YOLOv3Head
162 # post_process
163 post_process: BBoxPostProcess
164
165 # backbone
166 ResNet:
167 # depth
168 depth: 50
169 # variant
170 variant: d
171 # return_idx, 0 represent res2
172 return_idx: [1, 2, 3]
173 # dcn_v2_stages
174 dcn_v2_stages: [3]
175 # freeze_at
176 freeze_at: -1
177 # freeze_norm
178 freeze_norm: false
179 # norm_decay
180 norm_decay: 0.
181
182 # PPYOLOFPN
183 PPYOLOFPN:
184 # 是否coord_conv
185 coord_conv: true
186 # 是否drop_block
187 drop_block: true
188 # block_size
189 block_size: 3
190 # keep_prob
191 keep_prob: 0.9
192 # 是否spp
193 spp: true
194
195 # YOLOv3Head
196 YOLOv3Head:
197 # anchors
198 anchors: [[10, 13], [16, 30], [33, 23],
199           [30, 61], [62, 45], [59, 119],
200           [116, 90], [156, 198], [373, 326]]
201 # anchor_masks
202 anchor_masks: [[6, 7, 8], [3, 4, 5], [0, 1, 2]]
203 # loss
204 loss: YOLOv3Loss
205 # 是否使用iou_aware
206 iou_aware: true
207 # iou_aware_factor
208 iou_aware_factor: 0.4
209
210 # YOLOv3Loss
211 YOLOv3Loss:
212 # ignore_thresh

```

```
213     ignore_thresh: 0.7
214     # downsample
215     downsample: [32, 16, 8]
216     # 是否label_smooth
217     label_smooth: false
218     # scale_x_y
219     scale_x_y: 1.05
220     # iou_loss
221     iou_loss: IouLoss
222     # iou_aware_loss
223     iou_aware_loss: IouAwareLoss
224
225     # IouLoss
226     IouLoss:
227         loss_weight: 2.5
228         loss_square: true
229
230     # IouAwareLoss
231     IouAwareLoss:
232         loss_weight: 1.0
233
234     # BBoxPostProcess
235     BBoxPostProcess:
236         decode:
237             name: YOLOBox
238             conf_thresh: 0.01
239             downsample_ratio: 32
240             clip_bbox: true
241             scale_x_y: 1.05
242     # nms 配置
243     nms:
244         name: MatrixNMS
245         keep_top_k: 100
246         score_threshold: 0.01
247         post_threshold: 0.01
248         nms_top_k: -1
249         background_label: -1
250
251     ```
252
253     - 运行时置文件 `runtime.yml`
254
255     ```yaml
256     # 是否使用gpu
257     use_gpu: true
258     # 日志打印间隔
259     log_iter: 20
260     # save_dir
261     save_dir: output
262     # 模型保存间隔时间
263     snapshot_epoch: 1
264     ```
```