

YOLOv8 Model Comparison (coco128 quick eval)

Note: coco128 is a lightweight subset intended for quick comparisons, not final COCO accuracy.

Model	Params (M)	Inference (ms/img)	Precision (P)	Recall (R)	mAP50	mAP50-95
yolov8n	~3.2	~118	0.64	0.537	0.605	0.446
yolov8s	~11.2	~244	0.797	0.664	0.760	0.589
yolov8m	~25.9	~482	0.712	0.730	0.784	0.614

Why we used yolov8n in the MVP

- Lowest latency and smallest footprint for real-time assistive guidance on commodity devices.
- Adequate detection quality when paired with BLIP captioning and our narrative reasoner.
- Larger models (s/m) yield higher mAP but increase latency and power draw; they remain configurable via YOLO_VARIANT.