MaLDAM: Masked Localized Domain Adaptation for Malaria Detection in Low-Cost Microscopic Images

Supplementary Material

1 Hyperparameter Tuning

Table 1 presents the effect of the domain alignment weight λ_{DA} and the balancing parameter α for models trained on HCM labels and tested on LCM images at FOV 1000×. For λ_{DA}, the best performance is obtained at $\lambda_{\text{DA}} = 0.05$ and for α, the best performance is obtained at $\alpha = 0.8$. Overall, the best configuration is $\alpha = 0.8$ and $\lambda_{\text{DA}} = 0.05$, achieving 62.1 mAP@0.5.

Table 1: Hyperparameter tuning results on LCM (mAP@0.5) M5-dataset [20].

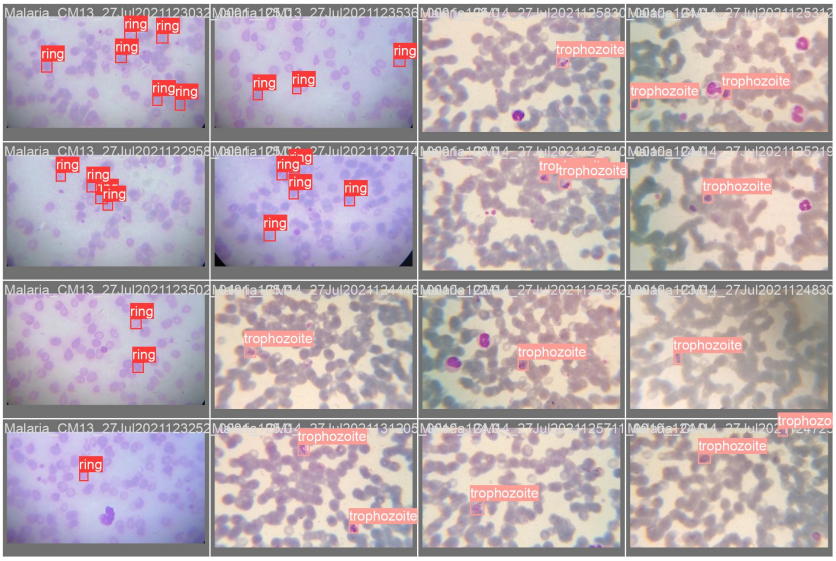
λ_{DA}	α	LCM mAP50
0.01	0.75	59.8
0.05	0.75	60.8
0.1	0.75	60.3
0.05	0.8	62.1
0.05	0.9	58.9

2 Qualitative Analysis

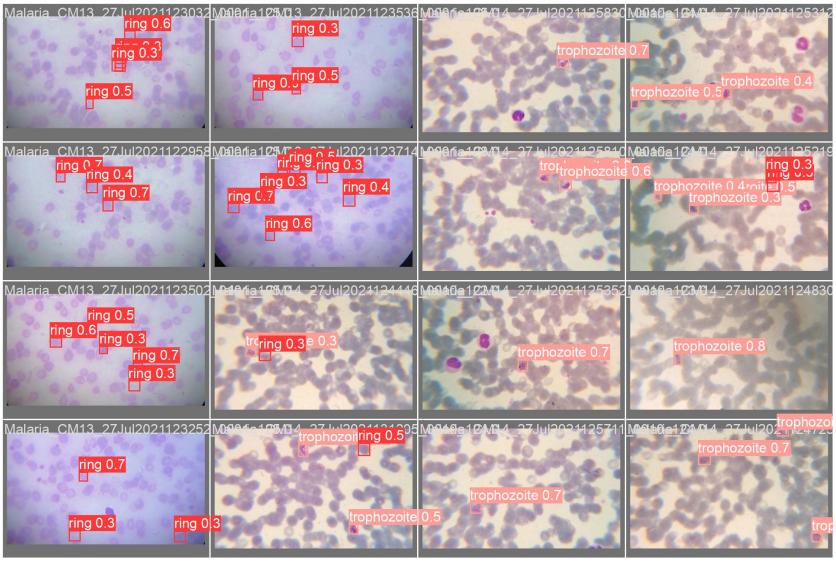
Fig. 1, Fig. 2, and Fig. 3 presents qualitative detection results under the (1000×), (400×), and (100×) FOV settings. For each setting, we compare predictions LCM images to illustrate the effectiveness of our approach in localizing malaria cells across varying magnification levels.

3 Detection Loss Stability

As shown in Fig. 4 our method consistently achieves lower box, objectness, and classification losses, along with more stable convergence compared to baselines across all magnification settings.

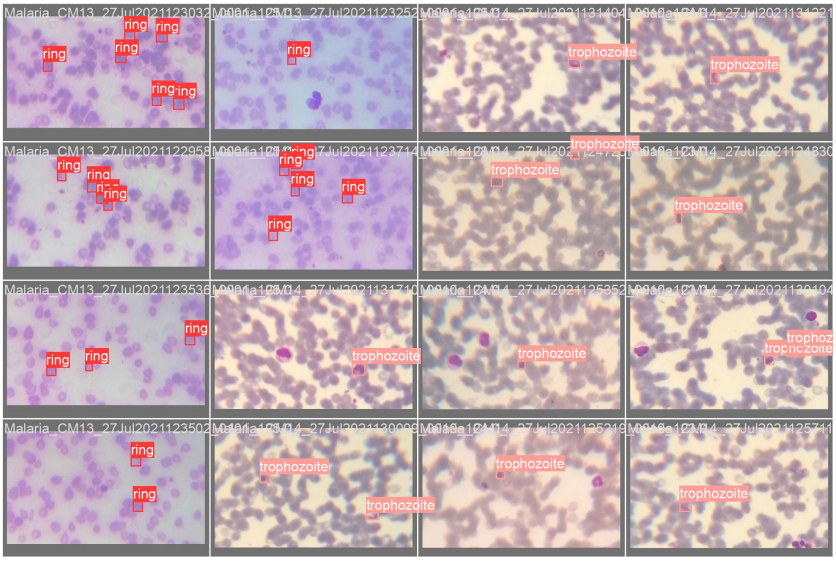


(a) GT

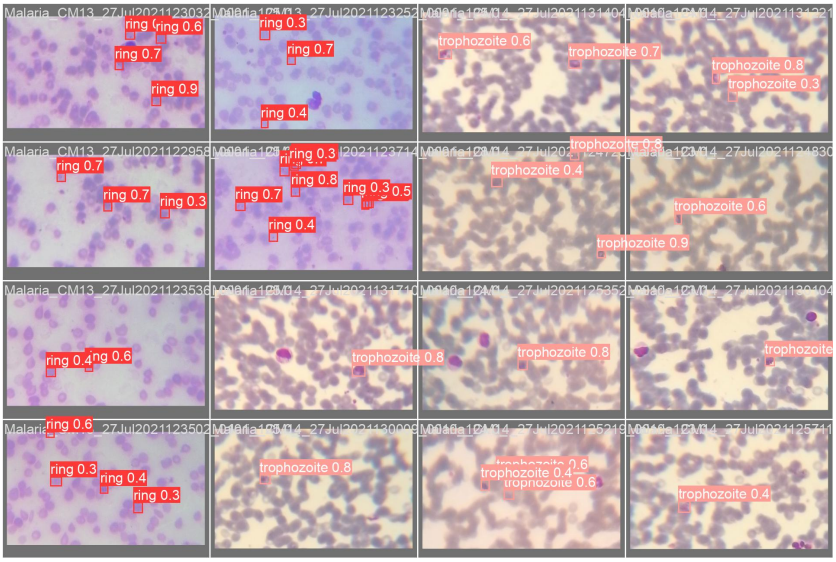


(b) Pred

Fig. 1: FOV 1000× LCM test image

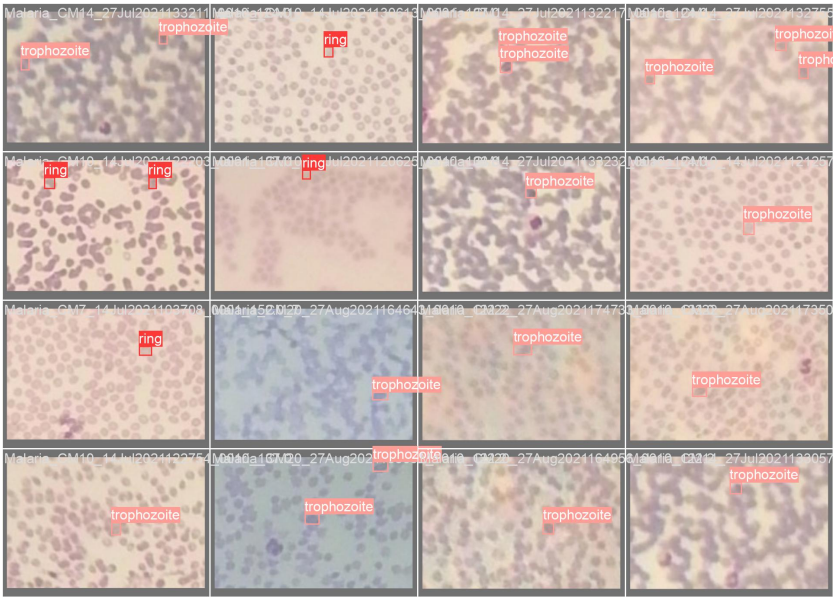


(a) GT

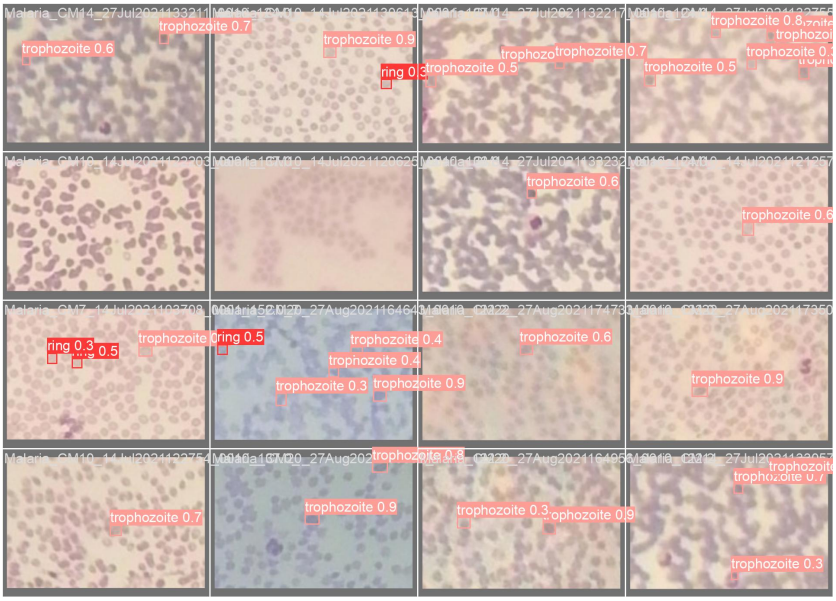


(b) Pred

Fig. 2: FOV 400× LCM test image

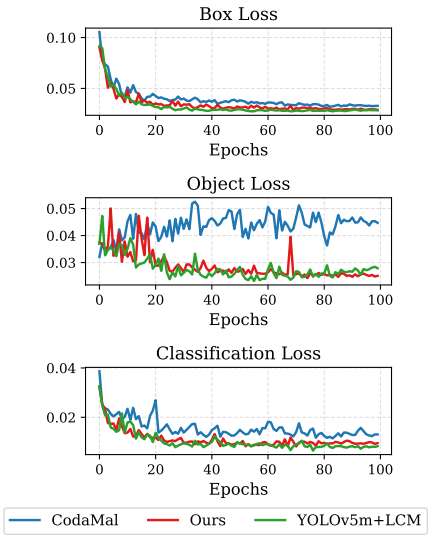


(a) GT

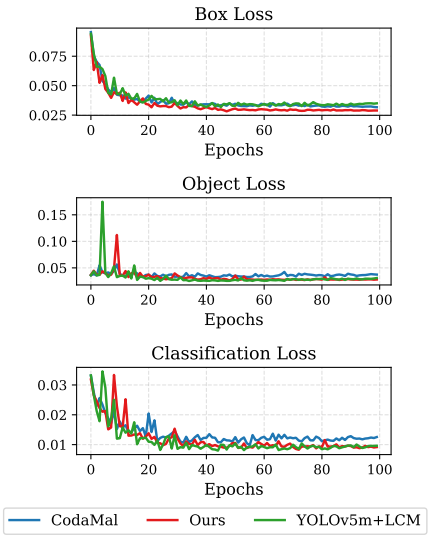


(b) Pred

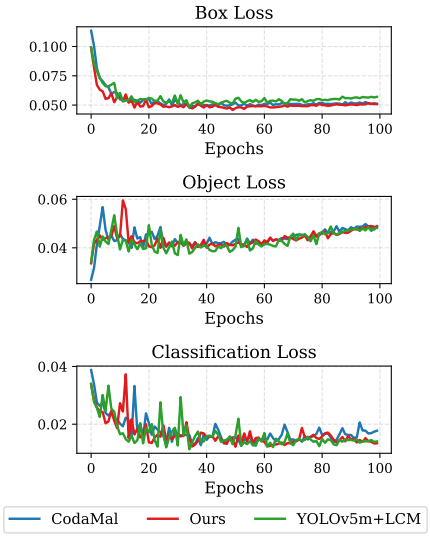
Fig. 3: FOV 100× LCM test image



(a) 1000× LCM



(b) 400× LCM



(c) 100× LCM

Fig. 4: Object detection loss curves