

# YOLOv3 vs MALARIA

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**2018**

**228 000 000**

**93%**

**405 000**

**94%**

**67%**

**2 700 000 000**

dane na rok 2018

liczba przypadków

WHO African Region

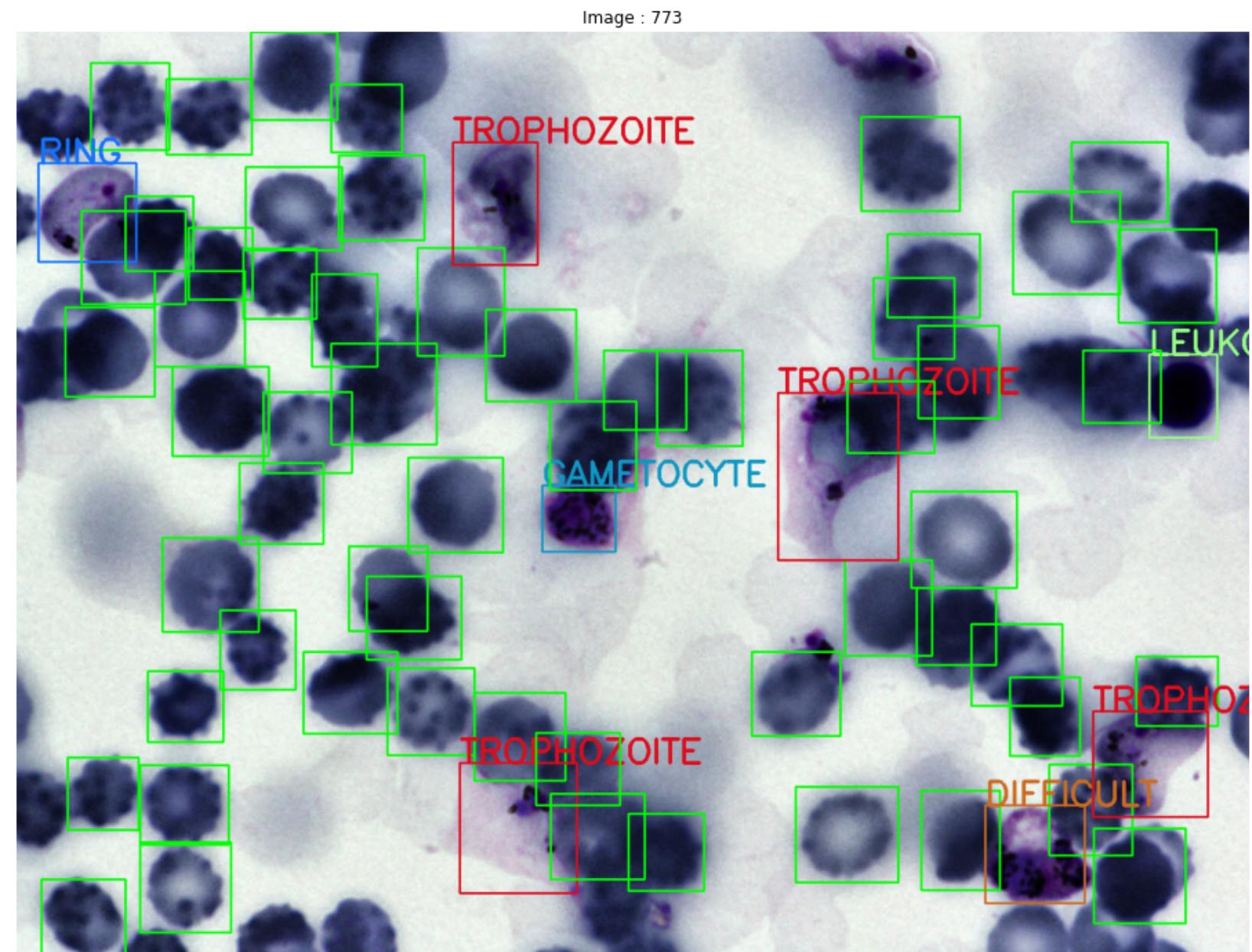
liczba zgonów

WHO African Region

dzieci poniżej 5-go roku życia

wysokość środków w US\$

# DANE



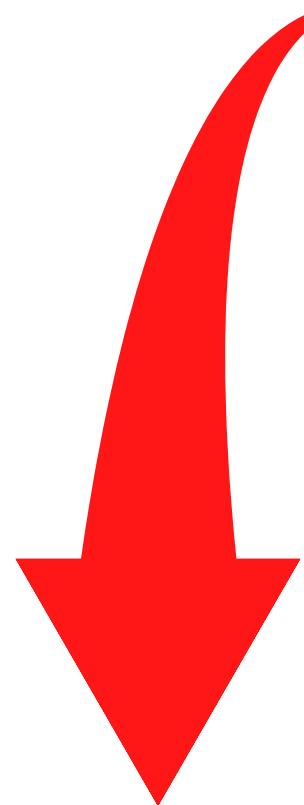
Liczliwość zbioru treningowego: **1208**

Liczliwość zbioru testowego: **120**

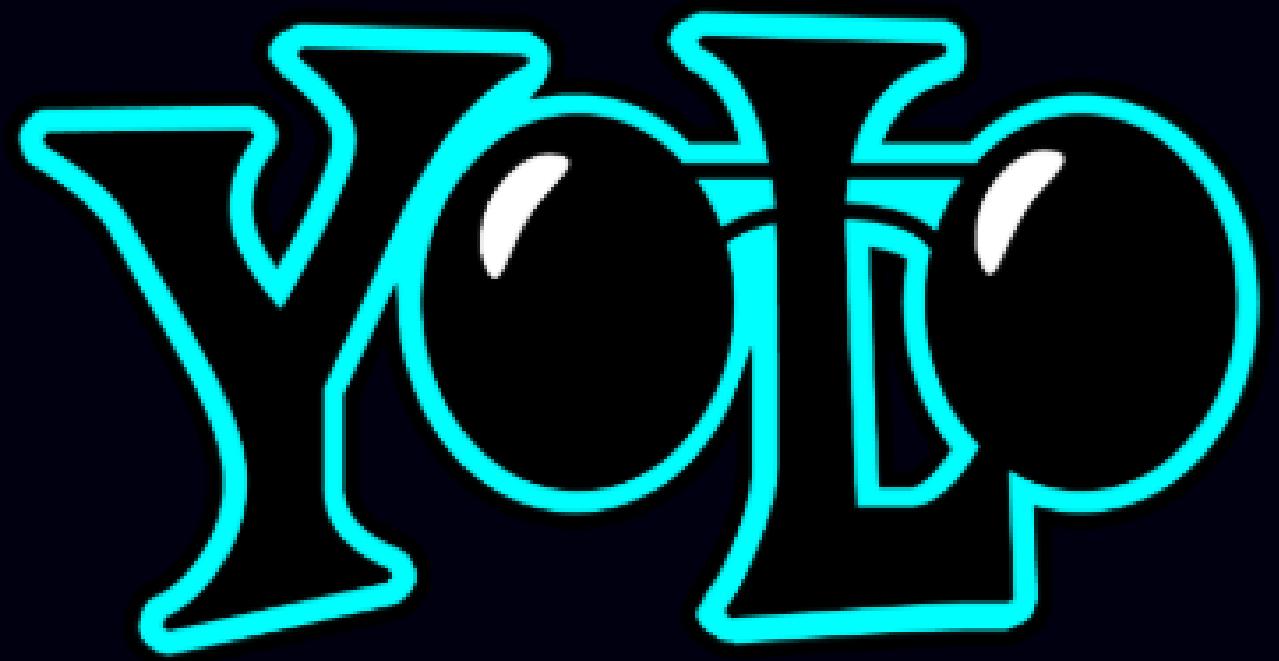
## RODZAJE KOMÓREK

- 1. Red blood cell ( >95% )**
- 2. Leukocyte**
- 3. Gametocyte**
- 4. Ring**
- 5. Trophozoite**
- 6. Schizont**
- 7. Difficult**

```
({'checksum': 'eea3bfd6a929bcb06f9786667cd3fbb2',
 'pathname': '/images/41be1bd3-0d31-4881-bf1f-3ccdfa21ff12.jpg',
 'shape': {'c': 1944, 'channels': 3, 'r': 1383}),
[{'bounding_box': {'maximum': {'c': 1883, 'r': 708},
 'minimum': {'c': 1744, 'r': 576}},
 'category': 'red blood cell'},
```



	pathname	minimum_r	minimum_c	maximum_r	maximum_c	category
0	/images/8d02117d-6c71-4e47-b50a-6cc8d5eb1d55.png	1057	1440	1158	1540	red blood cell
1	/images/8d02117d-6c71-4e47-b50a-6cc8d5eb1d55.png	868	1303	971	1403	red blood cell
2	/images/8d02117d-6c71-4e47-b50a-6cc8d5eb1d55.png	578	900	689	1008	red blood cell
3	/images/8d02117d-6c71-4e47-b50a-6cc8d5eb1d55.png	304	611	408	713	red blood cell
4	/images/8d02117d-6c71-4e47-b50a-6cc8d5eb1d55.png	198	881	312	1003	red blood cell



You Only Look Once

Real Time Object Detection

pojedyncza sieć neuronowa

podział obrazu na obszary

predykcja bounding-boxes

test dla całości obrazu (kontekst)

<https://pjreddie.com/darknet/yolo/>

tutorial: <https://www.youtube.com/watch?v=10joRJt39Ns>

**CUSTOM**



przygotowanie danych

dostosowanie klas  
(ich liczby oraz rodzajów)

dostosowanie warstwy wyjściowej

przygotowanie plików konfiguracyjnych

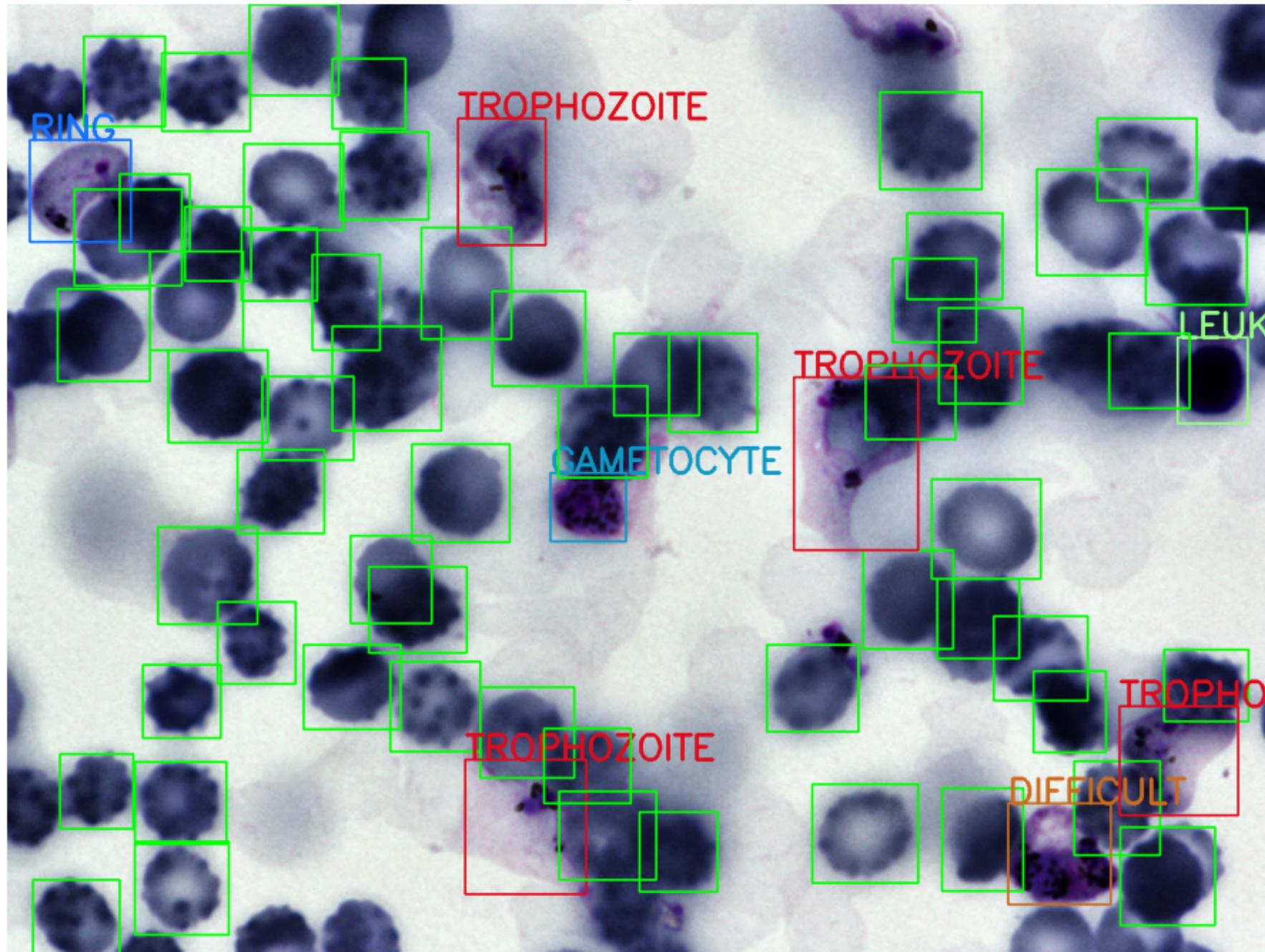
trening dla 8 000 epok

<https://pjreddie.com/darknet/yolo/>

tutorial: <https://www.youtube.com/watch?v=10joRJt39Ns>

## TRAIN SET

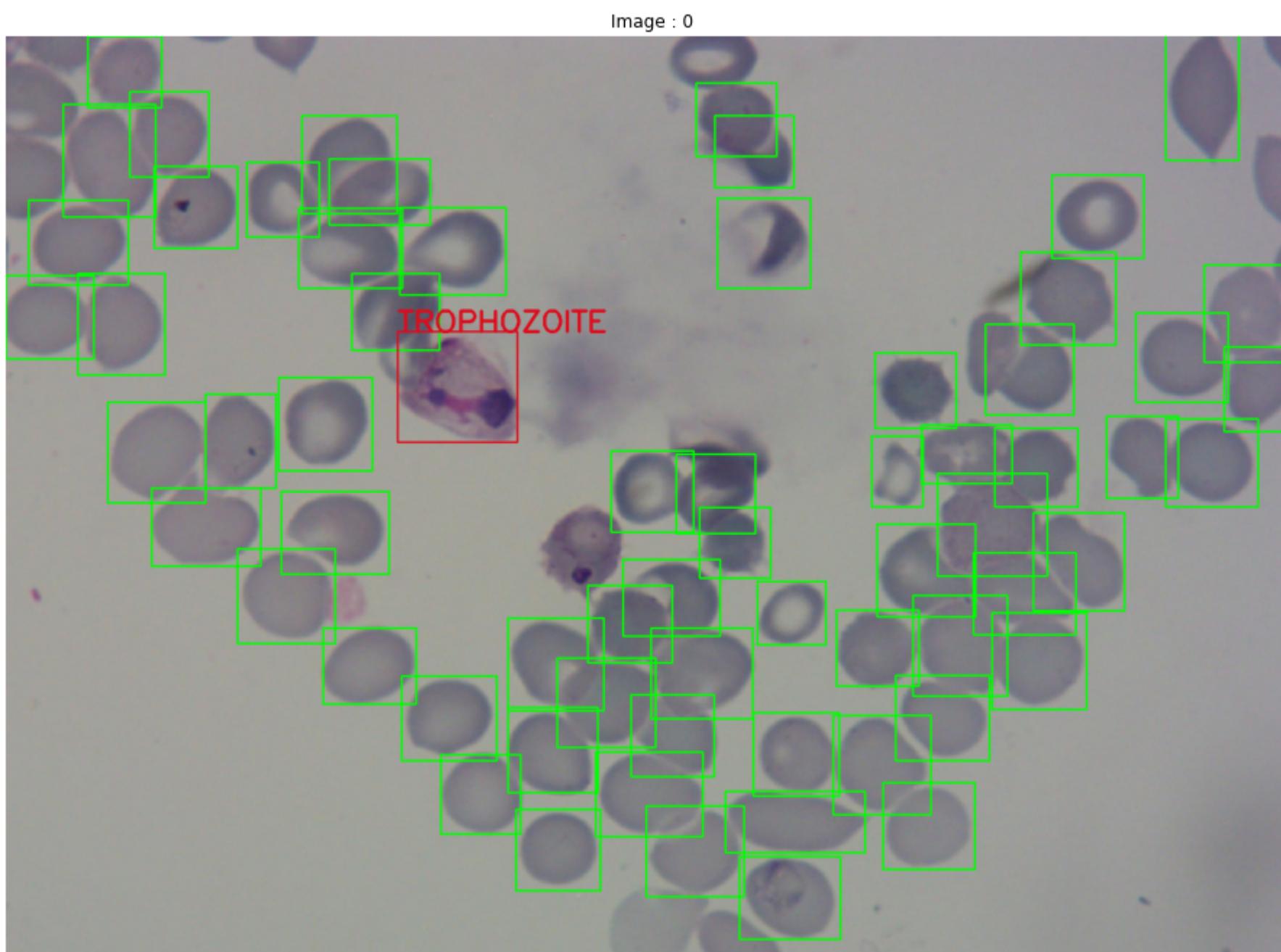
Image : 773



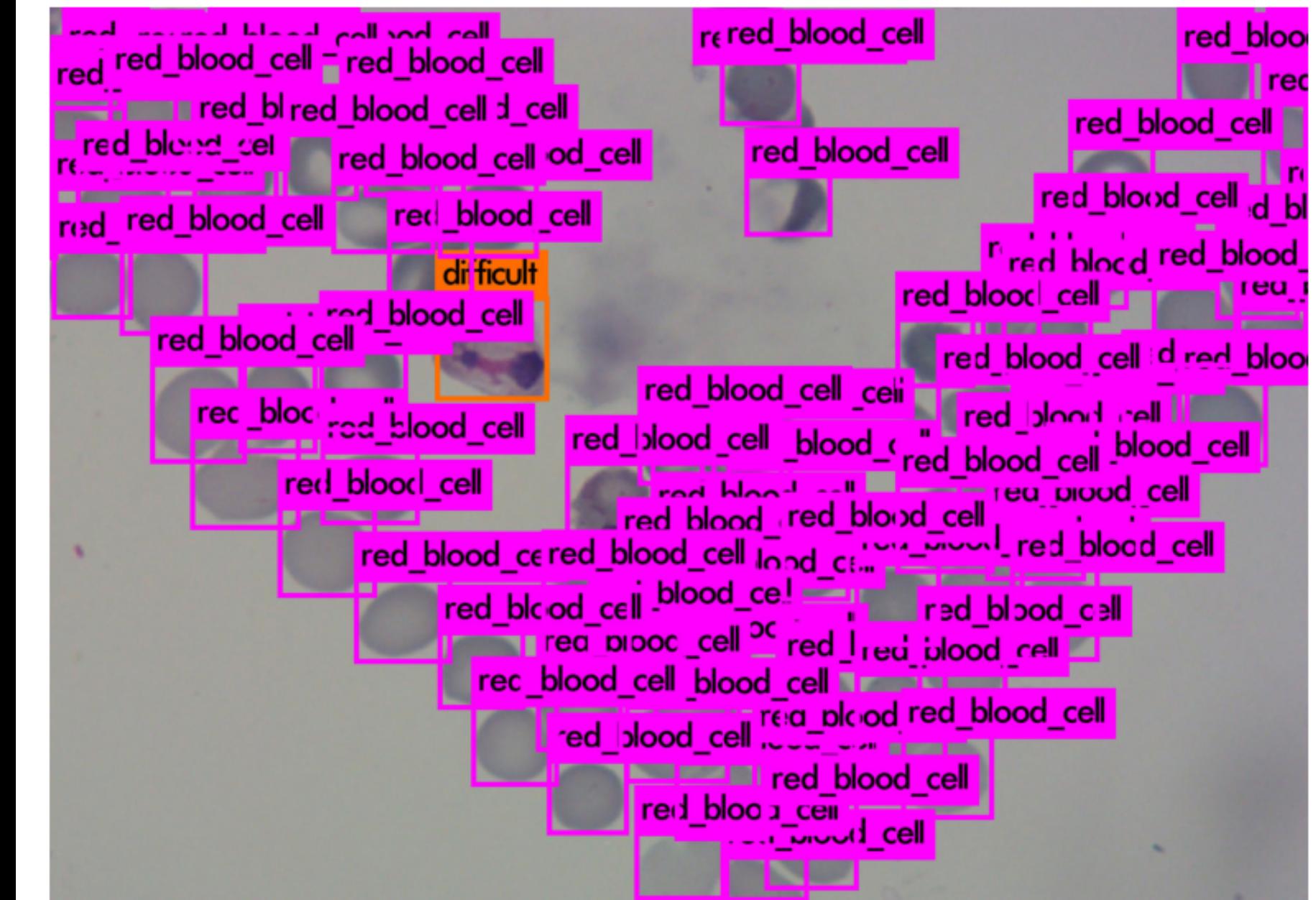
## PREDICTED



## TEST SET (1)

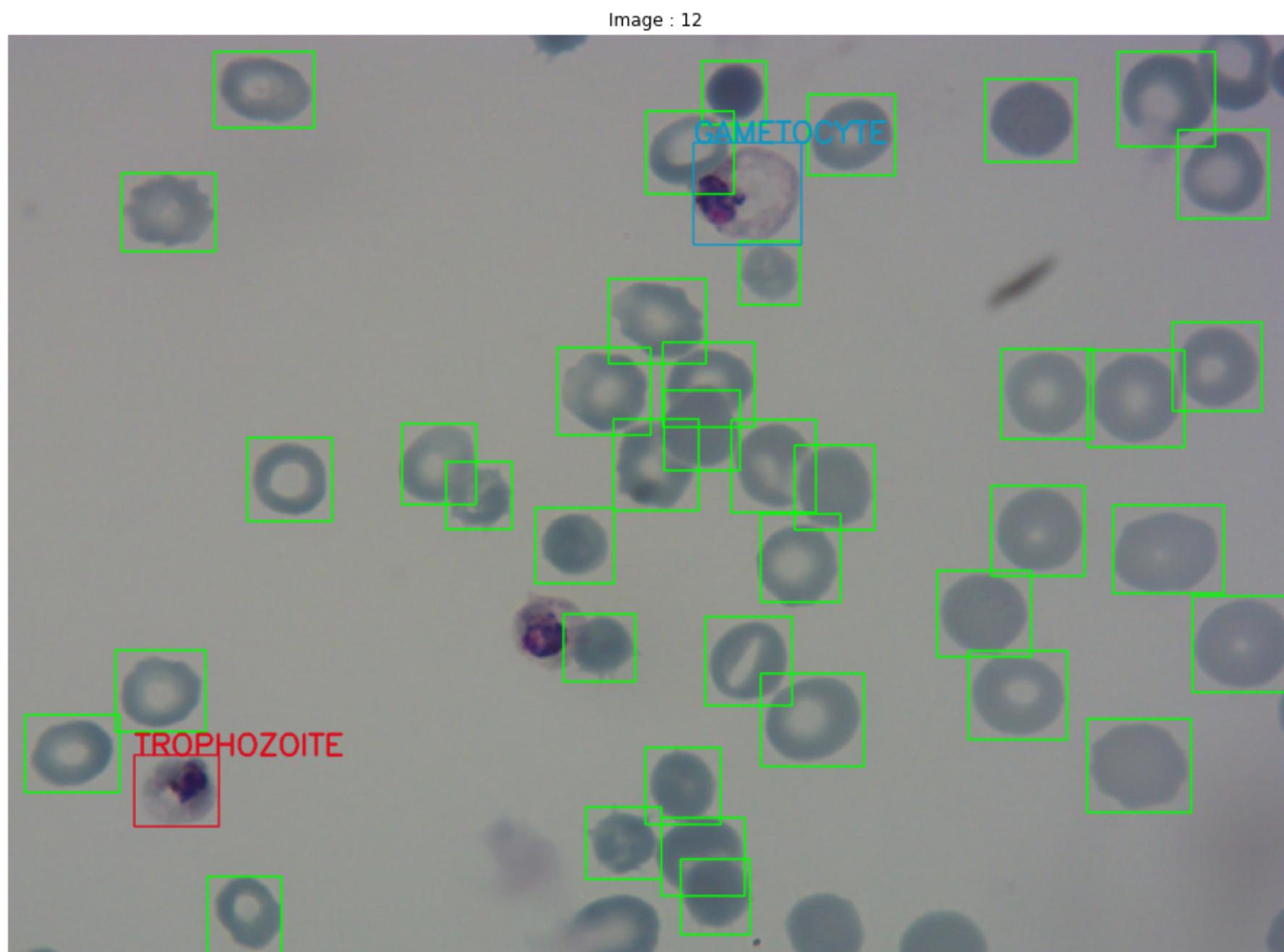


## PREDICTED



difficult: 97%

## TEST SET (2)



## PREDICTED



difficult: 64%, trophozoite: 27%  
difficult: 86%

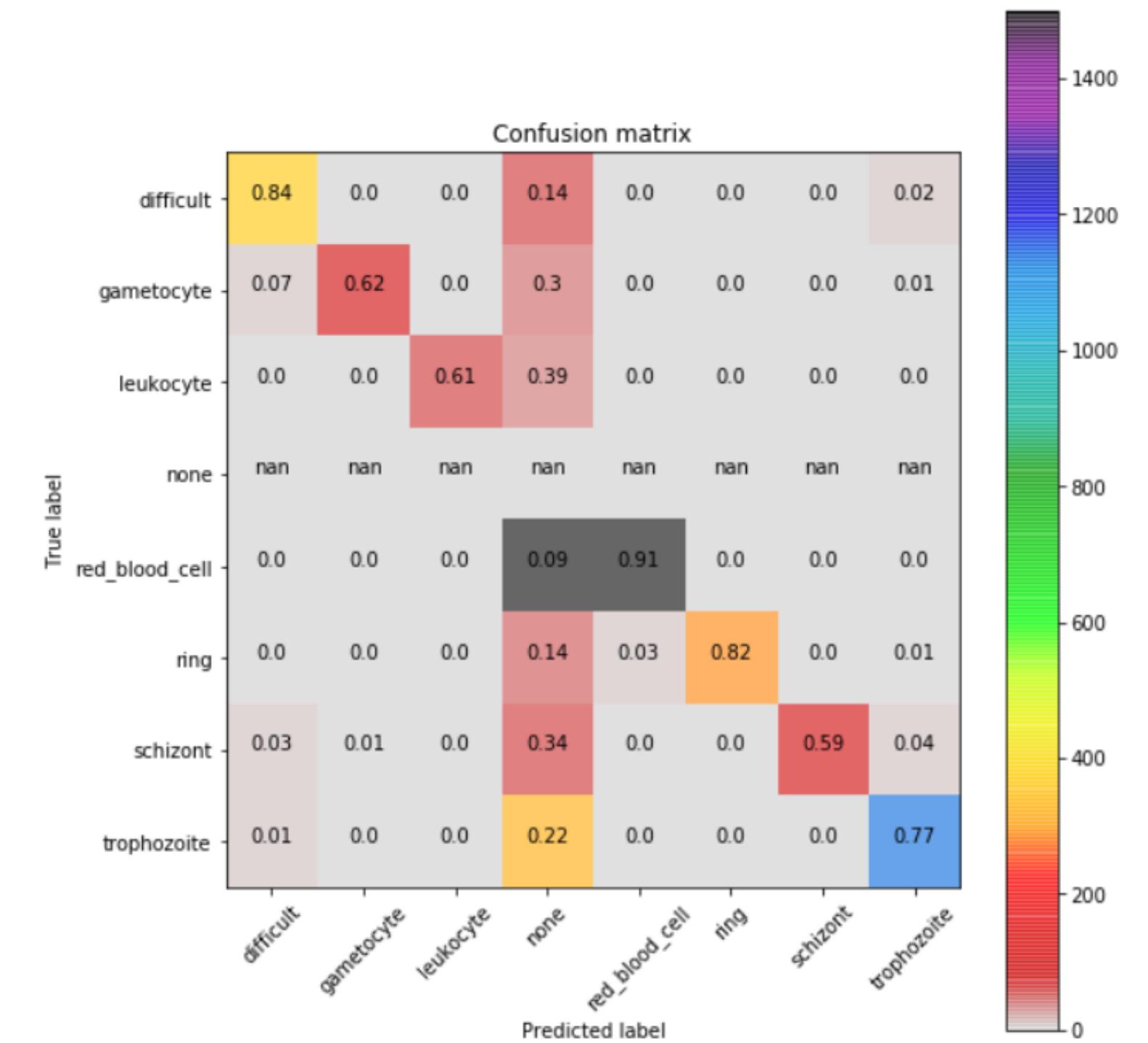
# TRAIN SET

## CLASSIFICATION REPORT

	precision	recall	f1-score	support
difficult	0.93	0.84	0.88	441
gametocyte	0.97	0.62	0.76	144
leukocyte	0.98	0.61	0.75	103
none	0.00	0.00	0.00	0
red_blood_cell	1.00	0.91	0.95	77420
ring	0.99	0.82	0.90	353
schizont	0.99	0.59	0.74	179
trophozoite	0.98	0.77	0.86	1473
accuracy			0.90	80113
macro avg	0.86	0.65	0.73	80113
weighted avg	1.00	0.90	0.95	80113

# TRAIN SET

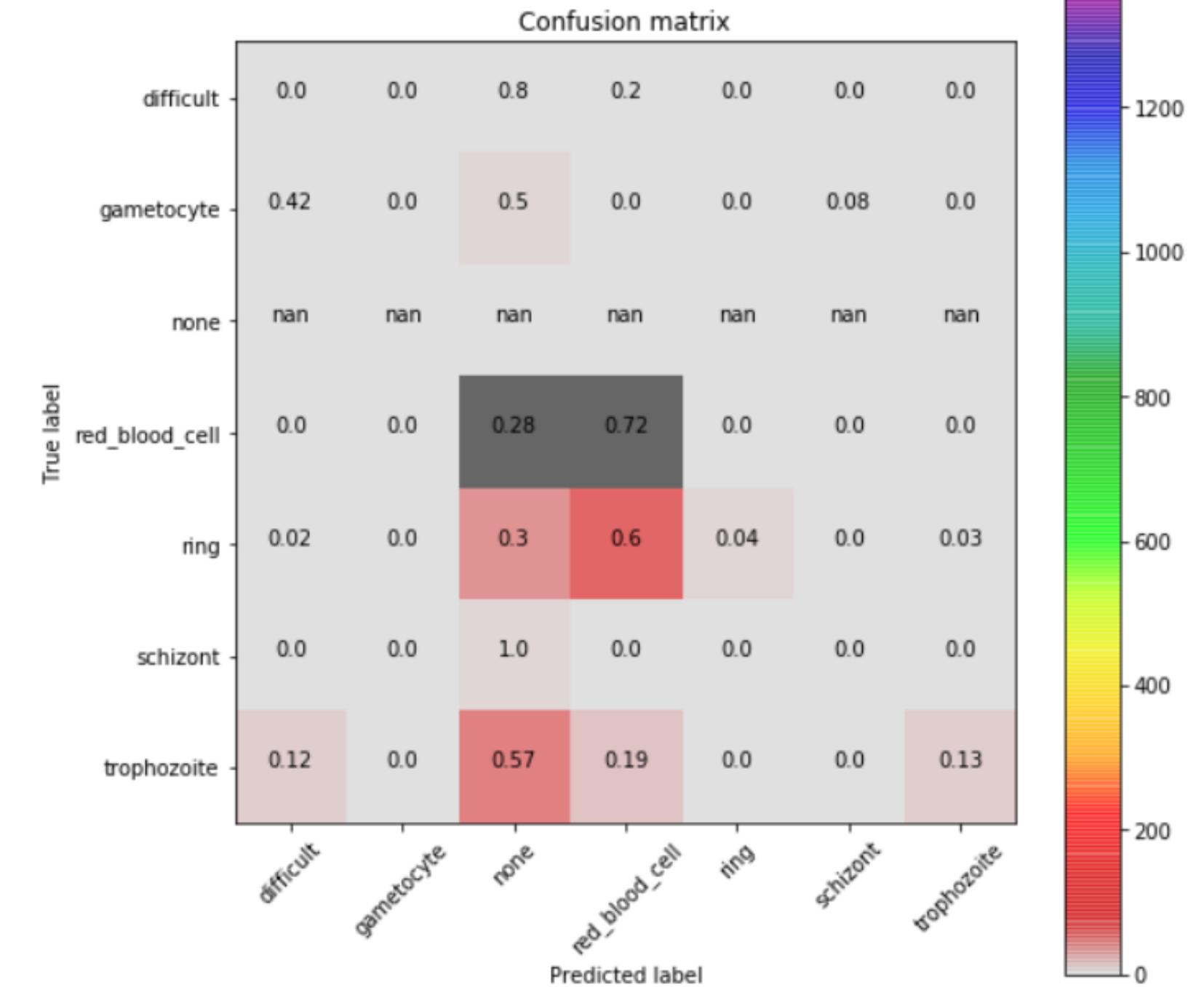
## CONFUSION MATRIX



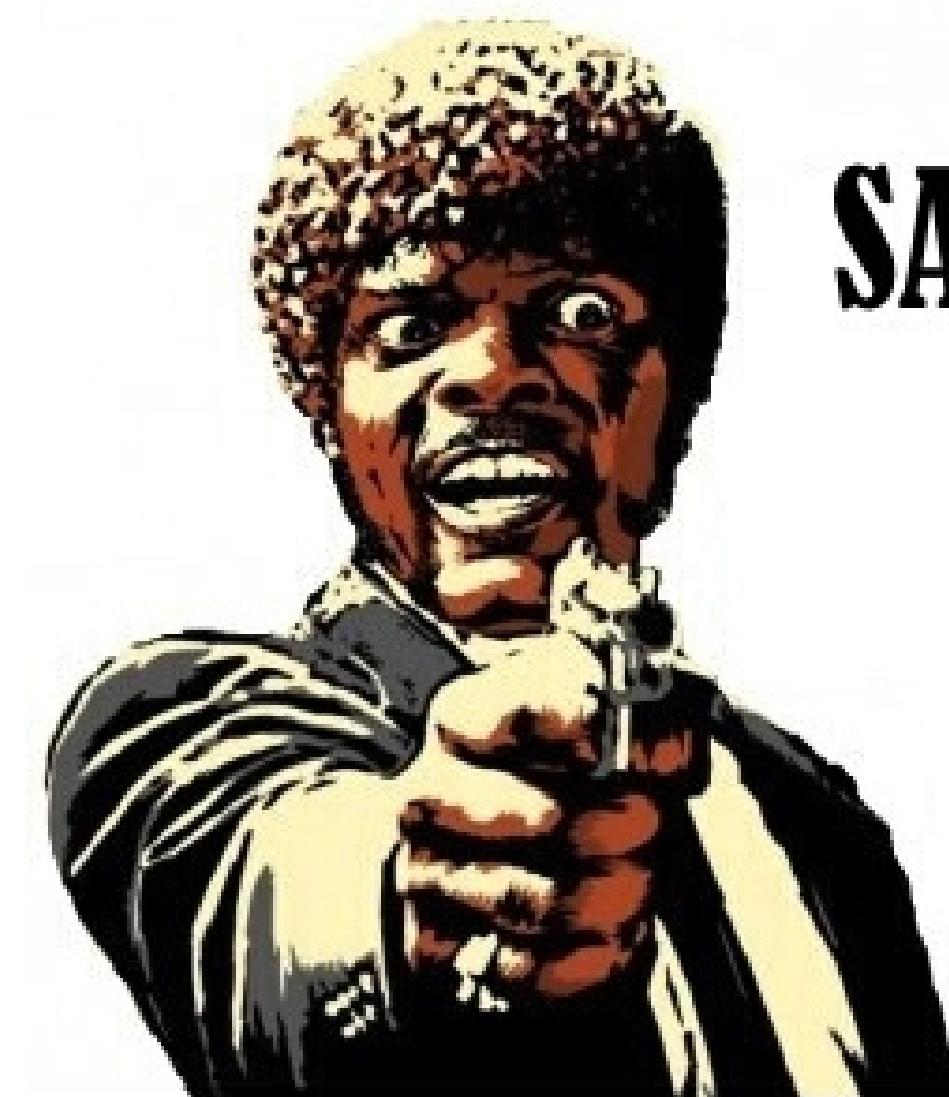
# TEST SET CLASSIFICATION REPORT

	precision	recall	f1-score	support
difficult	0.00	0.00	0.00	5
gametocyte	0.00	0.00	0.00	12
none	0.00	0.00	0.00	0
red_blood_cell	0.97	0.72	0.83	5614
ring	1.00	0.04	0.08	169
schizont	0.00	0.00	0.00	11
trophozoite	0.74	0.13	0.22	111
accuracy			0.69	5922
macro avg	0.39	0.13	0.16	5922
weighted avg	0.96	0.69	0.79	5922

# TEST SET CONFUSION MATRIX



**TO  
BE  
CONTINUED...**



**SAY  
YOLO  
AGAIN**