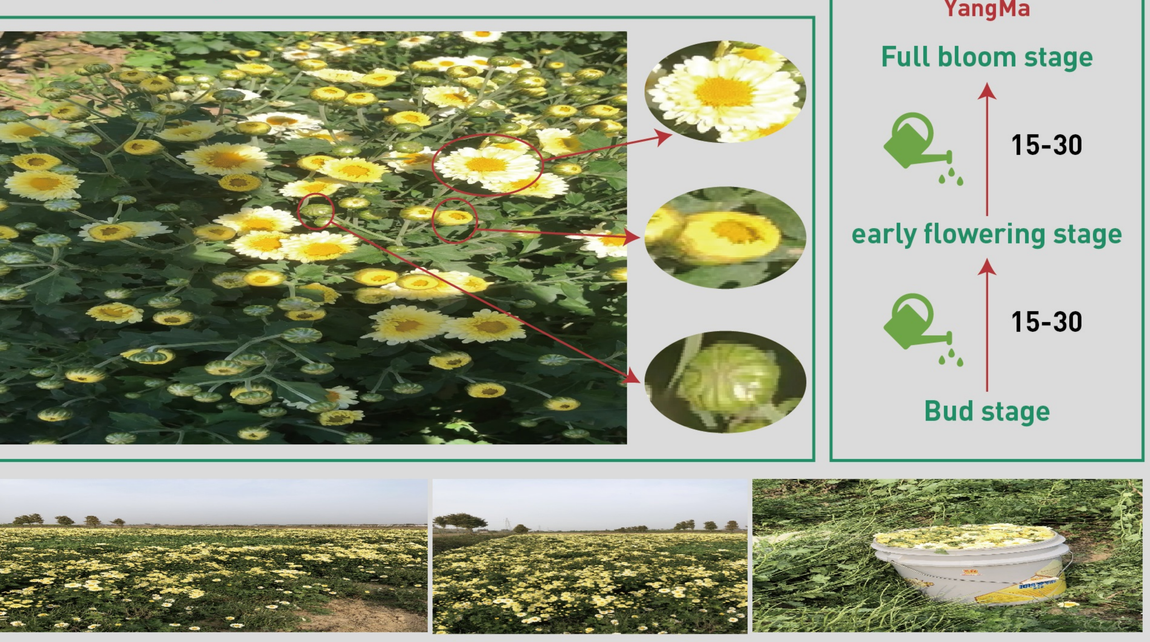
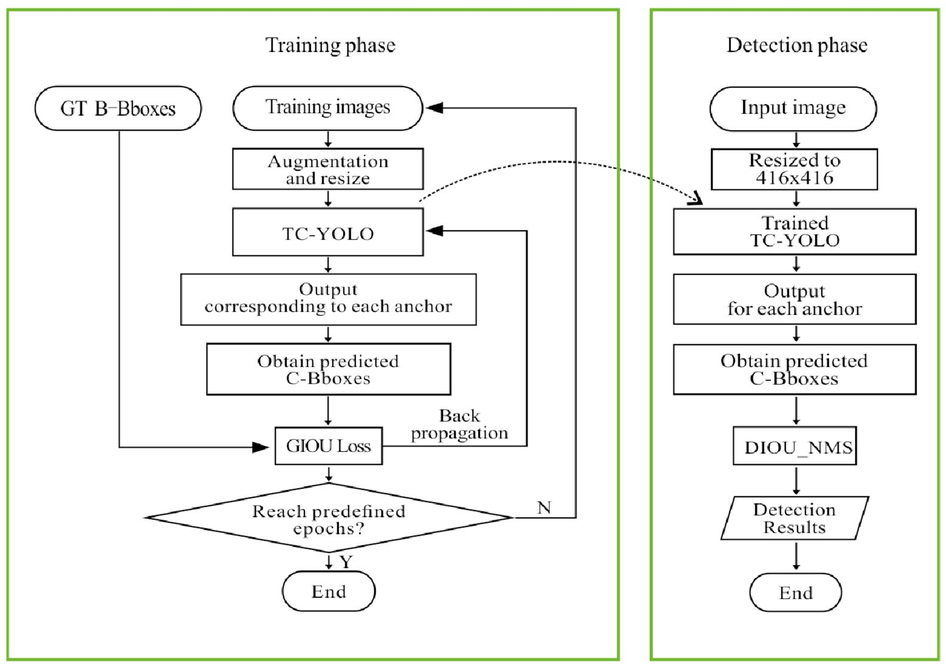
Tea Chrysanthemum

Detection under Unstructured Environments

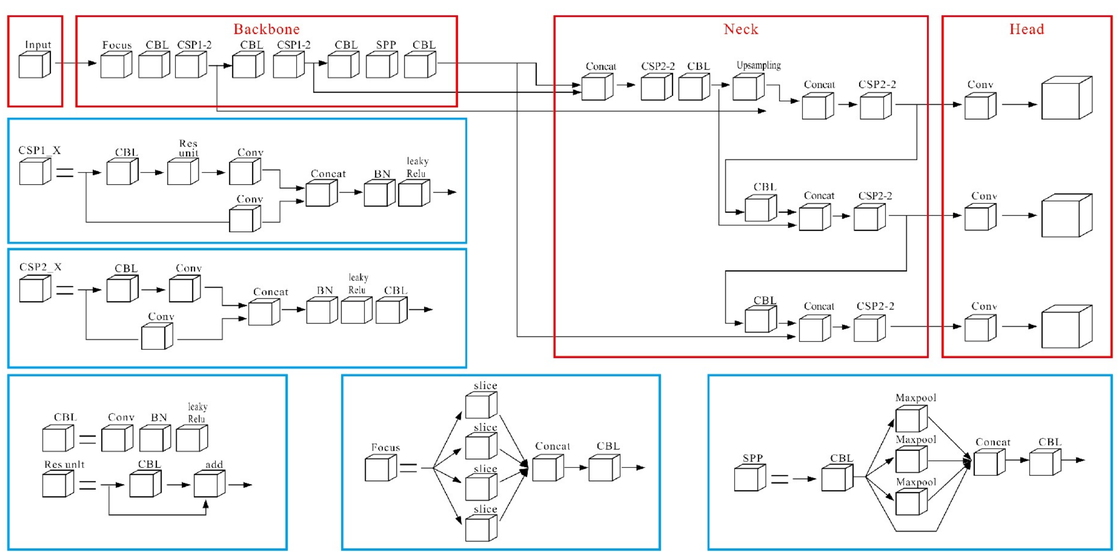
Tea Chrysanthemum



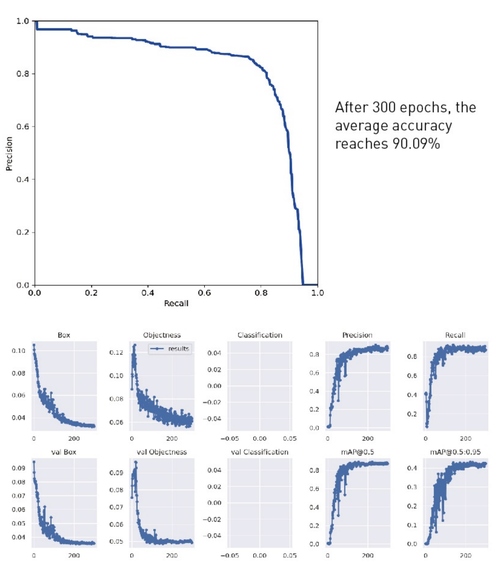
Object detection flow chart



Part of the object detection system

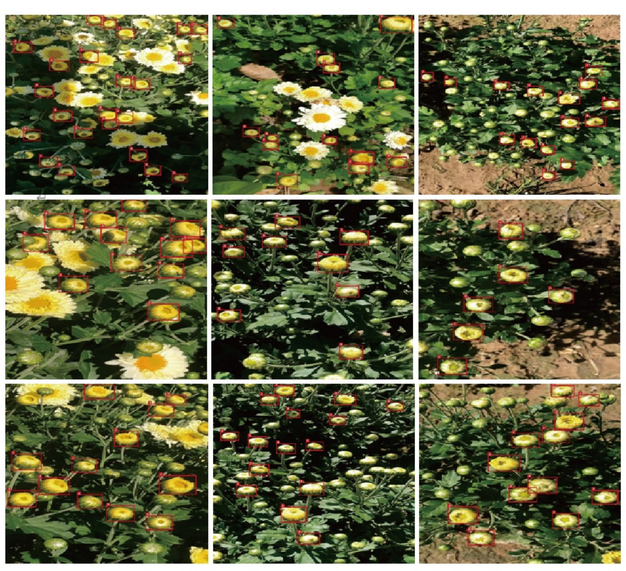


Some results



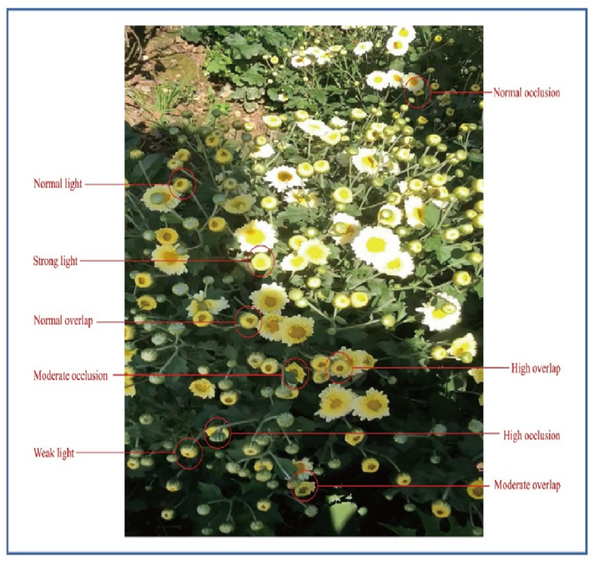
After 300 epochs, the average accuracy reaches 90.09%

Part of the indicator results



Some test results

Impact of different unstructured scenarios on TC-YOLO

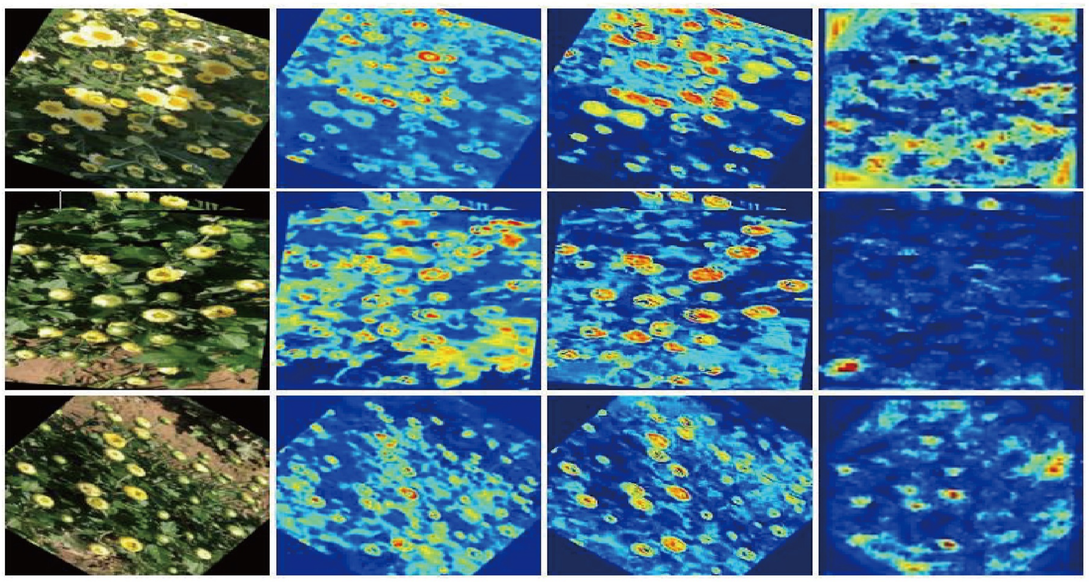


Example of 9 unstructured scenarios

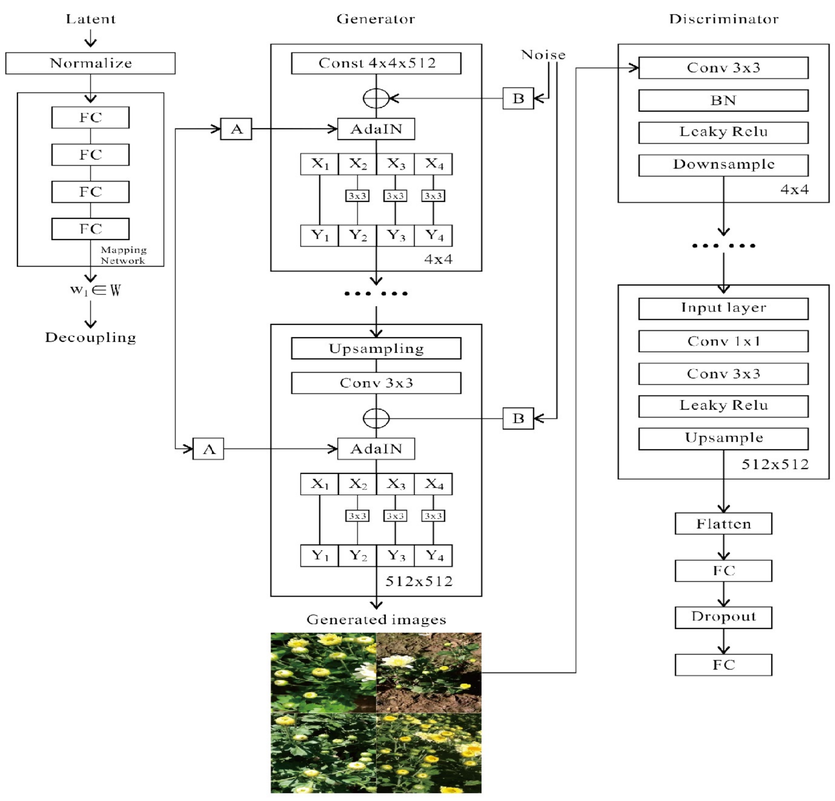
Environment	Count	Correctly Identified		Falsely Identified		Missed	
		Amount	Rate (%)	Amount	Rate (%)	Amount	Rate (%)
Strong light	6853	5519	80.54	517	7.54	817	11.92
Weak light	16511	14639	88.66	1174	7.11	698	4.23
Normal light	23542	22723	96.52	438	1.86	381	1.62
High overlap	5699	4702	82.51	186	3.27	811	14.22
Moderate overlap	12998	11814	90.89	476	3.66	708	5.56
Normal overlap	21883	21251	97.11	182	0.83	450	2.06
High occlusion	8352	6806	81.49	601	7.2	945	11.31
Moderate occlusion	14552	13076	89.86	586	4.03	890	6.11
Normal occlusion	23523	22789	96.88	296	1.26	438	1.86

Impact of Different Unstructured Scenarios on the TC-YOLO

Some visualization results

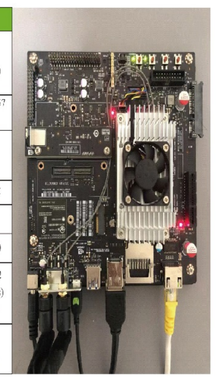


Structure of the proposed TC-YOLO network

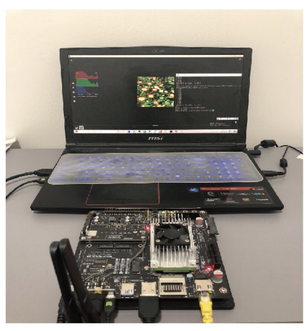


Jetson TX2

JETSON TX2	Parameters
GPU	256 Core Pascal 1.3 TFLOPS (FP16)
CPU	6 core Denver and A57 (2x) 2MB L2
Memory	Up to 8 GB 128b LPDDR4 58 GB/s
Storage	Up to 32 GB eMMC
Encode	4K @ 60 (H.265)
Decode	2x 4K @ 60 (H.265)
Camera	12 lanes MIPI CSI-2 D-PHY 1.2 (30 Gbps) C-PHY (41 Gbps)
Mechanical	87mm x 50mm 400 pin connector

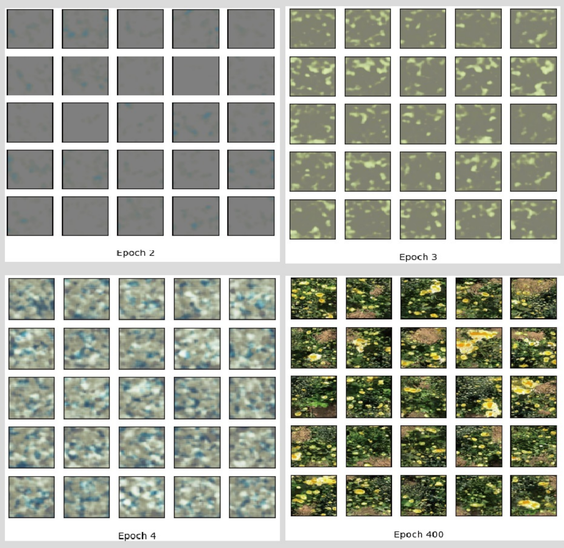


Parameter Chart



Test results on the Jetson TX2

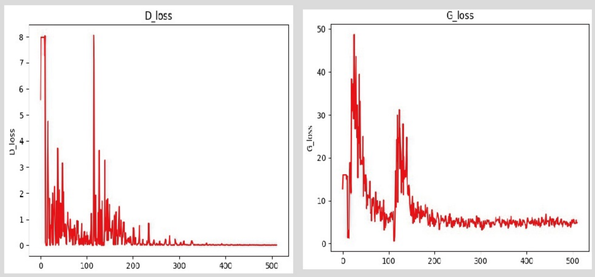
Some results



Generated images for different epochs

Method	Size	Times/min	mAP
SN-GAN	32*32	390	84.61
BigGAN	512*512	510	92.45
Dist-GAN	64*64	422	84.68
Progressive GAN	64*64	456	85.11
LSGAN	112*112	411	88.03
Rob-GAN	128*128	490	89.28
MGAN	64*64	450	86.39
AutoGAN	64*64	483	87.25
Improved DCGAN	64*64	396	88.38
DAG	48*48	330	87.29
Improved WGAN-GP	28*28	370	86.16
Improved WGAN	128*128	343	91.16
TC-GAN	512*512	352	94.23

Performance comparison of different GANs



Loss curves for generators and discriminators