

1. Rotor 2. Motor 3. Arm 4. Nozzle bracket 5. Nozzle 6. Tank 7. Undercarriage 8. Pump

Figure 1 3D model of the BUAV

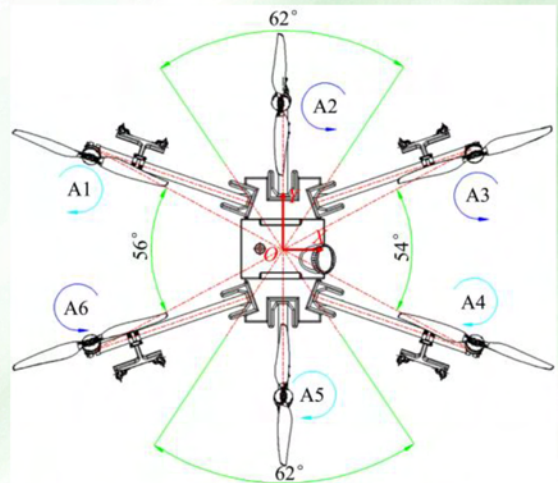


Figure 3 Arms angle and rotor direction in top view

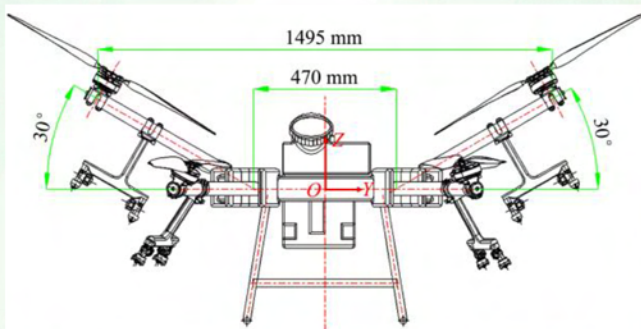


Figure 4 Arms angle of the left and right sides of the BUAV

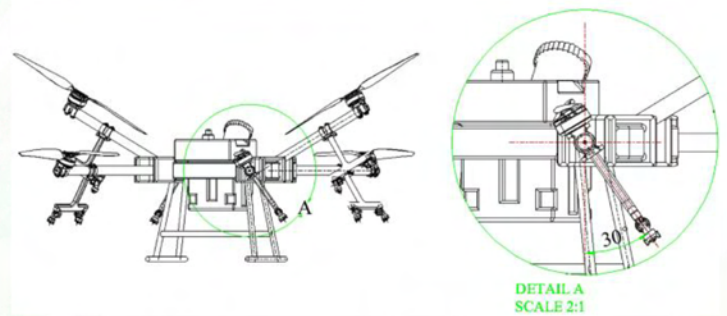


Figure 5 Partial schematic diagram of A6 arm

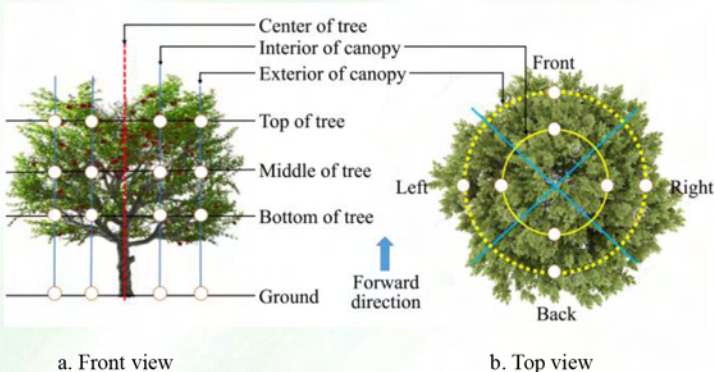


Figure 7 Illustration of droplet collector arrangement at pear orchard

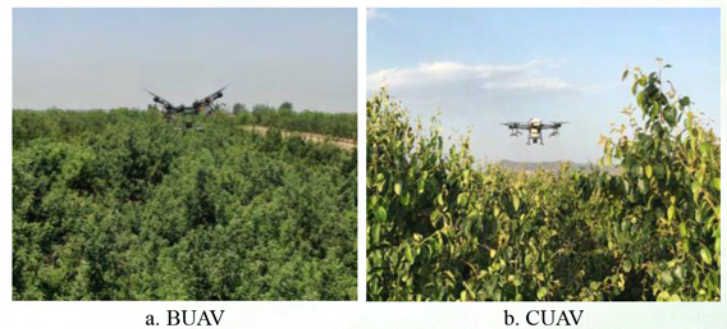
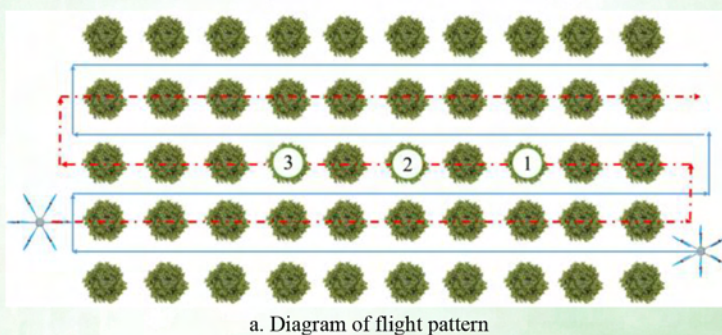


Figure 8 UAV flight status during testing



Note: 1, 2, and 3 represent the sampling trees, respectively. The solid line is the flight trajectory of BUAV, while the dotted line is the flight trajectory of CUAV.

Figure 9 Schematic diagram of UAV operation course

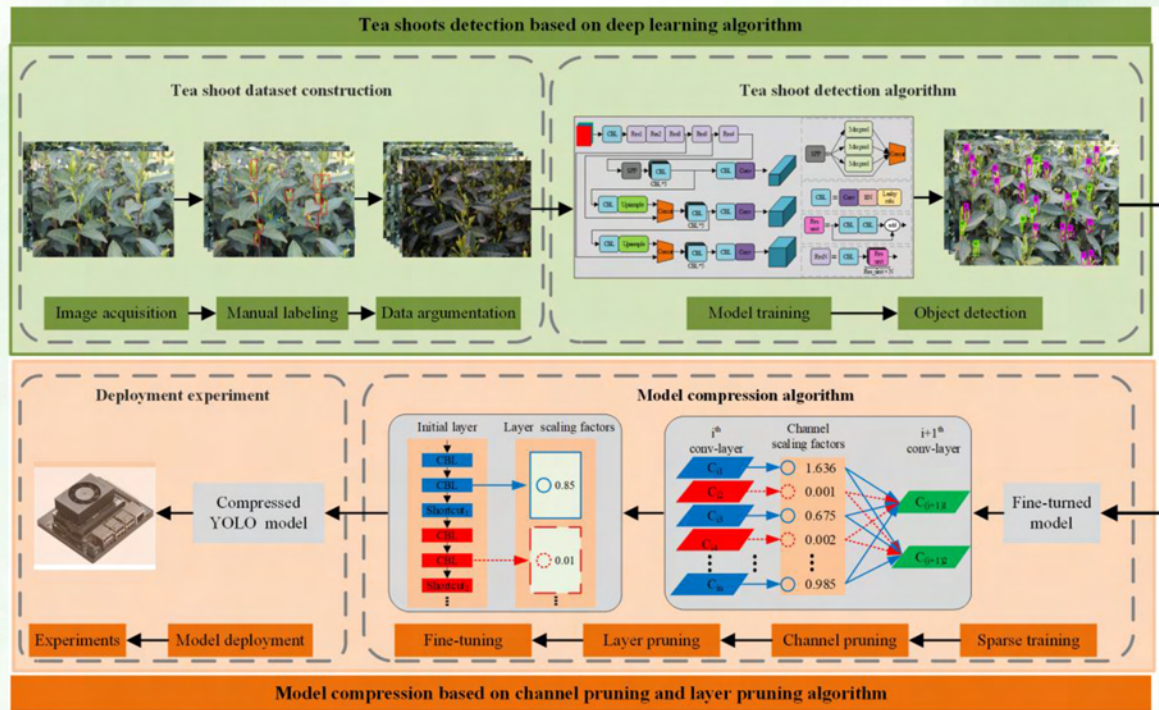


Figure 1 Overall technical route of the proposed tea shoot detection algorithm

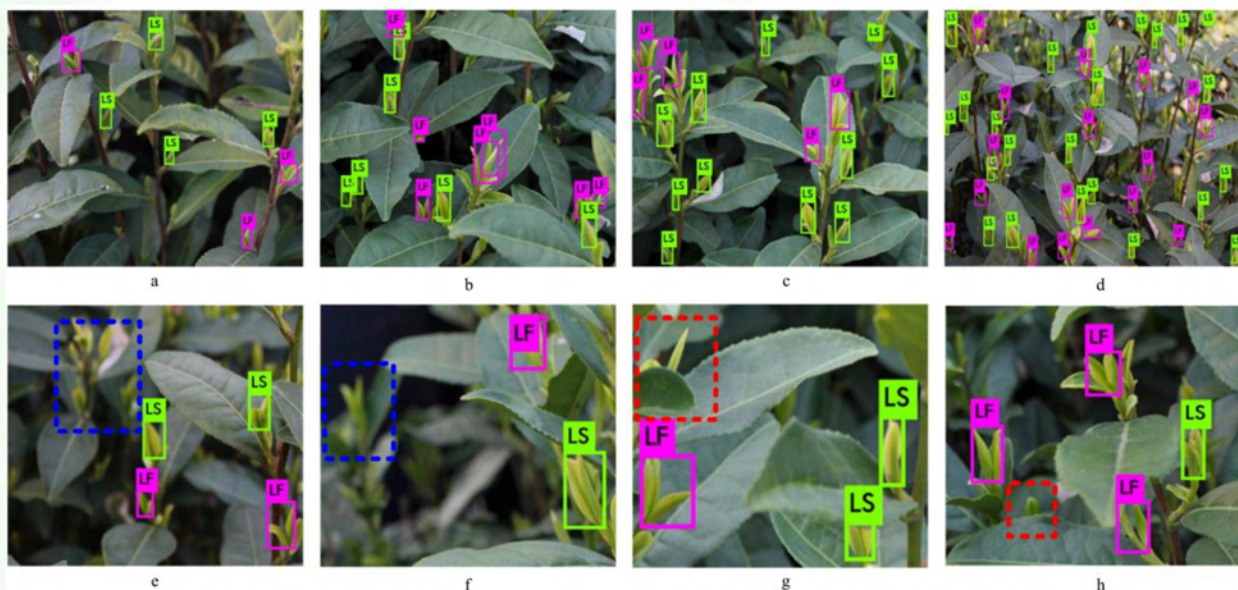


a. Experimental tea garden used in this study

b. Self-built mobile platform for image acquisition

c. Tea shoot images collected in different weather and time

Figure 2 Tea in the tea garden



a-d represent the detection results with different growth densities and shooting distances, e-f represent the missed detection results caused by blur, g-h represent the missed detection results caused by large occlusion

Note: LF means captured from the front view; LS means captured from the side view.

Figure 11 Detection results of the experiment in fields