

Description of Additional Supplementary Files

Supplementary Movie 1: Mechanical configuration and working principle.

Supplementary Movie 2: Robot vibration mode test.

Supplementary Movie 3: Untethered locomotion characteristics of the tripodal robot.

Supplementary Movie 4: Robot performance across diverse substrates external loads, and slopes.

Supplementary Movie 5: Endurance test of the tripodal robot.

Supplementary Movie 6: Omnidirectional planar motion applications.

Supplementary Movie 7: The gas leak detection application demonstration.

Supplementary Movie 8: The microscopic observation applications.

Supplementary Movie 9: Cross-scale microscopic observation demonstration.

Supplementary Movie 10: Robot robustness evaluation.

Supplementary Movie 11: Demonstration of autonomous navigation.

Supplementary Movie 12: Multi-robot cooperative following demonstration.