# UNITREE G1

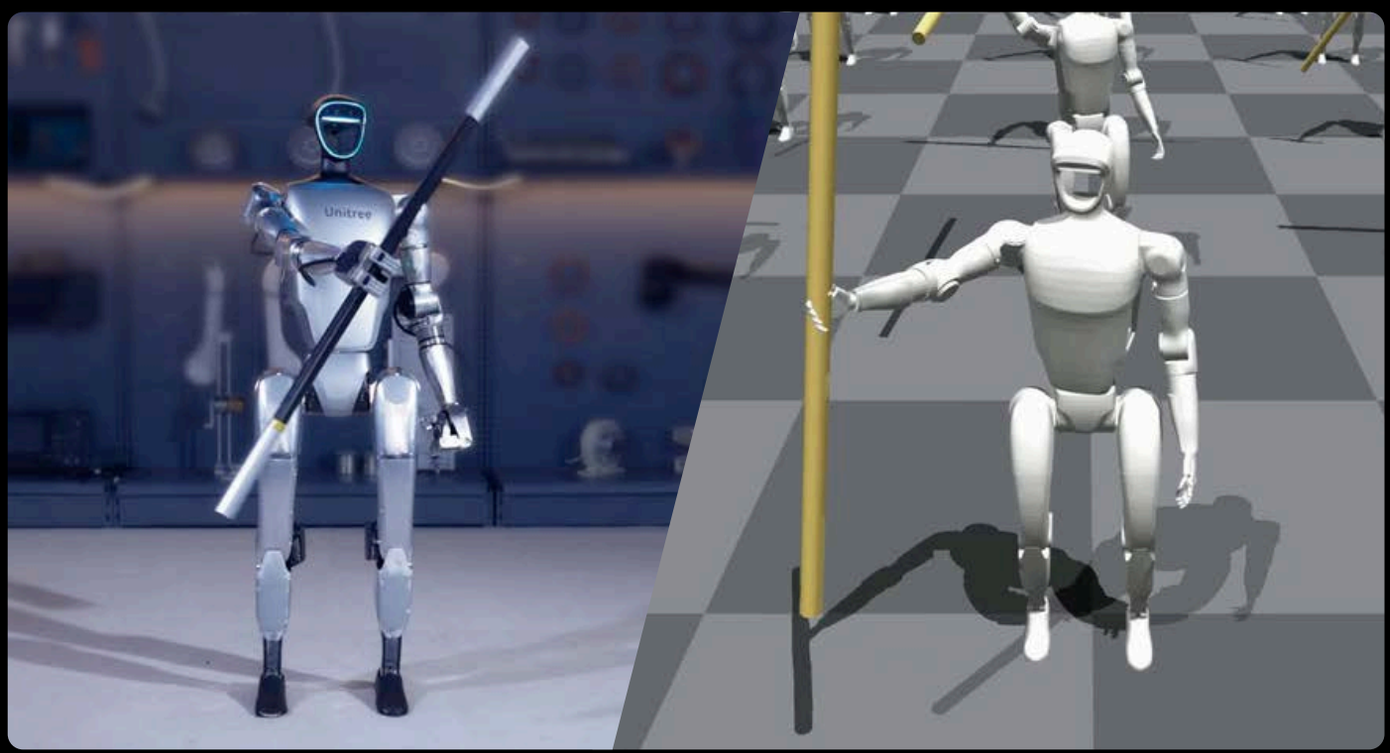
## HUMANOID AI AGENT

## FLEXIBILITY BEYOND THE ORDINARY

Extended joint range with 23–43 precision motors for smooth, versatile motion.

## IMITATION & REINFORCEMENT LEARNING DRIVEN

Learns tasks through AI-powered imitation and reinforcement methods.



# DEXTEROUS HAND WITH FORCE CONTROL

Force–position hybrid control simulates human hand movement to achieve precise, reliable object handling.

*Three-fingered dexterous hand Dex3-1 specifications: The thumb has 3 active degrees of freedom; the index finger has 2 active degrees of freedom; the middle finger has 2 active

# UNIFIED ROBOT WORLD MODEL

UnifoLM (Unitree Robot Unified Large Model), create a new era of intelligence together.

*Open for everyone to co create and use in the future.

# Technical overview

## BODY SIZE VALUE

Weight about

35 kg

Height about

130 cm

## TOTAL DEGREES OF FREEDOM

≤ 43 pieces

## MAX JOINT TORQUE

120 N.m

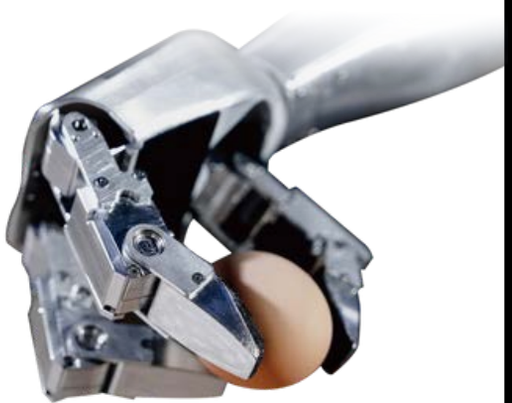
## 360° DETECTION PERCEPTION

**3D LIDAR + Depth Camera**

## DEX3-1 FORCE CONTROL DEXTEROUS HAND

**3-Finger Force Control Dexterous Hand**

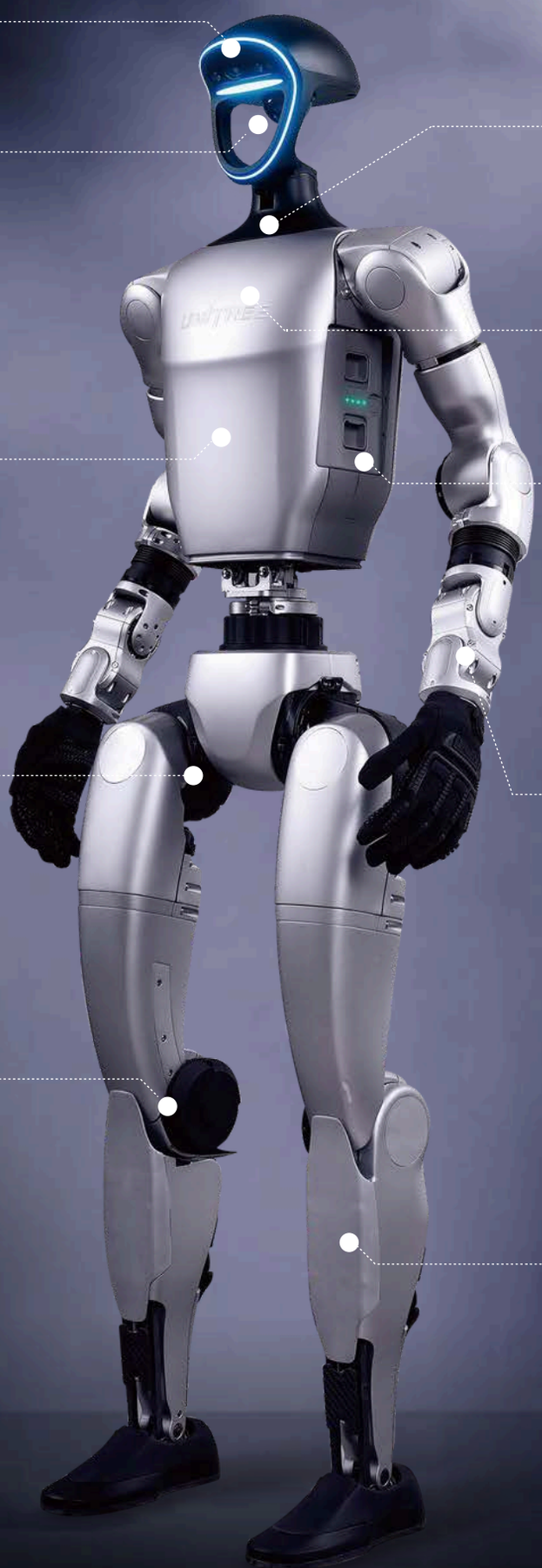
(Optional tactile sensor arrays)



## BATTERY LIFE

About 2 h

# Key Features



**Depth Camera**
Intel RealSense

**3D LIDAR**
LIVOX-MID360

**Microphone**
Noise Cancellation, Echo Cancellation

**Speaker**
Stereo, 5W Power

**Hollow Joint Wiring**
No external cables

**Extra Large Quick Release Battery**
Provide lasting power

**Mobility**
Moving speed of 2m/s

**Single Arm Degrees of Freedom**
Shoulder 3 + Elbow 2 + Wrist 2 (optional)

**Core Motion Module**
Max torque at joints 120 N.m

**Single Leg Degrees of Freedom**
Hip 3 + Knee 1 + Ankle 2

| Model | G1 | G1 EDU |
|---|---|---|
| Size（Standing） | 1320mmx450mmx200mm | 1320mmx450mmx200mm |
| Size（Folded） | 690mmx450mmx300mm | 690mmx450mmx300mm |
| Weight (With Battery) | About 35kg | About 35kg+ |
| Total Degrees of Freedom (Joint Freedom) | 23 | 23~43 |
| Single Leg Degrees of Freedom | 6 | 6 |
| Waist Degrees of Freedom | 1 | 1+ (Optional 2 additional waist degrees of freedom) |
| Single Arm Degrees of Freedom | 5 | 5 |
| Single Hand Degrees of Freedom | / | 7 (Optional Force control of three-fingered hand)<br>+2 (Optional 2 additional wrist degrees of freedom)<br>*Three-fingered dexterous hand Dex3-1 Parameter: The thumb has 3 active degrees of freedom; the index finger has 2 active degrees of freedom; the middle finger has 2 active degrees of freedom.<br>**Dex3-1 can optionally be installed with tactile sensor arrays |
| Joint Output Bearing | Industrial grade crossed roller bearings (high precision, high load capacity) | Industrial grade crossed roller bearings (high precision, high load capacity) |
| Joint Motor | Low inertia high-speed internal rotor PMSM (permanent magnet synchronous motor) better response speed and heat dissipation | Low inertia high-speed internal rotor PMSM (permanent magnet synchronous motor) better response speed and heat dissipation |
| Max Torque of Knee Joint [1] | 90N.m | 120N.m |
| Arm Max Load [2] | About 2Kg | About 3Kg |
| Calf + Thigh Length | 0.6M | 0.6M |
| Arm Span | About 0.45M | About 0.45M |
| Extra Large Joint Movement Space | Waist joint：Z±155°<br>Knee joint：0~165°<br>Hip joint：P±154°, R-30~+170°, Y±158° | Waist joint：Z±155°, X±45°, Y±30°<br>Knee joint：0~165°<br>Hip joint：P±154°, R-30~+170°, Y±158°<br>Wrist joint：P±92.5°, Y±92.5° |
| Full Joint Hollow Electrical Routing | YES | YES |
| Joint Encoder | Dual Encoder | Dual Encoder |
| Cooling System | Local Air Cooling | Local Air Cooling |
| Power Supply | 13 String Lithium Battery | 13 String Lithium Battery |
| Basic Computing Power | 8-Core High-Performance CPU | 8-Core High-Performance CPU |
| Sensing Sensor | Depth Camera+3D LiDAR | Depth Camera+3D LiDAR |
| 4 Microphone Array | YES | YES |
| 5W Speaker | YES | YES |
| WiFi 6, Bluetooth 5.2 | YES | YES |
| High Computing Power Module | / | YES NVIDIA Jetson Orin |
| Smart Battery (Quick Release) | 9000mAh(421Wh) | 9000mAh(421Wh) |
| Charger | 54V 5A | 54V 5A |
| Manual Controller | YES | YES |
| Battery Life | About 2h | About 2h |
| Upgraded Intelligent OTA | YES | YES |
| Secondary Development [3] | / | YES |
| Warranty Period [4] | 8 months | 18 months |

[1] The maximum torque values of the joint motors vary across the machine. The figure shown here refers to the largest maximum torque among all the joint motors.
[2] The arm's maximum load capacity changes depending on its extension posture.
[3] For more information, please refer to the Secondary Development Manual.
[4] For detailed warranty terms, please see the Product Warranty Brochure.
[5] The parameters listed above may differ depending on specific scenarios and configurations. Please refer to actual usage conditions.
[6] The humanoid robot has a complex structure and extremely powerful motors. Maintain a safe distance at all times when operating or being near the robot. Use with caution.
[7] Product photos are taken in controlled settings, the actual product may vary slightly from the images shown; the actual product is the reference.
[8] Some sample functions on this page are still being developed and tested, and will be opened to users in the future.

* This product is a civilian robot. Do not make any dangerous modifications or use the robot in a hazardous manner.

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