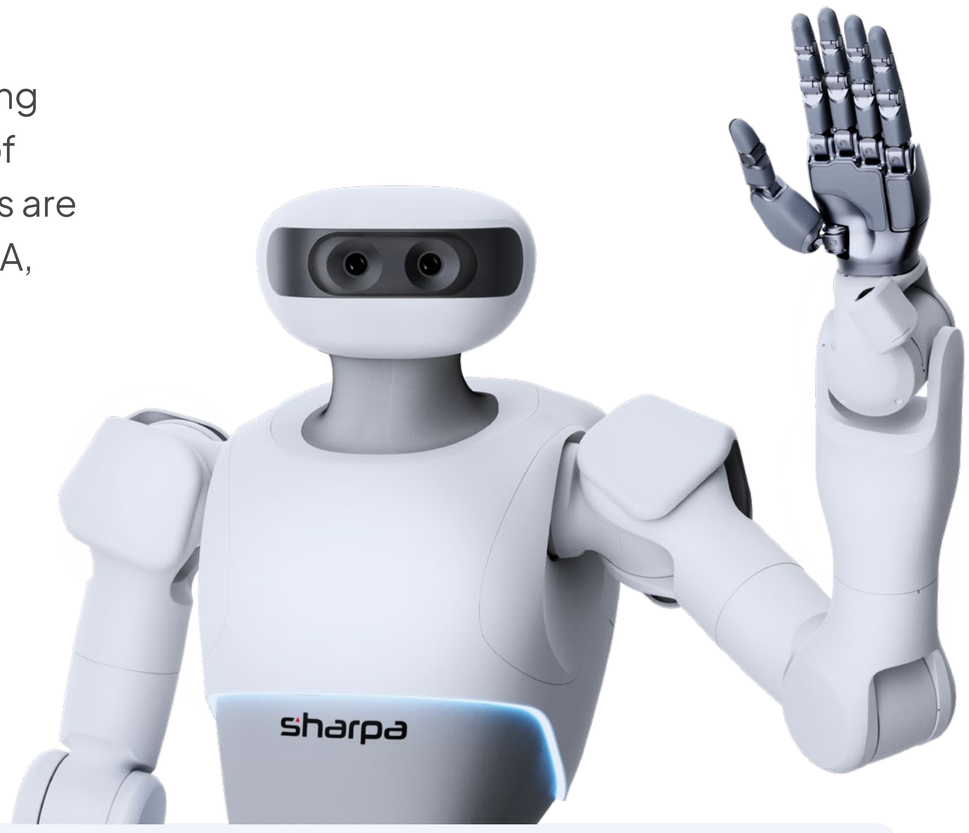
sharpa

We Manufacture Time
by Making Robots Useful



About Sharpa

Founded in 2024, Sharpa is an AI robotics company dedicated to developing high-performance robots and core components, unlocking the potential of future general-purpose robotic applications. Sharpa's global headquarters are based in **Singapore**, with a business operation center in **Mountain View**, USA, and its manufacturing and R&D center in **Shanghai**, China.



Sharpa's Team

We are an elite engineering team drives rapid robot development. With a clear, shared goal, we advance full-stack capabilities from body to brain.

AI

Power Drive Dynamics

150+
Employees
>80% R&D

Mechatronics & Semiconductor

Tactile Sensing

Model-based Control

Global Layout

Starting from Singapore, Sharpa operates global resources.



Wave

Sharpa Wave is a dexterous hand designed for research applications. It is the first product of Sharpa. Sharpa Wave enables precise manipulation of tools and objects, supporting a wide range of complex tasks and experimental studies.

Sharpa Wave strikes the combination of impossibilities, bringing human scale, tactile sensing, and industrial-grade robustness into a dexterous hand. This breakthrough makes a huge leap forward in dexterous manipulation capabilities for the whole industry.





1:1 Human Scale

- Unique isomorphic design mirrors the human hand
- Golden ratio (≈ 0.618) in hand model design

22 Active DoF

- 22 proprietary multi-mode power modules
- 15 bend & stretch, 6 lateral move and 1 inward rotation
- Finish complex tasks in human level precision

Proprietary Dynamic Tactile Array (DTA)

<1 mm
spatial resolution

0.02 N
pressure sensitivity

>1000
tactile pixels per fingertip



Exceptional Durability

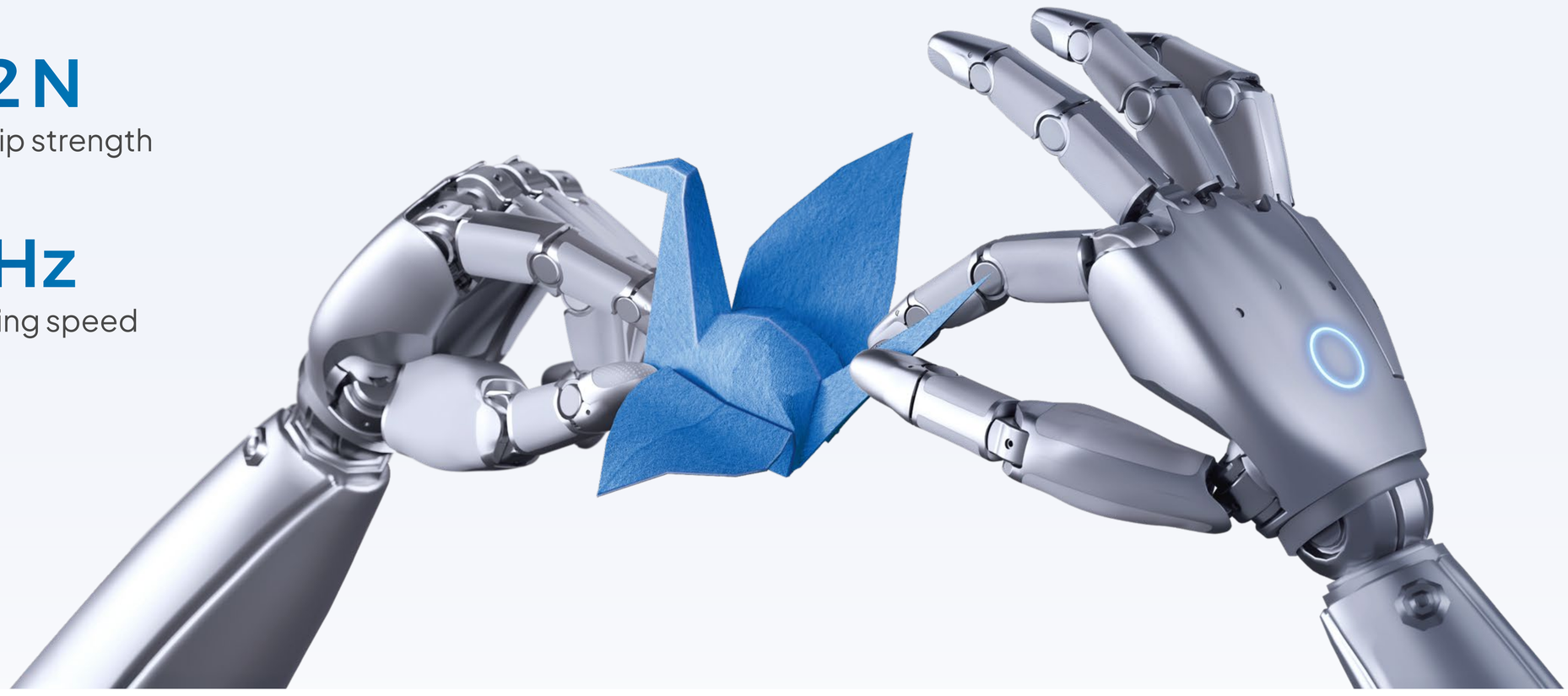
- Lifespan of over **1 million grip cycles**
- Self-protection mechanism empowered by force sensors and algorithms
- Backdrivable joints



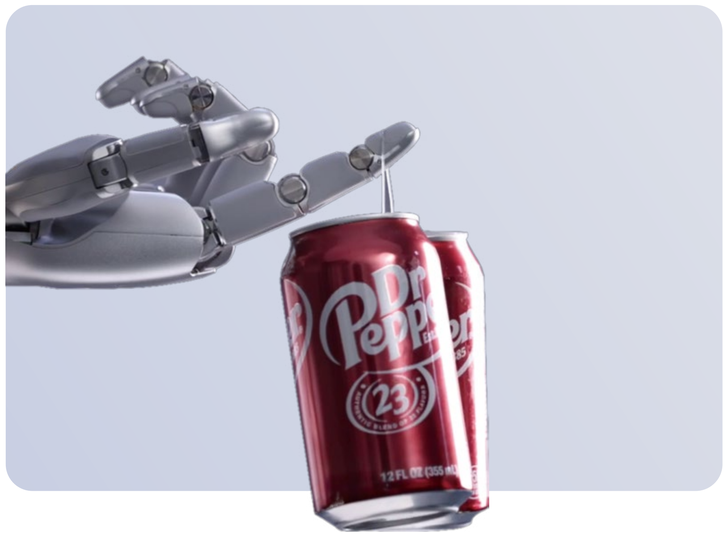
Unmatched Combination of Strength and Speed

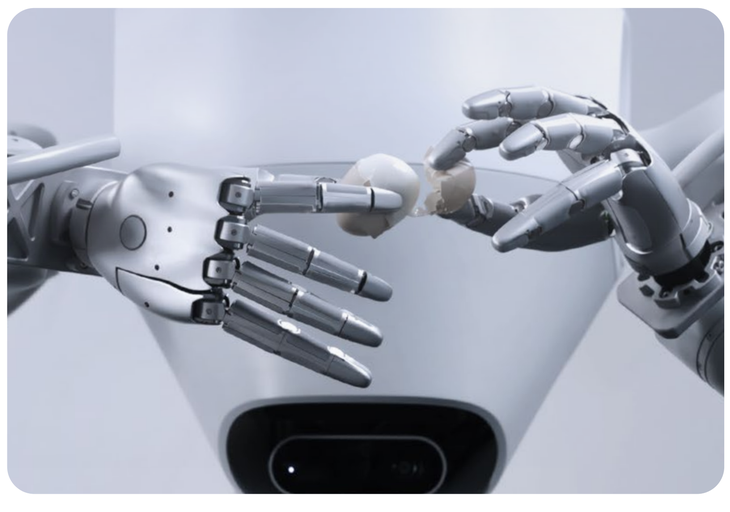
>22 N
fingertip strength

>4 Hz
operating speed



Advancing Dexterous Manipulation







Developer-Friendly Ecosystem

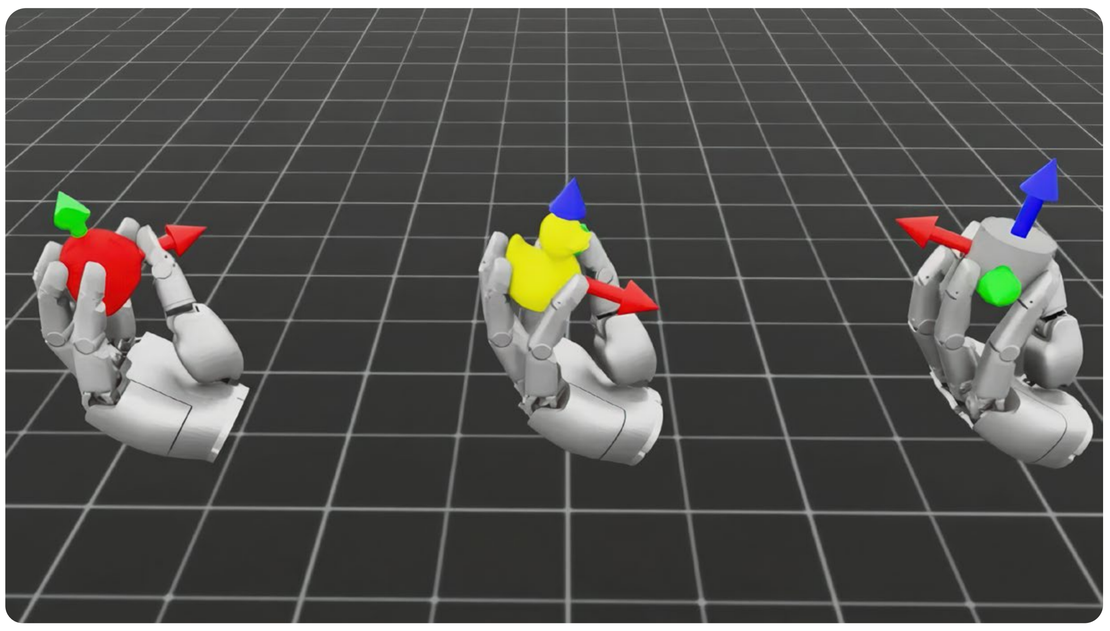
Sharpa Pilot APP

- Real-time visualization of hand state
- Direct teleoperation interface



Simulation Environment Compatibility

- Compatible with mainstream simulation platforms including Isaac Gym, Isaac Lab, PyBullet, and MuJoCo, providing **accurate kinematic and dynamic properties**
- Rich reinforcement learning examples for rapid onboarding and algorithm validation



Python & C++ SDKs

- ROS 2 (Robot Operating System) support
- Cross-platform compatibility (Linux and Mac)



Product Specifications

Hardware	
Weight	1.3 kg
Size	208 mm x 90 mm x 50 mm
Active Degrees of Freedom	22
Transmission Mechanism	22 proprietary multi-mode power modules
Four-Finger Lateral Swing	±20°
Minimum Grip Diameter	10 mm
Payload	40 kg
Grip Force	150 N
Fingertip Force	20 N
Operating Speed	>4 Hz
Operating Voltage	18 - 28 V
Static Current	0.75 A @ 20 V
Operating Temperature Range	0℃ to 45℃
Fingertip Positional Repeatability	±1 mm
Nominal Lifetime	Over 1,000,000 cycles

Tactile Sensor	
Number of Tactile Pixels	>1000 per fingertip
Force Detection Range	0.02 N
Maximum load	20 N
Spatial Resolution	<1 mm
Frame Rate	180 Hz
Force Detection	6 - dimensional force: Fx, Fy, Fz, Mx, My, Mz
Latency	20 ms
Tactile Sensor Lifetime	Over 100,000 press cycles (16 N normal force applied to the finger surface)

Software	
Host Computer Software	Sharpa Pilot
Software Tool	Sharpa Wave SDK
Communication Frequency	500 Hz
Communication Interface	1000 BASE - T Ethernet



Contact Us

Website: www.sharpa.com

Contact Sales: sales@sharpa.com

Connect with PR: pr@sharpa.com

Join Us: talent@sharpa.com

https://github.com/sharpa-robotics

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