

# KANGAROO

## TECHNICAL SPECIFICATIONS

### Height

1.45m (CoM 0.88m)

### Weight

40 k (12.5 per leg)

### DoF

6 actuated per leg

### Ball screw actuators

with Force Sensor

ROS BASED

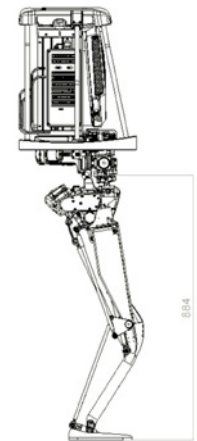
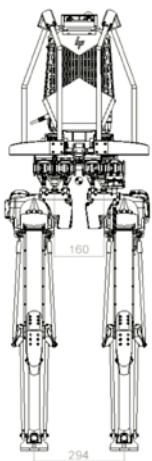
SIMPLIFIED AND FULL URDF MODELS

PROGRAMMABLE ELECTRONICS

## Strong and durable research platform

**Able to handle highly dynamic experiments and acrobatic motions.**

Kangaroo robot is a bipedal robot research platform to explore advanced control methods for legged locomotion. The robot is lightweight with low moving inertia in the legs and suitable for highly dynamic motions such as jumping and running.



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## TECHNICAL SPECIFICATIONS

### Actuators

Kangaroo incorporates custom linear actuators located close to the hip of the robot, providing a wide range of motion as well as high speed and torques at the joints.

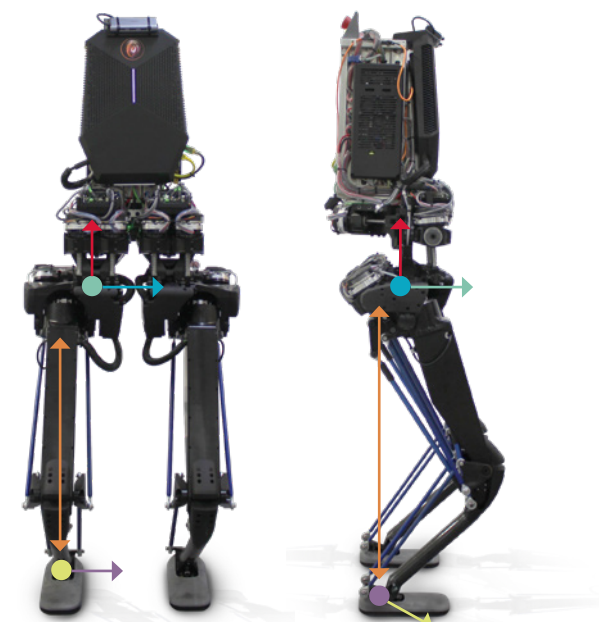
- HIP YAW
- HIP ROLL
- HIP PITCH
- LEG LENGTH
- ANKLE PITCH
- ANKLE ROLL



### Joints

The non-linear transmission parameters have been optimised to achieve the necessary speeds and torques for jumping requiring only low power while standing and walking.

- HIP YAW
- HIP ROLL
- HIP PITCH
- LEG LENGTH
- ANKLE PITCH
- ANKLE ROLL

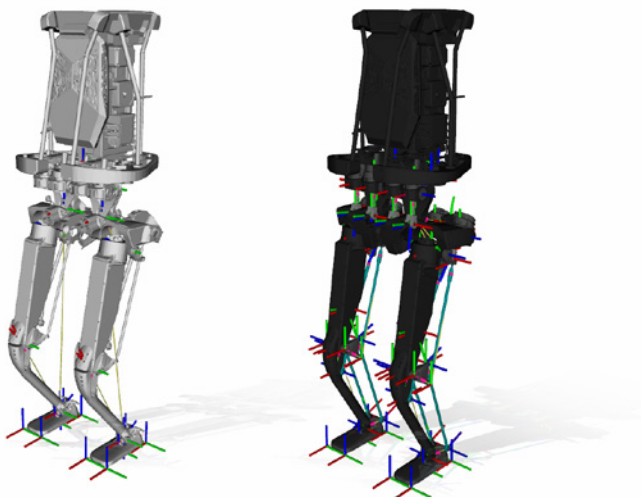


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## HARDWARE SPECIFICATIONS

ACTUATORS	Cont. force	Max force	Max speed	Nom. power	Max. power
Hip yaw	600 N	2 kN	0.4 m/s	230 W	400 W
Hip act 1	600 N	2 kN	0.4 m/s	230 W	400 W
Hip act 2	600 N	2 kN	0.4 m/s	230 W	400 W
Leg Length act	1450 N	5 kN	0.625 m/s	870 W	1600 W
Ankle act 1	600 N	2 kN	0.4 m/s	230 W	400 W
Ankle act 2	600 N	2 kN	0.4 m/s	230 W	400 W

JOINTS	Min. pos	Max. pos	Max speed	Max. torque/force (equivalent)
Hip Yaw	-15°	45°	8 rad/s	80 Nm
Hip Roll	-25°	+25°	9 rad/s	130 Nm
Hip Pitch	-42.5°	+42.5°	6 rad/s	230 Nm
Leg Length	0.132 m	0.715 m	3 m/s	1400 N
Ankle Pitch	-42.5°	42.5°	9 rad/s	140 Nm
Ankle Roll	-25°	25°	15 rad/s	80 Nm



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Strong and durable  
research platform

Scan the QR code for more information



On kangaroo  
planning and control  
software architecture



New frontiers of  
parallel robotics