

BRUCE

A kid-size humanoid robot open-platform for research and education.



BRUCE (Bipedal Robot Unit with Compliance Enhanced) is a kid-size humanoid robot open-platform for robotics research and education, originally developed at RoMeLa in joint effort with Westwood Robotics.

Highlight FEATURES



High-Performance Actuation

Thanks to the powerful Koala BEAR proprioceptive actuators and its unique liquid cooling technology, BRUCE is one of the few humanoid robots in the world that can jump.

Topology Optimized Biomimetic Design

Biomimetic design with deep topological optimization gives BRUCE an athlete-like physique. With lightweight construction and low inertia, great system transparency and agile foot control is achieved.

Light-Weight Carbon Fiber Structure

BRUCE features a carbon fiber composite structure, weighing only 4.8kg and offering an impressive 20 minutes* of continuous operation with a 3000mAh battery.

Modularity and Robustness

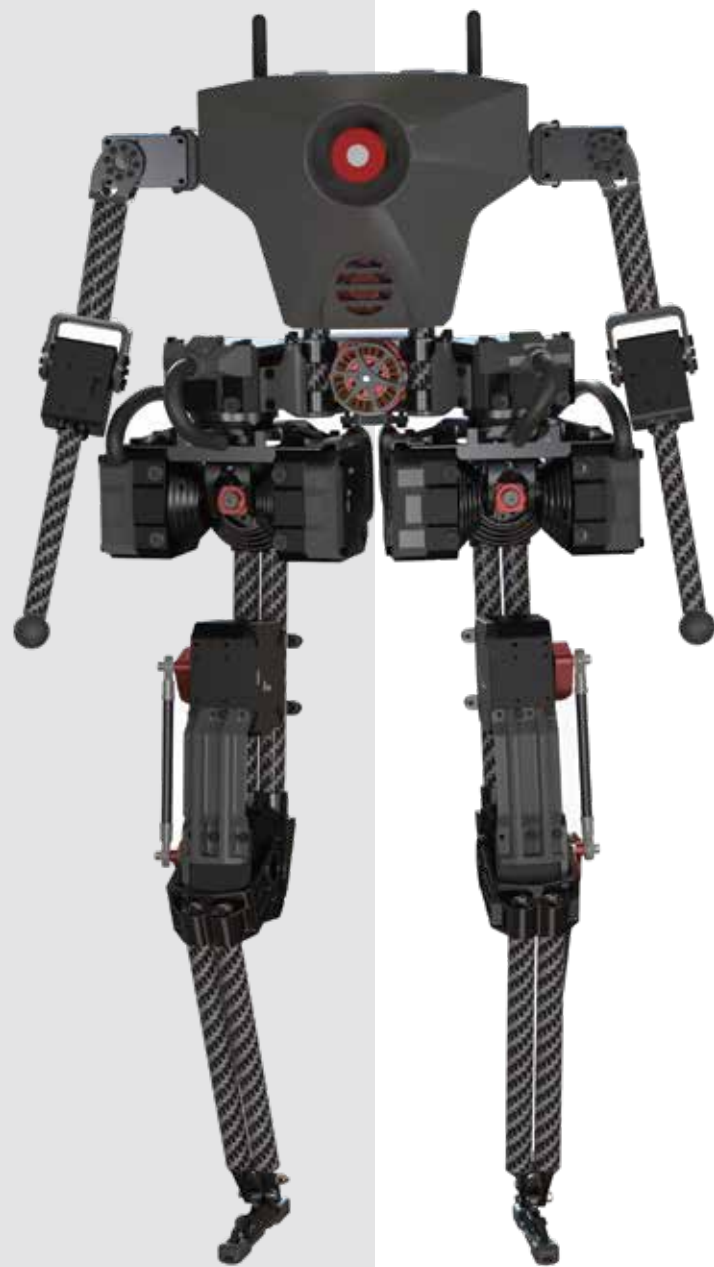
All 16 DoF on BRUCE are highly modular. While robot falling is inevitable, repairing BRUCE is simple and convenient. BRUCE is always ready to embrace your wildest ideas.

Open-Source, Open-Platform

As an open-platform**, We hope that BRUCE can contribute to the advancement of worldwide robotics research as well as better collaboration on a global scale.

* Actual battery life varies depending on factors like gait, terrain, payload, calibration, and temperature.
** BRUCE open-source project adopts the GNU General Public License V3. Westwood Robotics reserves the right to simplify certain features in the open-source design files.

westwoodrobotics.io/bruce/



Key Features of BRUCE Humanoid Open-Platform

- | | | |
|---|--|--|
| <p>01 +</p> <p>5 DoF each leg
3 Dof each arm
16 DoF in total</p> | <p>02 +</p> <p>Weighs only 4.8kg
Total height 70cm
3000mAh battery</p> | <p>03 +</p> <p>Wireless E-Stop
with
independent remote</p> |
| <p>04 +</p> <p>Controlled over
SSH via WLAN
or remote via BT</p> | <p>05 +</p> <p>Leg actuators weigh
only 250g each
and burst over 8Nm</p> | <p>06 +</p> <p>Liquid-cooled
knee actuators</p> |
| <p>07 +</p> <p>4 contact sensors
6 Dof IMU
sensing at 2kHz</p> | <p>08 +</p> <p>6TOPS Computer
8GB + 32GB
Supports mainstream
deep learning frameworks</p> | <p>09 +</p> <p>Capable of
dynamic walking
running and jumping</p> |
| <p>10 +</p> <p>Variable-cycle
MPC algorithm</p> | <p>11 +</p> <p>Open-source
software and model</p> | <p>12 +</p> <p>Actively evolving
Github Repo
and Wikipedia</p> |

Learn more about BRUCE:
westwoodrobotics.io/bruce/

Get your BRUCE:
westwoodrobotics.io/bruce-application-form/

