



Motion Capture Facilities

Large experimental room equipped with an optoelectronic Motion Capture System to compute the position of reflective markers, force plates embedded in the floor to measure ground reaction forces, 6-axis force sensors to measure additional force contacts, wireless EMG to measure the activity of muscles. The system is provided with a processing software to reconstruct the whole-body dynamics and identify key elements of the musculoskeletal activity.



Key Features

- 16 wireless EMG sensors
- Ergocycle Lode excalibur with six cells sensors at the handlebars, the seat and the pedals
- 2 additional 6-axis force sensors to record additional contact forces (e.g, at the hand)
- Two force plates embedded in the floor to measure ground reaction forces
- 14 High resolution infrared cameras providing accurate positioning of reflecting markers
- Isokinetic ergometer Biodex to quantify mechanical joint power, torque and/or velocity

Possible Applications

- Transfer of human movement to humanoid robots
- Motion Ergonomics
- Human Motion analysis and Biomechanics
- Robot localization and state reconstruction
- Virtual reality

Access information

Corresponding infrastructure	Centre national de la recherche scientifique The Department of Robotics of LAAS
Location	7 Avenue du Colonel Roche, 31400 Toulouse, France
Unit of access	Working day



Technical specifications

Wireless EMG	Mini wave from Cometa with 16 sensors equipped with 3D accelerometers
force sensors	2 SENSIX K27x63F25270 6-axis force sensor, frequency 800Hz on each axis, simultaneous measurement extent: force-axes 1010 N, torque-axes 175 N.m
Embedded force platforms	2 AMTI force platforms (180*90) and (45*45) useful for gait and postural analysis
MOCAP	Several Optoelectronic systems (Optitrack, Vicon, Motion Analysis) including a networks of high-resolution infrared cameras and advanced data processing software.
software	Nexus 2.7 for 3D reconstruction using Vicon

Additional information

<https://www.laas.fr/public/en/robots-platform>