

## A high performance mechatronic physical model of an articulated human leg

CSIC, the Brije Universiteit Brussels and The Jožef Stefan Institute have developed a high performance mechatronic physical model of the human leg, articulated and actuated in the knee, to serve as a testbench of human-exoskeleton interaction dynamics.

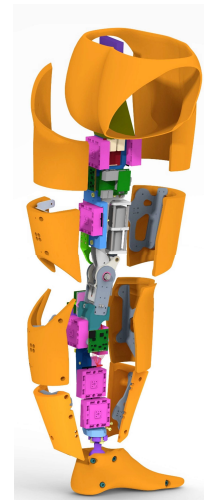
Industrial partners from the medical industry are being sought to collaborate through a patent licence agreement.

### An offer for Patent Licensing

#### A mecatronic leg replica

The technology consists on a high performance mechatronic physical model of the human leg, articulated and actuated in the knee, which replicate the skin properties of human leg and measure the forces transmitted to an external exoskeleton, to serve as a testbench of human-exoskeleton interaction dynamics.

The Leg replica includes: Leg kinematic dimensions according to a standard leg, leg external shape according to 3D scans, bespoke internal aluminum support structure, 3D printed plastic shell, reinforced with aluminum, eight load cells rated at 200N and 500N, and passive ankle and hip joint.



Leg Prototype at Cajal Institute, CSIC

#### Main innovations and advantages

- A robotic human-like leg is developed to:
  - Benchmark safety of human exoskeleton interaction.
  - Replicate human joint dynamics.
  - Measure the interaction with an exoskeleton and
  - Define when such interaction is safe.
- The project is expected to contribute to fill the safety knowledge gap currently existing in the exoskeleton field, and to facilitate the market uptake of safer systems through a faster and reliable CE-marking process.

#### Patent Status

Priority patent application filed suitable for international extension

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