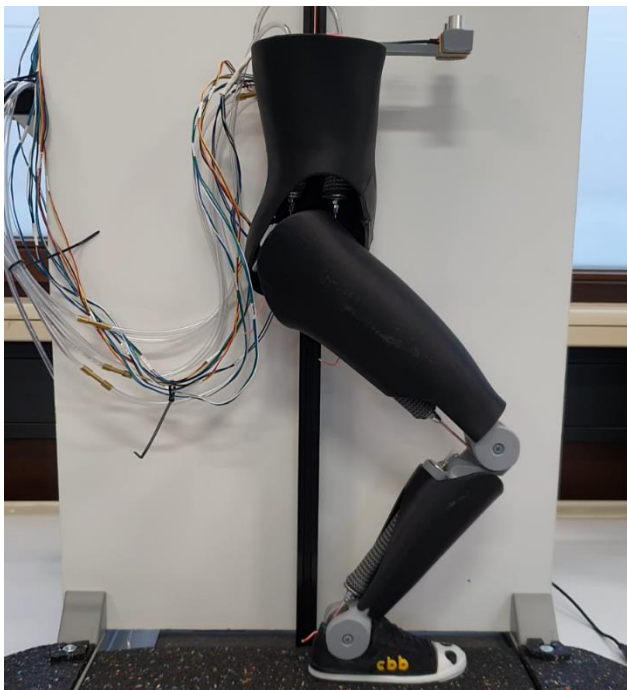


Construction and Control of a Servo-Driven Leg Robot

Background

Bioinspired robotics is a rapidly advancing field that draws inspiration from biological systems. This approach holds immense potential for innovative developments, including the design of more efficient and adaptable robots.

Our group specializes in the simulation of human biomechanics and the **construction and control of robots actuated by pneumatic artificial muscles (PAMs)**. In a previous project, we successfully built a PAM actuated **robotic leg trained to perform jumps through reinforcement learning**.



Description

This project aims to **explore the benefits and limitations of our biomimetic prototype compared to servo driven alternatives**. To this end, **a torque-driven leg prototype will be designed and built** using modern manufacturing techniques including 3D printing and laser cutting. Ultimately, **the robot's jumping performance should be evaluated**.

Passion for working with hardware and the motivation to improve technical skills are essential for successful participation in this project.

**Institute for Modelling
and Simulation of
Biomechanical Systems**

Supervisor:
Syn Schmitt

Advisor:
Sven Schepp

Type:
Master's Thesis

Research Area:
CAD, Sensors, Electrical
Components, Biomimetics

Skills:
CAD,
Basic skills in
Electrical/Mechanical
Engineering,
Programming (python)

Language:
English, German

Term:
WS 24/25

Please contact us for more
information:

E-Mail:
[sven-robin.schepp
@imsb.uni-stuttgart.de](mailto:sven-robin.schepp@imsb.uni-stuttgart.de)

Webpage:
[https://www.imsb.uni-
stuttgart.de](https://www.imsb.uni-stuttgart.de)