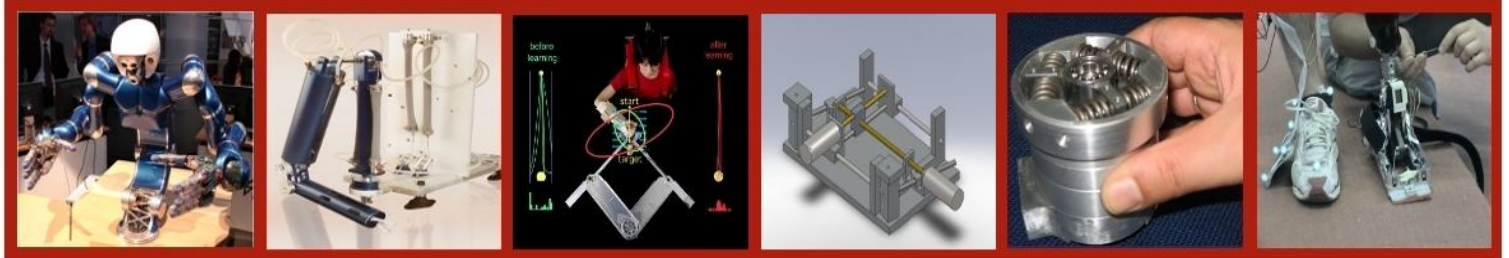


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Robotics &
Multibody
Mechanics Res.
Group, Univ.
Brussels, Belgium



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Brain and
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Dep. of Electrical
Engineering,
University of
Twente,
the Netherlands

Imperial College
London

Dep. of
Bioengineering,
Imperial College,
London, UK



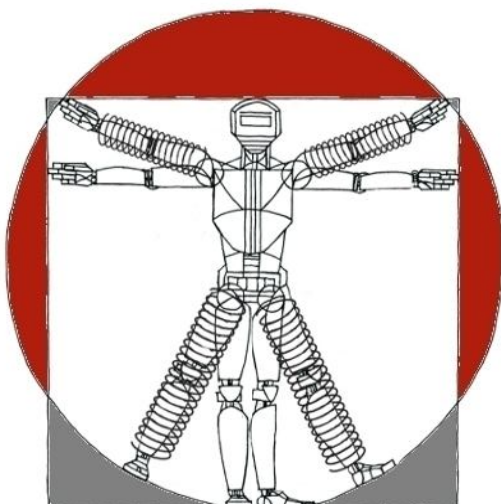
Interdpt. Research
Center "E. Piaggio",
University of Pisa,
Italy



Institute of
Robotics and
Mechatronics,
DLR, Germany

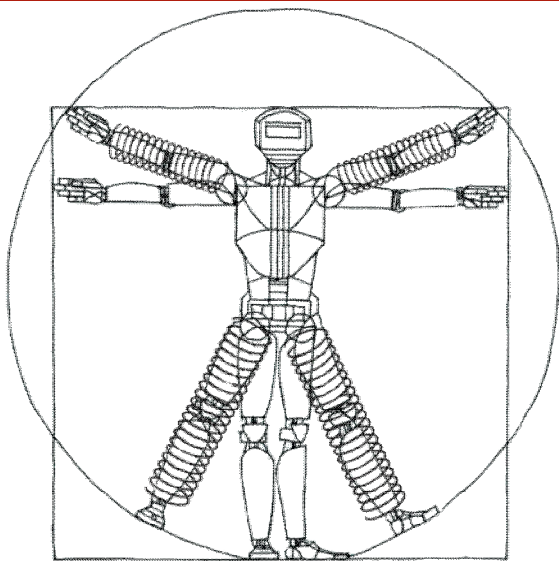
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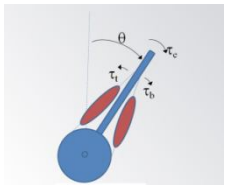
Variable Impedance **ACT**uation systems
embodying advanced interaction
behavi**ORS**



VIATORS aims at developing and exploiting new actuation technologies for the next generation of robots that can coexist and cooperate with people, and get much closer to the human performance in manipulation and locomotion than today's robots do.

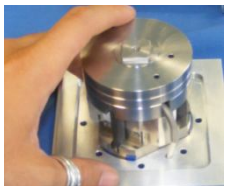
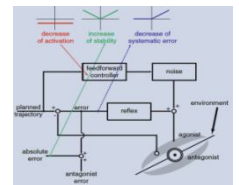
The guiding idea for designing the new robots is embodying in the morphology of the system a substantial part of the necessary intelligence, in such a way that the system will be passively safe, efficient, compliant, and adaptable to different tasks.

INVESTIGATION DOMAINS



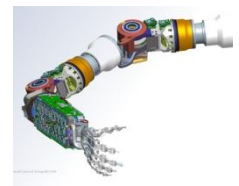
Principles of Embodied Intelligence: mathematical, physical, neuroscientific and technological bases of VIA

Biological Neuro - Mechanical Control: the principles governing human motor control



Actuators: development, exploitation and integration of variable impedance actuators (VIA)

Manipulation: more robust, more efficient, faster grasping and handling of objects



Locomotion: fast, energy-efficient, and stable walking and running

Rehabilitation: design of safe, human-compliant devices



By looking at the principles which enable the high efficiency and performance of motion in biological systems, and applying them to the design new robotic actuators, robotics research can make considerable advances.

VIATORS technology will pave the way towards new application fields, such as industrial co-workers, household robots, advanced prostheses and rehabilitation devices, and autonomous robots for exploration of space and hostile environments. Therefore, results of this project aim at impacting on applications where successful task completion requires people and robots to collaborate directly in a shared workspace or robots to move autonomously and as efficiently as humans.

For further information: www.viactors.org