(Force Controlled) iCub Balancing

Competences:

- Control theory
- Dynamic modeling
- Programming (C++)
- Biomechanics?
- Human motor control?
Growing interest in the research community on the development of “soft” robotic systems

Other works within RBCS on this topic focused on the design of soft hands

- Antagonistic actuation
- Tendon driven
- Monolateral contact joints

These principles have been successfully integrated in the DLR HAND III system [Grebenstein et al. 2010] (see photos)

Competences:
- machine/mechanism design skills
- usage of 3D parametric CAD programs (ideally ProE)
- knowledge of the properties of and processes for polymeric materials
Muscle Synergies and Cocontraction

Competences:
- Human motor control
- Biomechanics
- Dynamic modeling
- Data analysis

EMG Signals
- Biceps
- Triceps
- Ag1
- Ag2
- Ant1

Velocity Dependent Force Field
- Initial Trials
- After Learning
- After Effects

Tendon

Divergent Field

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