Instituto Superior Técnico
Universidade Técnica de Lisboa

SURGICAL ROBOTICS
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4th Summer School

HipRob

Robot-Assisted Hip Resurfacing Arthroplasty

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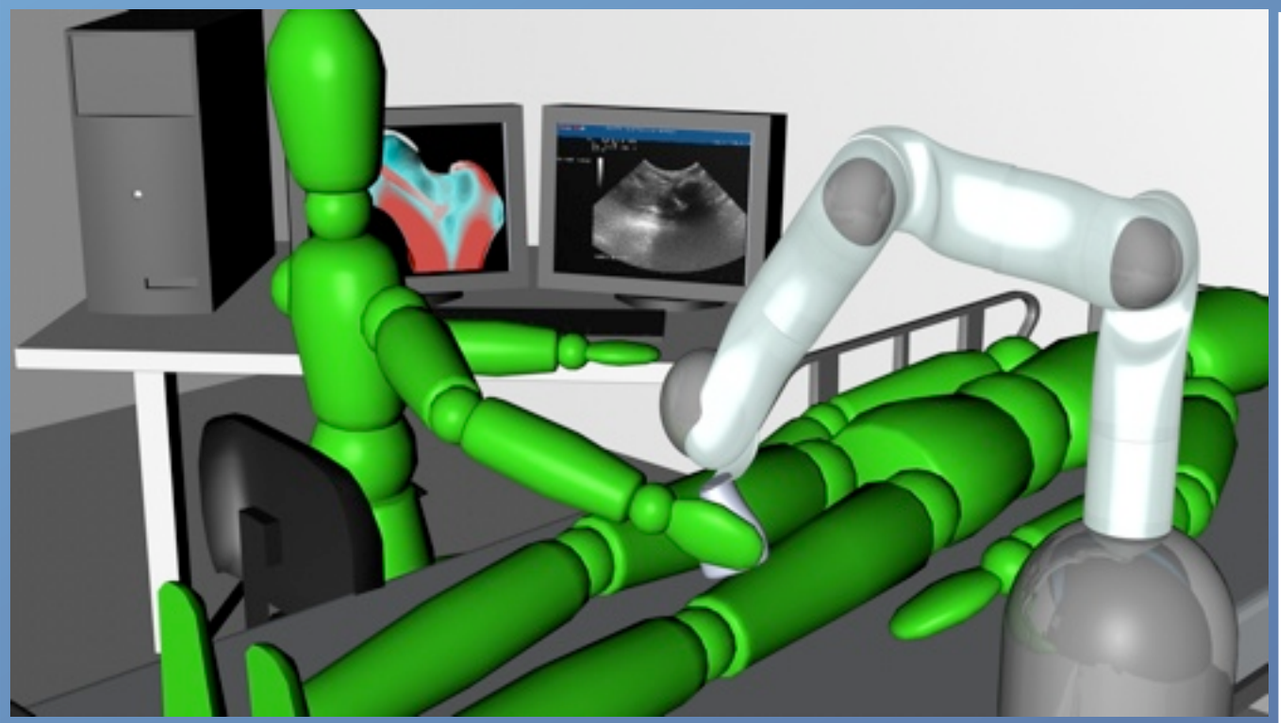
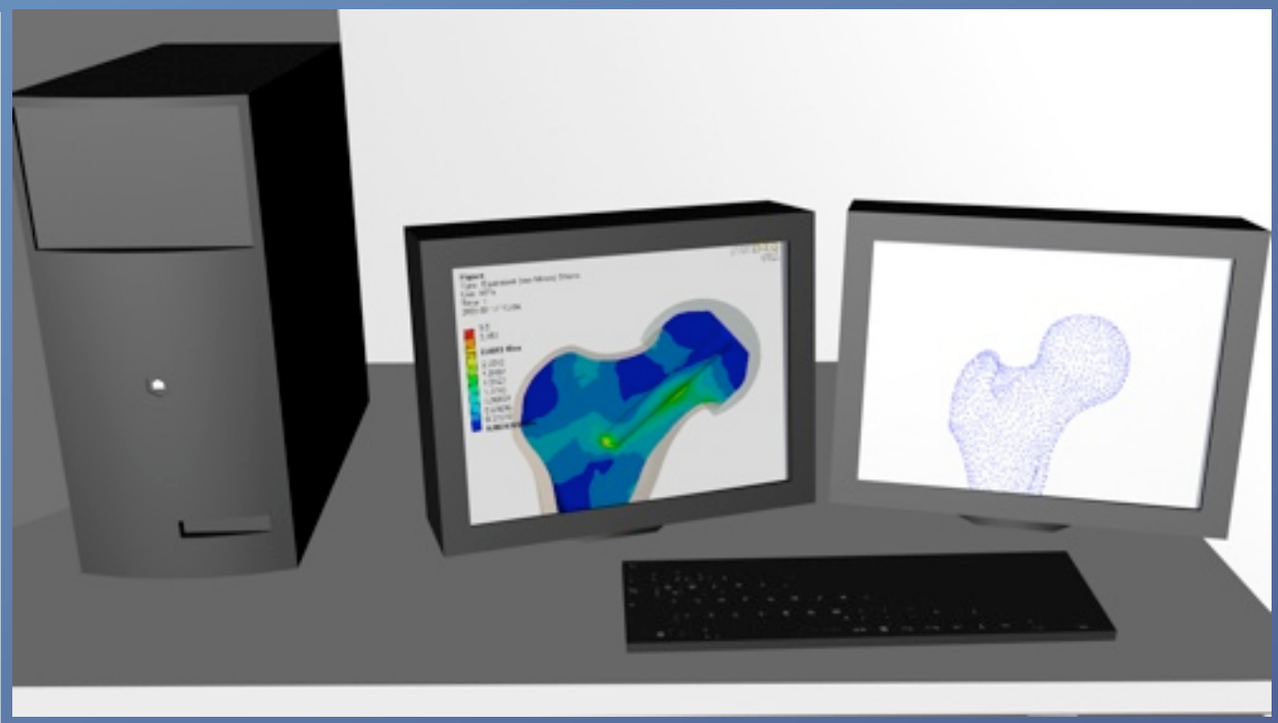
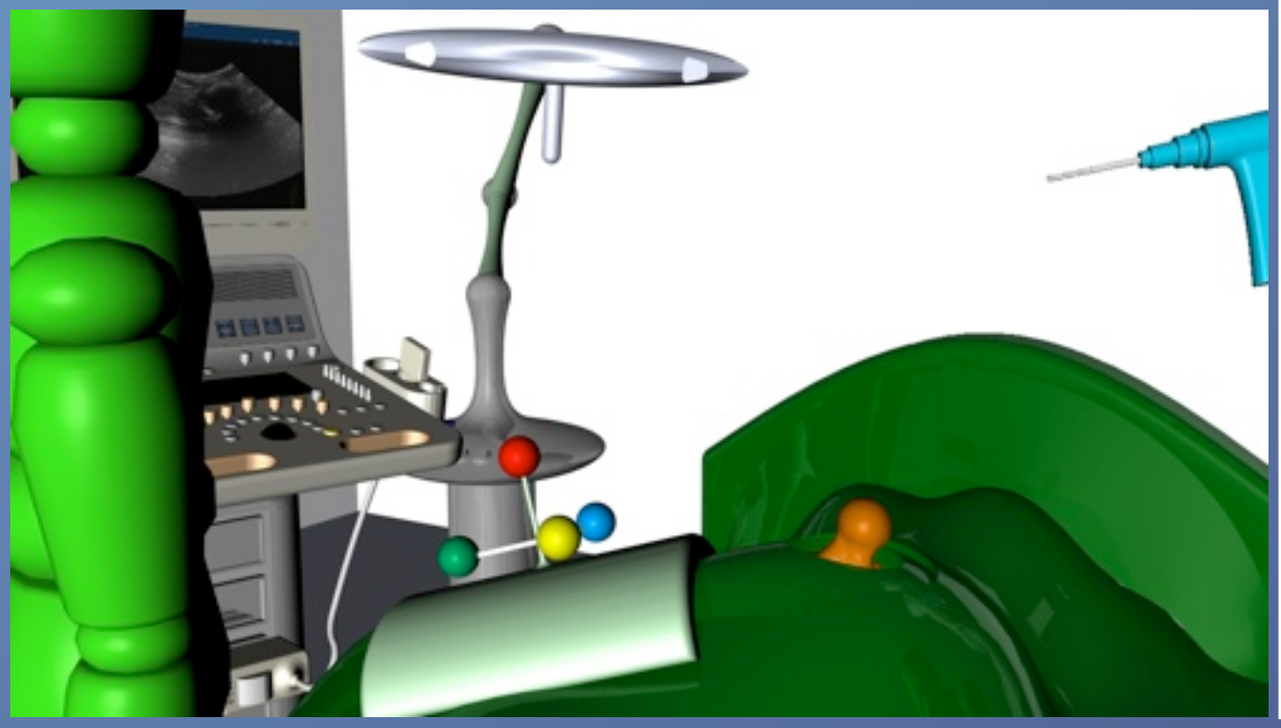
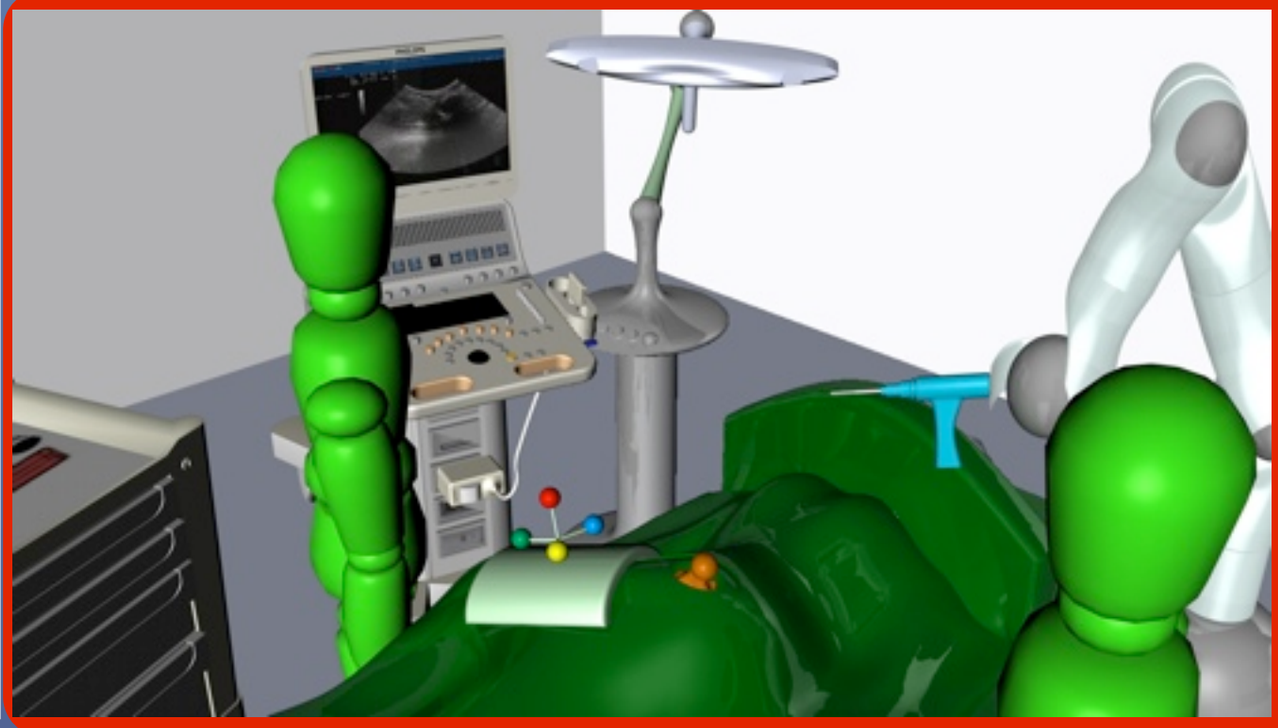
IST engenharia mecânica

HipRob project overview







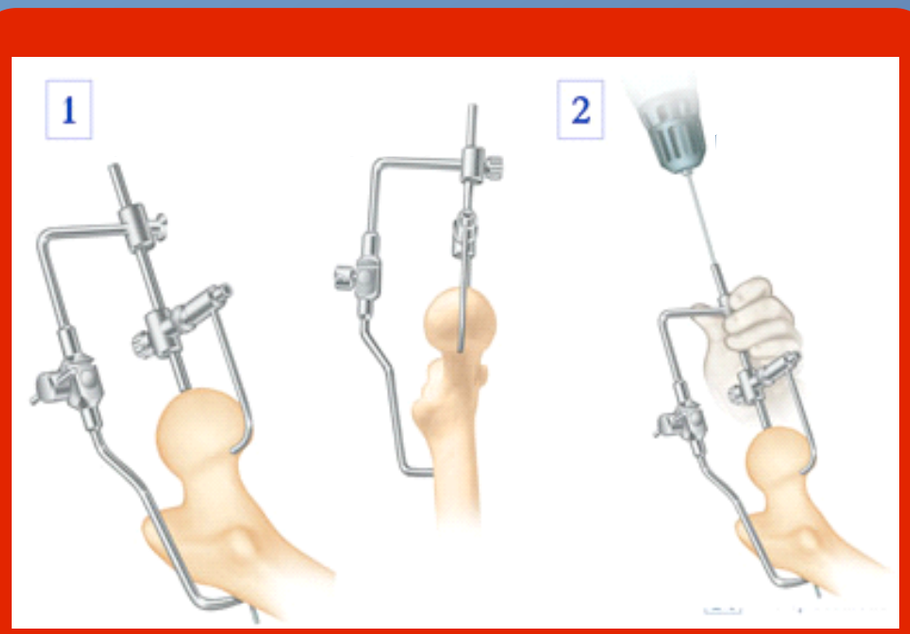


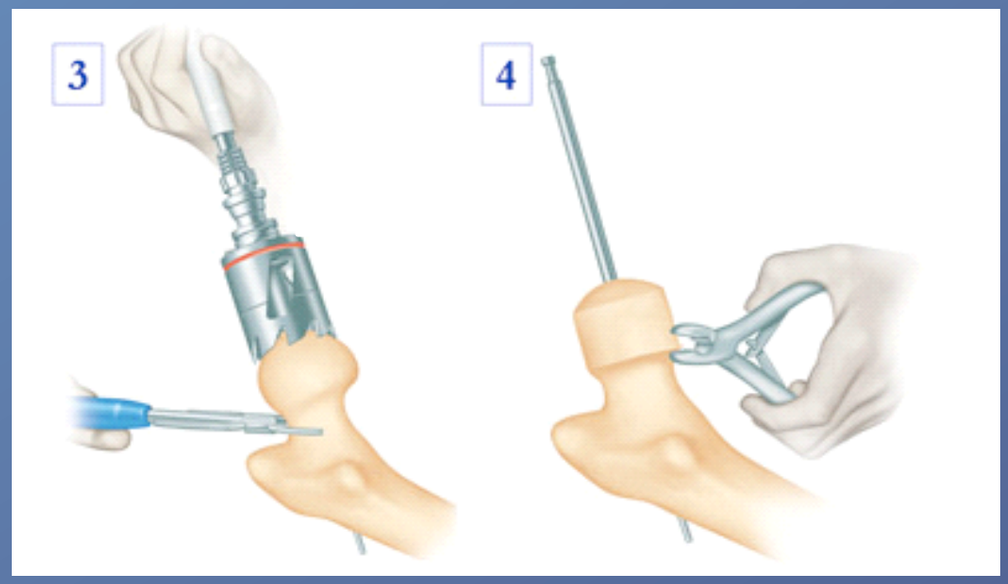
Robot-Assisted Hip Resurfacing Arthroplasty

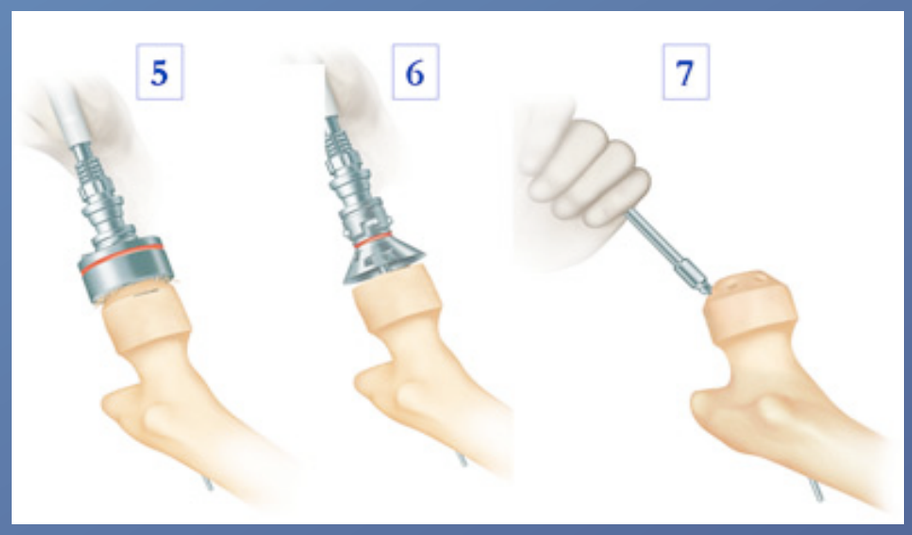
Objectives:

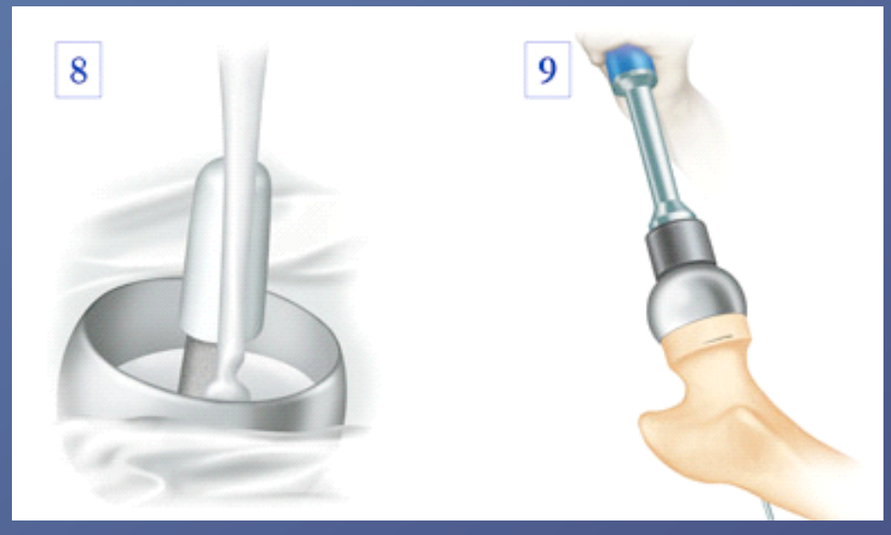
- Create a new **Flexible** Robot Manipulator for Total Hip Resurfacing Surgery;
- Surgeon is in physical control of all surgical procedure;
- Safety is guaranteed in the patient-surgeon-robot interaction;
- Increase of surgery accuracy and precision;
- Decrease the procedure duration.

Surgery procedure



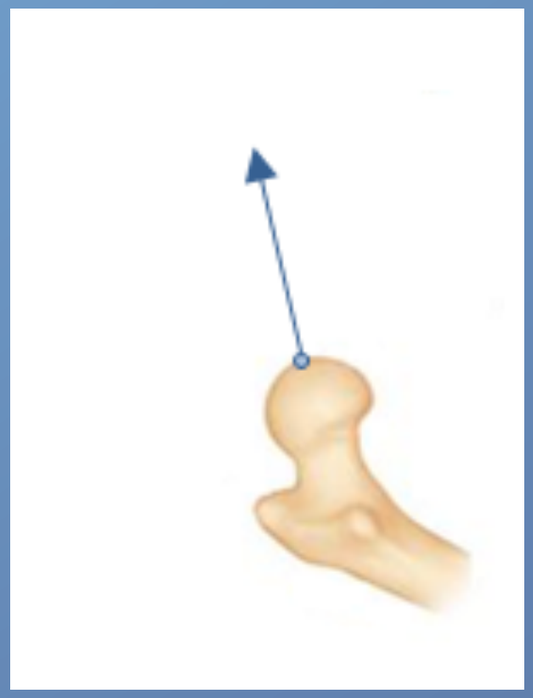






Variable Impedance Control Technique

Desired Orientation



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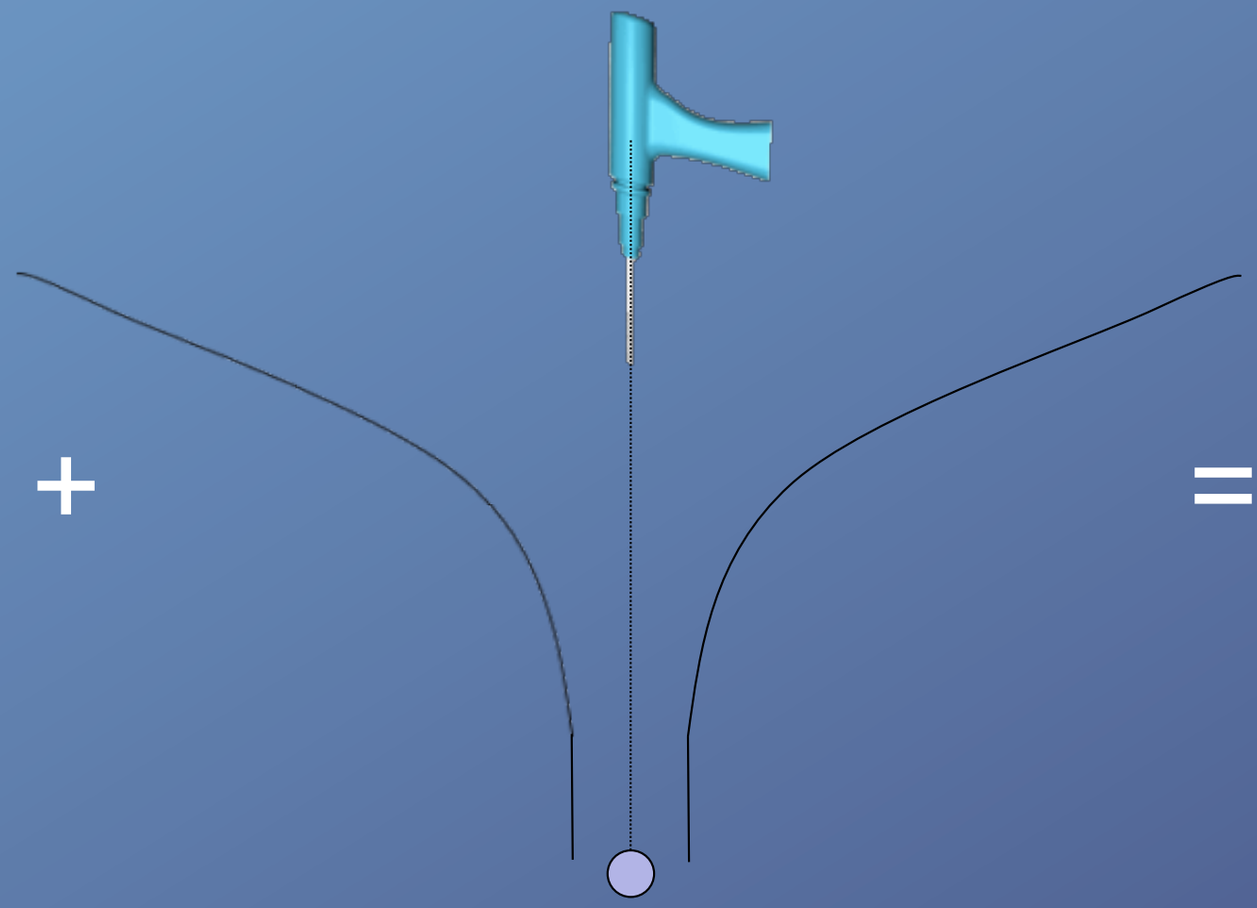
Impedance Controller Environment



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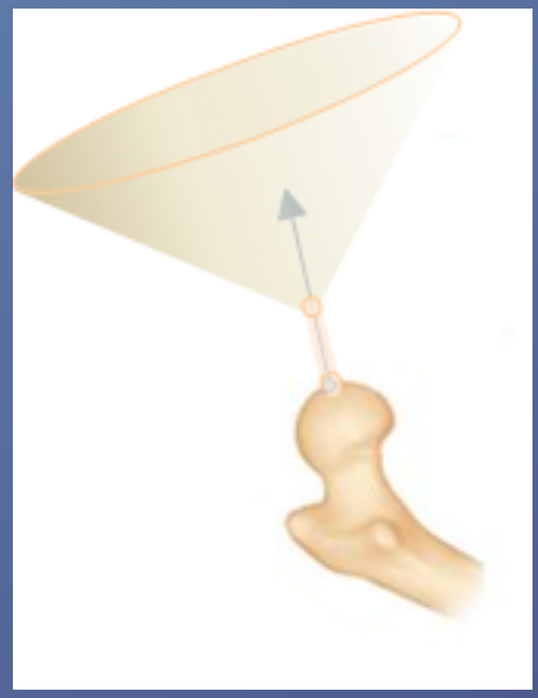
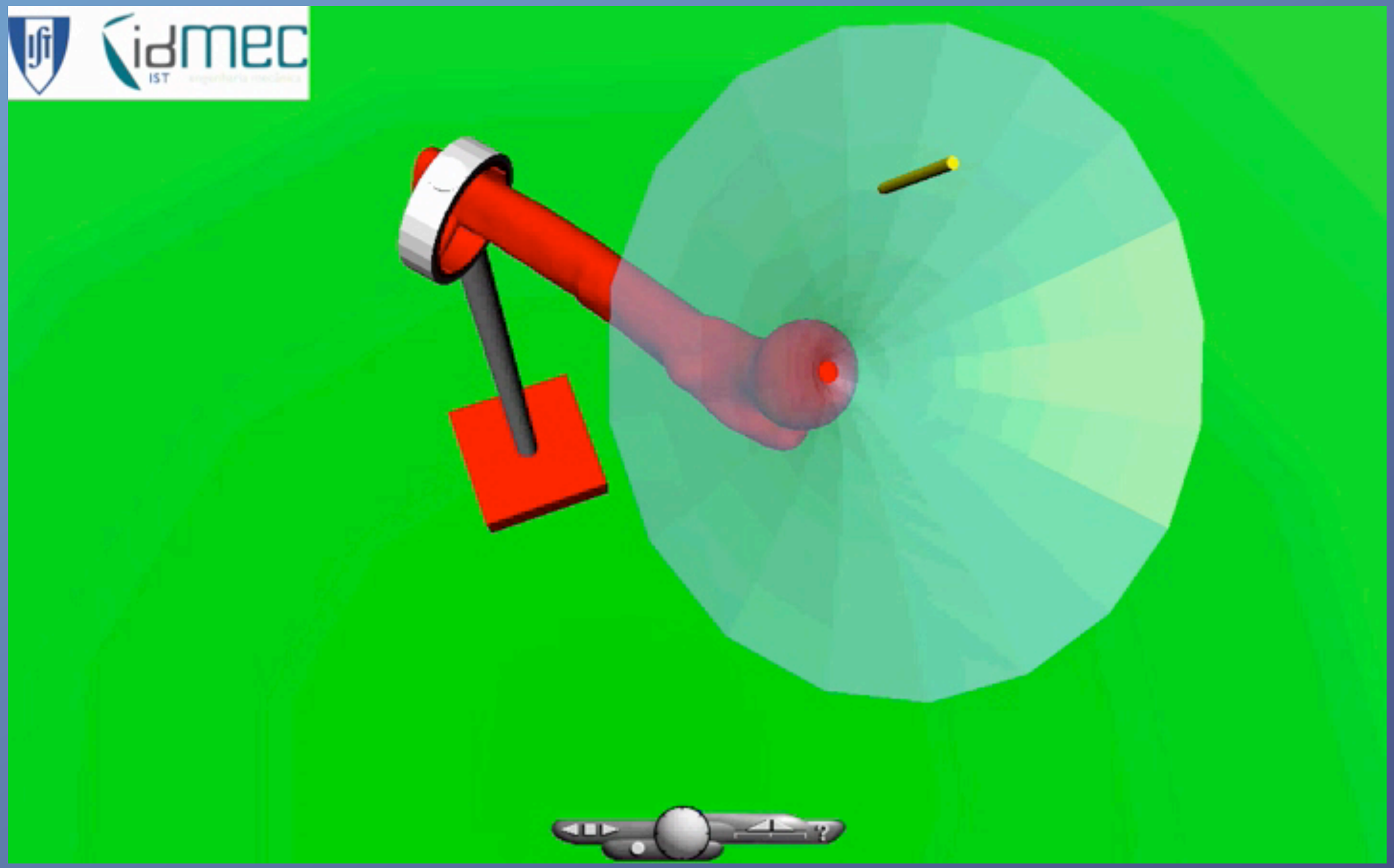
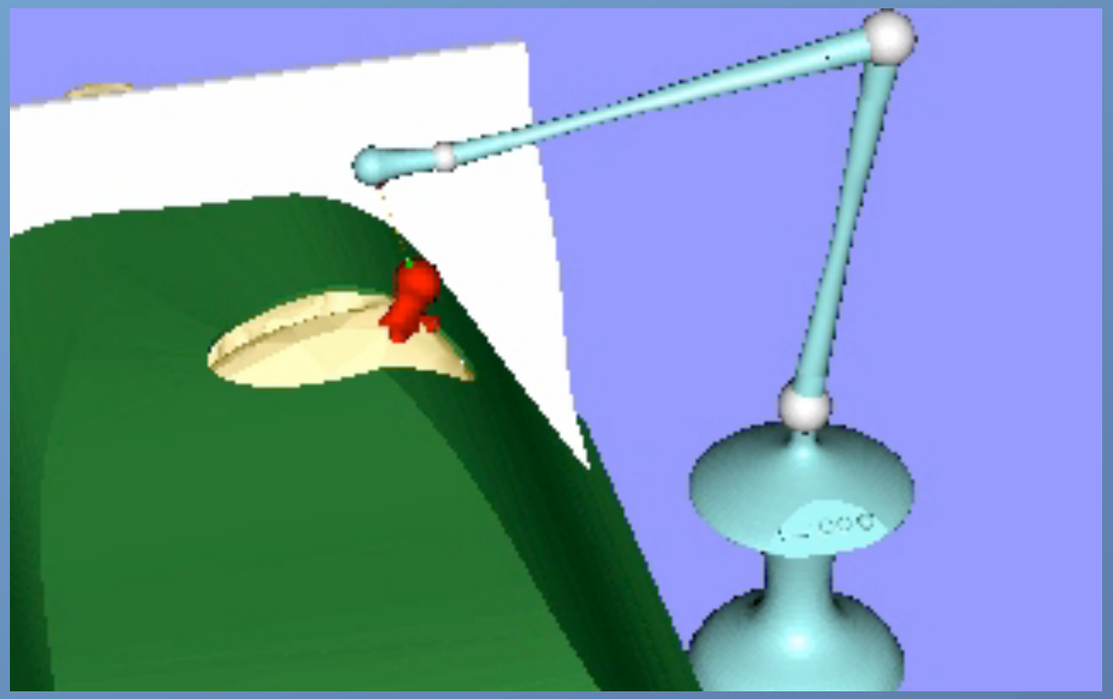
Desired Orientation with Impedance Controller Environment

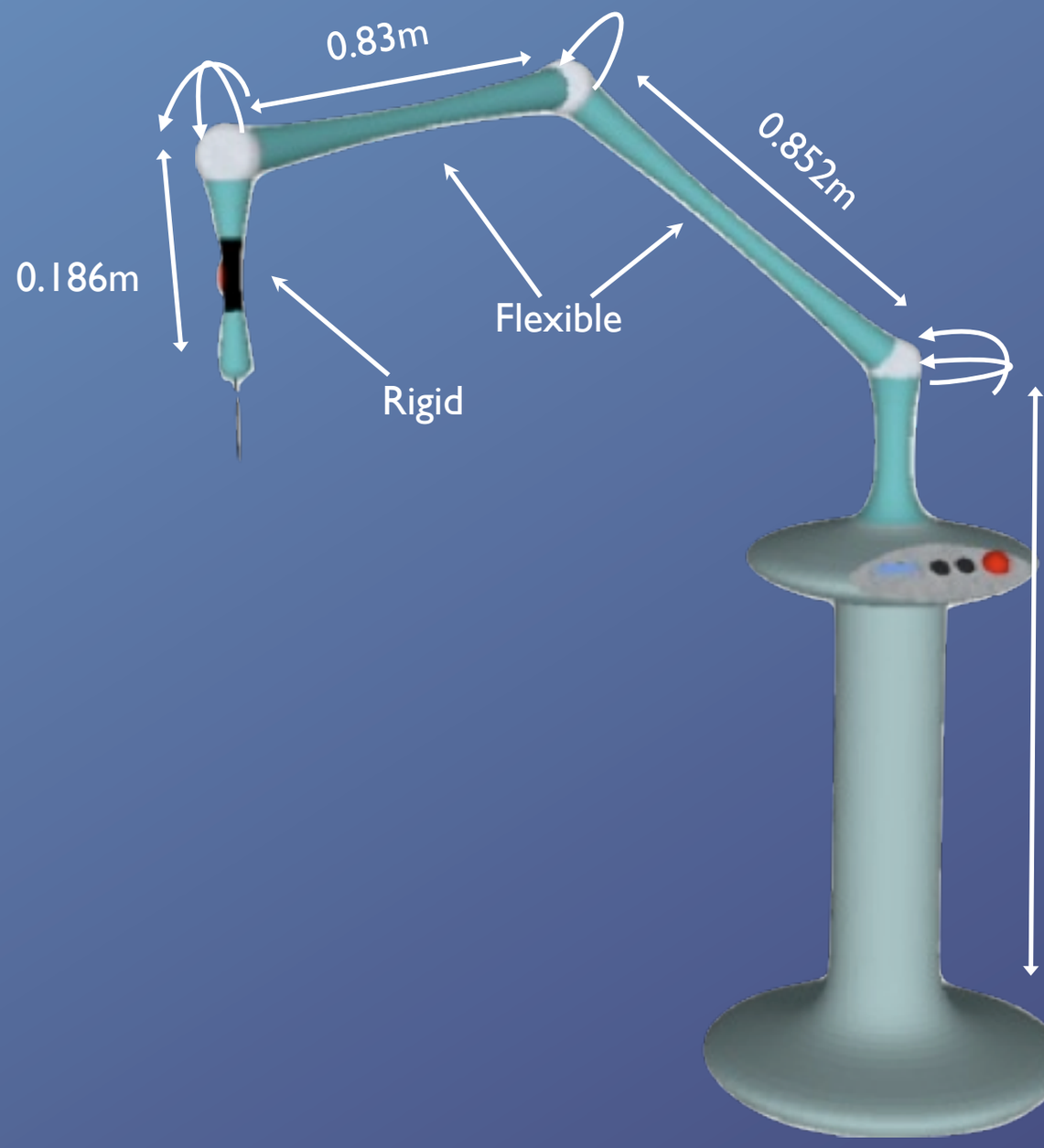


Variable Impedance Control Technique



Flexible Robot Manipulator Control





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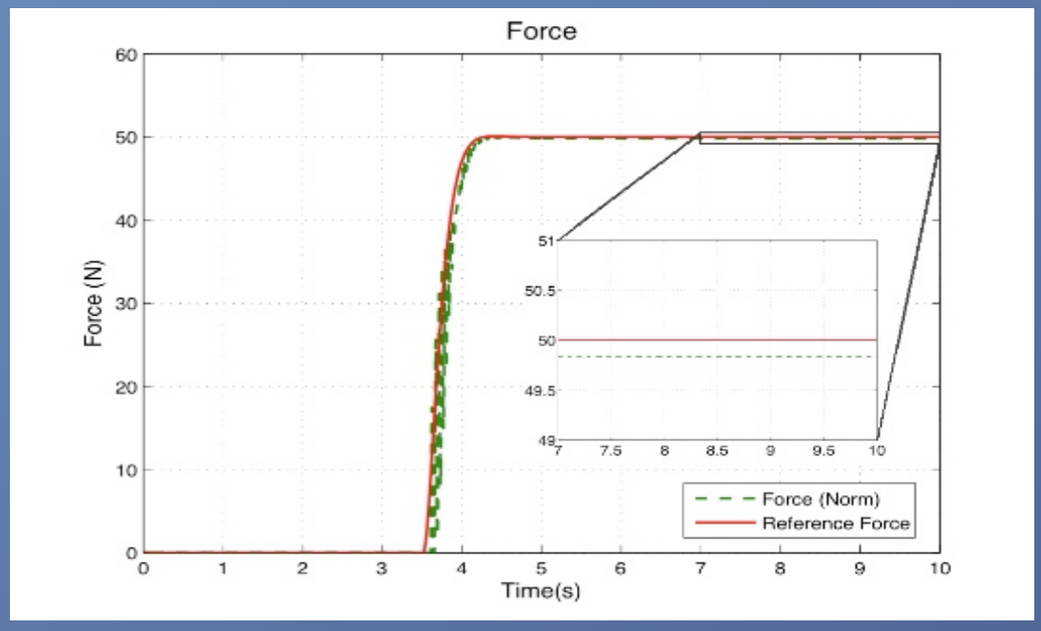

Robotic Assisted Orthopedic Surgery