



Institut de Robòtica i
Informàtica Industrial

INOVATION ACTION
HORIZON-CL4-2021-DIGITAL-EMERGING-01-101070600

SOFTENABLE



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USE-CASES

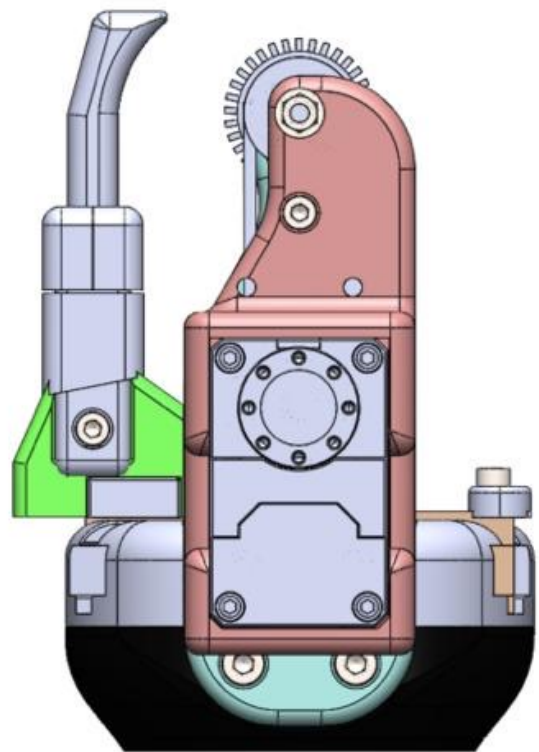
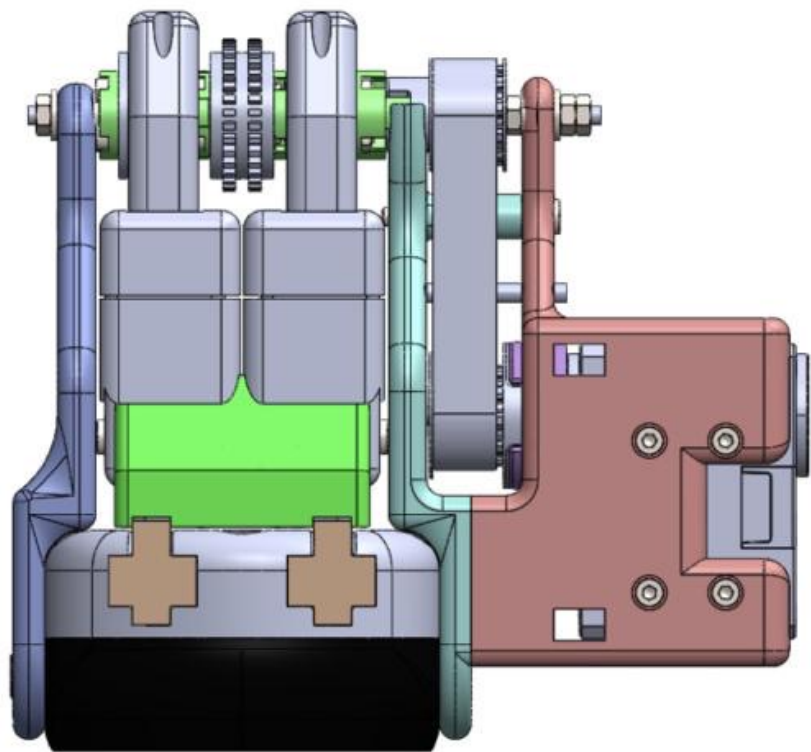
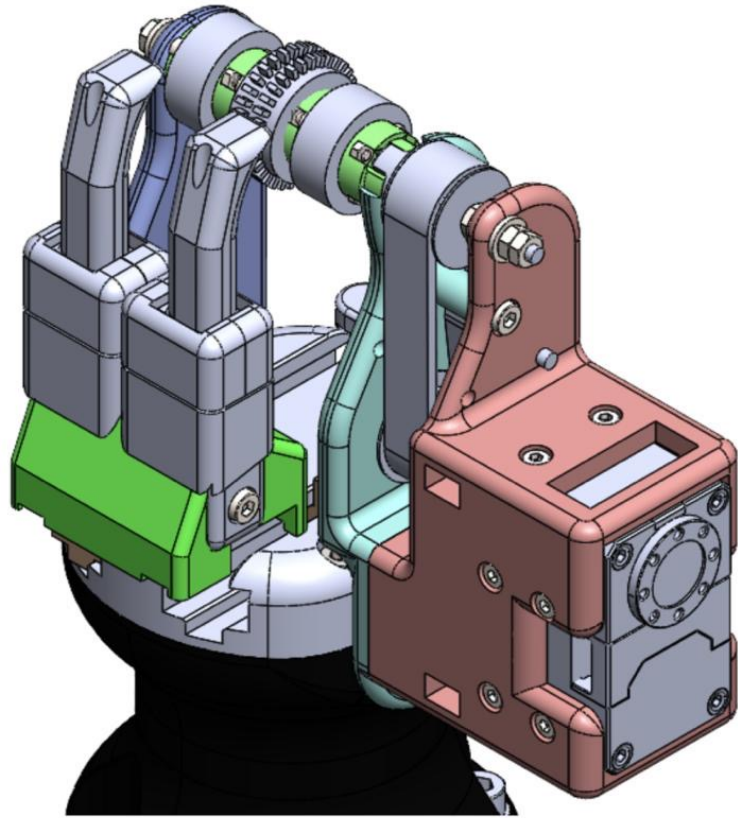
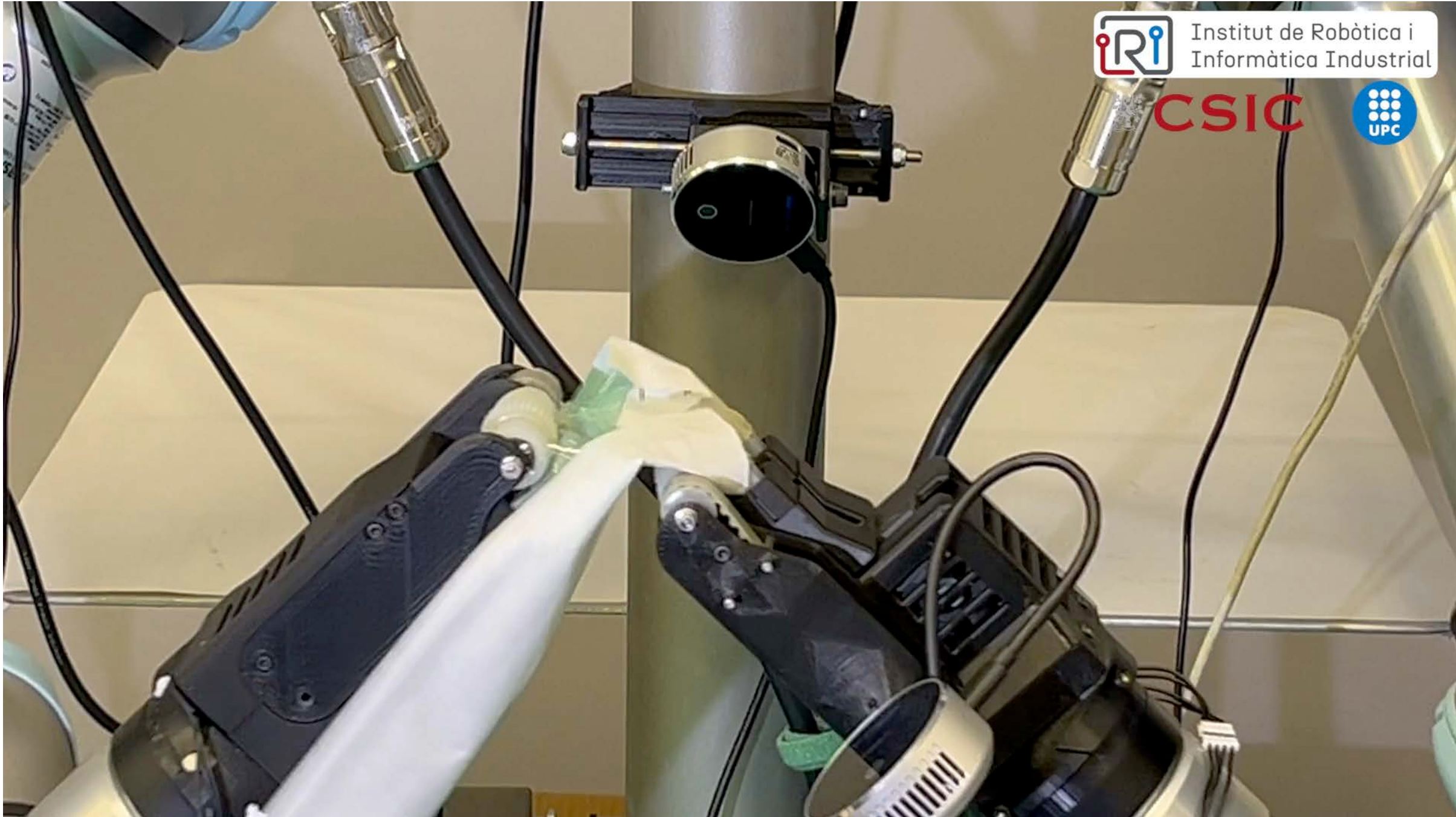
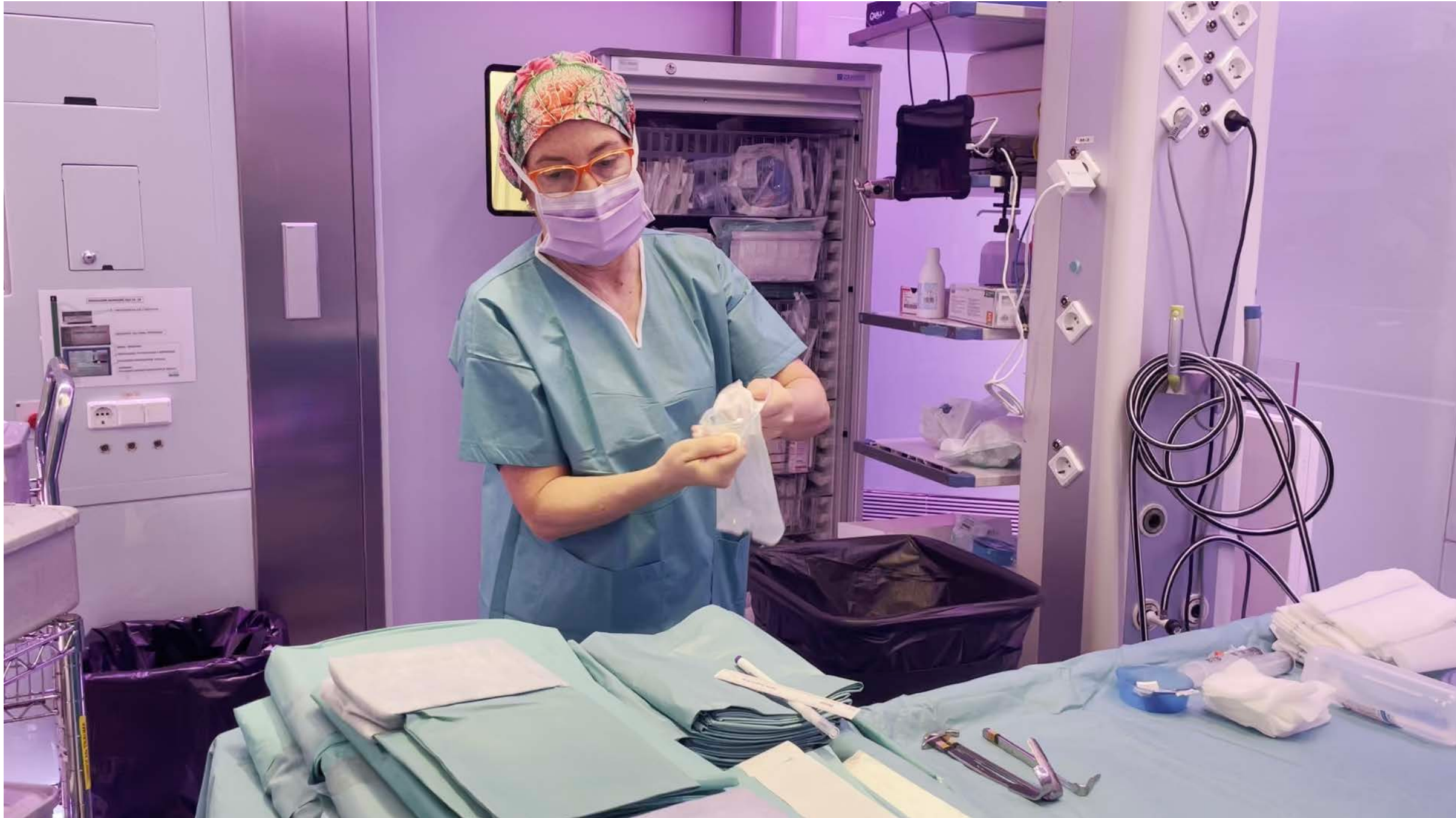


Manipulation of raw fish and meat - OCADO (UK)



Handling of PPE in hospitals - Hospital Clínic de Barcelona

OPENING OF MEDICAL POUCHES



IMPLEMENTATION OF PRIMITIVES FOR HANDLING MEDICAL GOWNS



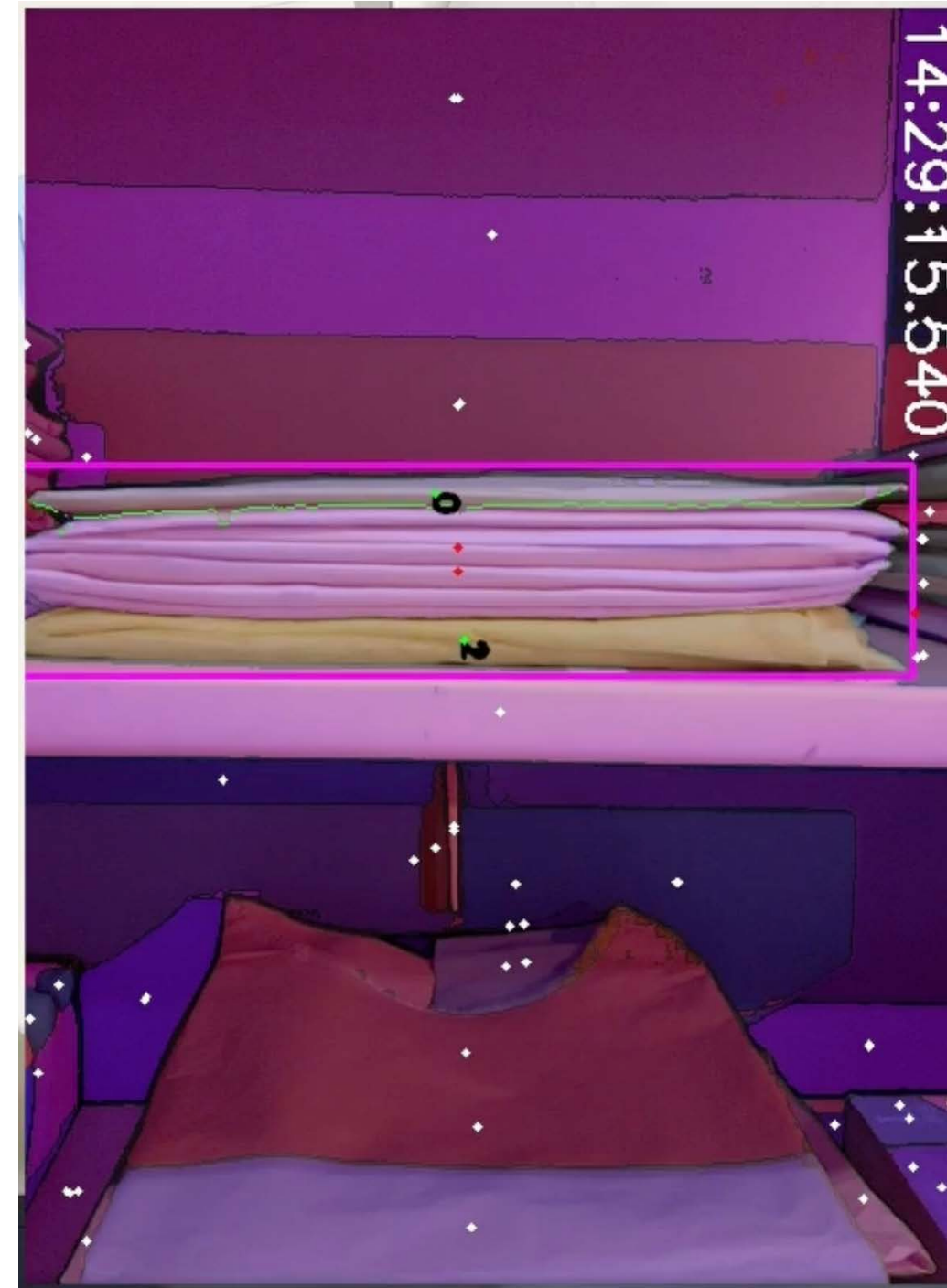
► Unpiling primitives



Perception

Wrist camera

Detect pile + Segment insertion line

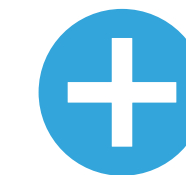


Grounding DINO & SAM2

Motion

Combination of motion primitives

Depend on gripper geometry



IMPLEMENTATION OF PRIMITIVES FOR HANDLING MEDICAL GOWNS



► Grasping for unfolding: the pre-dressing step

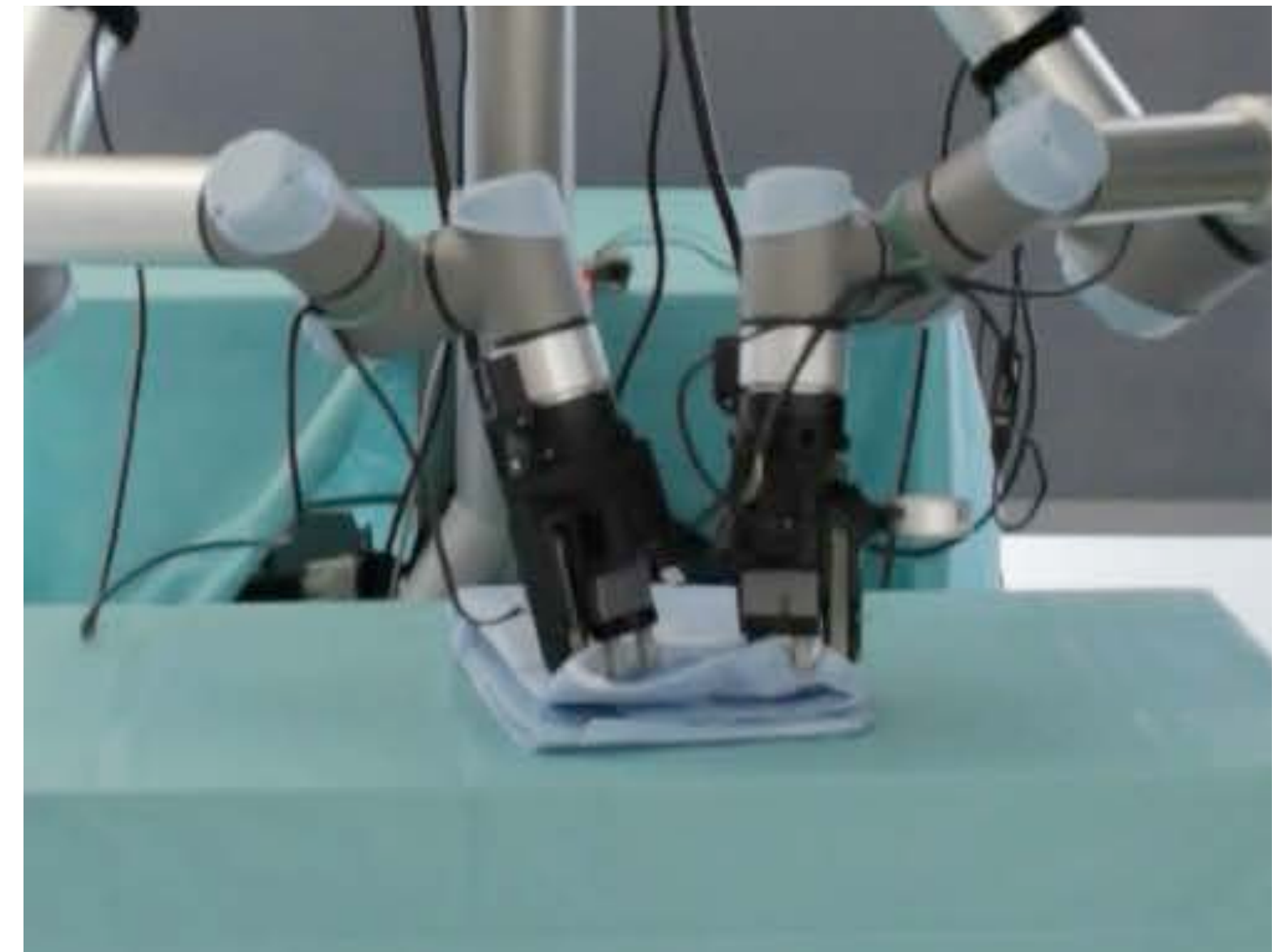
Perception

Neck recognition with
segmentation & DINOv3

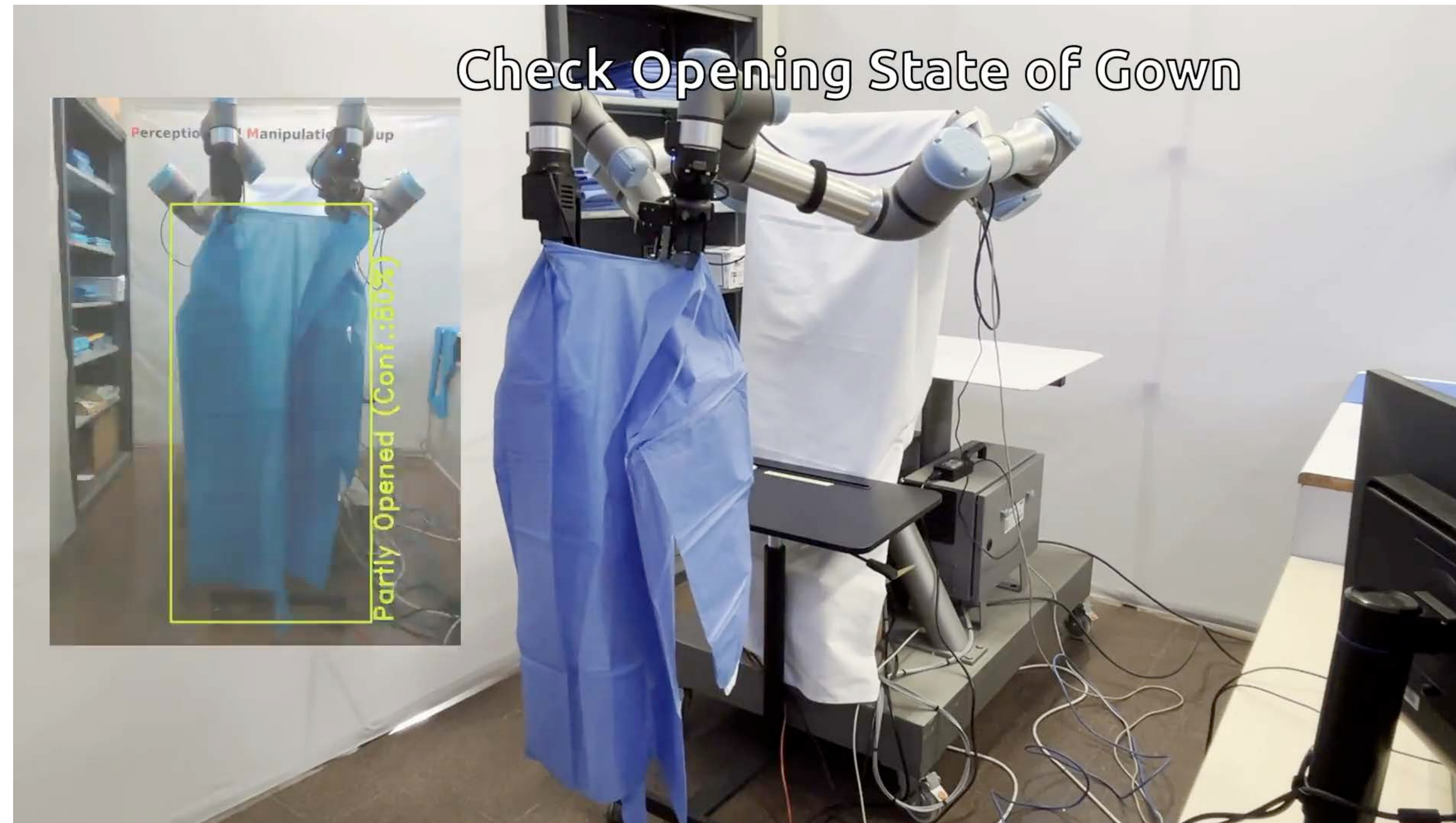


Motion

Non-prehensile primitives to grasp a
single layer + sliding through the neck



- Shaking for unfolding



Perception

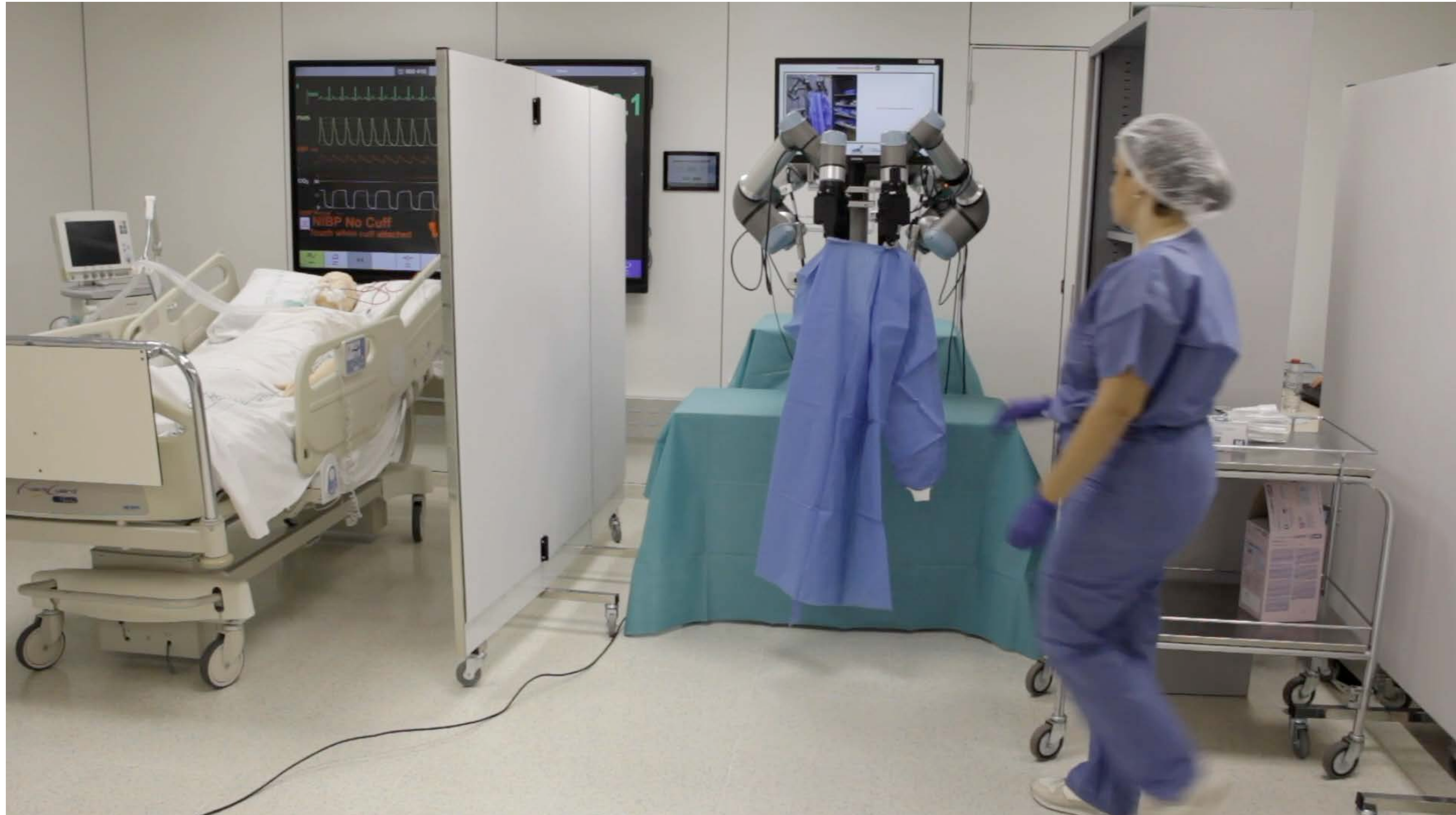
YOLO to recognize fully unfolded state



Motion

Imitation learning with constrained DMPs

ROBOTIC DEMONSTRATIONS TESTED WITH NURSE SUBJECTS



CONCLUSIONS AND CHALLENGES



- ▶ When objects are complex —> challenging to achieve the required robustness
- ▶ Challenges in exploitation efforts
 - ▶ Reaching high TRL
 - ▶ Visibility to companies
- ▶ Both use cases have been tested in realistic scenarios.