Digital and Hybrid Twins of Human Models

Francisco (Paco) CHINESTA

francisco.Chinesta@esi-group.com & francisco.Chinesta@ensam.eu

Elias CUETO & Jean Louis DUVAL

OUTLINE
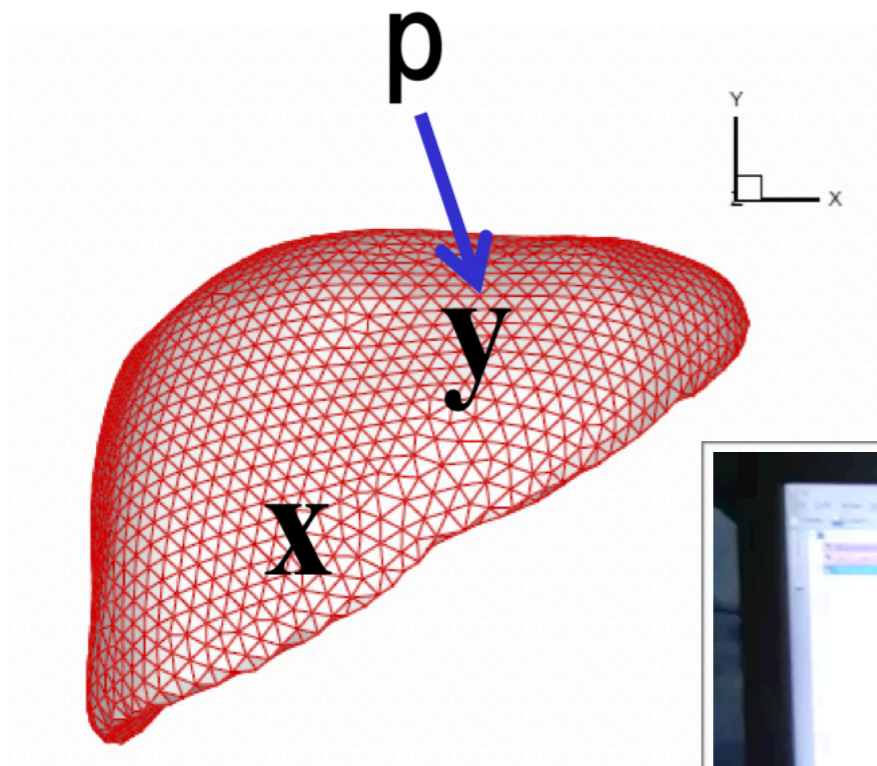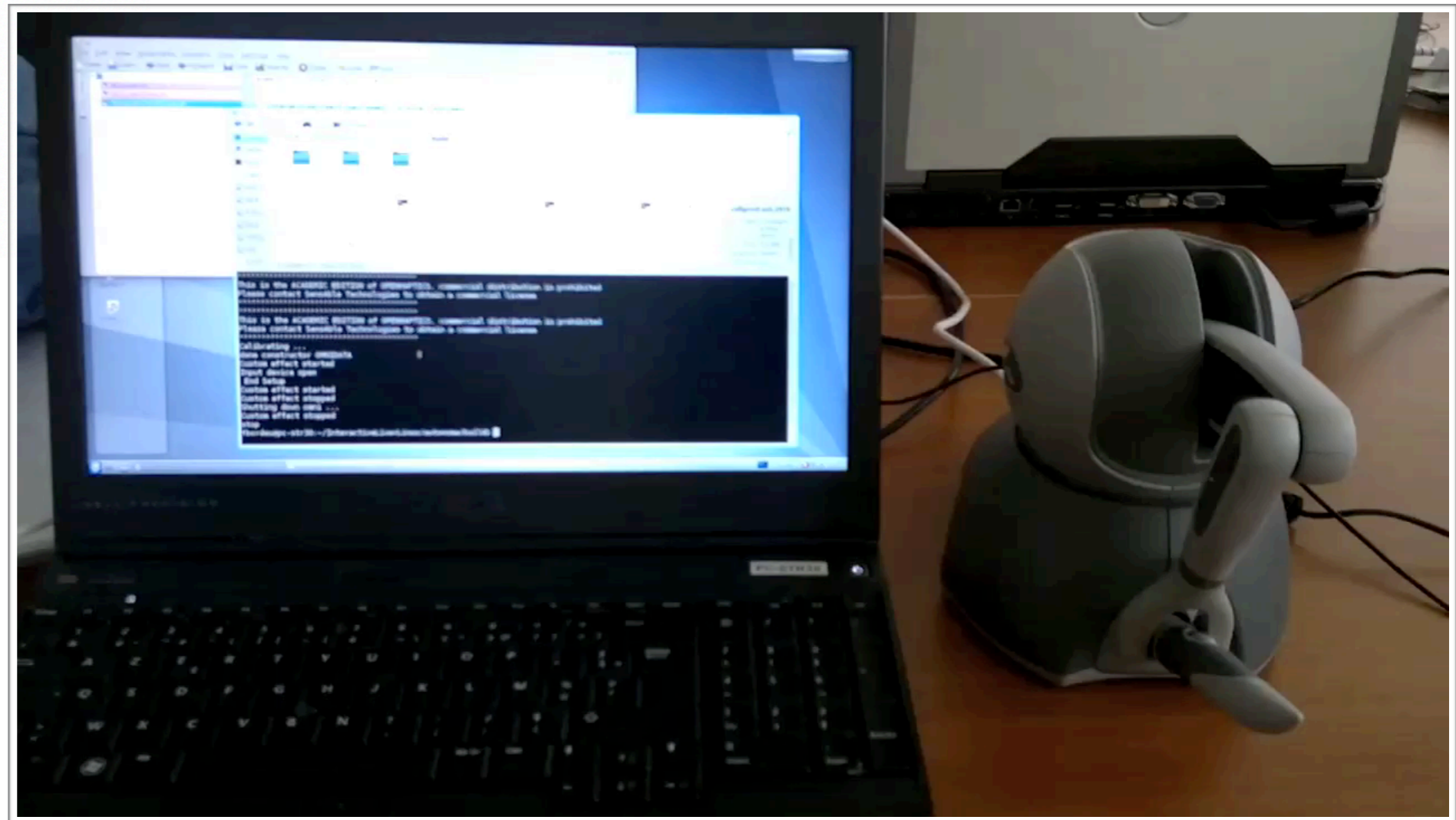I - Interactivity
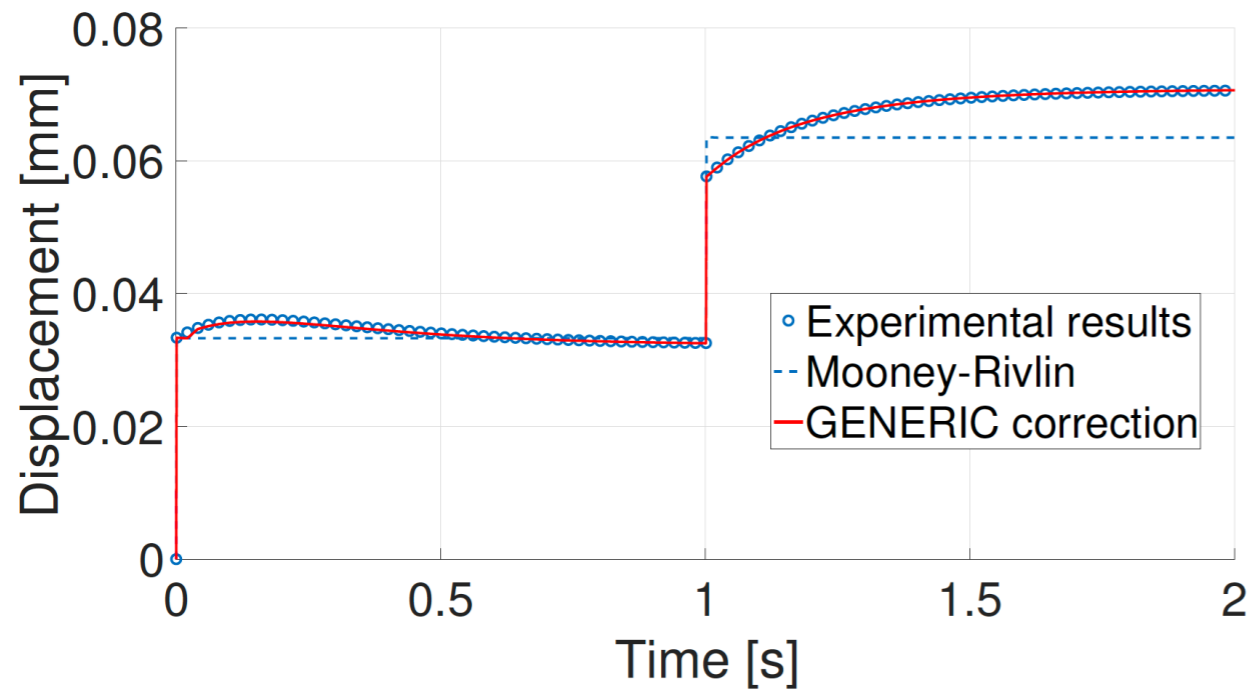II - Patient specific
III - Twining

I - Interactivity

$$\mathbf{u}(\mathbf{x}, \mathbf{y}, \mathbf{p}) = \sum_i \mathbf{X}_i(\mathbf{x}) \circ \mathbf{Y}_i(\mathbf{y}) \circ \mathbf{P}_i(\mathbf{p})$$
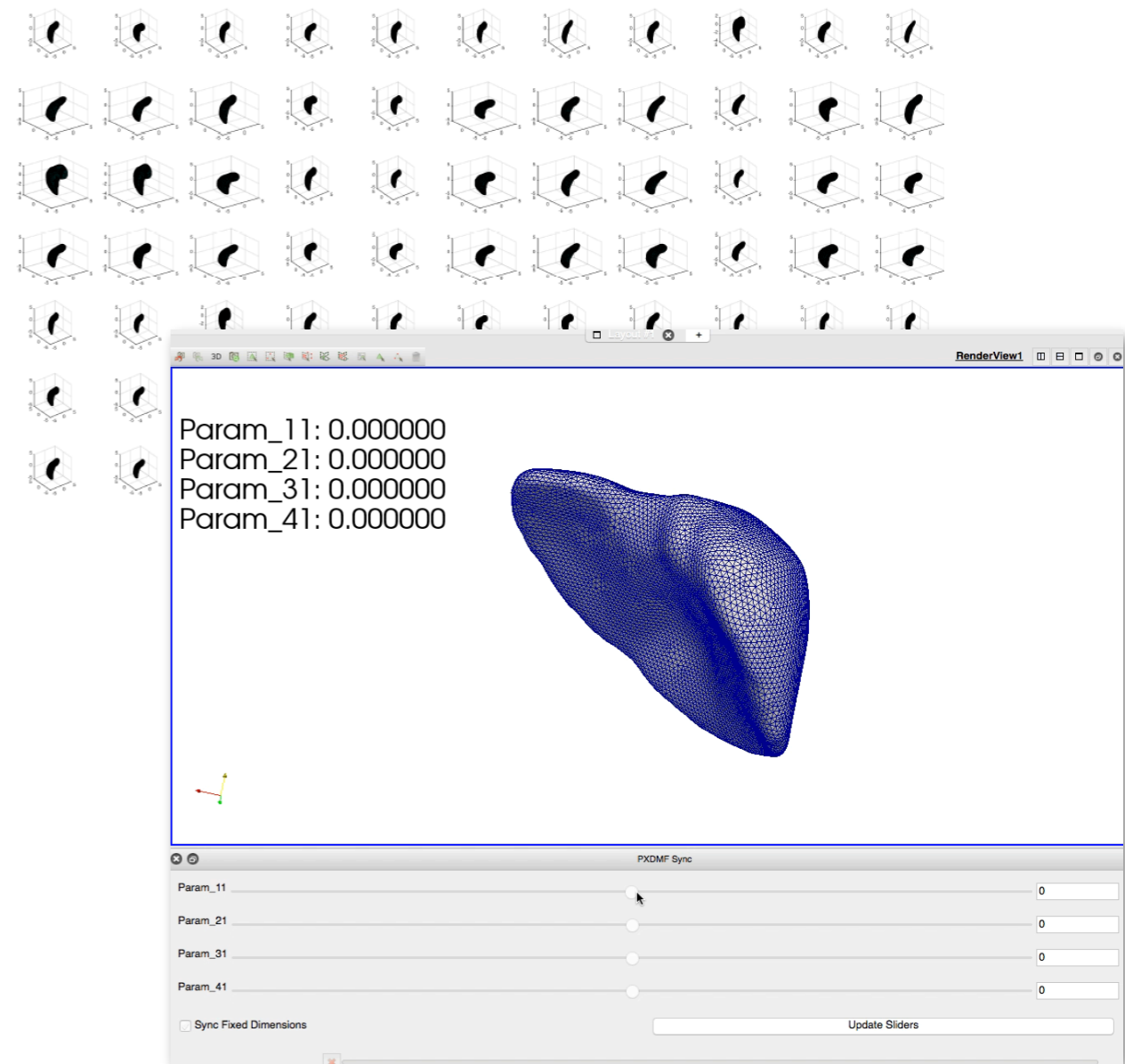
II - Patient specific

Constitutive models

Visco-hyper-elasticity as a data-driven-correction (thermodynamically consistent) of a purely-hyper-elasticity

Shape

Manifold Learning based shape description

III - Twining