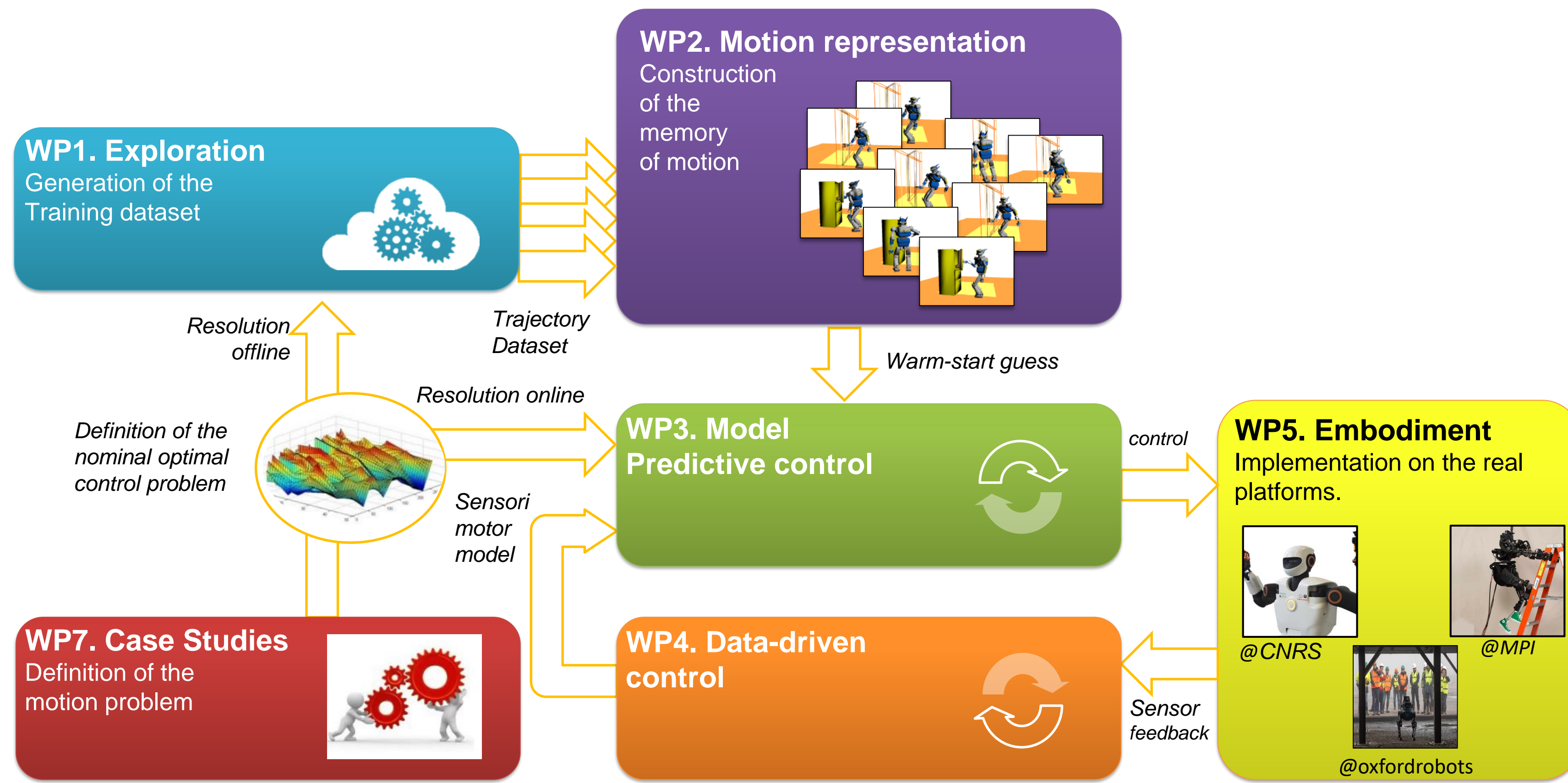# MEMMO: Memory of Motion

Ambition

Development of a generic methodology to generate complex movements for robots with legs and arms in real-time

Organization

WP1. Exploration
Generation of the Training dataset

WP2. Motion representation
Construction of the memory of motion

WP3. Model Predictive control

WP4. Data-driven control

WP5. Embodiment
Implementation on the real platforms.
@CNRS   @MPI
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Resolution offline

Trajectory Dataset

Warm-start guess

Definition of the nominal optimal control problem

Resolution online

Sensori motor model

control

Sensor feedback

WP7. Case Studies
Definition of the motion problem

Approach

Objective #1 Data-driven model predictive control
Targeting real platforms

Objective #2 Memory encoding
Machine learning
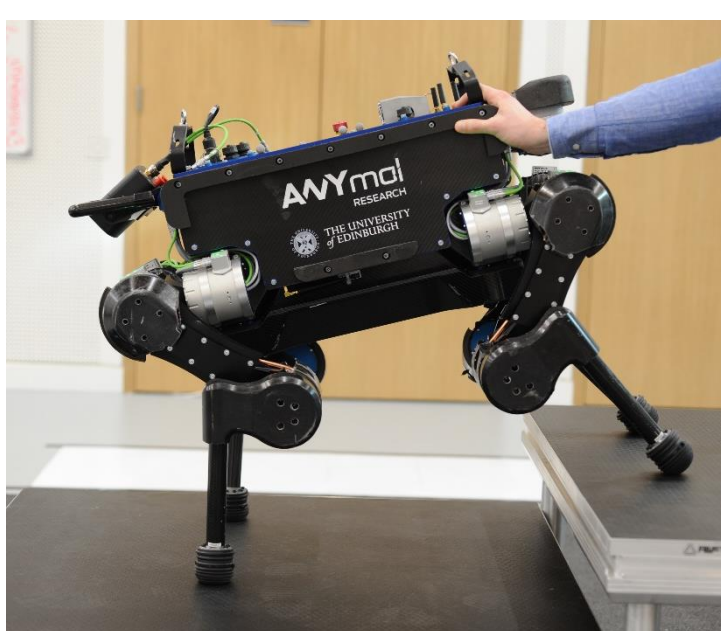
Objective #3
Exploration
Offline resolution

Impacts

Impact on aerospace industry

➤ Enhanced production rates
➤ Reduced infrastructure adaption when automating
➤ Reduced need for specialized end-effectors

Impact on lower-limb paralysis rehabilitation

➤ Exoskeleton in rehabilitation center
➤ Longer term: rehabilitation exoskeleton at home

Impact on inspection of civil-engineering structures

➤ Removing workers from dangerous scenarios
➤ Automated measurement of concrete tunnel linings
➤ Continuous supervision of a demolition zone

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