

COMANOID

H2020 RIA Project



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CNRS

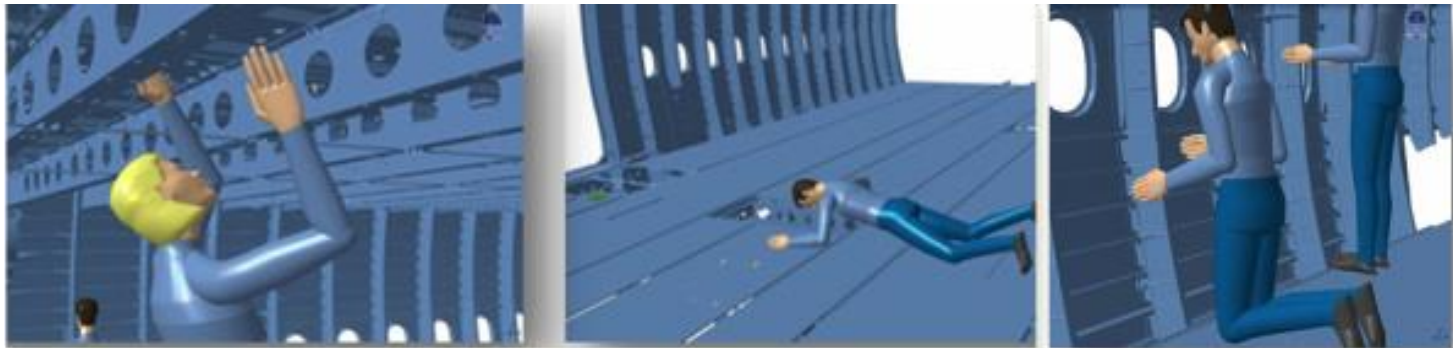
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Information on the Call

- Type of funding scheme
 - Research and Innovation Actions
- Topic
 - ICT-23-2014 Robotics
- Main pillar
 - Industrial Leadership
- Partners
 - CNRS (F), DLR (D), Inria (F), Uni. Roma 1 (I), Airbus Group (EU)
- Coordinating person
 - Dr. Abderrahmane KHEDDAR (CNRS)
 - Co-coordinator M. Patrice RABATE (Airbus Group)

Airbus Group needs (in brief)

- Robotics in aircraft manufacturing
- Human working operations divided in two categories
 - High added-value tasks
 - None added-value tasks (to be done by robots)
 - Dangerous for human workers
 - Health risks
 - Agreed by trade union and cartel
 - Require high precision less dexterity



Airbus Group interest

- As can be seen from floor shops
 - Mobile robots cannot access Cargo and other areas
 - Railed-ported robotic arms not possible
 - Robot must work inside product
 - Not like in car company
 - To go from one level to the other
 - Use of stairs/ladders
- Constraint
 - Share workspace with human workers
 - Share same tools with human workers

Summary of COMANOID objectives

- Deploy humanoids for non-added value tasks identified by Airbus Group in civilian airliner assembly operations
- **COMANOID**
 - One goal: accessing all areas of the plane during assembly
- Precise accessibility through **whole-body multi-contact planning** motion and **robust bipedal walking** with advanced **embedded 3D dense SLAM localization** and **visuo-force servoing capabilities** under **safety requirements** in the presence of human coworkers
- Showcase
 - Target TRL for all technologies: 6
 - Real aircraft use-cases with two humanoid robots: the **HRP-4** and **TORO**

Schematic plan (roadmap)

