

# CONVINCE

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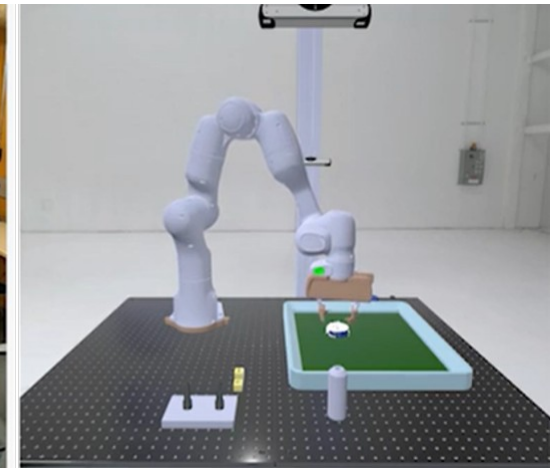
Autonomous robots are often unable to deal with unexpected situations in unstructured environments.

- Unstructured environment: dynamic, unpredictable scenario that cannot be fully controlled.
- Autonomous robot: mechanical and digital system that executes tasks and reacts to the environment without human control.

# The CONVINCE project

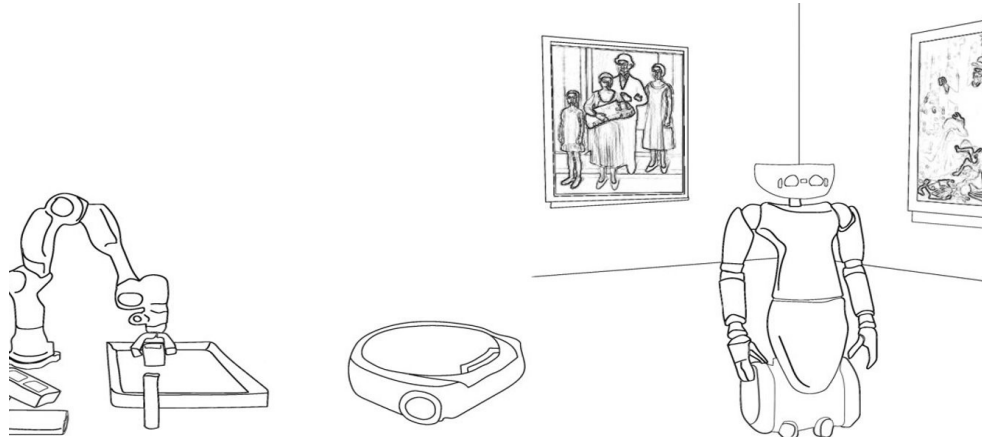
CONVINCE aims to develop verifiable cognitive deliberation capabilities in autonomous robots, to perform tasks robustly and safely.

- Deliberation capabilities: all kinds of decisional capabilities.
- Verifiable: the correctness of which can be checked via a specialized software.
- Robust: reliably accomplish goals under a variety of circumstances.
- Safe: avoids reaching unwanted or dangerous states.



CONVINCE will demonstrate the technology developed in the project on three different real-world use cases:

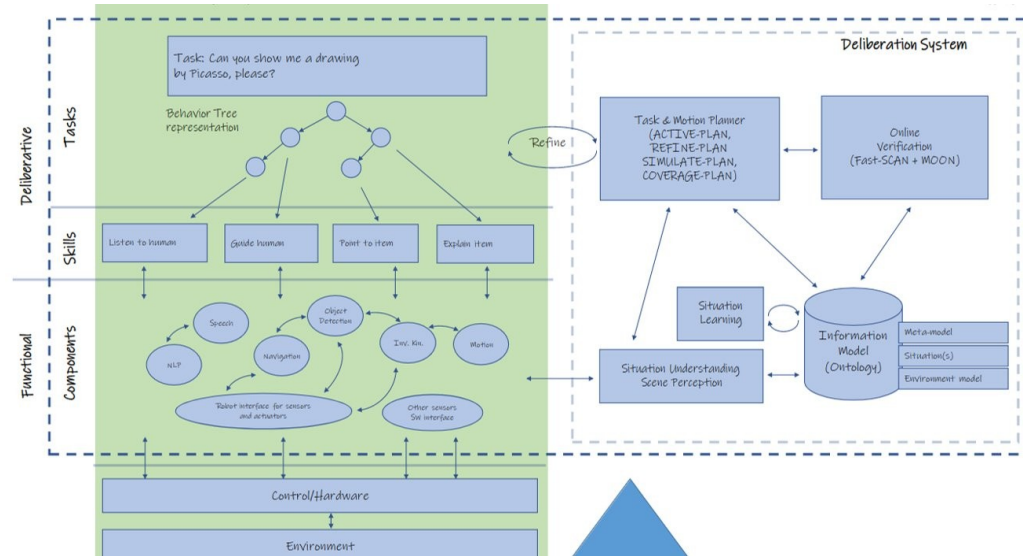
- **Industrial** - assembly robot (CEA, CLEIA)
- **Consumer** - vacuum cleaner robot (BOSCH)
- **Service** - robotic museum guide (IIT, Fondazione Torino Musei)



# Research output

To reach CONVINCE's goals entails to advance the state-of-the-art in:

- Situation understanding and scene perception (CEA)
- Task and motion planning in dynamic environment (UoB)
- Design-time and run-time verification (UniGe and Bosch)



These capabilities will be integrated into a model-driven, open-source software toolchain to allow developers to build application-specific deliberation systems.

AIoD can contribute much to the CONVINCE project:

- Knowledge and expertise exchange with academic and industrial leaders in AI and AI-based robotics
- Leverage AI assets made available by AIoD for the development of the use-cases
- Use AIoD platform to showcase project results, initiatives and tools
- Broaden the CONVINCE Consortium network to include other EU-funded groups, broaden potential users of the CONVINCE technology
- Inspire new use-cases in a variety of application domains