Project partners

The IntelliMan consortium consists of 13 internationally recognised scientific and industrial partners from six countries: Germany, Italy, Slovenia, Spain, Switzerland and the United Kingdom.

They come from the fields of artificial intelligence (AI), robotics, information and communication technologies (ICT), as well as social sciences, humanities and economics.

Coordination: Università di Bologna, Italy

Project partners:

German Aerospace Center (DLR), Germany

Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Germany

Universitat Politècnica de Catalunya, Spain

Università degli Studi di Genova, Italy

Università degli Studi della Campania „Luigi Vanvitelli“, Italy

Eurecat, Centre Tecnològic de Catalunya, Spain

Istituto nazionale per l'assicurazione contro gli infortuni sul lavoro (INAIL), Italy

Elvez, Slovenia

Ocado Group, United Kingdom

Bavarian Research Alliance (BayFOR), Germany

Idiap Research Institute, Switzerland

University of Zurich, Switzerland

Project profile

Project name: IntelliMan (grant agreement no. 101070136) – AI-Powered Manipulation System for Advanced Robotic Service, Manufacturing and Prosthetics
Duration: 09/2022-03/2026
Programme: Horizon Europe
EU funding: 4.5 million (total project amount: EUR 6 million)

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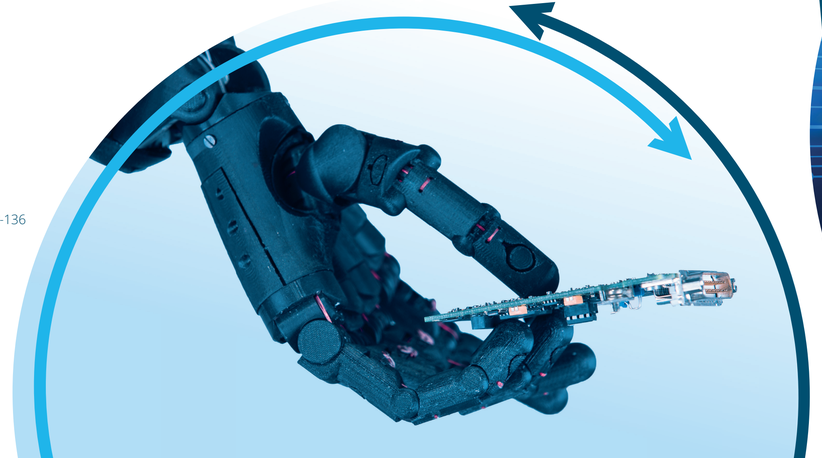
www.intelliman-project.eu

INTELLIMAN

AI-powered manipulation system for advanced robotic service, manufacturing and prosthetics



Main Goal

Next generation robots that efficiently learn to manipulate and interact with their environment in a purposeful and highly performant way, capable of:

- Performing tasks with limited human supervision,
- Autonomously interact with objects regardless of their material, size and shape,
- Guarantee performance, safety and fault detection,
- Dealing with environments that neither it, not its designer have foreseen or encountered before.

IntelliMan also investigates how such AI-powered manipulation systems are perceived by the users and what factors enhance human acceptability.

Objectives

Next generation of artificial intelligence empowered robotic manipulation systems that:

- Learn individual manipulation skills from human demonstration,
- Learn abstract descriptions of a manipulation task suitable for high-level planning,
- Discover objects' functionalities by interaction.

Use Cases – purpose and demonstration objectives

Application scenarios on gripping and placing with flexible objects: support development of various solutions for the manipulation problem.

Upper-limb prosthetics: increase user trustworthiness and enhance embodiment

Daily life kitchen activities: reliable robotic manipulation of everyday objects

Robotic assembly of products: robust handling of deformable linear objects

Robotic fresh food handling for logistic applications: sensing-based multi-finger grasping

Outcomes

- Broader adoption of AI-oriented methods in robotic manipulation and human-machine interaction
- Penetration in industry of safe, fast and easily adaptable AI-powered manipulation systems
- Increased acceptance of robots by the general population
- Improved acceptability and reliability of AI-enabled prosthesis and service robots

"The IntelliMan project focuses on how a robot can learn efficiently to perform tasks in a targeted, high-performance and safe manner."

Prof. Gianluca Palli, Università di Bologna (Italy),
Coordinator of the IntelliMan project