

European Network of Excellence on Deformable Object Manipulation by Robots – *DOM-net.eu*



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NETWORK OF EXCELLENCE

Deformable Object Manipulation by Robots

<https://dom-net.eu/>

EU Network of Excellence on Deformable Object Manipulation by Robots

- Research on deformable object manipulation is growing rapidly across Europe and worldwide. However, much of this work remains fragmented.
- Independent efforts are pushing the boundaries of what robots can achieve, yet **stronger coordination is needed to fully unlock the field's potential.**
- The **Network of Excellence on Deformable Object Manipulation by Robots (DOM-net.eu)** was created to connect isolated research efforts into a strong, collaborative ecosystem in Europe.



ROMANDIC – the origin of the network

From a project seminar to a European Network of Excellence

1

DOM-net was born within ROMANDIC

ROMANDIC advances the state-of-the-art in robotic handling of deformable objects.

2

Seminar launch

Started at the ROMANDIC Senior Researcher Seminar in Karlsruhe.

3

Founding core

JSI, CSIC-UPC and KIT shaped the first network structure.

4

Wider circle

Informal founders from KTH, Crete, Lübeck, Göttingen, INRIA, TUM...



ROMANDIC Senior Researcher Seminar @ Karlsruhe · Nov. 12, 2005

The meeting that seeded DOM-net



Founding members

JSI

Andrej Gams · Aleš Ude

CSIC

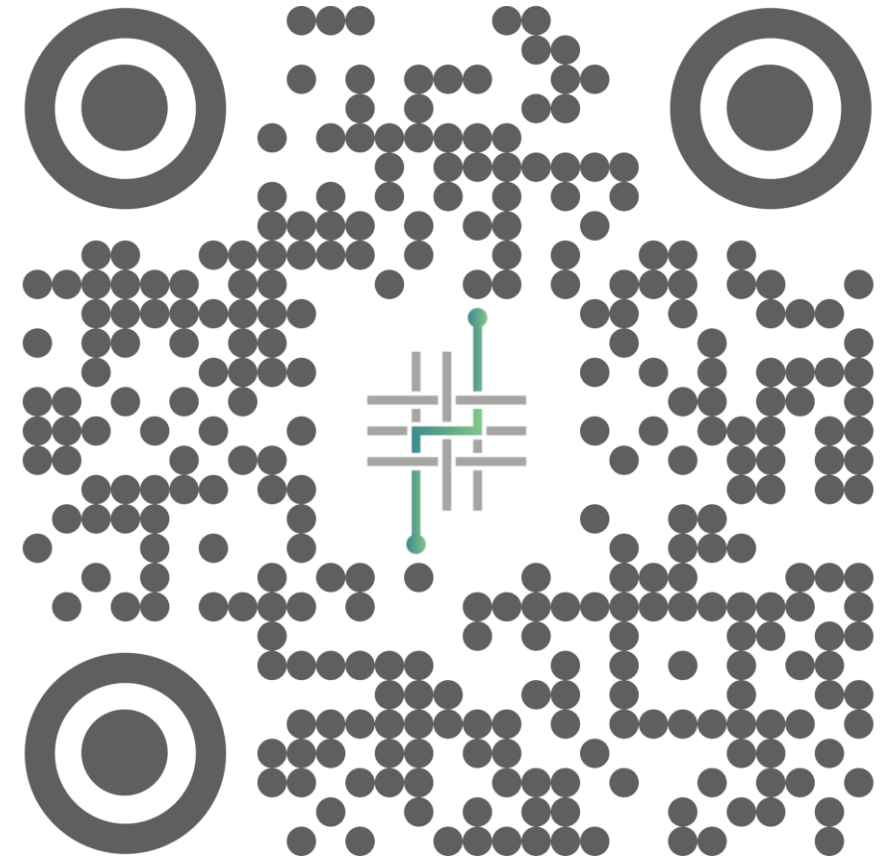
Guillem Alenyà · Júlia Borràs Sol

KIT

Tamim Asfour

DOM-net goals

1. Connect academia, industry, policymakers, and regulators in a collaborative framework.
2. Amplify research and application efforts.
3. Develop a roadmap for the field's future direction.
4. Formalize networking efforts and fosters sustained collaboration.



Visit **DOM-net.eu**
for more information.



Concept and approach



Knowledge sharing

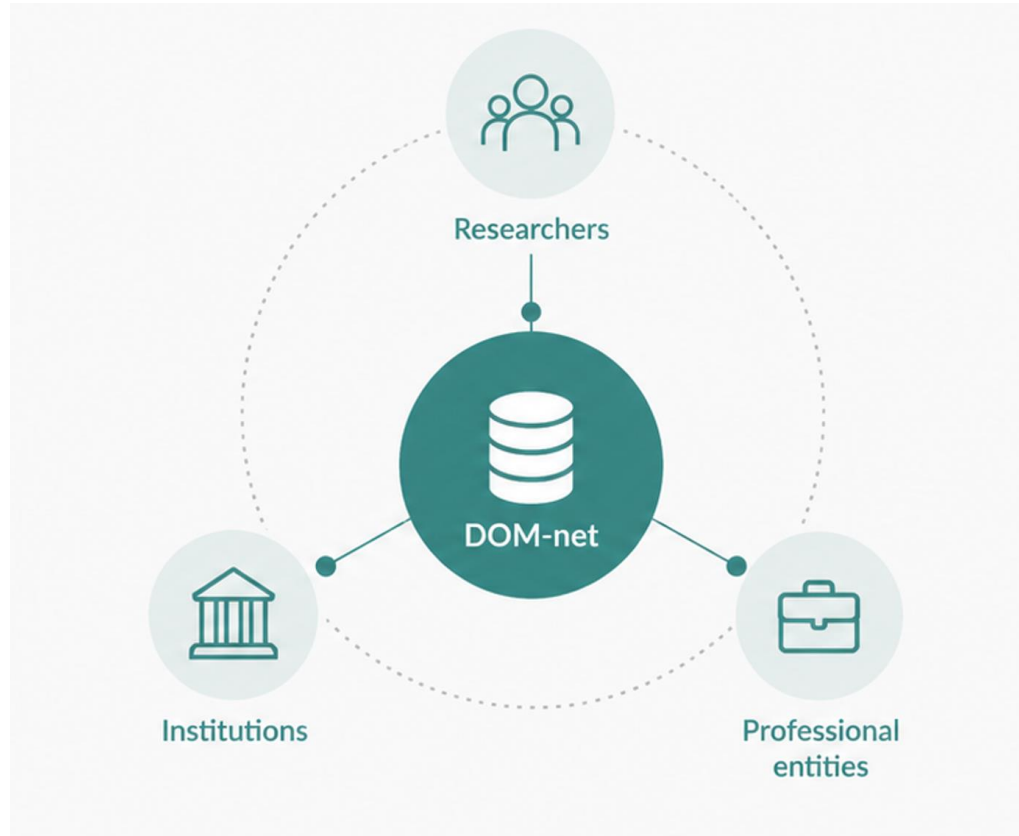
Provide cutting-edge knowledge and experience in the latest research and application approaches for robot deformable object manipulation (DOM).



DOM database

Set-up and maintain a database on the topic of DOM by robots:

- researchers
- institutions
- other professional entities.



Researchers and institutions

29

members

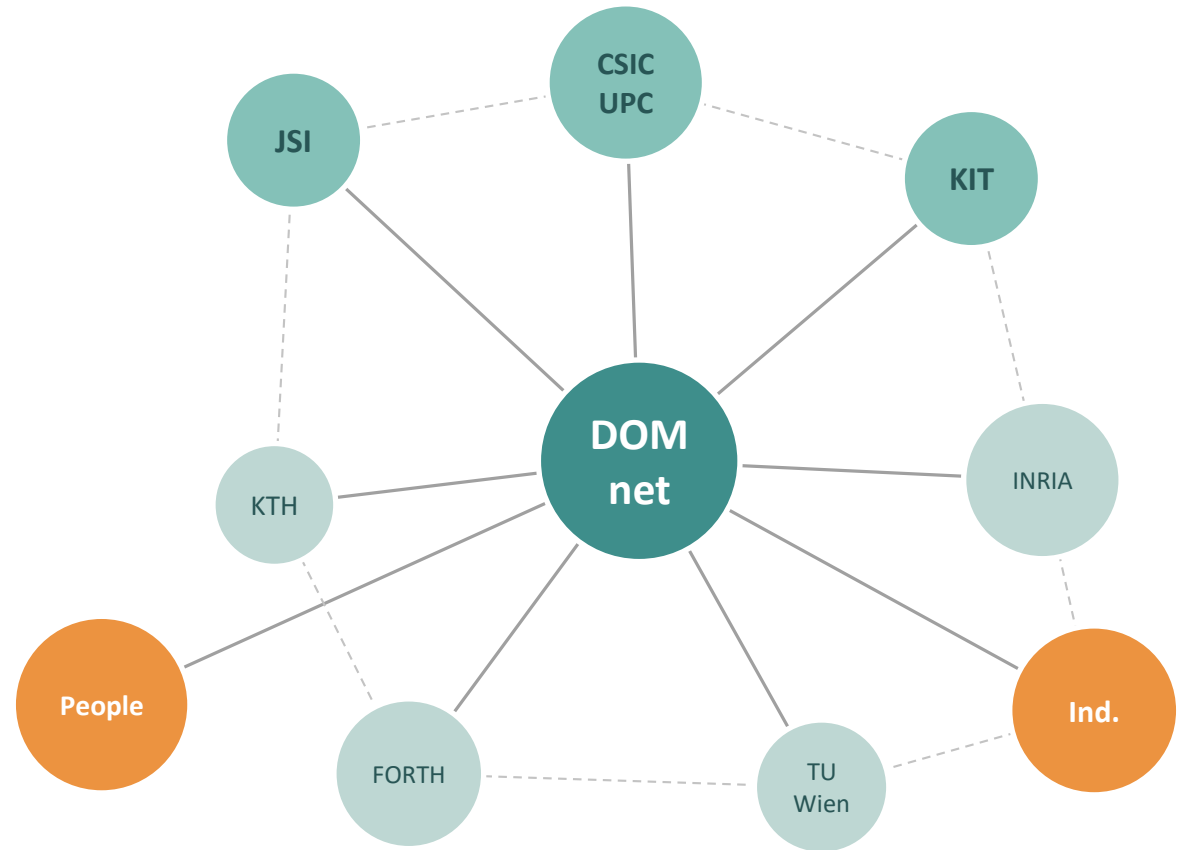
21

institutions

14

group leaders / professors

- **Open network**
researchers, practitioners and students at any career stage
- **Institutional map**
labs, groups and companies become visible nodes
- **Research-to-impact bridge**
a shared roadmap connects academia, industry and regulators



From individual expertise to a structured European ecosystem



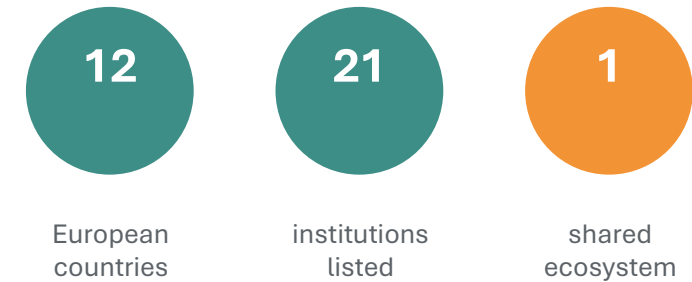
European network at a glance

European institutions in the network



DOM-net makes expertise visible across Europe

Researchers and institutions in deformable object manipulation by robots are connected through a shared network.



Green countries include institutions currently represented in DOM-net



Scientific topics

A structured research stack for DOM by robots

01

Model the object

- Representation of deformables
- Simulation of deformables

02

Sense and learn

- Perception of deformables
- Learning strategies for DOM

03

Act and evaluate

- Planning for DOM
- End-effectors, grippers, hands and special hardware
- Benchmarking of deformables

Example research asset

dynamic textile / deformable-object modeling

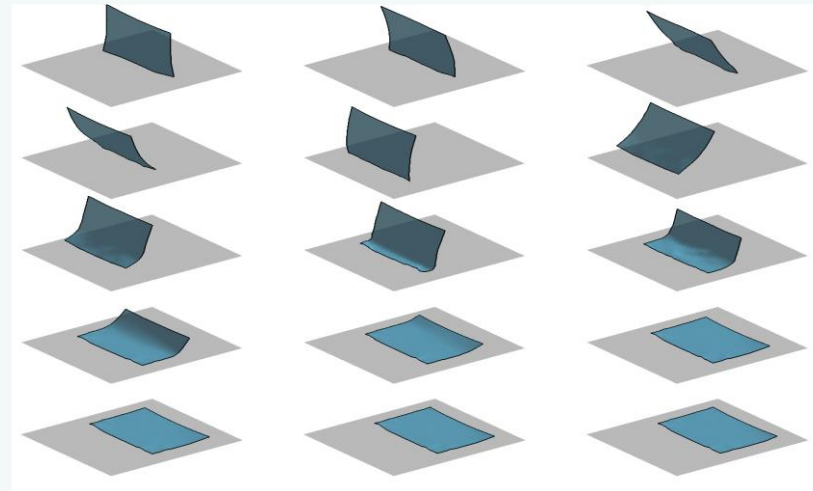


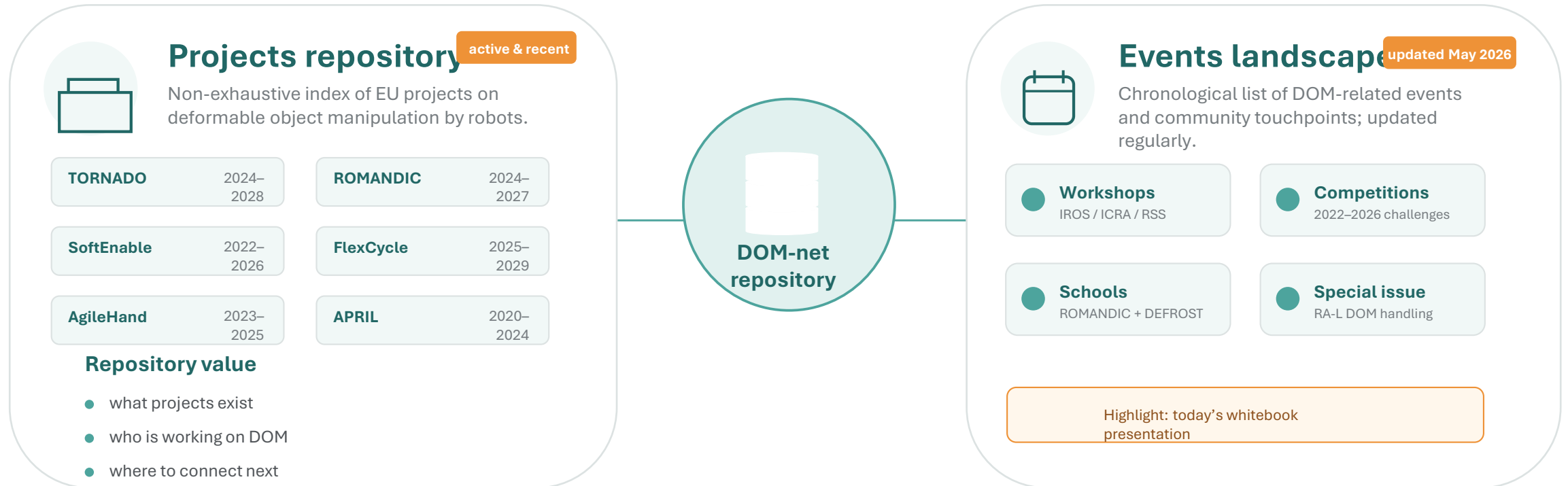
Image: Coltraro, Franco, et al., Mechanism and Machine Theory 209 (2025): 105993.



Events and projects

DOM-net repository: projects + events

A living index that makes the DOM field easier to navigate, connect and update.

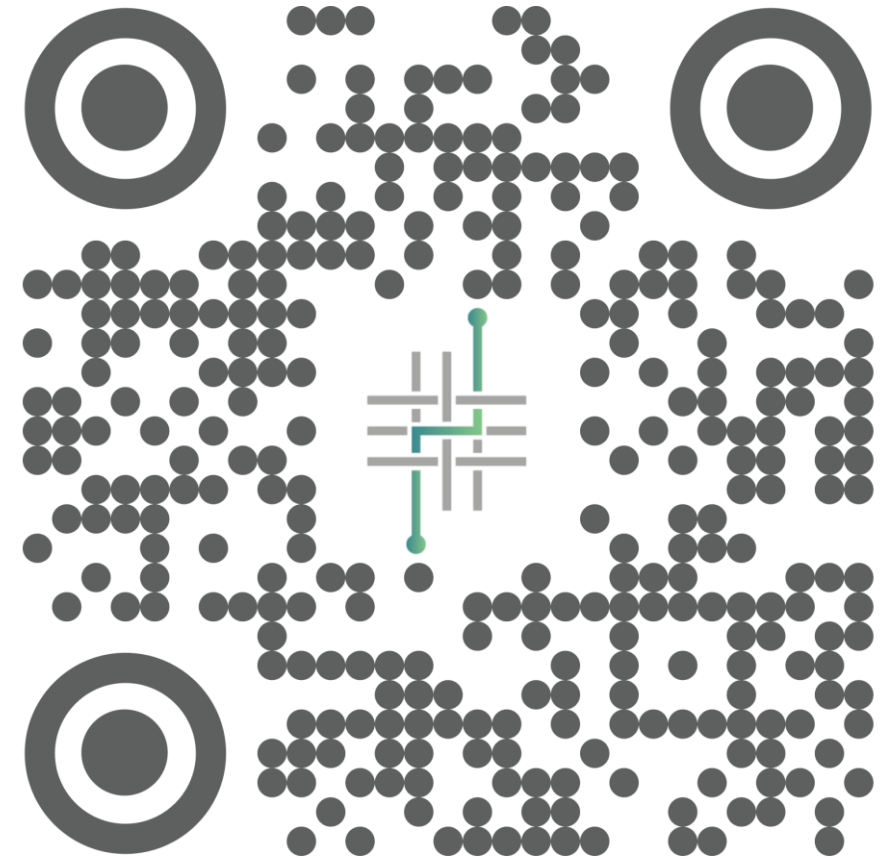


From fragmented projects and one-off events → searchable knowledge, visible activity, and coordinated collaboration



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Thank you for your attention!

