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ROMANDIC

Robot Manipulation of Deformables through Dynamic Actions

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Executive summary

This document defines the framework for continuous ethical monitoring in the ROMANDIC project (GA No. 101159522). ROMANDIC focuses on advancing scientific excellence in robot manipulation of deformable objects through networking, knowledge exchange, and selected experimental activities. As described in the approved proposal, the project involves:

- Collection of anonymised motion capture demonstrations,
- Development of AI-based robotic manipulation strategies,
- Stakeholder engagement through co-design processes,
- Data management activities governed by the Data Management Plan (D6.1).

The project does not involve sensitive personal data, vulnerable populations, or automated decision-making systems affecting individuals' rights. Human participation is voluntary and limited to controlled experimental contexts. In accordance with the principle of proportionality, ethical monitoring is implemented through an embedded governance approach integrated within WP6 and existing consortium structures. This ensures full compliance with EU legal and ethical requirements without introducing unnecessary administrative burden.

D6.2 establishes:

- Ethical governance roles and responsibilities,
- A structured but lightweight monitoring framework,
- Risk identification and mitigation measures,
- An incident reporting procedure,
- Alignment with EU regulatory and policy frameworks.

This document is considered a living framework and may be updated if project activities evolve.

1 Introduction

Ethical compliance and responsible research practices are core principles of Horizon Europe. In the ROMANDIC proposal, the consortium committed to conducting all research activities in accordance with:

- The Charter of Fundamental Rights of the European Union,
- The European Convention on Human Rights,
- The General Data Protection Regulation (EU 2016/679),
- The Trustworthy AI Guidelines of the High-Level Expert Group.

WP6 includes data management and ethics appraisal activities. While the project presents a low ethical risk profile, continuous monitoring is implemented to ensure that:

- Ethical assumptions remain valid throughout the project lifecycle,
- New risks are identified promptly,
- Compliance is maintained in all experimental and dissemination activities.

2 Ethical Context of ROMANDIC

According to the approved proposal:

- Motion capture demonstrations may be collected to support the learning of manipulation actions.
- Faces will not be recorded.
- Only skeleton-based or anonymised motion representations will be stored.
- Participation is voluntary and based on informed consent.
- Human safety measures are implemented during robotic demonstrations.

As confirmed in D6.1:Data Management Plan:

- No sensitive personal data is foreseen.
- Data minimisation principles apply.
- FAIR data practices are implemented.
- Secure institutional storage infrastructures are used.

ROMANDIC does not:

- Conduct medical or clinical research.
- Involve vulnerable groups.
- Deploy high-risk AI systems under current EU AI regulatory classifications.
- Implement automated decision-making affecting fundamental rights.

Given this profile, ethical monitoring follows a proportionate and embedded approach.

3 Governance and Responsibilities

3.1 Embedded Ethical Oversight

Ethical monitoring is integrated within WP6 (Data Management and Ethics Appraisal), as foreseen in the proposal.

Responsibilities are assigned as follows:

WP6 Leader

Maintains the Ethics Risk Register and coordinates annual ethics review.

Work Package Leaders

Ensure ethical compliance within their respective activities.

Project Coordinator

Oversees overall compliance and determines escalation procedures where necessary.

Institutional Ethics Committees

Provide formal approval where required under national regulations.

No additional Ethics Advisory Board is established, reflecting the low-risk nature and CSA scope of the project.

4 Ethical Risk Identification and Mitigation

A structured Ethics Risk Register (see Annex I) is maintained throughout the project.

The following main categories of risk have been identified.

4.1 Human Motion Data

Risk: Potential re-identification or unintended disclosure of motion capture data.

Mitigation Measures:

- No facial recording.
- Skeleton-based or anonymised representations only.
- Informed consent obtained.
- Restricted data access.
- Secure storage compliant with D6.1.

4.2 AI-Based Robotic Systems

Risk: Limited concerns regarding safety, robustness, or unintended bias in learned motion policies.

Mitigation Measures:

- Systems are restricted to task-level manipulation control.
- No profiling or human classification.
- Human supervision during demonstrations.
- Emergency stop procedures implemented.

Under current EU AI regulatory frameworks, the systems developed in ROMANDIC are considered low-risk or limited-risk.

4.3 Stakeholder Engagement and Co-design

Risk: Potential imbalance in stakeholder representation.

Mitigation Measures:

- Voluntary participation.
- Diversity is pursued in recruitment.
- Transparent communication of automation scope and objectives.

4.4 Data Management

Risk: Inadequate protection or mismanagement of datasets.

Mitigation Measures:

- Full compliance with D6.1.
- GDPR adherence.
- Use of institutional secure storage infrastructures.

5 Continuous Monitoring Mechanisms

5.1 Annual Ethics Review

Ethical monitoring is annually integrated into the project consortium meeting.

During this review:

- The Ethics Risk Register is assessed.
- New activities are screened.
- Any incidents or deviations are discussed.
- This mechanism ensures continuous oversight without creating additional administrative structures.

5.2 Pre-Experiment Compliance Check

Before any experimental campaign involving human participation:

The responsible WP leader verifies:

- Informed consent obtained.
- No facial data captured.
- Data anonymisation procedures active.
- Safety supervision implemented.
- Storage compliant with D6.1.

Documentation is archived internally.

5.3 Incident Reporting Procedure

If an ethics-related issue arises:

- The responsible WP leader informs the Coordinator within five working days.
- The Coordinator assesses severity in consultation with the WP6 leader.
- Where necessary, the relevant institutional ethics committee is consulted.
- Corrective actions are documented in the Ethics Risk Register.

6 Compliance with EU Legal and Policy Frameworks

ROMANDIC activities are conducted in compliance with:

- Charter of Fundamental Rights of the European Union,
- European Convention on Human Rights,
- General Data Protection Regulation (EU 2016/679),
- National regulations of participating countries,
- Trustworthy AI Guidelines.

The project maintains an exclusive focus on civil applications.

7 Proportionality and Living Document Statement

Ethical monitoring in ROMANDIC is guided by the principle of proportionality, reflecting:

- The low-risk nature of the activities.
- The absence of sensitive personal data.
- The limited scope of AI deployment.

D6.3 is a living document and may be updated if:

- New data types are introduced.
- AI functionalities evolve.
- Regulatory requirements change.
- Institutional ethics committees issue additional guidance.

Annex I – Ethics Risk Register (Template)

ROMANDIC – Ethics Risk Register

Risk ID	Risk Description	WP	Like- lihood (L/M /H)	Impact (L/M /H)	Mitigation Measures	Respon- sible Partner	Status (Open /Closed)	Review Date
ER-01	Potential reidentification of motion capture data	4	L	M	Skeleton-only capture; anonymisation; restricted access	CSIC	Open	M12
ER-02	Safety risk during robot demonstrations	4	L	M	Human supervision; emergency stop present	JSI	Open	M12
ER-03	Imbalance in stakeholder participation	4	L	L	Voluntary recruitment; diversity consideration	KIT	Open	M12

Instructions:

- Updated annually during the General Assembly.
- New risks added as required.
- Closed risks are archived but retained for traceability.