



# Are We Advancing?

## Requirements Engineering for Machine Learning: From Models to Agentic Systems

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# About Me



- Research Fellow at Lero, Ireland
- Visiting Scientist, Huawei, Ireland
- Research Interest in RE and AI
- Prompt Me project, MSCA Fellowship

# Are We Advancing or Repeating the Same Problems?

(critical reflection based on evidence from RE4ML, AI4RE, and agentic systems literature)

# From Growth to Shift in Focus

- Strong growth of RE4ML (2010–~2022)

- Recent shift:

↓ **RE4ML**

↑ LLM4RE

↑ Agents

👉 The field is changing direction.

👉 Progress — but not necessarily impactful

# Shift does not mean progress

- Focus → **AI4RE** (automating RE tasks)
- Gap → **RE4AI** (defining AI systems)

Still unclear RE grounding  
*(RE4AI remains underdeveloped)*

# What Indicates Real Progress?

- **Evaluation** — practical scenario validation
- **Stakeholders** — real user involvement
- **Solutions** — full RE life-cycle
- **Practice** — use in real settings

👉 Progress = impact on RE practice

# What Does This Mean?

# What Does This Mean?

Problems are carried forward to new  
research waves

# The Role of RE in the Age of AI

- AI systems are **shaping our world**
  - **software industry shift in focus:**  
how to build → what (not) to build, and why (not)
- 👉 RE should step in — and lead in defining AI systems

# Agents Are Becoming Everyday

- Continuous interaction with users (e.g., assistants, copilots)
- Evolving behaviour over time (e.g., ChatGPT)
- Increasing autonomy (e.g., Moltbook – social network for AI agent)

# What Should We Allow AI to Be?

- How autonomous? (e.g., education / grading)
- What is allowed? (e.g., children / advice)
- What is unacceptable? (e.g., healthcare / wrong diagnosis)
- What impact on society? (e.g., jobs / automation)
- What values should AI reflect? (e.g., hiring / fairness)

## Requirements questions

### Reference:

1. Dąbrowski, Prompt Me: Intelligent Software Agent for Requirements Engineering , REFSQ25
2. Dąbrowski, Intelligent Agents for Requirements Engineering: Use, Feasibility and Evaluation, RE'25

# Rethinking RE for Agentic Systems

- Not entirely new problems
  - We already have the toolkits:
    - adaptive systems
    - goal-oriented RE
    - agent-oriented RE
- 👉 Foundations exist — we must build on them

# Final Takeaway

- AI systems are **reshaping our future**
- RE4AI challenges **remain unresolved**
- RE must define **what to build — and what not to build**

👉 **RE must step in — or risk losing its role**

**[Nature abhors a vacuum]**

# Thank you



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