

AI-Based Landscape Review

Mapping the Intellectual Terrain

PRESENTED BY
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PROJECT GESTALT

universidade de aveiro

UA Immersive Wallet

The passport for the Immersive Week

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Structured Literature Review Therapy Session

What word describes how you feel about literature reviews?

What stage are you in?

Haven't started
Drowning
Structured but overwhelmed
Writing
Finished (survivor)



Today’s workshop

By 16:00

Take one question you care about, check one AI suggestion against a paper, and decide what to investigate next.

Bring a paper, keyword or tentative gap from yesterday’s systematic review session.

1 **The literature problem**
Where are you getting stuck?

2 **Framing and evidence**
What would a useful answer let you do?

3 **A demo and your own exploration**
What changes after a source check?

4 **The digital-twin case and your next step**
What will you take back to your PhD?

The “10.000 Article” Problem





How can I turn science into something you can trust?

Human vs Machine Strengths

Discuss in small groups for five minutes.
Choose one task from your own research.

- Where could AI help with that task?
- What decision will you keep?
- How would you check the result?

Be ready to share one example.

Category	AI Stronger	Human Stronger
Speed		
Memory		
Judgment		
Meaning		
Creativity		

One Task and One Check

Which task did you choose? What could reveal a missed perspective?

LITERATURE REVIEW TASKS

- Brainstorming keywords
- Running complex database searches
- Applying inclusion criteria
- Evaluating methodological rigor
- Mapping concepts
- Writing defensible synthesis

Where Does This Fit in Your Research Journey?

Landscape exploration helps prepare your subsequent doctoral work

Your research develops through iteration. New reading and findings can change your questions, scope and design.

Research activity	Contribution to your PhD
Landscape exploration	Learn the vocabulary, research communities, debates, methods and theories
Research framing and design	Refine your problem, questions, scope and methodological choices
Focused literature review	Search, select, critically assess and synthesize relevant evidence
Research and analysis	Develop and examine findings in relation to the literature

Across these activities: Frame → Select → Apply → Evaluate → Adapt

Keep a record of how AI contributed, what you checked and why you changed your approach.

Five steps in a landscape review

Start with a question and return to an earlier step as a reading changes your scope.

Within any step, you can Frame, Select, Apply, Evaluate and Adapt.

Research activity	What you might keep
1 **Define landscape questions**	A question, a starting focus and a reason to explore. and a reason to explore
2 **Explore collections**	Seed papers, related work and a reading list
3 **Compile domain learnings**	Candidate terms, theories and disagreements to check
4 **Visualize topics**	A sketch or map showing a relationship worth investigating
5 **Analyze a focus area**	A sharper question and terms to test in a subsequent review

Your landscape brief

12 minutes

Work from questions around your own PhD journey.

Keep the brief open. You will use it again when you try one AI product.

5 min

Frame the uncertainty

I need to understand ___ so I can decide ___. For now, I will include ___ and leave ___ for later.

4 min

Challenge it with a partner

What would a useful answer contain? What could you check independently?

3 min

Revise your brief

Underline one change or record why your original focus still works.

Would I still make this claim today?

What I said in March

"ASReview saves 95% of screening time."

What would you need to see before you repeated that claim?

What the study counted

How many titles and abstracts had to be checked to find 95 out of every 100 relevant papers?

What I'd say today

Putting likely matches first can help researchers find relevant papers after checking fewer titles and abstracts.

van de Schoot et al. (2021) · Nature Machine Intelligence · doi.org/10.1038/s42256-020-00287-7

What the Evidence Says About AI

Studies show useful assistance, with different limits at each stage of a review

Research activity	Evidence	What the finding supports
Searching **Lau & Golder, 2025**	Across four case studies, Elicit found useful additional studies but missed many eligible studies.	Supplementary discovery. Useful results alone do not establish comprehensive coverage.
Screening **van de Schoot et al., 2021** **Forbes et al., 2026**	Active learning can reduce screening work. Newer LLM evaluations report high recall in tested collections.	Potential workload reduction. Check missed studies, eligibility criteria and stopping decisions.
Extraction **Gartlehner et al., 2025** **Lagisz et al., 2026**	Supervised extraction saved human time in a prospective study. Errors and variable performance remain.	A candidate extraction to verify against the paper. Repeated answers can still be wrong.

The evidence concerns particular tasks, datasets and model versions.

Implications for Your Literature Review

Researcher judgment includes choosing the task and testing whether the assistance works

Relevant results ≠ complete coverage

What might the search have missed? Compare sources, disciplines and citation networks.

Less screening ≠ time saved

How many eligible studies were retained? Include checking and correction in your effort estimate.

Repeatable output ≠ correct output

Does the claim, value or quotation match the source and its context?

Transparent reporting ≠ validated methods

Record what AI did, what you checked, what changed and what remains uncertain.

Problem First–Prompt Second: set output checks before using AI; evaluate and adapt afterwards.

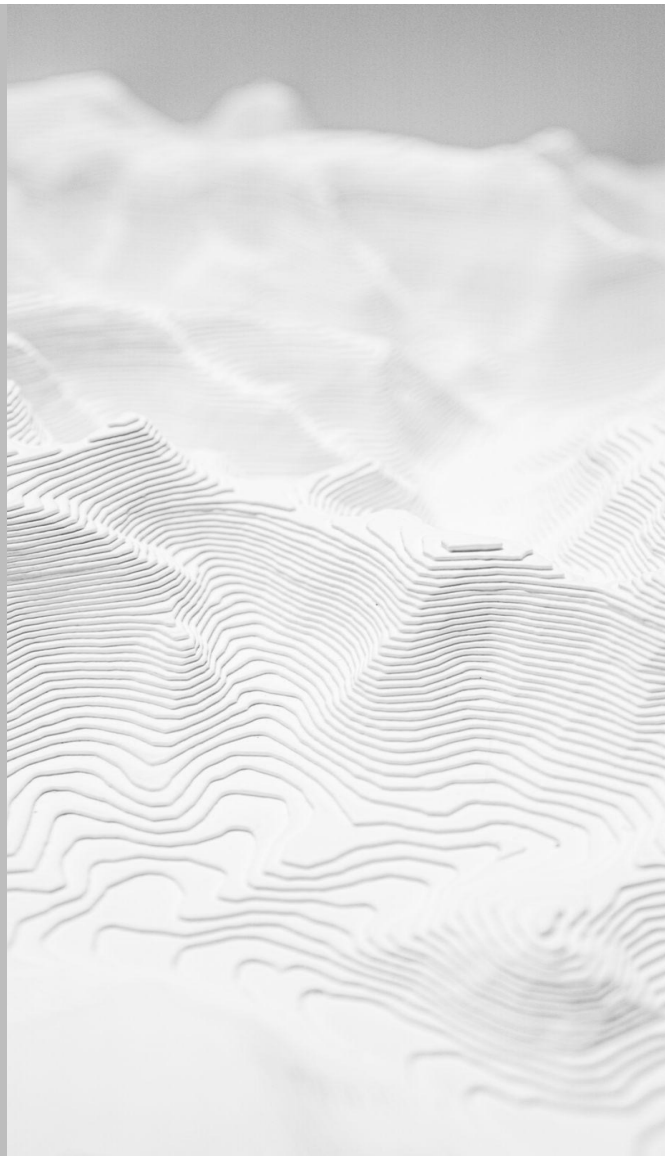
Demonstration: A Research Exploration

12 minutes • Live log and two AI products

Watch how I use the log to turn a research need into an AI task

Frame	What I want to understand, why it matters and my starting scope
Select	How ChatGPT and SciSpace will help, and what I will check
Apply	The request I send and the context I provide
Evaluate	What looks useful, and what one source check establishes
Adapt	What I would change or investigate next

As you watch: what would make an answer useful for my stated purpose?



Five-minute break

We restart at

15:12

Have these ready

Your landscape brief

Your question, the decision it will inform, your starting focus, and one way to check the answer.

Your log

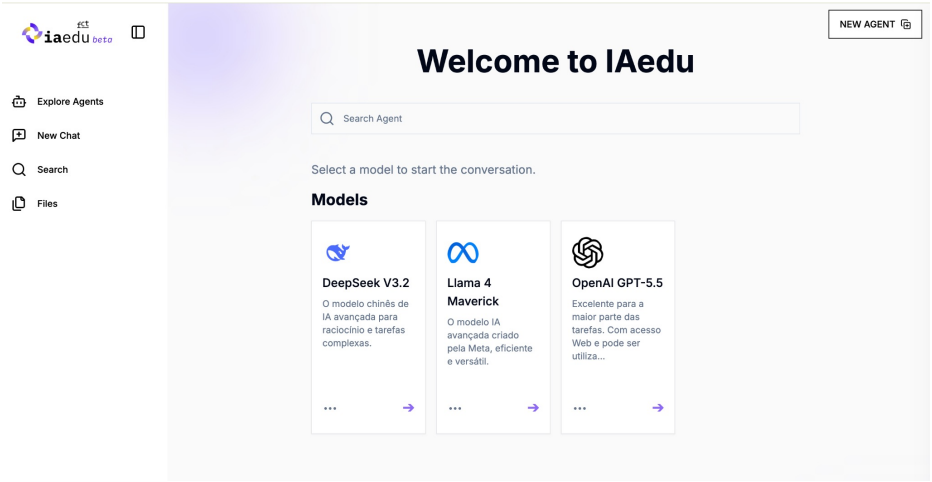
Workshop log, notebook, or scientific diary.
landscape-exploration-log.docx

One AI chat

A tool you already use is fine.

Need an AI tool? Try IAedu

Open iaedu.pt and select Entrar no IAedu. Sign in with your UA credentials, then choose a model to open a chat.



After the break, explore your question, check one claim against a source, and log what you keep or change.

Your Turn: Explore, Check and Refine

Use your own research question and keep a short record in the log

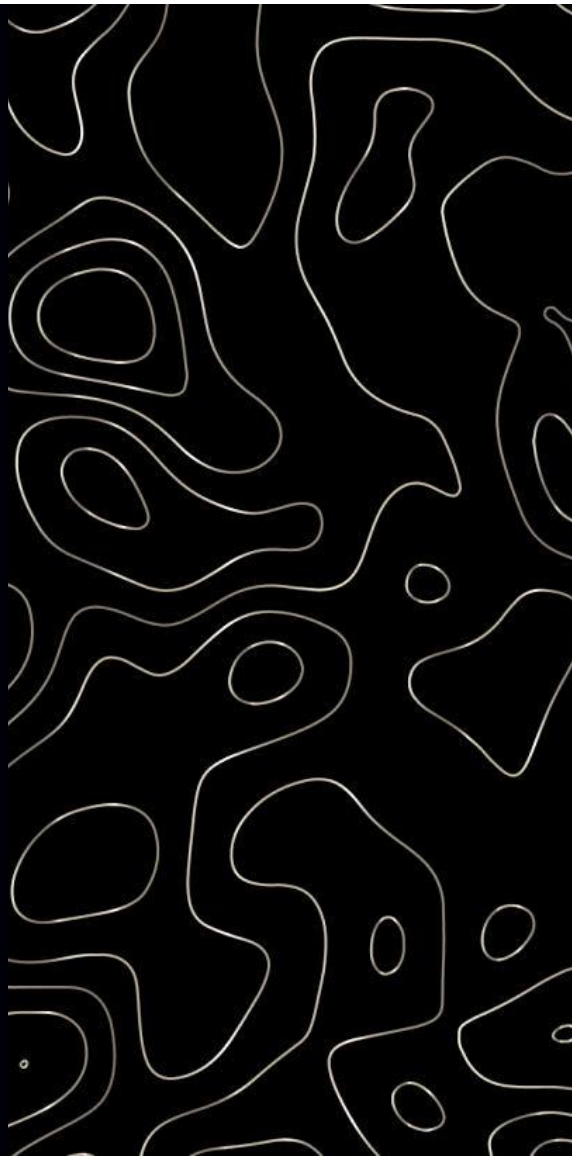
3 min	**Review your purpose and choose how AI will help** What you want to understand and why; one output check
10 min	**Run your request and explore the response** Your request, AI product and useful findings
8 min	**Check one claim or reference and revise** What you checked, what changed and what remains uncertain
4 min	**Compare notes with a partner** Your next research action or a question for a supervisor or librarian

Finish with an initial landscape, one recorded check and a next step.

25 minutes

Blank log (slide 24)

Worked example (slide 25)



My Digital-Twin Landscape Review

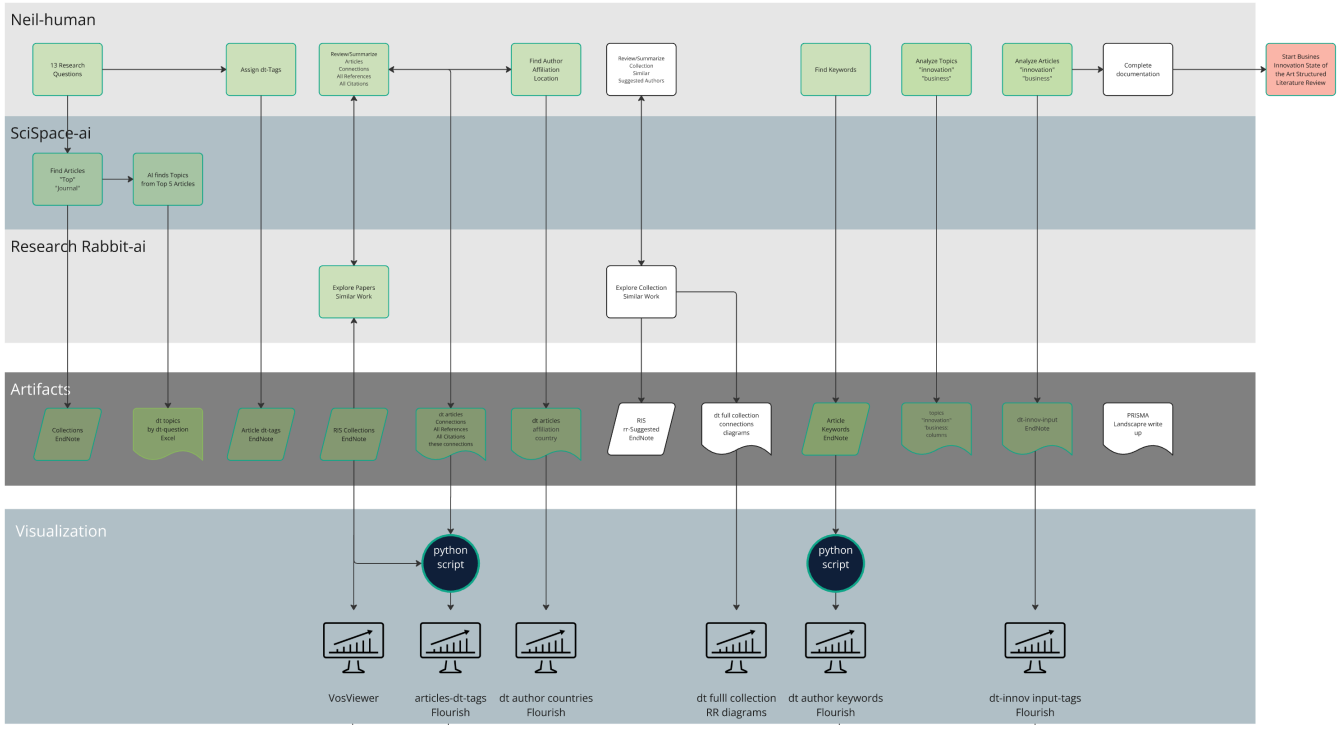
Researcher Sense-Making
Every decision is mine

Computational Exploration
Tools do the heavy lifting between my decisions

Artifacts
Questions, papers, notes and maps

Visualization
Where the landscape becomes visible

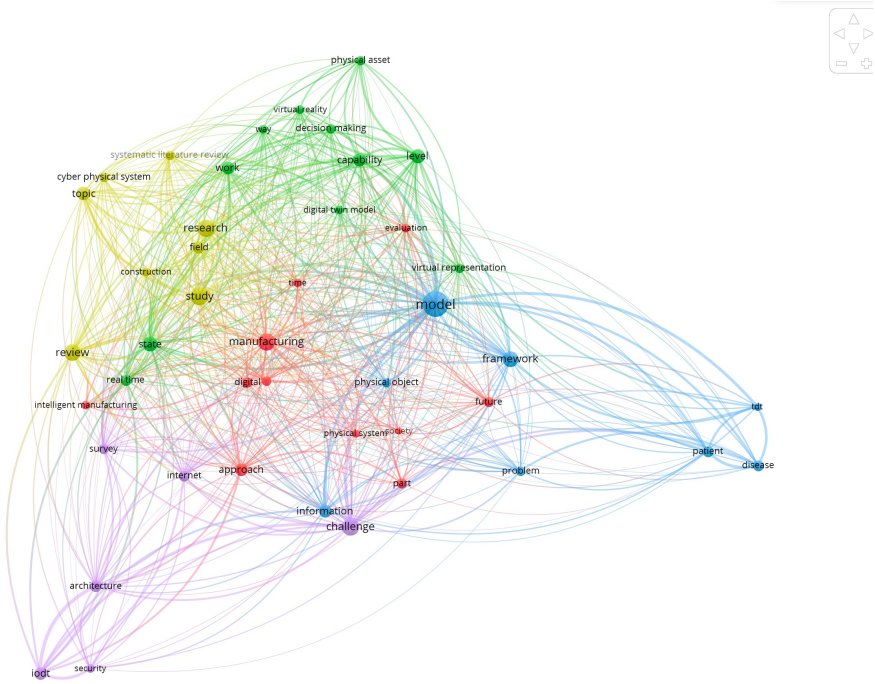
Digital Twin Landscape Review Process



Landscape Review conducted between December 2024 and February 2025

What becomes visible on a map?

Digital-twin landscape case • A term map from my working collection



What can you see?

"Model," "manufacturing" and "patient" are visible terms. Which papers would help you interpret their connections?

What would you test?

Would a different seed paper reveal another perspective? Which texts would establish whether authors share a school of thought?

If I Were Starting Today, Like You

The questions, connections and retained artifacts still matter

What I did in 2024–25	What I would make explicit today
Started with landscape questions	What I need to understand, why, and what a useful result would contain
Used SciSpace to explore	How AI will help, what I expect and how I will check its output
Expanded connections with ResearchRabbit	Different starting papers and possible communities or perspectives to investigate
Retained notes, summaries and keyword lists	Requests, AI contributions, checks, decisions and unresolved questions
Created visualizations	The question each map helps answer and what its patterns might mean
Developed the subsequent SLR search	Search terms I build and test as my questions and boundaries develop

Your log makes this visible: what AI contributed, what you checked and why you changed direction.

Plan Your Next Research Steps

5–7 minutes

Choose two or three research activities that would help you move forward

Start with what you need to understand next. Write a few words in each column.

Possible activities: refine a question, explore collections, compare papers, map connections or examine a focus area.

Research activity	How AI could help	What I will decide or check

What will you do next, and what will you record in your log?

Use **Frame**, **Select**, **Apply**, **Evaluate** and **Adapt** within each activity.



What changed today?

My starting point
I started with ___.

My source check
Checking ___ changed or confirmed ___.

My next landscape research action
Next I will ___ because ___.

Contact Me

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My landscape exploration log

Copy this table or use the prompts as headings in your scientific diary.

Record	Your notes
Frame	My question, intended decision and starting focus …
Select	AI's task, what I expect and how I will check the output …
Apply	Product/model, exact request, inputs and candidate terms or papers …
Evaluate	One claim, the source and passage location, and my check result …
Adapt	What I changed or retained, why, and my next research action …

AI use: record what the product contributed and what you did.

Worked example of a source check

Prepared example for practice or offline use • Based on the abstract of Kritzinger et al. (2018)

Research decision

Which terms should I include in a first search on digital twins in manufacturing?

Independent check

Abstract, Kritzinger et al. (2018): “to classify existing publication according to their level of integration of the DT.” The study concerns manufacturing.

Candidate claim to test

All disciplines distinguish digital models, shadows and twins in the same way.

Revision

Use the three terms as leads in manufacturing. Read a paper from another discipline before applying the distinction there.

The candidate claim is illustrative. It is not a captured AI response.

Evidence readings

Sources used for the discussion of task-specific performance

Searching	**Lau & Golder (2025)**	10.1002/cesm.70050	Which records did each search find or miss?
Screening	**van de Schoot et al. (2021)**	10.1038/s42256-020-00287-7	How is screening workload measured at a recall target?
Screening	**Forbes et al. (2026)**	10.1017/rsm.2026.10124	Which collections and reference standard were used?
Extraction	**Gartlehner et al. (2025)**	10.7326/ANNALS-25-00739	What time did the supervised workflow save?
Extraction	**Lagisz et al. (2026)**	10.1017/rsm.2026.10080	Which extracted values and quotations can be traced?

Reporting guidance and case readings

Sources for reporting AI use and following the digital-twin example

Holst et al. (2025)

10.2196/80247

Proposed PRISMA-trAIce reporting checklist.

Moher et al. (2026)

10.2196/104210

The PRISMA Executive clarifies that it does not endorse the proposed checklist.

Kritzinger et al. (2018)

10.1016/j.ifacol.2018.08.474

Manufacturing review used for the independent check in the live demo.

Jacobson et al. (2026)

10.3390/systems14040453

Subsequent SLR. Read its research questions and Table A1 for the search criteria.

AI chat with your UA login

Sign in to IAedu

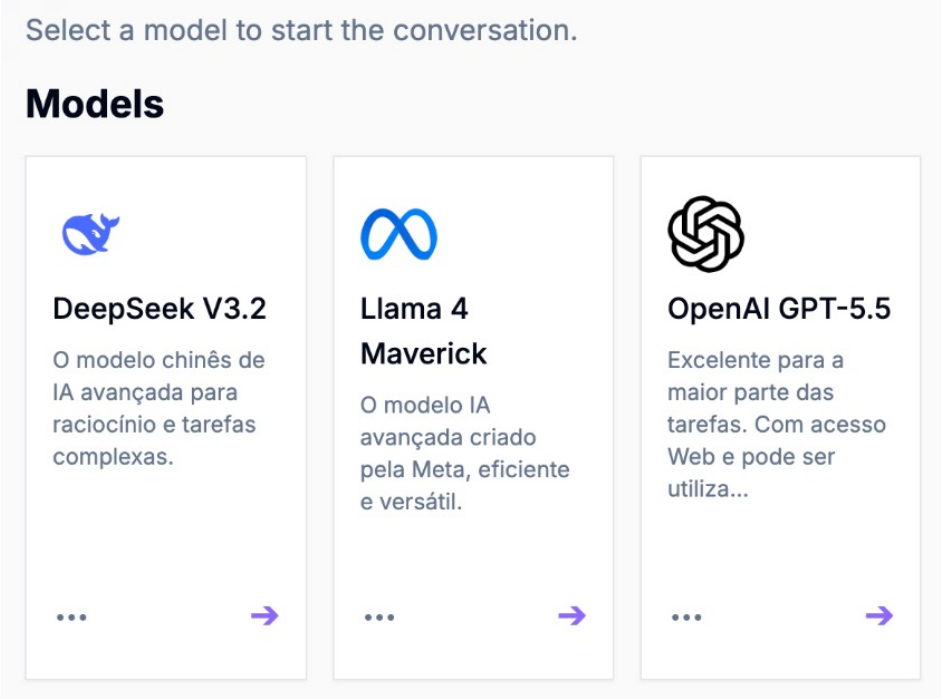
Open iaedu.pt and select Entrar no IAedu. Sign in with your UA credentials.

Try your research question

Choose OpenAI GPT-5.5. Ask for two search terms that fit the question in your brief.

Check one term in a paper

Find a paper in Scopus or b-on. Does it use the term the way the model did?



In your log, record the model, your request and which term you kept or changed.