AI Researchers
Embedding Responsible AI in Research

AI READINESS TOOLKIT

UC6-03 Use case 6: Peer review and refereeing

A reflection on the ethical and practical use of AI in peer review

An academic reviewer's perspective. Artur Rodrigues, Full Professor, School of Economics and Management, University of Porto (FEP)

AT A GLANCE

In this five-minute video, Artur Rodrigues, Full Professor at the School of Economics and Management of the University of Porto (FEP), reflects on how AI can assist peer reviewers. He covers practical uses, the risk of losing independent judgement, confidentiality and how research papers may need to change. The views are his own. In this toolkit, unpublished manuscripts never go into unapproved tools.

TYPE
Testimonial, video

FORMAT
Video (about 5 minutes), transcript (PDF)

CONTRIBUTING PARTNER
FEP, University of Porto

WHO IT IS FOR
Reviewers, editors, supervisors and research integrity staff

FRAMEWORK BARRIERS
Protecting expertise, The rules, This task

HUMAN-ONLY BOUNDARY

The assessment and recommendation in peer review are entirely human. Unpublished manuscripts must never be entered into external tools, and many publishers prohibit it outright.

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About this video

In this five-minute video, **Artur Rodrigues**, Full Professor at the School of Economics and Management of the University of Porto (FEP) and researcher at FEP RC, answers three questions on the use of AI in peer review. The video is available on the AI Readiness Toolkit page at airesearchers.eu. This document gives the full transcript, lightly edited for readability.

HOW TO READ THIS TESTIMONIAL

The views in this video are the speaker's own. The toolkit position for peer review is stricter: unpublished manuscripts are never entered into external or unapproved tools, journal and publisher rules on AI in peer review are checked first, and the assessment and recommendation remain entirely human.

USE IT FOR DISCUSSION

> Where does the speaker draw the line between AI informing an assessment and AI making it?
>
> Which of the checks he describes would your field, journal or institution allow today?
>
> How does his view on confidentiality compare with the rules that apply to you as a reviewer?

How can AI assist peer reviewers?

FROM 0:05

In my own research, I use AI throughout the process to explore mechanisms, develop models, write and check code, examine empirical results, and improve the presentation of the argument. The useful part is interaction. I specify the problem, examine the answer, challenge the assumptions, and ask for further checks. That experience makes me quite positive about its potential in peer review.

An informed referee can use AI to examine a derivation, explore an alternative explanation, or investigate whether the result depends on a particular assumption. With access to the relevant materials and the appropriate permissions, the referee can also use it to help reproduce calculations and test robustness.

I often ask AI to produce a demanding critical report of my own papers. This can reveal a missing comparison or a claim that goes beyond what the analysis establishes. For example, a numerical result may hold under a particular calibration without being a general theoretical result. These are substantive contributions to evaluating research. Their value depends on the referee's expertise and willingness to verify the output.

I see AI as a way of expanding the questions we can investigate and the checks we can perform. The referee remains responsible for deciding which objections are valid, which are consequential, and how they affect the assessment of the paper.

What is the main ethical risk, and how can we preserve independent judgement?

FROM 1:32

The main ethical concern, in my view, is the loss of independent judgement through excessive delegation to the tool. The risk is that the tool decides which questions matter, which objections deserve weight and how the paper should be assessed, rather than being used to inform an assessment that the referee can explain and defend. The

referee therefore needs enough expertise to challenge the output.

In finance and economics, for example, a regression can be correctly estimated while providing weak evidence for the proposed causal interpretation. Similarly, a model can be mathematically consistent while relying on an assumption that determines almost the entire result. Recognising these issues requires understanding the research question and the setting.

Confidentiality need not be a concern if the AI tool provides appropriate guarantees: the manuscript remains private and is not retained or used for training. Any use must still respect the journal's rules and protect the authors' work. The role of AI should be transparent when and where required.

My practical standard is that I should be able to explain and defend every substantive criticism in my report. I should know the evidence behind it and understand what would resolve it. This allows us to use AI extensively while preserving a review that reflects an informed and accountable assessment.

How should scientific papers and peer review evolve in the age of AI?

FROM 3:01

Over the next five years, I expect AI to play a larger role in peer review. I would extend the question to the format of scientific papers and how they are published. A static PDF may no longer be the best format in the age of AI. As informed referees and readers can use AI to examine research more deeply, we should publish papers in formats that make the underlying materials easier to access and examine.

I would retain a clear narrative explaining the question, the contribution and the economic mechanism. Alongside it, the paper should provide a structured research package: explicit assumptions, detailed derivations, definitions of the variables, documented data, data sources and reproducible code. Each main claim should be connected to the evidence supporting it, with the relevant limitations stated clearly. Where data cannot be shared openly, the package should explain the restrictions and the available means of verification.

This would allow a referee or reader to ask more precise questions. What happens if the assumptions change? Can I reproduce this figure? Does the conclusion survive a different specification? AI can help them work through those questions and examine the underlying materials. For me, this is a promising direction, because it makes research easier to scrutinise and build upon. It also places greater emphasis on the quality of the analysis and the transparency of the evidence.

As AI improves, some tasks may be performed better by machines. Human referees may also make mistakes. My case for continued human involvement rests on informed judgement, accountability and the possibility of challenging an assessment. The objective should be a review process in which authors receive reasons they can examine and respond to, and readers can understand how the conclusions were reached.

A more speculative possibility is that journals or formal reviewers may no longer be needed, as readers can use AI to access openly available research directly. Whether this could replace traditional peer review will depend on how we preserve informed judgement, accountability and reliable ways to challenge an assessment.

About this resource

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