

WORKFLOW FOR SCIENTIFIC PUBLISHING WITH AI SUPPORT

Laercio Cruvinel
*Coordenador, Licenciatura em
Engenharia Informática
Departamento de Engenharias e
de Ciências da Computação*

SESSION OBJECTIVES

- - Explore ethical and effective use of AI in scientific publishing
- - Present a complete workflow with recommended tools
- - Identify risks and best practices

CONTEXT AND JUSTIFICATION

- - Exponential growth of AI tools
- - Integration in writing, reviewing and data analysis
- - Need for balance between efficiency and integrity

FUNDAMENTAL ETHICAL PRINCIPLES

- - Assisted use vs. automated production
- - Transparency in AI usage
- - Conduct codes: Springer, Elsevier, IEEE

WORKFLOW STAGES WITH AI (OVERVIEW)

- 1. Idea and problem formulation
- 2. Literature review
- 3. Theoretical framework and methodology
- 4. Data collection and analysis
- 5. Manuscript writing
- 6. Review and submission
- 7. Dissemination

1. IDEA AND PROBLEM FORMULATION

- - Tools: SciSpace, Consensus
- - Generating research questions and topic delimitation

2. AI-ASSISTED LITERATURE REVIEW

- - Tools: AvidNote, SciSpace Copilot (chat with uploaded papers)
- - Gap identification, critical reading and source organisation
- Always use a Reference Manager (Mendeley, EndNote, Zotero, RefWorks ([link](#) with a comparison of managers))

3. THEORETICAL FRAMEWORK AND METHODOLOGY

- - Tools: AvidNote (Framework & Methods)
- - Suggesting approaches and paradigms

4. DATA COLLECTION AND ANALYSIS

- - Tools: Google Colab, Python, Qualtrics (customer experience)
- - Qualitative and quantitative analysis with AI support

5. WRITING AND STRUCTURING

- - Tools: Jenny.ai, Paperpal (also Word plugin), Scispace
- - Automatic outlining, textual cohesion, linguistic support

6. REVIEW, FORMATTING AND SUBMISSION

- - Tools: Grammarly, JournalFinder, Paperpal
- - Journal compliance and submission letter drafting

7. DISSEMINATION AND IMPACT

- - Tools: SciSpace, AvidNote
- - Altmetrics, academic social media, promo videos

RISKS AND CHALLENGES

- - Hallucination of facts and references
- - Algorithmic bias
- - Erosion of critical skills
- - Over-reliance

MITIGATION STRATEGIES

- - Rigorous human validation
- - AI usage declaration
- - 80/20 prompting strategy

FINAL RECOMMENDATIONS

- - Use AI as support, not replacement
- - Continuous training
- - Follow institutional and publisher ethical guidelines

Q&A

- - Open discussion and experience sharing
- - Alternative tool suggestions

SLIDE EXTRA 1 – HOW TO DETECT AI-GENERATED TEXT (WITHOUT TOOLS)

Objective: To raise awareness of the common signs of artificial writing in academic contexts.

Key points:

- Overuse of dashes (—) and repetitive structures
- Generic tone and predictable word choice
- Absence of personal voice, anecdotes or natural digressions
- Overly polished grammar in informal contexts
- Sentences with slightly forced metaphors or analogies
- Repetition of ideas with different words (redundancy)

Final note: Detecting AI requires observing cumulative patterns. A single clue is not enough.

SLIDE EXTRA 2 – TOOLS TO DETECT AI-GENERATED TEXT

Objective: To present technical resources that can help verify the authenticity of texts.

Featured tools:

- GPTZero – educational focus
- Originality.ai – combines plagiarism detection with AI
- Sapling AI Detector – provides confidence score
- Hugging Face detectors – especially effective on unedited text
- Comparison with previous human texts – to detect style changes

Tip: The combination of human intuition and technical tools is the most reliable method.

SLIDE EXTRA 3 – STRATEGIES TO AVOID BEING FLAGGED BY AI DETECTORS

Objective: To help researchers use AI consciously without compromising authenticity.

Good practices:

- Increase syntactic variability (perplexity and burstiness)
- Use intellectual hesitation and modal verbs (can, it seems, is suggested)
- Alternate vocabulary and sentence structures
- Avoid repetitive connectors (such as "therefore", "in addition")
- Include natural transitions, unexpected vocabulary, or disciplinary jargon
- Reference real or simulated sources

Key message: The best use of AI combines technical efficiency with human intentionality.

SLIDE EXTRA 4 – LIMITATIONS OF AI DETECTION TOOLS

Objective: To present the technical and ethical limits of automated detection solutions.

Topics to highlight:

- High false positive rate, especially with short or edited texts
- Difficulty distinguishing moderately edited AI
- Potential bias against non-native or more technical styles
- Risk of punitive use without contextualization

Conclusion: Tools are auxiliaries, not definitive judges. They must be used with consideration and transparency.