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SLVC

Scholarly LLM Verification Checklist

Towards Trustworthy Scholarly Writing with Large Language Models

A practical verification checklist for reducing AI hallucinations

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CORE MESSAGE **Verify before you cite.**

MOTIVATION

LLMs are reshaping scholarly writing

Useful assistants — but not reliable evidence engines.

Speed

Drafting, editing, summarising and coding support.

Plausibility

Fluent claims can look authoritative even when unsupported.

Risk

Fabricated references, false claims and incorrect numbers.

The key problem is not AI assistance itself — **it is unverified AI-generated material entering a manuscript.**

Cited background: Bender et al. (2021); Ji et al. (2023); van Dis et al. (2023).

PROBLEM TAXONOMY

Four hallucination risks in manuscripts

Bibliographic

Non-existent papers, wrong titles, false DOIs.

Numerical

Invented metrics, p-values, sample sizes or dataset facts.

Claim-level

A source is real, but the cited claim is not supported by it.

Methodological

Overstated experimental design or validation claims.

The SLVC detects manuscript-level evidence failures — it does not evaluate model internals.

PUBLICATION ETHICS

Guidelines agree on responsibility — workflows stay underspecified

COPE

AI tools cannot take authorship responsibility.

ICMJE

Authors remain responsible for accuracy, integrity and disclosure.

WAME

Chatbots should not be credited as authors.

SHARED PRINCIPLE

Treat LLM output as an untrusted draft until a human author verifies the evidence.

This paper turns that principle into a lightweight pre-submission workflow.

RESEARCH GAP & CONTRIBUTION

From an ethical warning to a verification workflow

GAP

Existing guidance says “verify and disclose”, but rarely operationalises verification for everyday manuscripts.

CONTRIBUTION

SLVC — a six-step, manuscript-level checklist for verifying references, claims, numbers and disclosure before submission.

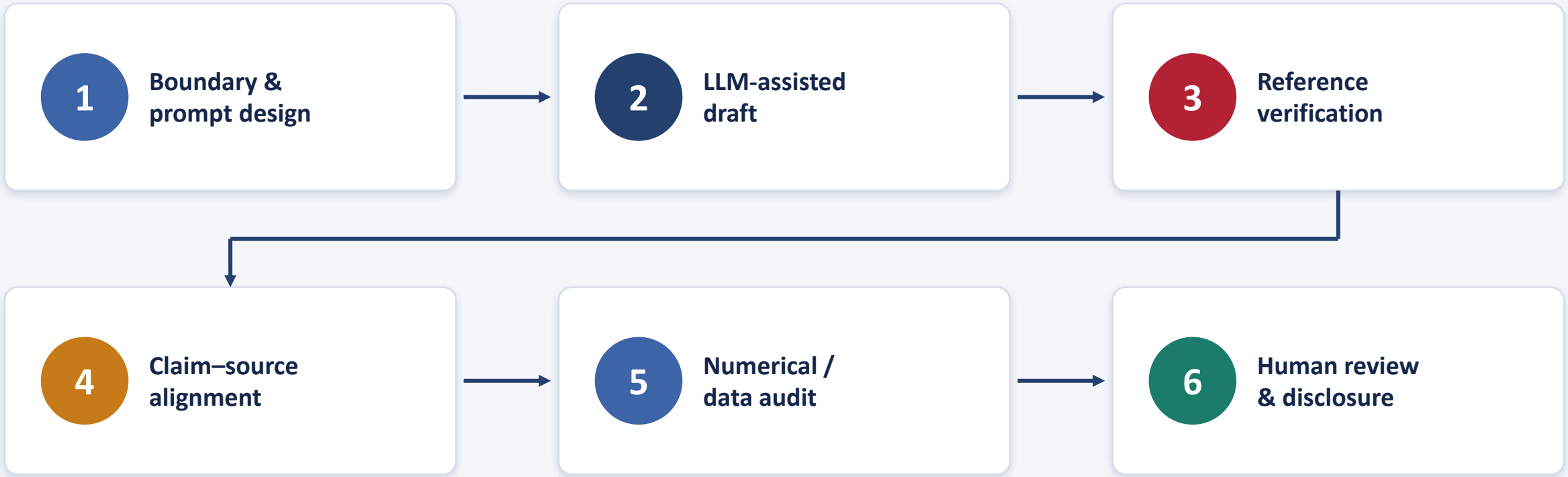
WHAT THIS PAPER ADDS

- A verified literature synthesis on LLM hallucinations in scholarly writing
- A practical six-step Scholarly LLM Verification Checklist
- A controlled, case-based demonstration with no invented empirical claims
- A discussion of RAG, prompt constraints and human accountability

PROPOSED WORKFLOW

The Scholarly LLM Verification Checklist

Six steps that keep verification at the manuscript level.



Designed for short conference papers, literature reviews, research notes and manuscript editing.

SLVC IN PRACTICE

Each step maps a verification action to a concrete risk

	VERIFICATION ACTION	RISK ADDRESSED
1	**Boundary & prompt design**	Prompt-induced fabrication
2	**Draft / evidence separation**	False authority
3	**Reference verification**	Fake or corrupted references
4	**Claim–source alignment**	Misattribution
5	**Numerical / data verification**	Numerical hallucination
6	**Human review & disclosure**	Accountability gap

No model performance claims — and no automated truth guarantee.

CASE-BASED DEMONSTRATION

A controlled example: an intentionally defective paragraph

> *"Recent evidence shows that retrieval-augmented LLMs* ***eliminate hallucinations*** ① *in scholarly writing and improve citation accuracy by* ***97%*** ② *across all disciplines (Lewis et al., 2020).* ***The ICMJE also allows AI systems to be listed as co-authors*** ③ *when their contribution is substantial. In addition,* ***a recent study by Anderson and Patel (2024)*** ④ *shows that prompt engineering alone prevents false references."*

Four defects are intentionally planted (highlighted). The SLVC will catch each one.

WHY THIS IS SAFE AND APPROPRIATE

- Composed for the paper — not reported as an empirical LLM output
- Defects are deliberately planted to demonstrate the checklist
- No unverifiable performance claim is presented as a result

The demonstration tests the workflow, not a commercial model.

CASE FINDINGS

What SLVC detects in the example

① Unsupported universal claim

CLAIM–SOURCE ALIGNMENT ✓

Lewis et al. (2020) proposed RAG — they did not prove hallucinations are eliminated across all disciplines.

② Fabricated numerical precision

NUMERICAL AUDIT ✓

The 97% figure has no auditable source or calculation. Remove it unless verifiable evidence is supplied.

③ Ethics-policy error

ETHICS-POLICY CHECK ✓

ICMJE and COPE do not permit AI systems as authors. Correct the statement; human accountability remains.

④ Fabricated reference

REFERENCE VERIFICATION ✓

“Anderson & Patel (2024)” cannot be verified in the workflow. Delete the citation and its claim.

REVISION PRINCIPLE **Replace certainty with evidence-bounded wording; keep only claims traceable to verified sources.**

BROADER TECHNICAL CONTEXT

Mitigation helps — but verification remains necessary

RAG	Grounds output in retrieved documents — but retrieval and synthesis can still fail.
Prompt design	Avoid forcing fixed numbers of references or unsupported statistics.
Source attribution	Citations must support the exact claim, not only the general topic.
Human review	Final accountability always remains with the researcher.

SLVC is compatible with technical mitigation — but it does not outsource judgment to the tool.

IMPLEMENTATION

A pre-submission audit for conference papers

Before submission

- Export the reference list
- Verify each DOI / URL / title
- Check every factual claim against its source

Before the final PDF

- Verify tables and numerical claims
- Remove unsupported AI-generated material
- Add transparent AI-use disclosure when relevant

REVIEWER-FRIENDLY EVIDENCE QUESTION

“Can each reference, factual claim and number be independently verified?”

CONCLUSION

Take-home messages

LLMs assist — They can improve drafting, editing and readability.

Humans verify — Evidence, numbers and claims remain the author’s responsibility.

Trust needs traceability — Every scholarly claim should connect to verifiable sources.

Thank you.

Questions?