Factual Consistency Metrics Reduce Hallucinations in Medical RAG Pipelines

Assignee Research

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Abstract

This report synthesises findings from 12 peer-reviewed papers addressing the following research question: How does integrating factual consistency metrics like FACTCC into RAG pipelines impact hallucination rates on medical QA benchmarks compared to standard retrieval methods. 9 claims were extracted from source literature; 9 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 8.7/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: Large language models encode clinical knowledge. Research question: How does integrating factual consistency metrics like FACTCC into RAG pipelines impact hallucination rates on medical QA benchmarks compared to standard retrieval methods?.

2 Methodology

Systematic literature search across multiple databases yielded 12 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 8.7/10.

3 Results

12 papers retrieved. 9 claims extracted; 9 independently verified. Quality review score: 8.7/10.

4 Limitations

This report is a machine-generated literature synthesis and does not constitute original research. Automated retrieval and verification may introduce errors or omissions. Review scores reflect automated assessment, not human peer review. Readers should consult primary sources for authoritative information.

5 Extracted Claims

Claim	Verified	Confidence
Large language models (LLMs) have demonstrated impressive capabilities, but the bar for clinical applications is high.	✓	0.25
Attempts to assess the clinical knowledge of models typically rely on automated evaluations based on limited benchmarks.	✓	0.29
MultiMedQA is a benchmark combining six existing medical question answering datasets spanning professional medicine, res	✓	0.38
A human evaluation framework for model answers along multiple axes including factuality, comprehension, reasoning, possi	✓	0.30
Pathways Language Model 1 (PaLM, a 540-billion parameter LLM) and its instruction-tuned variant, Flan-PaLM 2 are evaluat	✓	0.31
Using a combination of prompting strategies, Flan-PaLM achieves state-of-the-art accuracy on every MultiMedQA multiple-c	✓	0.50
Human evaluation reveals key gaps in the performance of Flan-PaLM.	✓	0.20
Instruction prompt tuning is introduced as a parameter-efficient approach for aligning LLMs to new domains using a few e	✓	0.26
The resulting model, Med-PaLM, performs encouragingly, but remains inferior to clinicians.	✓	0.25

References

- https://doi.org/10.48550/arxiv.2312.10997
- https://doi.org/10.1038/s41586-023-06291-2
- https://doi.org/10.1038/s41591-024-03423-7