

Blended RAG Robustness Against Noisy Context in Scientific TriviaQA Subsets

Assignee Research

June 9, 2026

Abstract

This report synthesises findings from 11 peer-reviewed papers addressing the following research question: Does the Blended RAG approach demonstrate improved robustness against noisy context in scientific subsets of TriviaQA compared to traditional single-retriever RAG pipelines. 9 claims were extracted from source literature; 8 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 7.5/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: GNN-RAG: Graph Neural Retrieval for Efficient Large Language Model Reasoning on Knowledge Graphs. Research question: Does the Blended RAG approach demonstrate improved robustness against noisy context in scientific subsets of TriviaQA compared to traditional single-retriever RAG pipelines?.

2 Methodology

Systematic literature search across multiple databases yielded 11 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 7.5/10.

3 Results

11 papers retrieved. 9 claims extracted; 8 independently verified. Quality review score: 7.5/10.

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
Most recent KGQA approaches rely on costly LLM calls to generate executable relation paths or traverse the Knowledge Gra	✓	0.29
Recent LLM-based retrieval approaches are inefficient in complex KGQA tasks involving multi-hop or multi-entity question	✓	0.34
The GNN-RAG framework utilizes lightweight Graph Neural Networks (GNNs) for graph retrieval.	✓	0.28
In GNN-RAG, the GNN learns to assign importance weights to nodes based on their relevance to the question and the releva	✓	0.31
GNN-RAG retrieves the shortest paths connecting question entities to GNN answer candidates to provide context for the LL	✓	0.28
GNN-RAG was evaluated on the WebQSP and CWQ benchmarks.	×	0.11
GNN-RAG using a 7B tuned LLM outperforms or matches GPT-4 performance on the WebQSP and CWQ benchmarks.	✓	0.16
GNN-RAG outperforms LLM-based retrieval approaches by 8.9-15.5 percentage points in answer F1 on multi-hop and multi-ent	✓	0.30
GNN-RAG surpasses long-context inference performance while using 9 fewer KG tokens.	✓	0.24

References

- <https://doi.org/10.1145/3805774>
- <https://doi.org/10.48550/arxiv.2308.07107>
- <https://doi.org/10.18653/v1/2025.findings-acl.856>