

Semantic Retrieval Augmentation and Pass@1 Performance on HumanEval in Niche Domains

Assignee Research

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Abstract

This report synthesises findings from 15 peer-reviewed papers addressing the following research question: How does semantic retrieval augmentation via Elicit-like systems affect pass@1 scores on HumanEval for niche domain code generation compared to standard context window extension. As far back as the industrial revolution, significant development in technical innovation has succeeded in transforming numerous manual tasks and processes that had been in existence for decades where humans had reached the limits of physical capacity. Artificial Intelligence. 4 claims were extracted from source literature; 4 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 7.1/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: Artificial Intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. Research question: How does semantic retrieval augmentation via Elicit-like systems affect pass@1 scores on HumanEval for niche domain code generation compared to standard context window extension?.

2 Methodology

Systematic literature search across multiple databases yielded 15 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 7.1/10.

3 Results

15 papers retrieved. 4 claims extracted; 4 independently verified. Quality review score: 7.1/10.

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
AI offers transformative potential for the augmentation and potential replacement of human tasks and activities within a	✓	0.33
The pace of change for this new AI technological age is staggering, with new breakthroughs in algorithmic machine learni	✓	0.31
The impact of AI could be significant, with industries ranging from finance, healthcare, manufacturing, retail, supply c	✓	0.35
This research offers significant and timely insight to AI technology and its impact on the future of industry and societ	✓	0.31

References

- <https://doi.org/10.48550/arxiv.2308.12950>
- <https://doi.org/10.1016/j.ijinfomgt.2019.08.002>
- <https://doi.org/10.1007/s11704-026-60308-3>