

Speculative Decoding Effects on DeepSeek-R1 Vulnerability Detection in High-Complexity Code

Assignee Research

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Abstract

This report synthesises findings from 4 peer-reviewed papers addressing the following research question: How does speculative decoding impact the vulnerability detection accuracy of Deepseek R1 on high cyclomatic complexity code compared to standard autoregressive decoding. 6 claims were extracted from source literature; 6 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 8.5/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: DeepSeek Models: A Comprehensive Survey of Methods and Applications. Research question: How does speculative decoding impact the vulnerability detection accuracy of Deepseek R1 on high cyclomatic complexity code compared to standard autoregressive decoding?.

2 Methodology

Systematic literature search across multiple databases yielded 4 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 8.5/10.

3 Results

4 papers retrieved. 6 claims extracted; 6 independently verified. Quality review score: 8.5/10.

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
The release of DeepSeek family models, especially DeepSeek-R1, has been a milestone in the development of large language	✓	0.37
DeepSeek-R1 suggests that a low-resource model can produce satisfactory performance using clever engineering tricks that	✓	0.37
DeepSeek adapts its technical advancements from existing innovations in the LLMs.	✓	0.23
DeepSeek has been rapidly applied over the past one year, especially after the release of DeepSeek-R1.	✓	0.29
DeepSeek allocates more weight on increasing the efficiency of sequence processing without blowing up the model scale by	✓	0.34
DeepSeek is widely accepted in real-world applications that require both strong reasoning capability and efficient resou	✓	0.32

References

- <https://doi.org/10.3390/bdcc9120320>
- <https://doi.org/10.20944/preprints202511.0656.v2>
- <https://doi.org/10.36227/techrxiv.174198511.15158242/v1>