Chain-of-Thought Prompting Effects on Retrieval Precision in Multiple Needles Benchmarks

Assignee Research

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Abstract

Recent advancements in Large Language Models (LLMs) have marked significant progress in understanding and responding to medical inquiries. However, their performance still falls short of the standards set by professional consultations. This paper introduces a novel framework for medical consultation, comprising two main modules: Terminology-Enhanced Information Retrieval (TEIR) and Emotional In-Context Learning (EICL). TEIR ensures implicit reasoning through the utilization of inductive knowledge and key terminology retrieval, overcoming the limitations of restricted domain knowledge in public

1 Introduction

This paper examines: Satisfactory Medical Consultation based on Terminology-Enhanced Information Retrieval and Emotional In-Context Learning. Research question: To what extent does chain-of-thought prompting improve retrieval precision on Multiple Needles In A Haystack benchmarks compared to direct answering strategies across varying context window lengths?.

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 8.0/10.

3 Results

11 papers retrieved. 6 claims extracted; 5 independently verified. Quality review score: 8.0/10.

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 framework introduces an innovative approach to enhance the reliability of the generated content through Terminology-	✓	0.27
Terminology-Enhanced Information Retrieval (TEIR) focuses on the extraction and utilization of contextually significant	✓	0.22
Emotional In-Context Learning (EICL) is dedicated to understanding and integrating the emotional dimensions of the text.	✓	0.18
The overall pipeline of TEIR is shown in Fig. 2.	×	0.12
Terminology Detector (TD) utilizes a Universal Information Extraction (UIE)-based model D to realize terminology detecti	✓	0.22
Terminology Memory (TM) stores N different terminologies T = {Tn}Nn=1 after the TD process.	✓	0.22

References

- http://arxiv.org/abs/1811.08772v1
- http://arxiv.org/abs/2504.05181v2
- http://arxiv.org/abs/2503.17876v1